



Terminal Evaluation Report

“Supporting climate resilient livelihoods in agricultural communities in drought-prone areas of Turkmenistan”

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Disclaimer

This report is the work of a team of two independent evaluators and does not necessarily represent the views, or policies, or intentions of the United Nations Development Programme (UNDP) and/or of the Government of Turkmenistan.

Executive Summary

This report presents the findings of the terminal evaluation of the GEF-financed and UNDP-implemented full-sized project titled “*Supporting climate resilient livelihoods in agricultural communities in drought-prone areas of Turkmenistan*” (hereinafter referred to as the *SCRL Project*). The SCRL project was financed by the Global Environment Facility (GEF) and implemented through the United Nations Development Programme (UNDP). Its target group were farmers in two pilot regions – in Danew (former Galkynysh) etrap of Lebap velayat and Gorogly etrap of Dashoguz velayat – two of the country’s driest regions. The project sought to improve socio-economic conditions of local communities in the two pilot regions by overcoming barriers that prevent farmers from reducing the vulnerability to climate change induced water stress in the agricultural sector.

The evaluation was commissioned by UNDP Turkmenistan and was carried out during the period October 2021 - January 2022 by a team of two independent evaluation experts. The evaluation’s purpose was to assess the project's overall progress toward desired results, determine how activities were designed and implemented, and advise on future interventions of similar nature by generating recommendations and lessons. The evaluation’s scope captured all activities and resource involved in the project's implementation. The evaluation used OECD DAC criteria and definitions, and followed the norms and standards established by UNEG. It was guided by GEF’s “Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects”, but also meets the requirements outlined in UNDP’s evaluation toolkit. The methodology was based on mixed methods and involved the use of commonly applied evaluation tools such as documentary review, interviews, information triangulation, analysis and synthesis. A participatory approach was taken for the collection of data, formulation of recommendations and identification of lessons learned. The data for this evaluation was collected from three sources: (i) review of project documentation that was made available to the evaluation team by the project; (ii) a comprehensive questionnaire administered with the Project Team; and, (iii) 25 semi-structured interviews which engaged 53 key project stakeholders.

The findings of this evaluation are organized in the following sections: i) Project Design; ii) Project Implementation; and, iii) Project Results.

Project Design

The approaches described above were instrumental in the promotion of knowledge, innovations and institutional improvements at the level of national and local institutions and farms. One key mechanism for the implementation of these approaches was the concept of Local Adaptation Plans (LAP). Trainings and consultation workshops were organized to support the implementation of LAPs. It is important to note here also the use of assessments undertaken by the project to determine capacity development needs both at the personal and institutional level. For all the above-mentioned positive aspects, the Project Document also displayed certain weaknesses. As the project’s Mid-Term Review noted, the project’s innovativeness was not clearly articulated, especially in the first and second components, since similar adaptation

measures had been implemented before in other parts of the country with demonstrated impacts on livelihoods. Also, the project's contributions in the area of climate change adaptation are inseparable from its contributions in the area of local governance. Further, the process for the scaling up of innovations tested through the SCRL project was not clearly articulated in the Project Document. Furthermore, in some cases, the Project Document envisioned ambitious tasks that during the course of implementation turned out to be unfeasible given the country's context.

The project's broader goals were framed in clear and practical terms and are relevant to Turkmenistan's context and national priorities. They are also aligned with the UNDP Country Programme objectives. However, the outcome indicators identified for the project are not always sufficiently clear. While some of the risks faced by the project are very relevant - and some of them did in hindsight exert a direct effect on the project during the implementation phase - the analysis of the way they would affect project activities is lacking in the Project Document. Furthermore, no assumptions were identified in the Project Document. A broad-based stakeholder participation process was inherent in the design of the SCRL project, given that it was intended to facilitate partnerships with a broad-spectrum of stakeholders in different areas related to sustainable development. The Project Document contained a dedicated section on gender considerations and identified the requirement for gender disaggregated data in a number of outputs. Also, the Project Document was formulated by taking into account lessons from other similar projects. Overall, the SCRL project has been an exemplary project in terms of connecting with other initiatives, sharing information and lessons with them and forging cooperation at the practical level.

Project Implementation

The SCRL project experienced several challenges that had a direct bearing on the pace of project activities. In response to the challenging circumstances that the project faced during its implementation and which will be described further in this section, the project team and stakeholders took a flexible approach and tried a variety of options, approaches and alternatives to achieve the set objectives. Despite restrictive measures taken by the country in response to the COVID-19 pandemic, the project managed to make progress towards the achievement of project targets. While the project team and stakeholders tried as much as possible to remain consistent to the original design of the project, they were also flexible and adaptive, exploring different options and alternatives based on decisions discussed in the Project Management Board.

As the executing agency, the Ministry of Agriculture and Environmental Protection (MAEP) was effective in providing organizational support, with planning and agreeing on project activities, and discussing the results achieved, it could have demonstrated stronger leadership and ownership of project activities. Ministry specialists and the National Project Coordinator visited the pilot regions of the project several times, got acquainted with the activities of the AICs, communicated with local people, and as a result, they increased their understanding of the relevance and importance of the activities carried out within the framework of the project. MAEP staff participated in all relevant training and awareness-raising activities of the project.

The SCRL project was subject to an extensive and well-defined monitoring system. The design of the Monitoring and Evaluation (M&E) system provided in the Project Document was overall adequate. UNDP has provided support to the project throughout its implementation and oversight, including in the identification of objectives and activities, preparation of the concept, preparation of the detailed proposal, approval of the Project Document, start-up of project activities, oversight, supervision, and execution of actions, and evaluation of the project. UNDP also provided financial oversight, including approval of expenditures and independent audits, monitoring and mid-term and final evaluation of progress and results will be also ensured by the country office.

Out of a total of US\$ 3,146,347 planned for expenditure by the project, a total of US\$ 2,974,304 had been spent by the project at the time of this evaluation, which represents 95% of the total available amount. The project team expects to utilize all remaining funds by the time the project will be closed at the end of March 2022. The amount of co-financing provided by state organizations amount to US\$ 27,999,485, which is well in excess of the US\$ 20 million expected from the Government of Turkmenistan. The amount of co-financing provided by local communities (beneficiaries) is US\$ 752,619. It should be noted that all the co-financing provided by state organizations and local communities was provided in kind. The project team was also able to form important partnerships with international organizations and programmes, which led to the generation of co-financing (in the form of grants) from these entities in the amount of US\$ 752,030. All in all, the SCRL project has generated a total of US\$ 29,504,134 in co-financing (as of the point of this evaluation).

Project Results

The SCRL project was both guided by, and helped improve, the country's national priorities and policies in the area of climate change adaptation. As such, the project has been very relevant. The project has for the most part achieved all the targets that were identified in the project's results framework at the project design stage. A few remaining objectives are expected to be completed by the end of the project's term (30 March 2022).

The following are the key achievements of the project by component.

Component 1: Improving climate related socio-economic outcomes in targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions.

- ***Local Adaptation Plans*** (LAPs) were designed and adopted for six farmers' associations and two livestock farms. The implementation of LAPs was supported through the small grants initiatives.
- ***Agricultural Information Centers*** were established in two pilot regions and have served as platforms for sharing knowledge and experience with regards to aspects of climate change adaptation and effective agriculture management.
- Four ***greenhouses*** (three in Lebap and one in Dashoguz) were constructed and one was reconstructed with support from the project. Three greenhouses were installed under the small

grant activities, while two greenhouses were procured either with USAID's financial assistance or under UNDP's micro-procurement.

- ***Community-based Adaptation Initiatives (Grant Initiatives)*** - The project strengthened the adaptive capacities of target communities through the allocation of small grants and the provision of agro-consultations. A total of 29 grant initiatives were funded by the SCRL project in two rounds, which were launched in 2019 and 2020 respectively. The total amount of money invested from the project budget through these initiatives was US\$ 290,622. This investment generated co-financing from the grant recipients in the amount of US\$ 286,064. Mobilizing about US\$ 600,000, these grant initiatives focused on strengthening adaptive agricultural practices (improved irrigation and drainage, water flow regulation), as well as creating alternative sources of income (greenhouse production, honey, sewing club). Recipient farmers were supported with access to enhanced technologies and practices on improved soil and water management practices towards improving crop production and livelihoods. Project investments were supported by on-site and remote agro-consulting services by project specialists and external consultants, supported by targeted awareness campaigns organized with an international corporate consultant (Israel) which raised interests among many project partners, especially from the private sector.

Component 2. Mainstreaming climate adaptation measures in agricultural and water sector development strategy and policy.

- ***Policy Documents*** - Another area of significant contributions of the SCRL project was the development of policy documents and legal instruments.
- ***Trainings*** – The SCRL has organized an impressive number of training events (seminars, round tables, workshops, lectures, etc.) that were aimed at strengthening the capacity of farmers, agriculture specialists and decision makers at the national and sub-national levels. A total of 148 training events were organized by the project.
- ***Consultations*** - The project organized various trainings and agro-consultations (on-site and remote) that raised the awareness and skills of farmers and the local population on alternative sources of income, irrigation technologies, and sustainable water and land use practices in both pilot regions.
- ***Awareness-raising Events and Information Materials*** - The SCRL project organized a significant number of awareness-raising events related to a large variety of adaptation issues.

Component 3. Strengthening national capacity for iterative climate change adaptation planning, implementation and monitoring in the country.

The project's third component, originally designed to operationalize the NEPAAM, was adjusted to support the Government of Turkmenistan to update the NCCS (2012) and NDC, taking into account the recent national reforms, acceptance of SDGs and Paris Agreement as well as recent climate change observations. As the project team was unable to identify an appropriate end user who would apply the Agro-ecological Zones (AEZ) model in the country,

the project resorted to focusing on raising awareness on model by means of a concept note on “*AEZ Modelling*” and a “*Roadmap for modeling AEZs in Turkmenistan*”. Further, the project organized a number of meetings and workshops with national partners and interested parties to promote the AEZ concept. The project also supported the development of the Multilevel Cluster Mapping (MLCM) and a GIS system, combining agrophysical data (soil, water, topography, terrain, crops, infrastructure, vegetation, etc.) with up-to-date information on climate change parameters for the Dashoguz and Lebap regions.

The SCRL project operated under challenging circumstances – especially, the COVID-19 crisis and the fluctuation of the national exchange rate and the resulting inflation. These two challenges, combined with other factors, resulted in a number of delays that were experienced by various project activities. Nevertheless, the SCRL project was able to contribute to productivity increase in crop production from adaptation measures implemented by the project, including mechanical cleaning of irrigation canals, installation of water regulation infrastructure and drainage pumps, laser land leveling, all contributing to improved soil physical conditions and a more efficient use of water and fertilizers, which improved crop productivity of household plots. The project has led to key practical achievements, including (i) reduced land degradation on more than 500,116 hectares; (ii) increased livestock farm productivity (increased number of cattle sustainably grazed); (iii) sustainable energy use by means of solar panels; (iv) rationed use of water resources in an arid desert environment; and (v) overall reduced pressures on watering places promoting vegetation restoration. The project has also contributed to the improvement of the skills and knowledge of farmers and increases in the productivity of their farms by demonstrating innovative and sustainable practices that provide alternative sources of income and supporting climate resilient livelihoods of local communities. Overall, the SCRL project has been instrumental in directly and indirectly increasing the incomes of participating households, as well as of the local communities, including representatives of private sector (entrepreneurs) providing different agricultural services and inputs. Adaptation measures promoted by the project in the eight targeted communities have benefitted local farmers through improved irrigation technologies, sustainable water and land use practices, and better crop production. The project has benefitted about 40,000 people as direct beneficiaries, half of whom were women. More than 52% of participating households, 20% of which headed by women, have increased their well-being and improved knowledge on greenhouse development.

The SCRL project was successful in securing additional funding from a variety of donor-financed local development programs and schemes, including activities on improvement of the national legislation on water and land use, gender mainstreaming, eco-system-based management and nature protection. However, the sustainability of funding is a challenge. It is not clear whether the grant model that was piloted through the SCRL project could be institutionalized further by integrating it in the financing model through which the Government allocates and distributes funding to local governments on a regular basis. A key aspect of the financial sustainability of the SCRL project is the ability of national stakeholders to secure funding for adaptation activities as a follow up to the project grants provided for these initiatives. Securing sustainable financing for adaptation initiatives is difficult if adaptation

programmes are not grounded in a sustainable funding source such as the state budget. Existing government and local development programmes and schemes are not supported by clear budget and financial resources allocation. Also, their sources remain often unclear and a specific responsible party has been difficult for the project to identify. Hence, the importance of a national adaptation plan which provides a solid set of financial commitments from the government for this area. This was not possible to achieve under the framework of this project.

The SCRL project was successful in promoting legislative and regulatory changes, which is an important factor for sustainability as these changes are engrained in the country's regulatory and policy framework. Furthermore, the project supported the establishment and strengthening of a range of institutional structures. Going forward, the challenge will be in securing the sustainability of these structures and ensuring the dissemination of institutional practices and innovations beyond the project's target locations. While the project needs to do more to promote the upscaling and replication of the adaptation measures in other etraps of the two plot velayats, it is prudent to expect that the Government commits to that too, even though there is no specific target of indications by government entities on that. The Government needs to take over from the project the responsibility for the dissemination of project results in other localities in the country. The project team and MAEP should develop an action plan for the dissemination of project results, underpinned by specific actions and timelines, and the commitment of the Government to carry out this work.

The SCRL project has had a significant focus on the gender dimension. The project design places women in the project target area at the center of the project by clearly recognizing that they experience specific challenges in their daily lives which are exacerbated by the effects of climate change. The project's gender strategy combines mainstreamed measures to ensure that women have equal opportunity with men to be heard, participate and benefit from project activities, together with measures specifically targeted to support women without overlooking the need to ensure the support and engagement of men. It adopts a three-pronged approach that ensures a meaningful participation of women, rather than mere token representation. The gender strategy has focused on (1) raising the awareness of the overall community of the differential gendered aspects of climate change; (2) ensuring and facilitating participation of women and vulnerable groups in all aspects of project implementation and (3) specific livelihoods support to poor and vulnerable women.

Then following tables shpws the project's performace rating based on this evaluation.

Overall Project Performance Rating

Monitoring and Evaluation	
Overall quality of M&E	MS
<i>M&E design at entry</i>	MS
<i>M&E Plan Implementation</i>	MS
IA Implementation & EA Execution	
Overall Quality of Project Implementation/Execution	S
<i>Quality of UNDP Implementation/Oversight</i>	S

<i>Quality of Implementing Partner Execution</i>	S
Outcomes	
Overall Project Outcome Rating	
<i>Relevance</i>	R
<i>Effectiveness</i>	MS
<i>Efficiency</i>	MS
Sustainability	
Overall Likelihood of Sustainability:	ML
<i>Financial sustainability</i>	MU
<i>Socio-political sustainability</i>	L
<i>Institutional framework and governance sustainability</i>	ML
<i>Environmental sustainability</i>	L

The following are some major lessons that may be drawn from the experience of this project:

Lesson 1: Dissemination of Innovative Approaches and Technologies Takes Time and Requires Sustained Engagement

As has been outlined in this report, a number of interventions by development partners and the government have taken place in the area of climate change adaptation in Turkmenistan. The SCRL project builds on foundations laid out by these previous interventions. Such long-term engagement is based on the premise that addressing the challenges created by climate change requires collective action. The self-organization of farmers is a crucial aspect of such collective action. Achieving this requires the support of the public sector through the right incentives for the farmers to participate in the process of collective decision-making and individual commitments. However, the development of capabilities in the public sector, especially at the sub-national level, is a challenging task that requires a long engagement and repeated interactions between projects like the SCRL project and public organizations and local communities.

The experience of this project showed that local authorities and communities develop trust when they see practical results. The SCRL project spent considerable time in the beginning in trying to convince stakeholders of the effectiveness of adaptation measures (laser levelling, remote agro-consultations, bio-humus application, etc.). Some of the proposed solutions are innovative for the country and require ample and explanatory work on the part of the project and authorities. Further, the grant initiatives were crucial in demonstrating the usefulness and feasibility of various approaches and technologies. As has been noted in the last section of this report (section 3.3.10), while a lot of demonstrative work has taken place under this project, the dissemination of project experiences and results is still work in progress. Construed as a long-term process, this work will need to continue under the leadership of the Government. Interventions such as the SCRL project need to be conceived by taking into account the fact that ample time is needed for innovative measures to be accepted and taken up by farmers and thus the need for a lengthy period of engagement with local authorities and communities.

Lesson 2: Importance of Mandate of Government Organizations in the Area of Climate Change Adaptation

One of the challenges identified in this report is the fact that the mandate for climate change adaptation – and in particular AEZs - was not clearly defined and responsibilities for this area in the public sector are not clearly identified. A constraint to MAEP's proactive engagement with the project was the fact that adaptation responsibilities have not been clearly incorporated in ministry statutes and job descriptions of relevant specialists. Such a situation led to the need for greater efforts in coordinating the roles and responsibilities of the various MAEP departments that have functions related to climate change adaptation. This challenge was accompanied with a lack of a climate change adaptation strategy. The SCRL project has shown that the participation of government organizations in climate change adaptation activities is effective when adaptation as a public policy issue is clearly included in the mandate of a public organization. The project has also shown that public officials engage more effectively with project activities when adaptation-related matters are clearly defined and included in their list of responsibilities and job descriptions. Therefore, for adaptive actions to be undertaken effectively it is necessary to create an institutional framework for the implementation of adaptation programmes and AEZs.

Lesson 3: Climate Change Adaptation and Local Governance as Two Closely Interrelated Concepts

Although the SCRL project was strictly defined and designed as a “climate change adaptation” project, it had a significant association with and strong implications for local governance. Adaptation activities take place at the level of communities, involving farmers and local authorities, and as such they closely interact with local institutions and norms. Climate change adaptation cannot take place in a vacuum – local governance aspects are very important and will have to be taken into account. Also, the project's contributions in the area of climate change adaptation are inseparable from its contributions in the area of local governance. Working with sub-national governments on the assessment of vulnerabilities, formulation of adaptation plans, preparation of investment programmes and feasibility studies, monitoring and management of infrastructure projects, and so on, is extremely important for strengthening governance at the local level. It is precisely this focus on the governance aspects of climate change adaptation that makes these initiatives more sustainable and efficient. Therefore, the design of the SCRL project would have been more effective if aspects of local governance had been included more prominently in the conceptualization of the project.

The evaluation also identified the following key recommendations for project stakeholders. Given that the project is at its closing stage, these recommendations are forward-looking in nature and relate to measures that could be taken to promote the project's objectives and carry the agenda forward.

Recommendation	Responsible Entity	Timeframe
<i>Recommendation 1: Completing Pending Activities</i> As a first and urgent step, the Project Team and MAEP should complete all pending activities before the closure of the project. Key priorities that require the project’s attention in the next few weeks are the following: • The project should finalize the preparation of the “Concept note on modelling the AEZs”. • The project should focus on obtaining from the Government the adoption of the MRV road map. • Finalize the conceptual methodological guidelines on the use of gender-disaggregated data in adaptation planning and budgeting for water and agriculture. • Finalize the AIC Presentation Package. In the last Project Board meeting, project stakeholders should take note of all pending tasks and activities and make a decision on what is feasible to complete by the time of the project’s closure. Whatever activities will not be possible to complete by that time should be handed over for completion to MAEP with a clear action plan that outlined the steps that are necessary for their completion.	SCRL Project Team & MAEP	Short-term
<i>Recommendation 2: Strengthen the sustainability of the project by further institutionalizing project outputs and promoting the dissemination of project approaches and technologies</i> To strengthen the sustainability of project results, the project team and MAEP should focus in the last few weeks of the project more intensively on the way in which some of the structures created by the project will be operated going forward and how the experiences and results of the project will be disseminated in other locations. In the remaining period of this project, the two partners should take a more proactive approach for the upscaling and replication of the adaptation project measures in other etraps and velayats. The following are some key recommendations for the attention of the Government of Turkmenistan that will strengthen the sustainability of project results by further promoting the experience of the SCRL project: • GoT is recommended to widen and strengthen the formal responsibilities and engagement of the Interdepartmental Commission on Environmental Protection in the coordination of sectoral policy development and	GoT	Short and Medium- Term

Recommendation	Responsible Entity	Timeframe
implementation, to ensure the proper uptake, and promotion and sustainable use of best practice experiences, including those of the SCRL project. • GoT is recommended to create an institutional framework for the implementation of the AEZ modelling as a tool for collecting and storing data on land inventory, for agriculture planning and investment. AEZ modelling will also facilitate operations related to the Land Cadastre, the development of the Agro-industrial complex, etc. • GoT is recommended to pay particular attention to the sustainability of AICs. GoT should continue the functional operation of AICs established by the project as a key structure supporting the transfer of knowledge and skills on climate change adaptation to the local farmers and community at large. The project should seek to obtain a formal decision by the Government on who will take responsibility for the operation of AICs upon the project's completion. If such a decision is not obtained in time, the project team must organize a handover to MAEP with a clear action plan for MAEP's attention. • Following the handover of MCLM to MAEP, and in acknowledgement by MAEP that the maps are a useful tool for the climate change adaptation planning process, it is recommended that the GoT considers investing in the necessary capacity building and awareness raising among decision-makers and experts on the usefulness of MCLM, the requirements and conditions for the application of this sophisticated tool necessary for incorporating the digital tool on climate change adaptation into policy development and planning. • GoT is recommended to incorporate the MRV Road Map into agriculture and water sector policies, which will further promote adaptation planning processes towards ensuring meeting Turkmenistan's commitments under the Paris Agreement with regards to the enhanced framework transparency. • GoT is recommended to adopt the guidelines on mainstreaming climate change adaptation in the agriculture and water sectors developed through the project and integrate them into national policies/strategies.		

Recommendation	Responsible Entity	Timeframe
GoT is recommended to take over from the project the responsibility for the dissemination of project results in other localities in the country. The project team and MAEP should develop an action plan for the dissemination of project results, underpinned by specific actions and timelines, and the commitment of the Government to carry out this work.		
<i>Recommendation 3: Stronger Results Frameworks</i> - In future projects similar to the SCRL project, project stakeholders should identify more meaningful indicators that allow the project team to track and measure progress in a meaningful way. Care should be taken to identify indicators that meet the SMART criteria. These indicators should be defined in clear terms, so that the project team is able to track them effectively. - Also, sound monitoring systems need to be put in place. The verification of data obtained from the field should be done on the basis of well-defined methodologies that do not leave room for interpretation or uncertainty. - Similar projects should be designed with a greater focus on the collection and analysis of gender-disaggregated data to guide and monitor project interventions.	UNDP and GoT	Future
<i>Recommendation 4: Engagement with the Ministry of Finance and Ministry of Justice</i> In future projects similar to the SCRL project, project stakeholders should be careful to engage more closely the Ministry of Finance and the Ministry of Justice to avoid delays with budget approvals and endorsement of draft laws and regulations. In projects that involve investments from the public sector, it will be essential to have the commitment and involvement of the Ministry of Finance right from the start. In projects that involve changes in the legal framework, it will be important to have the engagement and commitment of the Ministry of Justice.	UNDP and GoT	Future
<i>Recommendation 5: Strengthen Engagement with SDGs at the Sub-national Level</i>	UNDP and GoT	Future

Recommendation	Responsible Entity	Timeframe
In future projects related to climate change adaptation, GoT and UNDP should consider linking more effectively some of the project activities to the SDG-related activities going on in the country. Project stakeholders should explore how to use the adaptation platform to promote more actively the SDGs at the sub-national level. Such linkages could be ensured by linking adaptation measures to local governance processes, as described earlier in this report.		
<i>Recommendation 6: Greater Focus on Gender Mainstreaming</i> In future projects similar to the SCRL project, project stakeholders should include a dedicated gender expert in the design of the project. The involvement of a gender specialist in the project will contribute to a more effective mainstreaming of gender in the project and a more even distribution of responsibilities within the team, allowing other specialists to focus on other priority areas		Future

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ACRONYMS AND ABBREVIATIONS

AEZ	Agro-Ecological Zone
AF	Adaptation Fund
AIC	Agro-Information Center
AWP	Annual Work Plan
CACILM	Integrated natural resources management in drought-prone and salt-affected agricultural production landscapes in Central Asia and Turkey
CAMP4ASB	Climate Adaptation and Mitigation Program for Aral Sea Basin
CAREC	Regional Environmental Centre for Central Asia
CC	Climate Change
CO	Country Office
CPAP	Country Programme Action Plan
CTJ	Competitiveness, Trade, and Jobs Activity
EERE	Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan
EU	European Union
EUWI EECA	Water Initiative in Eastern Europe, the Caucasus and Central
EX-ACT	Ex-Ante Carbon Balance Tool
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GFRAS	Global Forum on Rural Advisory Services
GIZ	Deutsche Gesellschaft fuer Internationale Zusammenarbeit
GoT	Government of Turkmenistan
HCFC	Plan for the Phase Reduction of Hydrochlorofluorocarbons
IWRM	Integrated Water Resources Management
LAP	Local Adaptation Plan
LMB	Local Management Board
M&E	Monitoring and Evaluation
MAEP	Ministry of Agriculture and Environmental Protection
MLCM	Multilevel Cluster Mapping
MNP	Ministry of Nature Protection

MoA	Ministry of Agriculture
MoE	Ministry of Economy
MRV	Measuring, Reporting and Verification
MTR	Mid-Term Review
NAP	National Adaptation Plan
NCCS	National Climate Change Strategy
NDC	Nationally Determined Contribution
NEAPAM	National Economic Action Plan for Adaptation and Mitigation
NEPAAM	National Economic Program of Action on Adaption and Mitigation to Climate Change
NGO	Non-Governmental Organization
NIM	National Implementation Modality
NIP	National Implementing Partner
NPC	National Project Coordinator
NPD	National Policy Dialogues
NPM	National Project Manager
NSCC	National Strategy on Climate Change
OECD	Organization for Economic Co-operation and Development
PIR	Project Implementation Report
PMB	Project Management Board
PMU	Project Management Unit
PRF	Project Results Framework
PVAA	Participatory Vulnerability and Adaptation Assessment
RRF	Results and Resources Framework
SCCF	Special Climate Change Fund
SCEPLRT	State Committee of Environment Protection and Land Resources of Turkmenistan
SCRL	Supporting Climate Resilient Livelihoods in agricultural communities in drought-prone areas of Turkmenistan Project
SCWM	State Committee for Water Management
SDG	Sustainable Development Goals
SIWMD	State Committee for Water Management and its State Institute of Water Management Design
SRF	Strategic Results Framework

TDKP	Presidential Programme of Socio-economic Development of Turkmenistan
TMT	Turkmenistan Manat
ToC	Theory of Change
ToR	Terms of Reference
TSAI	Turkmen State Agricultural Institute
UIE	Union of Industrialist and Entrepreneurs
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEG	United Nations Evaluation Group
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	US Dollars
WB	World Bank

1. INTRODUCTION

This report presents the findings of the terminal evaluation of the GEF-financed and UNDP-implemented full-sized project titled “*Supporting climate resilient livelihoods in agricultural communities in drought-prone areas of Turkmenistan*” (hereinafter referred to as the *SCRL Project*). The evaluation was commissioned by UNDP Turkmenistan¹ and was carried out during the period October 2021 - January 2022 by a team of two independent evaluation experts. This chapter provides an overview of the objectives and methodology of the evaluation.

1.1. Evaluation Purpose

The evaluation’s purpose was to assess the project's overall progress toward desired results, determine how activities were designed and implemented, and advise on future interventions of similar nature by generating recommendations and lessons. More specifically, the evaluation was expected to:

- Assess overall project performance against its objectives and outcomes as set out in the Project Document, Logical Framework, and other related documents;
- Assess the extent to which results have been achieved, partnerships established, capacities built, and cross-cutting issues such as gender equality addressed;
- Establish whether the project implementation strategy has been optimal and recommend areas for improvement and learning in future interventions;
- Identify gaps and weaknesses in the project design and provide recommendations as to how it may be improved in the future;
- Assess project strategies and tactics that were deployed to achieve project objectives within established timeframes;
- Analyze the project’s implementation and management arrangements;
- Appraise the project’s relevance and efficiency of implementation;
- Review and assess the strength and sustainability of partnerships with government bodies, civil society, private sector and international organizations;
- Draw lessons that may help improve the selection, design and implementation of similar projects in the future;
- Provide the UNDP Country Office (CO) with feedback on issues that are recurrent and need attention, and on improvements regarding previously identified issues;
- Assist UNDP in identifying future interventions in the area of sustainable development, environmental protection, etc., aligned with national priorities and UNDP’s mandate and expertise.

¹ In accordance with UNDP and GEF Monitoring and Evaluation policies and procedures, all full- and medium-sized GEF-financed projects are required to undergo a Terminal Evaluation upon completion of implementation to provide a comprehensive and systematic account of the performance by evaluating its design, process of implementation and achievements vis-à-vis GEF project objectives and any agreed changes during project implementation.

1.2. Evaluation Scope

The evaluation's scope captured all activities and resource involved in the project's implementation. The Terms of Reference (ToR) that guided the evaluation process are attached in Annex I of this report. Key aspects placed at the center of the evaluation included:

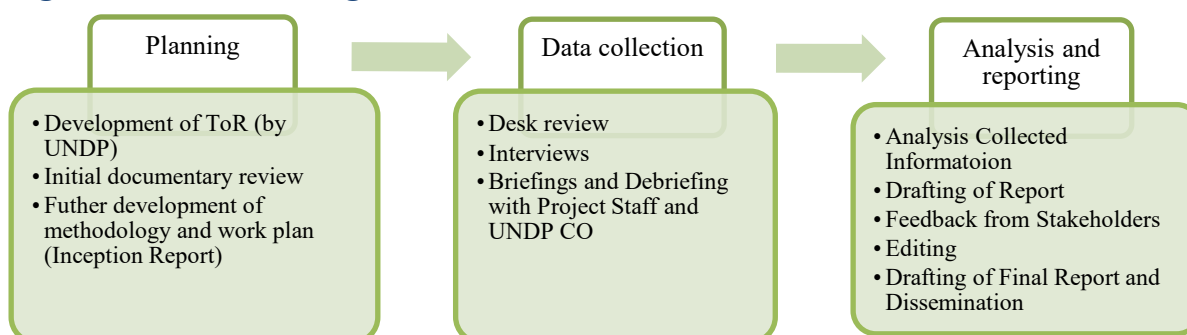
- Project design and its effectiveness in achieving stated objectives.
- Assessment of key financial aspects, including planned and realized budgets, co-financing, etc.
- Project's effectiveness in capacity building for local institutions and strengthening policy frameworks to encourage sustainable development.
- Strengths and weaknesses of project implementation, monitoring and adaptive management and sustainability of project outcomes, including the project's exit strategy.
- Recommendations, lessons learned, best practices that may be used in similar UNDP and Global Environment Facility (GEF) projects.

1.3. Evaluation Methodology

The evaluation used OECD DAC² criteria and definitions, and followed the norms and standards established by UNEG. It was guided by GEF's "*Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects*", but also meets the requirements outlined in UNDP's evaluation toolkit.³ The methodology was based on mixed methods and involved the use of commonly applied evaluation tools such as documentary review, interviews, information triangulation, analysis and synthesis. A participatory approach was taken for the collection of data, formulation of recommendations and identification of lessons learned. It should also be noted that this report is also based on the findings and conclusions of the project's Mid-Term Review (MTR) conducted in October-November 2019.

Evaluation activities were organized according to the three stages illustrated in Figure 1 below.

Figure 1: Evaluation Stages



² [OECD DAC criteria and definitions](#)

³ ["Handbook on Monitoring and Evaluation for Development Results"](#); ["Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects"](#)

1.4. Data Collection and Analysis

The data for this evaluation was collected from three sources: (i) review of project documentation that was made available to the evaluation team by the project; (ii) a comprehensive questionnaire administered with the Project Team; and, (iii) semi-structured interviews with key project stakeholders. The main data sources for this evaluation are shown in the table below, whereas the titles of the documents reviewed for this evaluation are listed in Annex V of this report. The project team diligently made available to the evaluation team all the documentation that was requested. A detailed questionnaire was prepared by the evaluation team to elicit the views of the project team on the key evaluation questions. This questionnaire was intended to provide a detailed baseline of the project that helped design and conduct the subsequent stages of the evaluation process. In addition, the evaluation team conducted 25 semi-structured interviews which engaged 53 key project stakeholders that were identified jointly with the project team. The list of stakeholders that were interviewed for this evaluation is shown in Annex IV of this report.

Table 1: Data Sources

Evaluation tools	Sources of information
Documentation review (desk study)	Evaluation Guidance
	• UNDP Programme and Operations Policies and Procedures • UNDP Handbook for Monitoring and Evaluating for Results • GEF Monitoring and Evaluation Policy and Guidelines
	Project documentation
	• GEF approved Project Document • Inception Report • Annual Work Plans • Project Progress Reports (Mid-term evaluation, PIRs) • Project Management Board Minutes • Reports and presentations produced by the project.
Interviews with project staff and key project stakeholders	Government documents/papers
	Third party reports
	These included:
	• Various reports, including those of the World Bank, ADB, and others, independent local research centres, etc. • Interviews with key project personnel including the Project Manager. • Interviews with relevant stakeholders including beneficiaries, government agencies and civil society organizations.

The information obtained through the data collection process was triangulated against available documented sources and then synthesized using analytical judgement. The method of triangulation is depicted in Figure 2 below.

Figure 2: Method of Triangulation

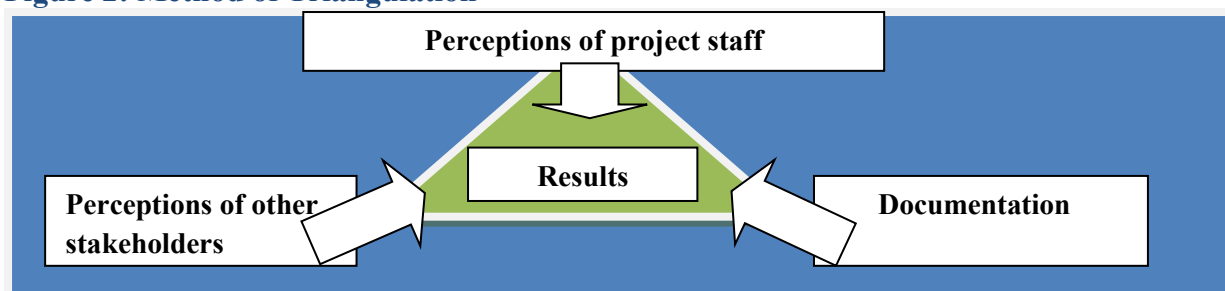
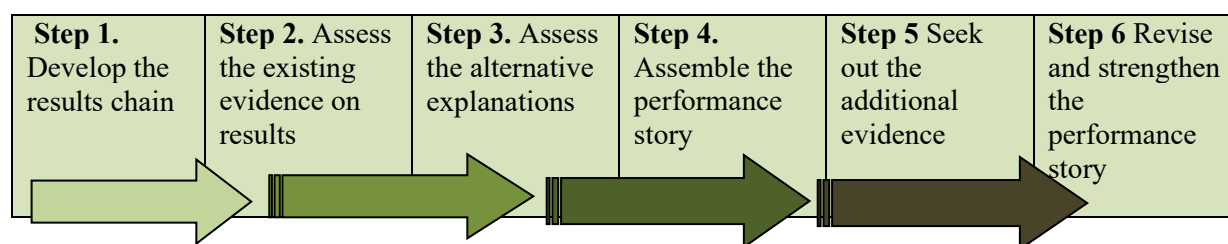


Figure 3 shows the steps taken for the analysis which was conducted on the basis of the standard criteria of relevance, effectiveness, efficiency, and sustainability (see Annex II for a more detailed list of questions that were used for the analysis of information).

Figure 3: Steps in Analysis Process



The analysis also covered aspects of project formulation, including the extent of stakeholder participation during project formulation; replication approach; design for sustainability; linkages between project and other interventions within the sector; adequacy of management arrangements, etc. The evaluation sought to assess the extent to which the project has impacted gender power relations.

Table 2 shows the scale that was used to rate the various dimensions of this evaluation. This is the standard scale used in GEF-funded projects.

Table 2: Rating Scale

Rating for the assessment of Relevance, Effectiveness and Efficiency	
HS	Highly Satisfactory: The project has no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
S	Satisfactory: The project has minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
MS	Moderately Satisfactory: The project has significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
MU	Moderately Unsatisfactory: The project has major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
U	Unsatisfactory: major problems
HU	Highly Unsatisfactory: The project has severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
Ratings for sustainability assessment	
L	Likely sustainable: negligible risks to sustainability to sustainability
ML	Moderately Likely sustainable: moderate risks to sustainability
MU	Moderately Unlikely sustainable: significant risks to sustainability
U	Unlikely sustainable: severe risks to sustainability

1.5. Ethics

The evaluators were held to the highest ethical standards and were required to sign a code of conduct upon acceptance of the assignment. The evaluation was conducted in accordance with the principles outlined in the United Nations Evaluation Group (UNEG) “Ethical Guidelines for Evaluations”. The evaluators explicitly notified all stakeholders interviewed that their feedback and input will be confidential, and ensured such commitment throughout the TE by not indicating the specific source of quotations or qualitative data.

1.6. Limitations

All possible efforts were made to minimize the limitations of this evaluation. The project team provided great support to the evaluation process by enabling access to project-related information and arranging the necessary meetings with project stakeholders. The main limitations were a result of the COVID-19 pandemic. The international consultant was not able to travel to the country and the evaluation was conducted remotely with the help of a national consultant. No face-to-face meetings were organized for this evaluation and no project sites were visited. However, all the usual protocols and procedures were followed in organizing remote interviews, while having consideration for stakeholder availability, ability, and willingness to be interviewed remotely.

1.7. Structure of the Evaluation Report

The evaluation report begins with an overview of the evaluation objectives and methodology (current chapter). The second chapter provides a description of the project and the country context (following chapter). The third chapter presents the main findings of the report and consists of three parts: the first part assesses key aspects of project design and formulation; the second part focuses on implementation issues; and, the third part presents an assessment of the results achieved by the project along the standard dimensions of relevance, ownership, effectiveness, efficiency and sustainability. The fourth chapter summarizes the main conclusions and identifies key “lessons learned” drawn from the experience of this project and the last (fifth) chapter provides a set of recommendations for the consideration of project stakeholders. Additional information supporting the arguments made throughout the document is provided in the annexes attached to this report.

2. PROJECT DESCRIPTION

2.1. Project Start and Duration

The SCRL project was financed by the Global Environment Facility (GEF) and implemented through the United Nations Development Programme (UNDP). Its target group were farmers in two pilot regions – in Danew (former Galkynysh) etrap of Lebap velayat and Gorogly etrap of Dashoguz velayat – two of the country's driest regions. The project sought to improve socio-economic conditions of local communities in the two pilot regions by overcoming barriers that prevent farmers from reducing the vulnerability to climate change induced water stress in the agricultural sector.

Box 1: Project at a glance

- **Implementing Agency:** UNDP
- **Implementing Partner:** Ministry of Nature Protection subsequently transformed into the Ministry of Agriculture and Environment Protection.
- **Grant Size:** \$3,046,347 by GEF Special Climate Change Fund (SCCF), \$20,000,000 by the Government, \$830,000 by UNDP
- **Project Duration:** June 2016 – June 2021 (extended to March 2022)
- **Project site:** Lebap and Dashoguz velayats (provinces)
- **Sector/subsector:** Climate Change Adaptation

In its lifetime, the project went through a number of key phases. The following table lists the dates of key events that marked the project's conceptualization and implementation phases.

Table 3: Key Project Dates

PIF Approval Date	Oct 30, 2014
CEO Endorsement Date	Apr 7, 2016
Project Document Signature Date (project start date):	Sep 17, 2016
Date of Inception Workshop	Dec 22-23, 2016
First Disbursement Date	Jul 14, 2016
Expected Date of Mid-term Review	Oct 14, 2019
Actual Date of Mid-term Review	Nov 13, 2019
Expected Date of Terminal Evaluation	Dec 30, 2021
Original Planned Closing Date	Sep 17, 2021
Revised Planned Closing Date	Mar 30, 2022

The project's implementation was kicked off on September 17, 2016, with the signing of the Project Document, but the actual activities were started in December 2016 with the hiring of the Project Manager. The Project Management Board (PMB) was established during the first PMB meeting held on January 24, 2017. PMB meetings were conducted biannually. By the time of this evaluation, 10 meetings of the Project Board had taken place, according to the following timeline:

- In 2017 - 24 January and 15 August;
- In 2018 – 25 January and 29 August;
- In 2019 – 05 February and 17 September;
- In 2020 – 24 January and 02 October;
- In 2021 – 27 January and 14 October.

The final PMB meeting is scheduled for February 2022.

Due to delays in the completion of project activities – partly also due to the challenges and delays caused by the COVID-19 crisis – the Project Board supported a request by the project team for a six-month no-cost extension of the project, which was approved by the UNDP GEF Executive Coordinator on April 6, 2021. The end date of the project was extended to March 30, 2022.

Box 2: Rationale for Requesting Project Extension

Due to implementation delays, project stakeholders decided to apply for an extension of project timelines. The reasons presented in the request for extension were the following:

- Delays in 2020 work plan implementation due to restrictions related to the COVID-19 pandemic;
- Delays in approval of legislative reforms proposed;
- Lengthy consultation, training and mentoring processes for uptake of innovative solutions;
- Lengthy approval procedures with state authorities – as has been noted in the “Adaptive Management” section of this report, the project experienced significant challenges and delays with the approval of the legal instruments developed in the framework of the project;
- Slow agreement on agro-consultation service approach designed.

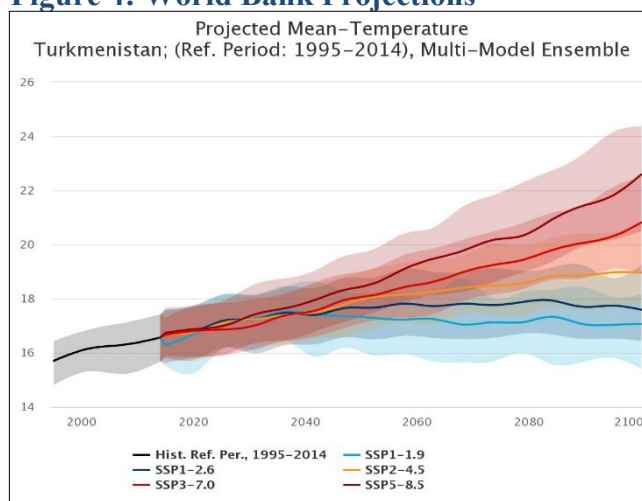
2.2. Development Context

In 2020 Turkmenistan was ranked 92nd on the Environmental Performance Index⁴ out of a total of 180 countries. It is a water stressed country with one of the harshest climates in the Central Asian region. Residents of northern regions have been severely affected by the Aral Sea crisis, land degradation, salinization, and desertification. Climate change modeling indicates

⁴ https://epi.yale.edu/sites/default/files/files/TKM_EPI2020_CP.pdf

significant increases in temperature and reduction in rainfall. A warming trend has been observed in all regions of Turkmenistan in recent decades. The average temperature across the country rose by approximately 2°C between 1950 and 2010, equivalent to warming of approximately 0.3°C per decade⁵. The World Bank Climate Projections for Turkmenistan⁶ tell a concerning story, with mean annual temperature projected to increase by 2°C by 2040, and a mean annual precipitation expected to decrease by 8-17% from 2040-2100.

Figure 4: World Bank Projections



These changes will lead to a decrease in total volume of water availability⁷ that are likely to have a profound impact on agricultural production systems and local farmers. Even though only 4.1% of the land area is arable⁸, about 47% of the population lives in rural areas⁹ and their livelihoods depend greatly on proper functioning of agriculture. Consequently, agriculture is essential for the country's food security and a primary material supplier for the processing industry. Livestock, wheat and cotton are the primary areas of economic activity. Pastures occupy a large territory of the country accounting for 78% of land reserves. As a result of limited water resources, of the 17 million hectares available for irrigated agriculture, only 1.7 million are currently utilized for this purpose.

One of the key underlying causes for vulnerability of the agricultural sector in Turkmenistan is the inefficient water consumption due to outdated approaches to managing water, deteriorating irrigation infrastructure and subsidized water prices. The water subsidies make the current water system financially unsustainable, and dampen the private sector to invest in the absence of conducive financial mechanisms and economic instruments. As a result, incentives for efficient use of water are largely absent, thus large farmers use water inefficiently, and the quality of local service delivery for smaller farmers suffers. Despite inherent water scarcity, Turkmenistan has among the highest water consumption per capita in the world. However, the high-water consumption levels are largely related to the inefficient irrigation systems in the country, as opposed to high household consumption. Farmers in Turkmenistan are not well prepared for climate change, particularly in relation to the efficient use of water. They are often unaware of water saving options. The vulnerability of the water sector to climate change processes directly affects water runoffs, alters rivers hydrographs, and

⁵ Ministry of Nature Protection of Turkmenistan. (2015). Third National Communication of Turkmenistan under the UN Framework Convention on Climate Change. Ashgabat: Ministry of Nature Protection of Turkmenistan. Accessible [here](#).

⁶ Accessible [here](#).

⁷ Decrease in total water volume also (and to a larger extent) is impacted by water resources development under climate change in the upstream Amu Darya river basin.

⁸ <https://data.worldbank.org/indicator/AG.LND.ARBL.ZS?locations=TM>

⁹ <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=TM>

reduces the overall quality of water. Thus, the intensive development of irrigated agriculture with the background decrease of water availability requires taking specific actions for sustainable and rational use of water resources.¹⁰

Therefore, the risks associated with climate change are detrimental to the socio-economic performance of the country. The long-term solution envisaged by the Government of Turkmenistan is to mainstream climate change adaptation at the community, district, provincial and national levels in order to secure climate resilient livelihoods in agricultural communities.

2.3. Problems that the Project Sought to Address

The project's objective was to promote an integrated approach to efficient water management and climate resilient practices, reduce root causes of land degradation, and enhance local livelihoods through knowledge management, investment, and policy reform. Through a set of inter-related interventions, the project aimed to directly strengthen the country's adaptive capacity and reduce the vulnerability of around 40,000 to 50,000 persons (of which around 51.2% were expected to be women) in the Lebap and Dashoguz velayats (provinces) by helping them improve the productivity of farm operations, be better prepared for increasing water scarcity and by introducing alternative income sources. Improved water efficiency and crop production systems were expected to bring approximately 20,000 ha of agricultural and 500,000 ha of pastoral lands under climate resilient technologies resulting in a real net household income increase of at least 15% for participating households (including at least 20% of women-headed households). The replication potential of successful efficient water management and climate resilient practices and of new climate-friendly sectoral planning, legislative and capacity development measures was expected to indirectly benefit around 500,000 people, of which around 50% women. These interventions were expected to serve as a stepping stone for the Government's long-term goal of mainstreaming climate change adaptation at the community, district, provincial and national levels.

The main barriers which the project was designed to address were:¹¹

- Insufficient technical knowledge and proven models of climate risk reduction action in agriculture
- Agricultural communities are not involved in decision-making, planning and management of water and land resources
- Water subsidies and other policy and regulatory instruments in water and agriculture sectors exacerbate underlying causes of vulnerability
- Institutional set-up, planning and management in the water and agriculture sectors do not adequately consider the long-term implications of climate change
- Lack of access to specific and timely information to facilitate adaptation planning
- Limited availability of evidence-based data, monitoring, reporting and coordination mechanisms for iterative national adaptation planning and budgeting.

¹⁰ Description in this paragraph is taken from the Project Document.

¹¹ The Project Document provides a detailed analysis of each of the barriers listed here.

2.4. Immediate and Development Objectives

As noted above, the project's main objectives consisted in short-term (immediate) improvements aimed to help farmers overcome barriers by enhancing water and land management techniques, ensuring capacity development and knowledge sharing. In this way, the project ultimately aimed at national level policy development, reduction of vulnerability to climate change and building resilience as its long term (development) objectives.

The SCRL project was conceptualized to produce results under three outcome areas, summarized below:

- **Outcome 1:** Improved climate related socio-economic outcomes in the targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions.
- **Outcome 2:** Mainstreamed climate adaptation measures in agricultural and water sector development strategy and policy.
- **Outcome 3:** Strengthened national capacity for iterative climate change adaptation planning, implementation and monitoring.

A summarized description of the specific outcomes is presented in Box 3 below.

Box 3: Targeted Outcomes

Outcome 1: Improved climate related socio-economic outcomes in the targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions.

- Participatory vulnerability and adaptation assessments in selected communities to identify priority adaptation solutions;
- Development and implementation of local gender sensitive adaptation plans;
- Implementation of innovations focused on providing additional income and supporting climate resilient livelihoods;
- Participatory mechanisms for implementing and monitoring changes in community climate resilience; and
- Dissemination and up-scaling of successful adaptation measures.

Outcome 2: Mainstreamed climate adaptation measures in agricultural and water sector development strategy and policy.

- Capacity development for agriculture and water sector enabling effective adaptation planning with gender considerations;
- Guidelines to water and agriculture sector ministries on using gender disaggregated data in planning, conducting specific assessments on the needs of women and using these in sector adaptation planning and budgeting;
- Regulation and guidelines for inclusion of adaptation in national and local development planning and budgeting developed and linked to sector-based planning, coordination and monitoring processes;
- Institutional and legal mechanisms for water resource management integrate key principles of efficient use and climate risk management.
- National sectoral planning and rural development investments take account of and

address climate change related risks - Ecosystem services valued and potential impacts of climate change on natural pastures assessed to inform pasture management decision-making
Outcome 3: Strengthened national capacity for iterative climate change adaptation planning, implementation and monitoring. - Mechanism for iterative monitoring, reporting and verification of implementation of the mainstreamed adaptation actions established - Vulnerability/resilience indicators and protocols for gender-disaggregated data collection, storage, processing and use in planning and decision-making - Actions to build the evidence base for robust decision making implemented. - Communication and outreach strategy to support the medium and long-term adaptation planning of NEPAAM developed and implemented.

This project was designed to work closely with farmers and communities, by providing knowledge and means, engaging them in the decision-making process and encouraging knowledge-sharing. The project's interventions were aligned with the national priorities and frameworks, including the National Climate Change Strategy (NCCS)¹²¹³ that was adopted by the Government in 2012 and sets forth the following principles:

- Addressing climate change challenges should contribute to sustainable development of the country's economy.
- Addressing climate change challenges shall be based on a comprehensive/integrated approach: measures on the reduction of greenhouse gas emissions shall be coordinated with adaptation measures.
- UNFCCC and Kyoto Protocol¹⁴ and the decisions of the Conference of Parties to UNFCCC and Kyoto Protocol constitute the legal framework for international cooperation in fighting climate change and reflect common understanding of the international community.
- Promoting innovative technologies, transfer of technology, scientific and technological progress are the basis for the solution of the climate change problem.
- Combating climate change shall involve the collective effort of society at large.

With regards to the Sustainable Development Goals, this project was aligned with SDG 13 "*Take urgent action to combat climate change and its impacts*" and encapsulates the following related targets:

- Target 13.1: Strengthen resilience and adaptive capacity to climate-related disasters.
- Target 13.2: Integrate climate change measures into policy and planning.

¹² Accessible [here](#).

¹³ In order to implement the strategy, the government compiled an inter- ministerial plan called the National Economic Program of Action on Adaption and Mitigation to Climate Change (NEPAAM) defined for the period 2016- 2020.

¹⁴ Accessible [here](#).

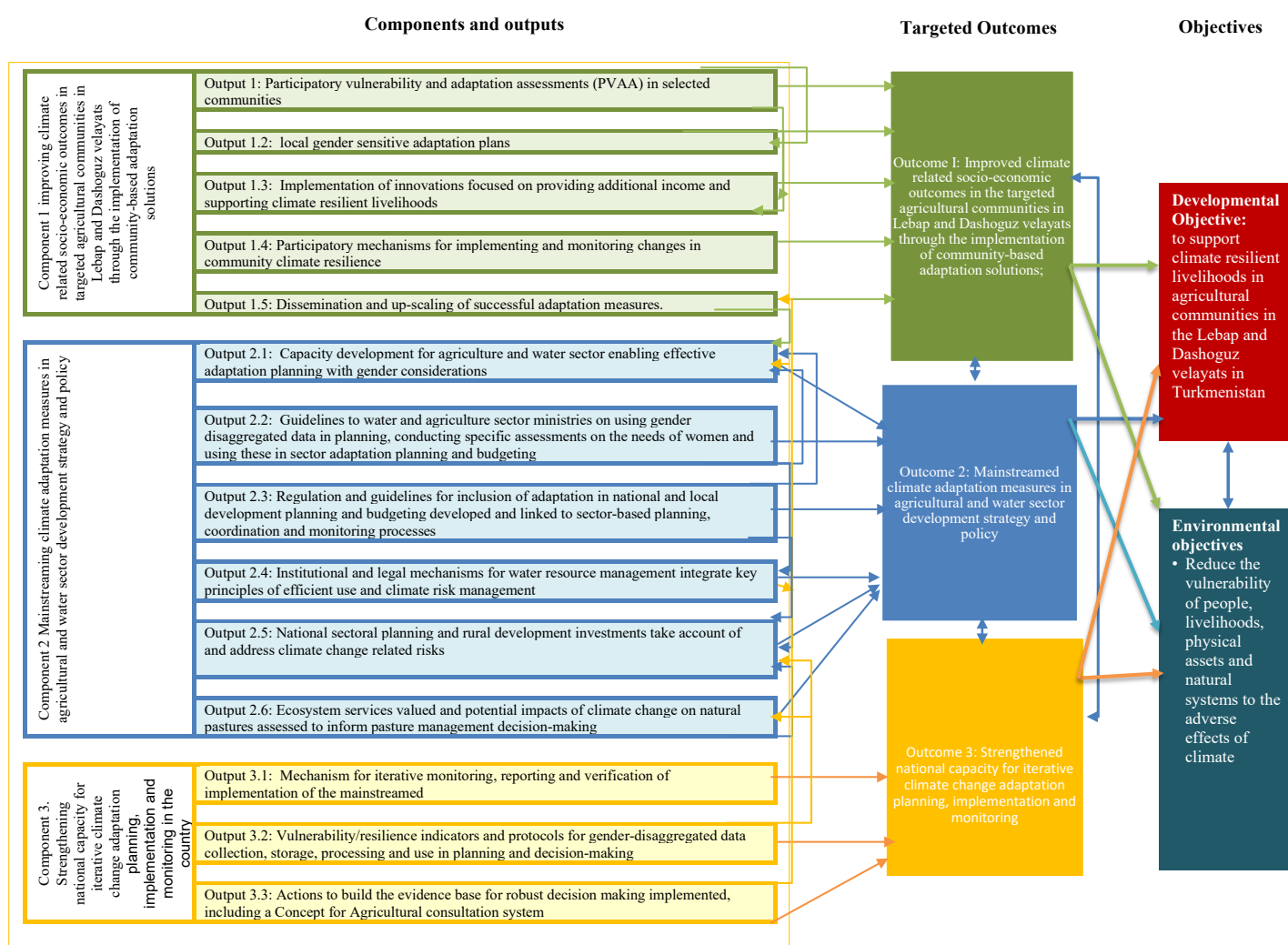
- Target 13.3: Build knowledge and capacity to meet climate change.

The SCRL project, through its three outcomes, was designed to directly contribute to the GEF strategic objectives under CC adaptation Focal Area: *CCA-1 - Reduce the vulnerability of people, livelihoods, physical assets and natural systems to the adverse effects of climate change; CCA-2 - Strengthen institutional and technical capacities for effective climate change Adaptation; and CCA-3 - Integrate climate change adaptation into relevant policies, plans and associated processes.*

2.5. Description of the Project's Theory of Change

The Project Document presented a Theory of Change (ToC) that identified key interventions needed to achieve desired project outputs and outcomes. The ToC was designed to summarize activities and outline problems and barriers, rather than identify in clear terms interconnected solutions that would bring to the desired change. The project's ToC is graphically presented in the figure below.

Figure 5: Project's Results Chain¹⁵



¹⁵ Taken from the project's MTR report (page 27).

The ToC usually lays out an ultimate goal – a national priority – which is broken down into a causal pathway with preconditions and assumptions for each step along the way. Assumptions are crucial to a theory of change and should accompany its formation. From an evaluation research perspective, this can be especially helpful in explaining why something is or is not working, why a strategy may need revision, why a certain intervention may be superfluous and so on. Most of these assumptions were part of the project document in the “Strategic Results Framework (SRF)” section, but did not accompany the ToC. The following are some assumptions that could complement the ToC.

- Climate change will bring about greater incidence of droughts, unpredictable and unreliable rainfall, and extreme weather.
- No unforeseeable environmental and/or climate-change induced major crises erupt.
- The interventions create momentum for sustainable nation-wide change.
- Best practices are incorporated into new comprehensive national policies and legislation.
- Decision-making bodies are fully interested and actively engaged.
- Local farmers and communities are willing to become involved in climate-related planning, decision-making and adaptation.

The project’s Theory of Change and a revised version by the evaluation team can be found in Annex XIV of this report.

2.6. Expected Results

The overall objective of the project was to support climate resilient livelihoods in agricultural communities in the Lebap and Dashoguz velayats in Turkmenistan. The project’s main expected results were the following:

- At least 20,000 ha of agricultural lands and 500,000 ha of natural pasture lands receiving reliable irrigation water supply from climate-proof rehabilitated and properly maintained irrigation schemes and/or managed under improved soil fertility, soil moisture regimes or crop and pasture production systems.
- Climate-resilient agriculture and livestock production practices are adopted by at least 3,000 (or at least 30%) targeted farmers/households of which at least 30% are women/women-headed households.
- At least eight farmer and/or livestock associations adaptation plans designed and budgeted through the project and linked to collective community-based actions on water savings and efficiency improvements as well as soil fertility and moisture improvements.
- At least 3,000 (or 30%) of targeted agricultural farmers and pastoralists (30% of which are women) report improved production of major crops and natural pasture.
- At least 50% of the households supported through alternative climate-resilient livelihood opportunities report an increase of at least 15% of real net household farm income, of which at least 20% are women-headed households.

- At least 3,000 (30% women) of agricultural and pastoral farmers and 100 government staff (20 % women) are trained in on-the-ground application of climate adaptation-related technologies.
- A package of amendments to the legislation with economic instruments and support for water delivery and local level decision making under increased communal control.
- At least two sector plans (agriculture and water) integrate climate adaptation considerations and budgetary allocations.
- National monitoring, reporting and verification system to measure changes in vulnerabilities from adaptation actions with functional procedures and rules in place.
- Five agro-ecological zones in the country models developed that integrate impacts, costs and adaptation actions.

2.7. Total Financial Resources

The envisaged plan outlined in the Project Document for funding by the Turkmenistan Government, UNDP and GEF was as shown in Table 4 below.

Table 4: Project's Planned Resources

Source of Funding	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total
SCCF	531,957	718,100	729,445	590,185	476,660	3,046,347
UNDP (Cash)	21,500	21,000	20,000	19,500	18,000	100,000
UNDP (parallel financing) ¹⁶	200,000	200,000	150,000	150,000	30,000	730,000
Government of Turkmenistan (cash)	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	20,000,000
TOTAL (USD)	4,753,457	4,939,100	4,899,445	4,759,685	4,524,660	23,876,347

The total resources employed by the project by the time of this final evaluation are shown in this report's section on financing and co-financing (section 3.2.3).

2.8. Key Partners Involved in the Project

The Project Document identified a number of key stakeholders and their roles and responsibilities in the project. The implementing entity was designated to be the Ministry of Nature Protection (MNP) which at that time was responsible for the protection of ecosystems, protection of surface and underground water resources and monitoring the environment and natural resources, and climate monitoring.¹⁷ Another key ministry identified in the Project

¹⁶ UNDP committed to provide parallel co-financing for closely related work on supporting a Green Economy Strategy, which would emphasize water resource management. Parallel co-financing for this work was expected to total approximately \$730,000.

¹⁷ The Ministry of Nature Protection structure included 5 velayat (provincial) Environmental Protection agencies, The National Institute of Deserts, Flora and Fauna (NIDFF), Ecological control service.

Document as a crucial implementing partner of the SCRL project was the Ministry of Agriculture (MoA), which was designated to be responsible for the design and delivery of project activities at the farm level, including the training of farmers. MoA participated in development of national, regional and local action plans on sustainable agricultural and land management, and coordinated connections between the project and local farmer associations. A third ministry identified in the Project Document was the Ministry of Water Economy, designated as the entity responsible for overall project oversight and coordination with national initiatives and strategies regarding water management. Furthermore, the National Committee on Hydrometeorology under the Cabinet of Ministers of Turkmenistan (Turkmenhydromet) was designated to be responsible for hydro-meteorological activities.

In the course of project implementation, except the Ministry of Water Economy (at present – the State Committee for Water Management) all the above-mentioned entities were merged into a unified Ministry of Agriculture and Environment Protection (MAEP), which brought together all the functions of the previous institutions it superseded.¹⁸ Consequently, MAEP inherited the role of national executing agency for the SCRL project and provided overall oversight and coordination among national initiatives and strategies regarding all project activities. MAEP's role as the executing agency is assessed further in this report (section 3.2.1). Key project stakeholders at the subnational level were the representatives of **velayats** who provided oversight and support for the implementation of the vulnerability assessment and planning, implementation and monitoring of the participatory adaptation plans. In addition, representatives of **etraps** engaged in adaptation planning, implementation and monitoring of farmer and livestock association adaptation plans. Key players in the project were also the Daikhan (Farmer) and Livestock Associations. Apart from being direct beneficiaries, they participated in decision making at all stages of all activity related to agriculture, irrigation, drainage, and sustainable land and pasture management in the pilot entraps.

A more detailed description of the actual stakeholder participation in the SCRL project is provided in section 3.2.2 of this report.

¹⁸ Currently, MAEP includes the Environmental Protection Service, the Land Resources Service, the Hydro Meteorological Service, the State Veterinary Service, the State Quarantine Service, the State Seed and Varieties Service, the Plant Protection Service, production associations for grain products, cotton and food products, technical service and livestock service.

3. FINDINGS

While the amount of information generated by this evaluation was large, the findings presented in this chapter cover only the most essential aspects of the project and are to some extent focused on those issues and lessons that provide a better understanding of the achievements of the project and which would benefit the project stakeholders the most in similar future endeavors. The findings of this evaluation are organized in the following sections: i) Project Design; ii) Project Implementation; and, iii) Project Results.

3.1. Project Design/Formulation

This section examines the project's logic and design features by focusing on the adequacy of the project's logic, results framework, management arrangements, identification of risks and assumptions, use of lessons learned from other projects, linkages with relevant UNDP or donor projects, UNDP's comparative advantage in the area, planned stakeholder engagement, replication approach, etc.

3.1.1. Analysis of Results Framework: Project Logic and Strategy, Indicators

Project Approach

The project was designed to promote measures facilitating adaptation to climate change in Turkmenistan. The project's approach had the following key characteristics:

- Transfer of innovative technologies to land users for the cultivation of basic crops and animals, contributing to the reduction of climate change risks;
- Use of small grants to promote investments in innovative technologies and the implementation of local adaptation plans;
- Use of assessments of training needs and institutional capacity to precede capacity development activities;
- Development of human potential in targeted farming communities through the implementation of a training programme on the sustainable use of land and water resources;
- Building social capacity by organizing unions of farmers based on production or other characteristics;
- Educating the broader community on sustainable environmental management.

The approaches described above were instrumental in the promotion of knowledge, innovations and institutional improvements at the level of national and local institutions and farms. One key mechanism for the implementation of these approaches was the concept of Local Adaptation Plans (LAP). Eight LAPs were developed in the framework of the SCRL project in cooperation with agricultural communities and were part of the production and economic plans of farmers associations and livestock farms, financed primarily from their own funds.¹⁹ LAPs'

¹⁹ Four LAPs were prepared for the Yagtylyk, Watan and Parahat farmers' associations and the Garagum livestock farm. They were approved by the heads of the farmers' associations finalized and adopted in May-June 2020, for three newly selected farmers associations (Babadaykhan, Abadanlyk and Ovezov) and one livestock farm (Serdar) in December 2018.

successful implementation confirmed the relevance and feasibility of the selected approaches. Furthermore, the approaches were logically interrelated and complementary to each other. For example, human development through the training programme became a tool for involving local people in solving common problems. Eventually, these participants united into initiative groups to develop and implement grant proposals.

Trainings and consultation workshops were organized to support the implementation of LAPs. These events were crucial for the preparation of small grant proposals. Furthermore, prior to the selection of technologies, the SCRL project organized a series of trainings such as “*Joint Land Use Planning*” and “*Adaptation Planning and Community Mobilization*”, through which participants received the necessary knowledge and skills on adaptation measures and the implementation process. Technologies were then selected by local communities on the basis of their relevance and technical and economic feasibility. Highest-priority proposals were identified on the basis of a ranking method and the application of an importance matrix.

It is important to note here also the use of assessments undertaken by the project to determine capacity development needs both at the personal and institutional level. The project conducted a Training Need Assessment and a national-level Institutional Capacity Need Assessment to support the design of capacity development activities in support of the implementation of grant proposals and LAPs. This also included the conduct of the participatory vulnerability and adaptation assessments (PVAA) and multilevel cluster mapping (MLCM) for the six pilot farmers’ associations and the two livestock farms. These capacity development activities consisted of training events, consultations, training, demonstrations, information-sharing events, etc., and involved project specialists, national experts and scientists. Attempts were made to streamline these activities through the Agricultural information Centers (AICs), envisaged as “platforms” for partnership development in the provision of agricultural extension services and strengthening the climate change adaptation capabilities of targeted farmers and other project beneficiaries.

For all the above-mentioned positive aspects, the Project Document also displayed certain weaknesses. As the project’s Mid-Term Review noted, the project’s innovativeness was not clearly articulated, especially in the first and second components, since similar adaptation measures had been implemented before in other parts of the country with demonstrated impacts on livelihoods. One novelty was the multi-cluster mapping, but the process of its institutionalization, utilization and policy support was not well-elaborated in the Project Document. Consequently, this part of the project was not effectively operationalized.

Also, the project’s contributions in the area of climate change adaptation are inseparable from its contributions in the area of local governance. Working with sub-national governments on the assessment of vulnerabilities, formulation of adaptation plans, preparation of investment programmes and feasibility studies, monitoring and management of infrastructure projects, and so on, is extremely important for strengthening governance at the local level. It is precisely this focus on the governance aspects of climate change adaptation that makes these initiatives more sustainable and efficient. Therefore, the SCRL project could have been designed more

effectively if aspects of capacity development for local governance had been included more prominently in the conceptualization of the project.²⁰

Further, the process for the scaling up of innovations tested through the SCRL project was not clearly articulated in the Project Document. No analysis was articulated in the Project Document on the methods and ways in which the scaling up would occur. This was a serious weakness, which subsequently had an impact in the project. As will be seen in the sustainability section of this report, the project team and stakeholders have still to work out an approach for how the innovations and solutions that were deployed in this project will be disseminated in other regions of Turkmenistan.

Furthermore, in some cases, the Project Document envisioned ambitious tasks that during the course of implementation turned out to be unfeasible given the country's context. For example, the project was supposed to support the Government's efforts to develop agro-ecological zones (third project component). During the project's design stage, it was assumed that the Government of Turkmenistan was going to be ready to engage staff and allocate resources for the modeling of agro-ecological zones with regards to climate change impacts. To date, however, there is no structural unit in the country tasked with the management of AEZ and with coordinating this process in the country. In addition, there was little awareness among national institutions on the use of this tool, its benefits and requirements. This was a significant barrier in promoting the development of agroecological zones within the framework of the SCRL project. Due to the low level of awareness among the key ministries and state-owned organizations, the project organized trainings and awareness-raising activities, and initiated the preparation of the Concept Note on modelling AEZ. Furthermore, the project's third component was designed to support the of monitoring the implementation of the National Economic Action plan for Adaptation and Mitigation (NEAPAM), which was not approved by the Government of Turkmenistan. Therefore, the third component was re-designed, taking into account the evolving needs of national partners.

Project's Results Framework

The project's broader goals were framed in clear and practical terms and are relevant to Turkmenistan's context and national priorities. They are also aligned with the UNDP Country Programme objectives. However, the outcome indicators identified for the project are not always sufficiently clear. For example, one outcome indicator is framed as "*number of hectares of agricultural land under more resilient management utilizing climate resilient technologies, efficient irrigation management and improved crop production systems*". The Project Document provides no clear definition of the term "*more resilient management*" which is open to interpretation. Similarly, the second outcome indicator – "*number and percentage of targeted farmers/ households adopting improved on farm soil and water conditions through climate-resilient efficient irrigation technologies and improved crop production systems that enhance productivity*" – does not provide full clarity on what exactly "*improved conditions*" is purported to mean. Another example of an indicator not clearly defined is the following -

²⁰ During the implementation phase the project actively and successfully engaged representatives of local governance structure in capacity building activities.

“number of staff (national, velayat and etrap levels) and farmers reporting good knowledge of climate change risk reduction measures in irrigated agriculture and soil and water management”. The term “good knowledge” is a highly subjective term that is impossible to quantify in an objective way. Such ambiguity allows for room for interpretation, which makes measurement and tracking a challenge. In the course of the implementation, the project team resorted to developing their own understanding of terms such as “resilient management” and “climate-resilient technologies”, but as will be seen in the M&E section of this report such interpretation allows for flexibility in how project results are determined and reported. There are also indicators that are not useful in how they measure the impact resulting from the project. For example, the indicator “*number of articles included in the Water Code and Laws “On daikhan farm” and Environmental Code supporting non-structural climate change adaptation practices and their implementation*” focuses on the number of articles in a piece of legislation, which has no bearing at all not only on the quality of the legislation, but also more importantly on what that legislation achieves at the practical level. Similarly, the indicator “*number of approved sector strategies and plans in the water and agriculture domain that include climate change adaptation considerations and budgetary allocations*” focuses on a rather inconsequential aspect of the project which is the number of policy instruments, rather than the way in which they get implemented and the effects that they produce on the lives of the people. Last, but not least, the project’s result framework does not lay out indicators and targets for all project outputs.

As the MTR report has noted, the Project Results Framework (PRF) from the Project Document was revised into Results and Resources Framework (RRF) at the inception phase, but both suffer from the flaws pointed out above. While an attempt was made in 2021 by the project team with the support of the project’s Regional Technical Adviser in Istanbul to revise the project’s results framework,²¹ the resulting changes were minor and did not substantially improve the quality of indicators (only one indicator was modified).

Overall, the results framework outlined in the Project Document is rather weak and does not provide neither adequate guidance for implementation to the project team, not a strong accountability instrument for project stakeholders. A revision of the project’s results framework was one of the key recommendations of the project’s MTR which was not acted upon. While the project has delivered a number of important activities and results that will be reviewed in the following sections of this report, it was impossible to capture them and build a coherent story of the achievements of the project using the results framework in the way it was constructed in the Project Document.

3.1.2. Assumptions and Risks

The Project Document identified the following risks related to the project:

²¹ The project’s RTA assisted in the formal adjustment of the indicator 2.3 in the logframe (RTA confirmation letter dated 24 February 2021). The indicator was revised to reads “*Number of the approved strategies and guidelines in the water and agriculture domain that include climate change adaptation considerations and budgetary allocations.*”

- The government is not committed to implement institutional and policy changes proposed during the implementation of the project;
- National government does not give permission for data sharing and cooperation between institutions and at the local level;
- Coordination among national institutions is often problematic and their capacities are limited;
- The process involved in modification of sectoral policy and plans to address climate change adaptation may require a long time;
- Governance issues, including “elite capture” with the “plausible recurrent risk” of deviation and capture of the benefits accrued from the project by the more influential persons;
- There is a risk of community institutions not adopting the adaptation planning approach and financing mechanism adequately;
- Climate change impacts may increase to the extent that even if the project reduces vulnerability, it may not be enough to make a significance difference

While some of these risks are extremely relevant - and some of them did in hindsight exert a direct effect on the project during the implementation phase - the analysis of the way they would affect project activities is lacking in the Project Document. Furthermore, no assumptions were identified in the Project Document.

The approach taken by the project and described in the previous section helped mitigate a number of risks. For example, the assessments and consultations, LAPs, various training events, etc., helped alleviate risks related to the lack of interest from stakeholders. However, some of the mitigation measures in the Project Document turned out to not have been realistic – i.e. the National Economic program of Action on Adaptation and Mitigation of Climate Change (NEPAAM) did not turn out into a policy framework that provided strong guidance for project activities.

More importantly, two major risks, which materialized during the course of implementation and had a major impact on the project, were not identified in the Project Document.

The first one was obvious at the time of the formulation of the project, but somehow its importance was underestimated and therefore no mitigation measures were identified. This was the risk of exchange rate fluctuation. For the SCRL project, this risk was significant because the main funding was in US dollars (USD), whereas most expenses were in Turkmenistan manat (TMT). The Project Document did not identify as potential risk the possibility of changes in the official and unofficial exchange rates. This was one of the most significant barriers and risks that was not foreseen during the project preparation and inception stage. The USD/TMT exchange rate changed significantly during the course of project implementation. At the beginning of 2021, the exchange rate has changed over 11 times compared to the rate at the beginning of the project. The greatest change coincided with the period when the project was actively carrying out the small grant activities and funds were allocated to the accounts of farmers' associations in the national currency. Changes in exchange rate led to a sharp rise in

prices in the local market, increase in the financial offers of the national experts to provide consultancy services, transportation costs, etc.

- The second risk that was not identified in the Project Document was the health pandemic. The COVID-19 crisis had a substantial impact on the project – as will be seen further in this report. For all the impact of the crisis on the project, with hindsight it was clearly impossible to foresee the highly disruptive nature of this crisis at the time of the formulation of the Project Document.

3.1.3. Lessons from other Relevant Projects Incorporated into the Project Design

The Project Document was formulated by taking into account lessons from the projects listed below. The projects listed below are not only UNDP projects funded by GEF, but also projects by other organizations and the Government of Turkmenistan. Besides the list and the brief description of each project, the Project Document itself does not list or detail any of the lessons that were drawn from their experience and incorporated in the design of the SCRL project.

- “Addressing climate change risks to farming systems in Turkmenistan at national and community level” project (2012-16), financed through the Adaptation Fund;
- UNDP Central Asian Climate Risk Management Program that assisted the five Central Asian countries in adjusting their national development processes to address risks posed by current climate variability and future climate change;
- “Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan” funded by GEF and implemented by UNDP;
- GEF-financed project “Regional Integrated Natural Resources Management in Drought-prone and Salt-affected Agricultural Production Systems in Central Asia and Turkey”;
- UNDP-UNEP NAP Global Support Program that helps in integrating medium- to long-term planning for adaptation to climate change;
- GIZ-funded “Transboundary Water Management in Central Asia Programme”, under which a pilot project on “Drainage Waters of Khankhowuz Irrigation System” was being implemented;
- European Union (EU) Water Initiative in Eastern Europe, the Caucasus and Central Asia (EUWI EECCA), implemented by the Organization for Economic Co-operation and Development (OECD) and the United Nations Economic Commission for Europe (UNECE). This project contributed to the implementation of the EUWI National Policy Dialogues (NPD) on IWRM and water supply and sanitation in ten EECCA countries, including Turkmenistan.²²

With hindsight, we know from the experience of the project that the SCRL project team liaised with several other projects not listed in the Project Document and not only shared lessons and information with them, but also cooperated in a practical manner. The extent to which the

²² During Phase I (2008-2012), in Turkmenistan, EUWI EECCA assisted the MWE and others in the analysis of national legislation on water, sharing best practices from the ECA region on IWRM, on transboundary water accidents and on water as it relates to health issues.

SCRL project cooperated with other initiatives is presented in the following section (3.1.5) on “Linkages between the Project and Other Initiatives”.

Overall, the SCRL project has been an exemplary project in terms of connecting with other initiatives, sharing information and lessons with them and forging cooperation at the practical level.

3.1.4. Planned Stakeholder Participation

A broad-based stakeholder participation process was inherent in the design of the SCRL project, given that it was intended to facilitate partnerships with a broad-spectrum of stakeholders in different areas related to sustainable development. The Project Document included a section that outlines the “*Stakeholder Baseline Analysis*”. The analysis presented a set of key institutional stakeholders with responsibilities related to climate change adaptation, but it did not provide a profound analysis of the tasks and responsibilities these stakeholders were expected to play in the SCRL project.

The following were the main stakeholders identified in the SCRL Project Document:

- Ministry of Nature Protection;
- Ministry of Agriculture;
- Ministry of Water Economy;
- National Committee on Hydrometeorology under the Cabinet of Ministers
- Ministry of Economy;
- National Institute of Desert, Flora and Fauna;
- Research Institute of Water Management;
- Institute of Livestock Management;
- Velayat (Administrative and Territorial Units at Provincial level);
- Etrap (Administrative and territorial unit at district level);
- Gengesh (local government bodies) and Gengeshlik;
- Daikhan (Farmer) Associations and Livestock Associations;
- Daikhan farms;
- Daikhan Bank.

In the original Project Document, the Ministry of Nature Protection of Turkmenistan (MNP) was identified as the national implementing partner, tasked with the oversight of all aspects of project implementation. However, as a result of Government restructuring in early 2016, MNP was merged with the Department of the Land Resources of the Ministry of Agriculture to become a new Committee – the State Committee of Environment Protection and Land Resources of Turkmenistan (SCEPLRT), which, as the new national implementing partner, oversaw all aspects of project implementation until February 2019. SCEPLRT’s Head of the International Cooperation and Planning Department served as the National Project Coordinator (NPC). Since then, as a result of the new reorganization of the Government in February 2019, the Ministry of Agriculture and Environment Protection (MAEP) became the national partner,

but the Head of the Department on Coordination of International Environment Cooperation and Projects remained the NPC.

Consequently, MAEP inherited the role of national executing agency for the SCRL project and provided overall oversight and coordination among national initiatives and strategies regarding all project activities. This role was consistent with MAEP's role as the national agency responsible for environmental protection and use of natural resources in Turkmenistan, in defining overall policy directions and responsibility for the protection of ecosystems, protection of surface and underground water resources and monitoring the environment and natural resources, and climate monitoring. Such an integration of responsibilities under MAEP did contribute in a positive fashion to the more effective coordination of activities under the SCRL project.

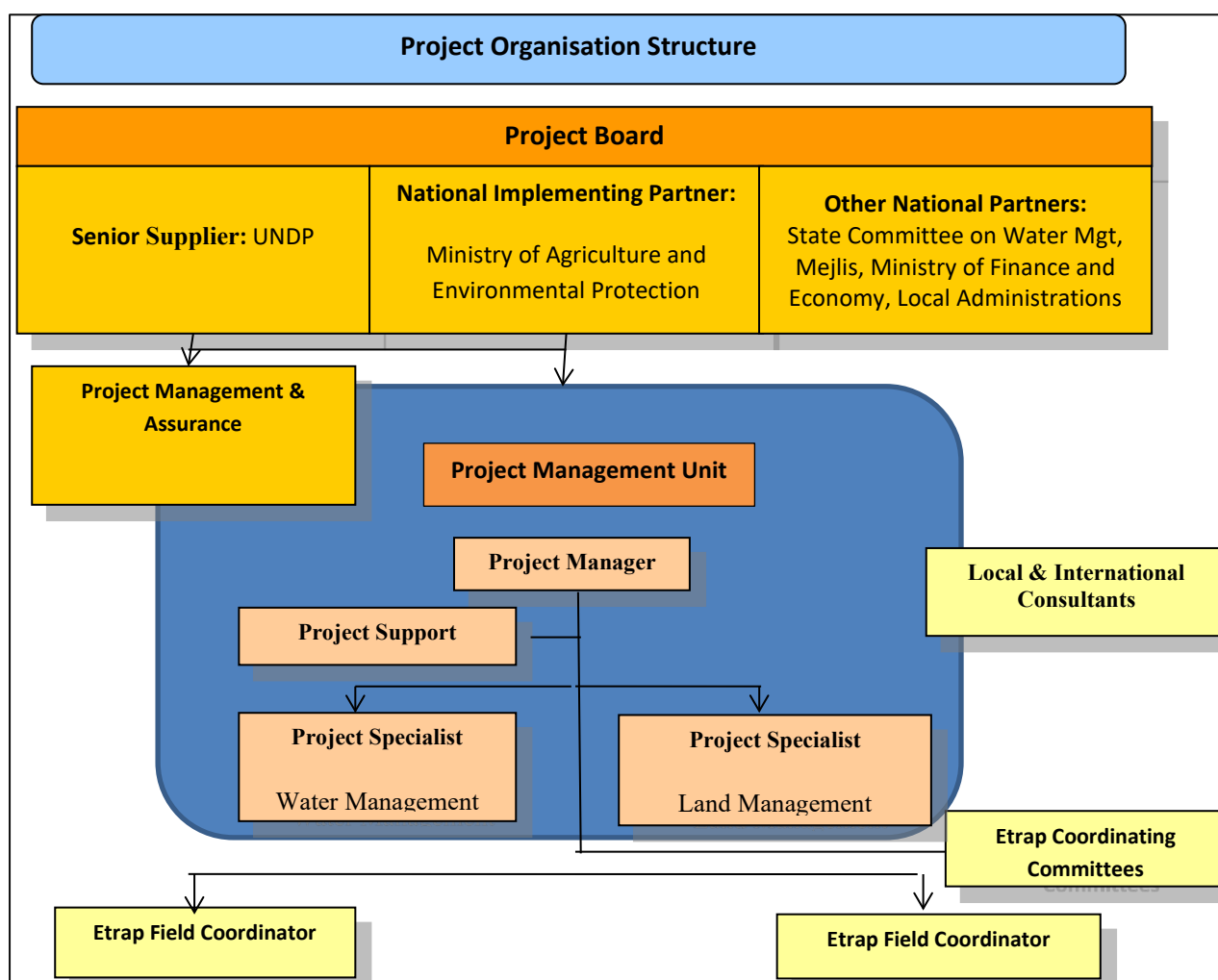
The project was carried out under the National Implementation Modality (NIM), with MAEP serving as the national executing agency (National Implementing Partner) and overseeing all aspects of project implementation. Through a Stakeholder Involvement Plan, the Project Document defined the roles and responsibilities of key stakeholders and the specific mechanisms and strategies for their direct involvement in project activities. The UNDP Country Office (CO) was tasked to provide support services to the project at the request of the National Implementing Partner.

Overall oversight of the project was provided by the Project Board, which included representatives of the main government entities involved in the project and UNDP. The National Project Coordinator (NPC) served as the Chair of the Project Board and was provided with assistance from UNDP in organizing all meetings and managing the exchange of information. As has been already noted, meetings of the Project Board have taken place twice every year. Project Board meetings were crucial for taking key decisions about the project.

Day-to-day activities of the project were managed by the Project Management Unit (PMU). The PMU, in collaboration with MAEP, had overall management and administrative responsibility for facilitating stakeholder involvement and ensuring velayat and etrap level ownership of the project. The PMU was headed by the National Project Manager (NPM) who supervised four project staff: Project Specialist for Water Resources, Project Specialist for Land Resources, the Project Assistant and the Driver. For the coordination of activities at the sub-national level, the PMU included two field coordinators - one for each pilot velayat - who facilitated and coordinated the planning and implementation of the adaptation initiatives of the pilot farmer and livestock associations. The field coordinators were under joint supervision of the Project Manager and the authorities of the pilot etraps. The UNDP CO provided support to the PMU on implementation project activities in accordance with UNDP procedures and rules, and in alignment with UNDP priority objectives, strategy and development goals.

The figure below shows the project's organizational structure.

Figure 6: Project Organizational Structure



Overall, the set up of the project at the design stage was adequate. One modification that was made at the recommendation of the MTR was the inclusion in the PMU of an international chieft technical adviser, hired half way through the project, who provided strategic support on key aspects of the project.

3.1.5. Linkages between Project and Other Interventions within the Sector

Turkmenistan has not yet developed a National Adaptation Plan (NAP) for any sector of the economy vulnerable to climate change. Perhaps that is why there is no clear definition and delineation of the area of climate change adaptation. In fact, the country is doing a lot of work in the field of climate change adaptation, but these measures are not referred to as "adaptation measures". For this reason, specialists from government ministries and departments find it difficult to answer questions regarding adaptation measures. Example of adaptation measures undertaken by the Government include:

- expanding the volume of water reservoirs for seasonal regulation,
- breeding work to create drought-resistant and salt-tolerant species of cotton and wheat,
- leaching irrigation for soil desalinization,
- improving methods of water and land management,

- developing new irrigation regimes for crops,
- nationwide programs for planting green spaces, and other adaptation measures.

The activities of the SCRL project intersected/coincided with the above-mentioned activities and programmes. All project activities were coordinated with government agencies. Some of these activities coincided with measures carried out by local government organizations. For example, on-farm water use plans developed with the support of the project were coordinated with local water management organizations. The pumping installations procured and installed with the support of the project received the appropriate approval, particularly, the technical conditions were issued by state water management and power supply organizations.

Table 5: Project's Cooperation with Other Initiatives

No.	Projects/Initiatives	Year	Area of Cooperation
1	Nexus project implemented by Regional Environmental Centre for Central Asia (CAREC)	2018-2019	Activity related to improving the availability and sustainable withdrawal and supply of water in remote desert areas of the Garagum cattle-farm in the Georogly district in the Dashoguz region of Turkmenistan
2	GEF-funded project entitled "Integrated natural resources management in drought-prone and salt-affected agricultural production landscapes in Central Asia and Turkey (CACILM-2)	2016-2021	Introduction of Aquacrop (FAO product) for the identification of irrigation water norms for a specific crop under different climate-soil conditions. In addition to this, the Regional Programme of FAO has sponsored trips of 1) the Project Manager for participation in the regional training "International training on combating desertification": 11-16 July, 2018 Koney-Mersin; 2) two project specialists for participation in the "Regional Training of Trainers Workshop for Estimating Greenhouse Gas Mitigation using the Ex-Ante Carbon Balance Tool (EX-ACT)": 26-30 November, 2018 Izmir, Turkey" in November; 3) Project specialist (Atamuradova G) and two project experts (Gardashov A., Huseynov M.) for participation in the "Regional workshop on SHARP" held in Dushanbe, 11-14 March 2019. Some planned activities were jointly organized, for instance a meeting on Aquacrop was held on 28 April 2021, during which the staff of both projects presented information materials, shared experiences to national and local partners. Also, activities on soil map development, establishment of an agriculture extension system, and legislative issues on land and water management were discussed between both projects teams. The SCRL project also provided the CACILM project access to the Agro-information center located in Gorogly etrap for conducting different events and meetings

3	Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ)	2017-2018	GIZ was involved, as was the SCRL project, in the process of updating the National Climate Change Strategy and the preparation of the Paris Agreement Action Plan. GIZ agreed to provide international expertise to ensure that requirements of UNFCCC are complied with.
4	Governance Support Program funded by USAID	2016-2021	• 2017-2018: improvement of the National legislation on Land and Water use, as well as integration of gender consideration into project activities. • 2018-2019: joint activities on promoting biotechnologies in water purification and the production of fodder crops were initiated and demonstrated to private households in the Lebap region. Similar activities were conducted for pilot farmer associations located in Dashoguz region in 2019-2020. • 2020-2021: Several information materials on alternative livelihood opportunities (on horticulture, mushroom cultivation, bio-humus production) were published with the support of the GSP. In addition, project activities under Component 2 on improvement of the Land and Water related legislation, gender mainstreaming activities are supported, too.
5	USAID – CTJ project	2019-2021	i) an additional local agronomist was recruited; ii) a series of trainings and consultations were organized; iii) the costs for two international consultants were covered; iv) a smart greenhouse was procured for the AIC in Dashoguz region; and v) Seedlings (4,800 pieces) for both pilot regions were procured and planted.
6	UNDP/GEF funded project “Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan” (EERE).	All time	The SCRL project’s water management specialist helped the EERE project to adapt FAO AquaCrop model to Geokdepe Green Polygon to test crop responses to various environmental changes. Both UNDP/GEF projects worked in synergy to improve water and agriculture regulations.
7	UNDP Global Support Programme	2019-2021	The UNDP GSP engaged an International Consultant to provide technical support in terms of MRV on mitigation for the UNDP Sustainable cities project. The general approach provided on the MRV system was useful for the SCRL project, to prepare the Road Map and recommendations on designing the MRV on adaptation measures drafted with support of the international consultant engaged for SCRL project with financial support of the UNDP GSP.

8	UNDP Sustainable cities project	All time	Together with the SCRL project, the UNDP Sustainable Cities project supported the revision of the National Climate Change Strategy, the development of the NDC and the Road Map on MRV on climate change adaptation.
9	CAMP4ASB project funded by World Bank	2020-2021	The SCRL project supported the WB project with presenting the data on Participatory Vulnerability and Adaptation Assessment carried out for the Gorogly pilot region at the beginning of the project in 2017.
10	Climate Box regional Project	2020-2021	Climate Boxes were developed within the framework of a "Climate Change Education and Awareness" regional project funded by the Russian Federation-UNDP Trust Fund for Development. The SCRL project covered some expense related with publication of the Climate Boxes. Also, the SCRL project assisted in dissemination of the Climate Boxes among secondary schools and other educational institutions in the pilot regions of the project as part of an Entertainment and Information event dedicated to the World Climate Day, organized on May 21, 2021 in the AICs of the project. The published Climate Boxes were handed over to the Ministry of Education for further distribution among secondary schools in all regions of the country including both pilot districts, universities, the Turkmen State Agricultural Institute and special educational institutions. In addition, as per request of the UNDP Regional Office and RTA, the project assisted with the organization of the participation of 5 representatives of the Ministry of Education and secondary schools in the Third Regional Education and Awareness for Climate Action in Europe and Central Asia, held on 29-30 June, 2022.
11	Russian Experts on Demand Programme	2021	Under the Knowledge Management and Capacity Building in Russia-UNDP Partnership Regional Project, Phase II an application was drafted for the "Russian Experts on Demand Programme" to engage an International Russian-speaking consultant for strengthening capacities in Turkmenistan on agro-ecological zone (AEZ) modelling. The project's application was approved and received financial support to engage a Russian consultant, prof. Ivan Vasenev, who currently is supporting the SCRL project on drafting a Concept Note and recommendations on modelling AEZ for Turkmenistan.

By providing technical support to farmers' associations in the development of water infrastructure and the introduction of sustainable technologies (no-till technology, laser levelling, drip irrigation, construction of greenhouses, planting fruit seedlings, creation of biofertilizers production, installation of agro-meteorological stations and their further operation

etc.), the SCRL project has organically fitted into the Presidential Programme of Socio-economic Development of Turkmenistan for the period 2019-2025 (2019, TDKP No. 8).

Providing practical, methodological and technical support to Turkmen State Agricultural Institute in Dashoguz, the project contributed to the achievement of the main tasks of the institute in training qualified specialists for environmental and agricultural areas, including:

- training, retraining and advanced training of specialists, as well as scientific and pedagogical personnel in the field of climate change adaptation;
- formation of an understanding among students of the need for the effective use of water and land resources at all levels;
- dissemination of knowledge among the population, increasing their intellectual potential;
- fulfilment of the state order for the training of personnel in state institute.

Further, the SCRL project supported the revision of Turkmenistan's report on the Nationally Determined Contribution under the Paris Agreement (NDC-2) in the area of climate change adaptation.

Overall, the SCRL project was designed to interact and cooperate with other initiatives with similar objectives.

3.1.6. Gender Responsiveness of Project Design

The gender dimension is important in the context of climate change adaptation in Turkmenistan. In the pilot farmers' associations and livestock farm women account for around 50% of the population. Women play a central role in agricultural activities, including planting and harvesting activities in the production of crops in state farms (around 30% by women), and particularly in growing vegetables and fruit crops in the private household plots (in the latter case, 65-70% of cultivation in household plots is done by women). At the household level, women spend many hours a day in the preparation of food for the farm workers, raising livestock and poultry, fetching water and engaging in non-farm activities. Some women are responsible for managing farm finances and marketing products from private household plots. Despite these roles, women have limited role in control of land and decision making on agricultural practices and have limited access to capacity-building services and training.

Turkmenistan adopted legislation and a National Action Plan for Gender Equality for 2015-2020 that was approved by the Resolution of the President of Turkmenistan in January 2015.

The project's design has to a large extent taken into account the above situation and constraints. The SCRL Project Document contains a dedicated section on gender considerations. The Project Document also clearly identifies the requirement for gender disaggregated data in a number of outputs. While efforts were made to integrate women's interests in all project activities, women's participation and role in decision-making was given a central role in the following activities:

- Output 1.1 Participatory vulnerability and adaptation assessments carried out in selected communities to identify priority adaptation solutions. This entailed the preparation of gender differentiated vulnerability assessments in the pilot daikhan associations and livestock farms that would assess particular vulnerabilities and impacts on women;
- Output 1.2 Gender Sensitive Adaptation Plans developed and effectively addressing climate risks. This Output resulted in the promotion of a Participatory Gender-Differentiated Village Adaptation Action Planning process to define community agriculture, livestock and water management and climate adaptation investments. A particular focus of this Output would be the development and implementation of participatory adaptation management plans that would include specific targeted activities for women to enable them to cope with the impacts of climate change. This would also entail improved measures for management and use of water, improved crop production and marketing facilities in private small holdings, crop disease and pest management, etc., all of which would have significant impact on women.
- Output 1.3 Alternative income and livelihood innovations enhancing climate-resilience of agricultural communities. An important activity under this output is the diversification of the agricultural economy to include specific alternative income generation activities, such as bee-keeping, value addition to agricultural products, small-scale cottage industries, crafts, etc. that would be largely directed at women to help them cope in times of climatic extremes and economic difficulty;
- Output 2.1 Capacity development for agriculture and water sectors enabling effective adaptation planning with gender considerations. An institutional capacity review helped identify gaps in addressing specific climate risks and clarify and refine specific training needs of staff and farmers, including vulnerable farmers and women. The ensuing training program would focus on a target effort to enable stakeholders to apply steps to strengthen the adaptive elements of their agricultural activities. Specific training curriculum and programs would be designed to target women and vulnerable farmers.
- Output 2.2 Guidelines provided to water and agriculture sector ministries on using gender disaggregated data in planning, conducting specific assessments on the needs of women and using these in sector adaptation planning and budgeting. This output facilitated the wider adoption of a gender-sensitive approach in the water and agriculture sectors to achieve greater, more effective, sustainable, and equitable climate change results, outcomes and impacts and to build equally women and men's resilience to, and ability to address climate change, and to ensure that women and men will equally contribute to, and benefit from activities that address climate change, as well as to mitigate against assessed potential risks for women and men associated with adaptation activities and to contribute to reducing the gender gap of climate change-exacerbated social, economic and environmental vulnerabilities.
- Output 3.2 Vulnerability/resilience indicators and protocols for gender-disaggregated data collection, storage, processing and use in planning and decision-making. Under this output, specific efforts were directed at develop an indicator framework that would

differentially measure vulnerabilities on a gender basis so as to be able to develop specific targeted adaptation measures for women.

- Output 3.4 Communication and outreach strategy to support the medium and long-term adaptation planning of NEPAAM developed and implemented. This output was directed at improving understanding and participation of key target groups, including women and vulnerable segments of the population on climate risk and adaptation options. The communication and outreach strategy was intended to promote meaningful stakeholder participation in the adaptation action, implement direct outreach to diverse communities and communicate adaptation implementation activities and outcomes to the broader public, including women and the vulnerable communities.

Overall, the project design has to a large extent taken into account the country situation and challenges. It has also addressed the need for gender disaggregated data in the project's results framework.

3.1.7. Social and Environmental Safeguards

While the general environmental, social and related institutional risks associated with the SCRL project and the corresponding mitigating measures were identified in the project design (as noted in section 3.1.2 of this report), the document itself contained no explicit analysis or discussion of social and environmental safeguards. The risks and mitigation measures identified in the document can be construed to represent a discussion of safeguard measures, although a more explicit recognition of this in the Project Document would have been useful.

3.2. Project Implementation

3.2.1. Adaptive Management

The SCRL project experienced several challenges that had a direct bearing on the pace of project activities. In response to the challenging circumstances that the project faced during its implementation and which will be described further in this section, the project team and stakeholders took a flexible approach and tried a variety of options, approaches and alternatives to achieve the set objectives. The project's response to the difficulties encountered during the implementation period were imaginative and adaptive.

The following is a summary of the key challenges encountered by the project and the adaptive measures undertaken by the project team in response to them.

- One key challenge that the project team faced from the beginning of implementation was the fact that the National Economic Action Plan for Adaptation and Mitigation (NEAPAM) – which was envisaged to provide the foundations for the project's third component – was not approved by the Government of Turkmenistan. In such a situation, shortly after the beginning of the project, SCRL stakeholders decided to support the revision of the National Climate Change Strategy (NCCS)²³ and use it as the basis for the prioritization of activities.
- Moreover, the SCRL Project Document envisioned certain ambitious tasks that during the course of implementation turned out to be unfeasible given the country's context. For example, the project was supposed to support the Government's efforts to develop agro-ecological zones (Project Component 3). During the design stage, it was assumed that the Government of Turkmenistan would be ready to engage staff and allocate resources for the modeling of agro-ecological zones with regards to climate change impacts. To date, however, there is no structural unit in the country tasked with AEZ modeling and with the coordination of this process. In addition, there was little awareness among representatives of key national partners on the use of this tool, its benefits and requirements. This represented a significant barrier in the development of agroecological zones within the framework of the project. In response to such low awareness among the key ministries and state-owned organizations, the SCRL project organized meetings and trainings and initiated the preparation of a "Concept Note on AEZ modelling" (which at the time of the evaluation was still under preparation).
- The second project component, which was focused on the improvement of the country's legal and policy framework, experienced significant challenges and delays. For example, the development of the normative legal act on the legal regime of the water fund was cancelled on the request of the State Committee for Water Management,

²³ The previous version of the NCCS was adopted in 2012.

Turkmen State Aquaculture Research, Production and Design Institute (“Turkmensuwlymytaslama”). In close consultation with the government partner, in its place the project elaborated the Methodological Guidelines for the Development of Technological Standards for the Use of Water, which was submitted to the State Committee for Water Management. Overall, the approval of legal instruments turned out to be a lengthy process outside of the project’s control. Consequently, the project team recruited a legal expert to support the project and national partners with (i) preparation of the draft Concept Paper for the Law on Agro-Consulting Services in Turkmenistan; (ii) the provision of regular consultations to project staff on enhancing the legal status of the AICs established in the Lebap and Dashoguz pilot regions, and the compilation of the required package of legal documents; and (iii) further revision of previously drafted regulatory legal acts, taking into account comments received from key parties and local communities and the promotion of their formal adoption by relevant state authorities. The legal consultant also acted as intermediate between the project and government stakeholders on explanations of drafts prepared.

- There were also challenges with the grant proposals that the project team had to address through an adaptive approach. For example, the approval procedure for the grant proposal for the Serdar livestock farm took much longer than expected. The initial proposal for Serdar livestock farm was not supported by the Grant Committee due to the large budget requested, as well as insufficient potential climate resilience outcomes. Following numerous consultations between the project team and grant recipients, the small grant proposal for Serdar livestock farm was significantly revised and improved, introducing innovative solutions for sustainable pasture management. The small grant proposal received final approval in May 2021.
- The project team also had to manage the highly fluctuating exchange rate between the US dollars (USD) and the Turkmenistan manat (TMT). The USD/TMT exchange rate changed significantly during the course of project implementation.²⁴ The greatest change coincided with the period when the project was actively carrying out small grant activities and funds were allocated to the accounts of farmers' associations in the national currency. Changes in exchange rate led to a sharp rise in prices in the local market, increase in the financial offers of the national experts to provide consultancy services, transportation costs, etc. Furthermore, to address the inflation challenge, the project began to look for opportunities to attract additional funds in order to avoid excessive spending and lack of dedicated budget. Thus, funding from other donors USAID CTJ, GSP, CAREC, GIZ was mobilized as co-financing for the implementation of joint adaptation measures, engagement of consultants, etc.

²⁴ At the beginning of 2021, the exchange rate has changed over 11 times compared to the rate at the beginning of the project.

- The COVID-19 crisis had a significant impact on project activities in 2020 and 2021. The global pandemic resulted in multiple challenges related to the activities of the project, including restrictions in the movement of goods and travel, halting of imports, rapid inflation and increased prices for goods and materials, etc. These challenges caused delays and cancellation of project activities, including the grant initiatives, training activities, workshops and seminars, missions of international consultants to Turkmenistan and national experts to project sites, etc. The major delays experienced by the project are outlined in the “Efficiency” section of this report.

In response to these challenges, the project team undertook a number of adaptive measures. Many project activities and events were moved to online platforms.²⁵ As will be seen in the M&E section of this report, the supervision of project activities in the pilot regions was conducted remotely using online platforms for meetings. The project paid particular attention to the strengthening of technical capabilities of partners’ institutions, especially those at the sub-national level, to conduct virtual meetings. For example, the project supported Agro Information Centers with equipment and promoted the adoption of COVID-19 safety measures to enable community members to participate in project activities.

Overall, despite restrictive measures taken by the country in response to the COVID-19 pandemic, the project managed to make progress towards the achievement of project targets. As can be seen from the description above, while the project team and stakeholders tried as much as possible to remain consistent to the original design of the project, they were also flexible and adaptive, exploring different options and alternatives based on decisions discussed in the Project Management Board. One area of this project that would have benefited from greater adaptive ability is the project’s results framework. As has been noted, although some minor changes were made to the logframe, the quality of indicators used to track this project’s progress remained inadequate. Also, the project would have benefitted from the involvement of the Ministry of Finance and the Ministry of Justice as financial/budgetary issues and the approval of draft laws created delays that could have been avoided by a closer involvement of these institutions in project activities. It should be noted that during the implementation the project’s team of legal experts made several attempts to engage the MoJ in the process, however no engagement was achieved

3.2.2. Actual Stakeholder Participation and Partnership Arrangements

Given the SCRL project’s wide scope of activities, it engaged a wide range of partners - government staff, local specialists of farmer associations, farmers, scientists and students, women, etc. The project’s management board consisted of the following membership:

- Ministry of Agriculture and Environment Protection (MAEP);
- Parliament of Turkmenistan;
- State Service on Hydrometeorology under MAEP;

²⁵ Trainings and workshops (13 events) were conducted in online mode, engaging representatives of all targeted farmers’ associations (Parahat, Watan, Yagtylyk, Babadayhan, Abadanlyk and B.Ovezov) and livestock farms (Garagum and Serdar) to increase their adaptive capacity, elaborate and/or implement Local Adaptation Plans (LAPs).

- Ministry of Finance and Economy;
- Daikhanbank;
- Hakimlik Lebap velayat;
- Hakimlik of Dashoguz velayat;
- Hakimliks of the etrap of Gorogli of Dashoguz velayat;
- Hakimlink of etrap of Danew (former Galkinish) of Lebap velayat;
- State Committee for Water Management and its State Institute of Water Management Design (SIWMD);
- Union of Industrialist and Entrepreneurs (UIE); and
- UNDP.

The Ministry of Foreign Affairs (MFA) which was initially envisaged to be part of the PB did not eventually participate in the board. The National Institute of Deserts, Flora and Fauna (NIDFF), which initially was not a member of the PMB, was added after the first PMB meeting in 2017.

The project established two etrap-level coordination committees to guide the implementation of pilot activities, facilitate coordination among the different socio-economic development programmes, monitor and oversee progress and facilitate the dissemination of best practices and lessons to other etraps within the two pilot velayats. Their membership included AIC coordinators, AIC technical experts, chairmen of daikhan associations, chief agronomists of daikhan associations, brigades' heads and local farmers. Etrap level coordination committees met as needed, but at a minimum twice a year.

The roles played by key project stakeholders (relevant Government departments) are described in the box below.

Box 4: Roles of Key Project Stakeholders

Department for Coordination of International Environmental Cooperation and Projects of the Ministry of Agriculture and Environmental Protection

- Organization and chairing of the meetings of the Project Management Board (PMB), and other project activities (trainings, seminars);
- Regular discussion and approval of annual work plans (AWP), informing the Government about the progress and achieved results of the project;
- Participation in the Grant Commission - selection of small grant applications, participation in discussions;
- Assistance in the promotion and development of AICs, their subsequent transfer to ensure the sustainability of the project after its completion;
- Assistance in the registration of the UNDP project and the regular extension of the registration timeframe at the Ministry of Finance and Economy of Turkmenistan;
- Participation in all trainings and activities of the project to raise awareness of climate resilient measures in agriculture and water management;
- Visiting pilot sites and meeting with local communities to assess the effectiveness of project activities in the pilot region;

- Coordination of issues of participation of local partners (velayats and etraps) in project's events;
- Participation in a study trip to Uzbekistan (2019) to raise awareness on sustainable development of agriculture and water management;
- Assisting in the implementation of the mid-term evaluation, regular monitoring of the implemented activities and coordinating feedback with all project partners.

Land Management Service of the Ministry of Agriculture and Environmental Protection

- Participation in preparations and discussions of the following legal documents:
 - Draft Law of Turkmenistan "On the Land Cadastre",
 - New edition of the "Land Code of Turkmenistan"
 - Turkmenistan procedure for allocation land plots for ownership, use and lease
 - Procedure for maintaining the State Land Cadastre
 - Methodological instructions on the procedure for carrying out work on the assessment of soils and the economic assessment of irrigated lands, etc.
 - Assistance in the development of the Terms of Reference for the implementation of the Land Cadastre of Turkmenistan (upon an official request to the UNDP CO);
- Participation in trainings and project activities to raise awareness of climate resilient measures in agriculture and water management;
- Participation in meetings and assistance in work on modelling agroecological zones
- Participation of representatives of regional land management services in a study trip to Israel (2017) to raise awareness of sustainable agriculture and water management

Department of Crop and Livestock Production, Department of Environment Protection, National Institute of Desert, Flora and Fauna of the Ministry of Agriculture and Environmental Protection

- Participation in seminars, trainings and project meetings (on the development of horticulture, on the economic assessment of ecosystem services, on the concept of creating a national agricultural consulting system, on the discussion of legal documents in the field of land and water resources, on modelling of AEZs, etc.),
- The National Desert, Flora and Fauna Institute is a member of the PMB and participated in the regularly held meetings;
- Participation in discussions of the project deliverables:
 - Recommendations on the economic assessment of eco-system services;
 - Concept for the Establishment of a National Agricultural Consulting System and a draft law;
 - Scientific and practical guidelines;
 - Guidelines for integrating adaptation into sectoral plans for agriculture and water sectors;
- Assistance in fulfilling commitments under the UNFCCC and the Paris Agreement:
 - Updating the National Climate Change Strategy of Turkmenistan (2019)
 - Preparation of the Roadmap for MRV on adaptation
 - Updating NDC, etc.

Hydrometeorological Service of the Ministry of Agriculture and Environmental Protection

- Participation in project workshops and meetings (to discuss the report on the assessment of institutional capacity for effective planning of climate change

adaptation, the National Climate Change Strategy of Turkmenistan, the use of multicluster agro-ecological maps in the process of planning climate change adaptation, etc.);

- The designated representative of the Hydrometeorological Service is a member of the Project Management Board and has attended its regular meetings;
- Participation in meetings to discuss the possibility of participation of the Hydrometeorological Service in the process of modelling AEZs (February 2021);
- The project assisted in the preparation of the information material for the World Bank publication “Weather, Climate and Water Resources in Central Asia” - Atlas of Maps, for which the Hydrometeorological Service provided support and the necessary information, and participated in the compilation of the atlas of maps for Turkmenistan. This publication was distributed to all government agencies that work with hydrometeorological data, as well as among educational institutions, and technical assistance projects involved in reducing climate risks and climate change adaptation;
- In June-July 2021, meetings were organized with the management of the service to collect data and discuss issues related to the capacity, technical needs assessment of the Hydrometeorological Service in the framework of the preparation of the report "Nationally Determined Contributions" under the Paris Agreement;
- The project assisted in organizing a thematic seminar for specialists of the Hydrometeorological Service "Features of atmospheric circulation and synoptic processes in the territory of Turkmenistan and neighbouring states" (November 22-26, 2021).

Turkmen State Agricultural Institute (TSAI) of the Ministry of Agriculture and Environmental Protection

- Supported the initiative to promote the principle of Integrated Water Management (IWRM) and its inclusion in the educational process.
- Joint development of guidelines for agricultural producers:
 - Guidelines for development of on-farm water use plan (2019);
 - Guidelines for assessing the reclamation state of irrigated lands (2019);
 - Guidelines for the optimal use of mineral fertilizers (2019);
 - Guidelines for irrigation of agricultural plants with drainage waters (2021);
 - Manual on the development of poultry as an alternative source of income (2021);
 - Manual on the production and use of biohumus in the conditions of Turkmenistan (2021).
- Active participation of TSAI’s teachers as moderators and speakers in many trainings, workshops and field days of the SCRL project (on alternative sources of income, combating salinization of irrigated lands, monitoring and assessing the degradation of irrigated lands and others);
- Participation of students, researchers and teachers in educational trainings and information activities of the project to raise awareness in the field of climate resilient measures in agriculture and water management (operation of the drip irrigation system, laser levelling of irrigated lands using laser technology, the use of digital technologies in irrigation planning, horticultural field days, irrigation planning using the AQUACROP model, AEZ modelling, etc.);
- Participation of TSAI’s students in the competition for writing essays on gender issues “Women. Agriculture. Climate Change Adaptation” (2018).

- Testing and distribution of water-saving technologies through research and production centers. A drip irrigation system with a fertigation system (application of mineral fertilizers in liquid form), observation wells for the level of groundwater, and a METOS weather station were installed on the study territory of the institute. In addition devices for measuring soil quality, groundwater salinity were purchased. The project transferred all these devices to the Institute free of charge and has provided appropriate training for teachers and students on their use and proper operation.
- The designated representative of the Institute was a member of the PMB, and attended the regular meetings;
- Participation of a representative of TSAI in a study trip to Uzbekistan (2019) to raise awareness in the field of sustainable development of agriculture and water management

State Committee for Water Management of Turkmenistan

- Participation in a study trip to Israel on "Sustainable agriculture and rational use of water resources", March-April 2017;
- With the support of the project, with the participation of local specialists from water management organizations (structural subdivisions of the State Committee), on-farm water use plans have been developed and agreed at the local level by water management organizations for seven farmer associations;
- Representatives of the State Committee, as well as local representatives of water management organizations attended all trainings, workshops, field days of the project related to water management.
- The project together with the specialists of the Water Committee worked on the preparation of the following legal documents:
 - Amendments to the laws on farmer associations and farmers societies;
 - Regulation on the use of inter-farm reclamation systems;
 - Regulation on the use of on-farm reclamation systems;
 - Guidelines for the development of technological standards for the use of water.
- The designated representative of the State Committee for Water Management (SCWM) participated in the regular meetings of the Project Management Board.

Institute Turkmenowlymyntaslama of the State Committee for Water Management

- Preparation, approval and use of "Scientific and practical guidelines for development of on-farm water use plans". The research staff of the institute took an active part in the development, wrote a review to this guideline. This guideline is currently being used by local experts when agreeing on water use plans by farmers' associations.
- Research staff of the institute participated in trainings and workshops of the project held at the national level (on the implementation of gender approaches for effective adaptation planning at the local level, training on the use of digital irrigation planning technologies, a meeting to discuss the concept of creating a National Agricultural Consulting System in Turkmenistan etc.)
- Participated in the preparation of the draft "Guidelines for irrigation of agricultural crops with drainage waters", for which the scientific developments of the Institute were used;

- Participation in the preparation and discussion of regulatory legal acts on water resources management, legal expertise of regulatory legal acts, etc.

Commercial Bank Dayhanbank

- Provision of support to pilot farmer associations in opening special-purpose sub-accounts for transferring grant funds of the UNDP project;
- Expressed interest in providing soft loans for the introduction of water-saving technologies;
- The project ensured the active participation of the Bank in the preparation of the project document "Conservation and Sustainable Management of the Land Resources and High Nature Value Eco-systems in the Aral Sea Basin for Multiple Benefits";
- The appointed representative of Daihanbank participated in the regular meetings of the Project Management Board.

Mejlis (Parliament) of Turkmenistan

- Participation in a study trip to Israel on "Sustainable agriculture and rational use of water resources", March-April 2017;
- Participation in discussions, revision and approval of the following legislative acts of Turkmenistan in the field of land and water use:
 - Law of Turkmenistan on Land Cadastre (approved 2017);
 - Land Code of Turkmenistan;
 - Law of Turkmenistan "On Amendments to the Law of Turkmenistan" On Daikhan Associations ";
 - Law of Turkmenistan "On Amendments to the Law of Turkmenistan" On the Farming Industry "and other laws and regulations;
 - Concept for the creation of the National Agricultural Consulting System and the concept of law;
- Organization of consultations and discussions (5-day meeting to discuss the Land Code, etc.);
- The appointed representative of the Mejlis attended the regular meetings of the Project Management Board.

Local Administration - khyakimliks of velayats and etraps of pilot regions

- Participation of representatives of khyakimliks of velayats and etraps, as well as farmers' associations in a study trip to Uzbekistan (2019) to raise awareness of sustainable development of agriculture and water management;
- Authorized representatives of khyakimliks of Lebap and Dashoguz velayats, as well as khyakimliks of Danew and Gorogly etraps participated in regular meetings of the project management board;
- Participation of specialists of khyakimliks of velayats and etraps in educational trainings, workshops and information activities of the project to raise awareness in the field of climate resilient measures in agriculture and water management (combating salinization of irrigated lands, monitoring and assessing the degradation of irrigated lands, laser levelling of irrigated lands using laser technologies, the use of digital technologies in irrigation planning, field days for horticulture, irrigation planning using the AQUACROP model, AEZ modelling, etc.);
- Participation in the selection of grant applications and discussions organized at the local level;
- Assistance in the promotion and development of AICs, and provision of interest in adopting the AICs to continue their operation after project's completion;

- Visiting pilot sites and meeting with local communities to assess the effectiveness of project activities in the field;
- Ensuring the participation of specialists from farmers' associations and other local organizations in the project activities;
- Assistance in the promotion of project activities - solving issues with delays in the implementation of grants, timely payments, granting permits, etc.

Using established linkages with national institutions, including the Turkmen State Agricultural Institute (Dashoguz), State Agricultural University (Ashgabat), National Research Institute “Turkmensuwlymytaslama”, and the Land Management Department under the Ministry of Agriculture and Environmental Protection (MAEP), the continuity and sustainability of capacity building and training activities was ensured. Activities were implemented jointly with the Central Asia Nexus Dialogue project and local pastoral communities. National experts, including of the Turkmen Academy of Sciences, demonstrated a range of innovative solutions.

National ownership and leadership of this project was varied, with moderate engagement by governmental institutions. With the exception of representatives of the Turkmen State Agricultural Institute in Dashoguz, the engagement of other relevant government departments in project activities and tasks was mostly reactive and limited to participation in project activities organized by the project team. Their main contributions consisted of organizational support with planning and agreeing on project activities and discussing the results achieved.

Civil Society

The SCRL also engaged non-governmental organizations (NGOs) in joint activities. The following are examples of the way in which the project cooperated with NGOs.

- Bosphor - focused on jurisprudence and consulting. The SCRL project cooperated with Bosphor in the area of the national legislation on land resources management.
- Eco-durmush (Dashoguz province) – focused on agriculture and ecology. The SCRL project was the initiator of joint actions on the development of consulting services and provision of practical advice.

Private Sector

The private sector participated in SCRL project’s small grants programme. For this reason, they participated actively in trainings, seminars and information days organized by the project. Some of the private sector participants received small grants:

- Use of “no-till” technology as a resource-saving technology by minimizing the destruction of the fertile layer and increasing soil moisture retention.
- Construction of a biofermenter for the production of biocompost.
- Demonstration of the effectiveness of drip irrigation.

The project also engaged legal experts and agronomists – including those mobilized by other projects such as the USAID CTJ - to provide advice to the private sector. More than 40 consultations and recommendations on land development and land registration were provided.

Representatives of the private sector were included in the group of beneficiaries to receive remote agro-consultations from the Israeli company “Emnotion Ltd” in the following areas: site planning, design of greenhouses, design of drip irrigation systems, development of cultivation technologies and technologies for water purification, pest control measures, etc.

Representatives of the private sector participated in round tables to exchange experience and provide practical skills in order to avoid risks in such areas as: the development of organic farming, greenhouse management, the use of a number of fertilizers as a measure to combat salinization, the development of horticulture, biological wastewater treatment for reuse, and fish farming.

Services were provided on a regular basis to private sector entities through the AICs. This included the provision of measuring devices, distribution of training materials, provision of a workplace (computer and Internet), consultations, etc. Upon the request of private companies Gairat Agro and Lebap Agro, consultations were provided on the development of an on-farm water use plan. They informed that they learned information about the project from the mass-media and applied to the project for consulting and expert services.

The project sought to involve the private sector in project activities through the Union of Industrialists and Entrepreneurs of Turkmenistan (UIET) in order to improve access and cooperation of the private sector. For this, it was supposed to conclude a memorandum of understanding and cooperation, but due to lengthy approval procedures, this did not happen.

Development Partners and International Organizations

The SCRL project has engaged with other UNDP projects and other development partners and international organizations. The following are some key examples.

- UNDP projects: “EERE” and “Sustainable cities” – the cooperation with these two projects was established based on the common field of interests following an approval of the UNDP CO;
- USAID GSP – the cooperation was possible on the basis of the “Joint Action Plan” (signed in 2018 and 2019) on supporting the governance process in such areas as: gender, development of alternative sources of income, AEZ, AIC, national legislation, conducting joint trainings and meetings, organizing translations, covering the costs of printing publications (brochures, manuals, practical recommendations). Initiator of the actions was GSP, while areas for cooperation were proposed by the SCRL project;
- USAID CTJ - the cooperation was possible on the basis of the “Joint Action Plan” (signed in 2020). The main areas of cooperation were the development of competitiveness and capacity of local agricultural producers, raising awareness and experience on international trade issues. Initiator of the actions was CTJ, while areas for cooperation were proposed by the SCRL project;

- USAID C5+1 project – the cooperation was possible on the basis of the letter from the Director of the USAID Country Office in Turkmenistan to the UNDP Resident Representative. The International consultants Glen Anderson and Lorine Giangola supported the SCRL project with the organization of the Workshop on Integrating Local Adaptation Plans into National Adaptation Planning and Budgeting Processes, July 2019;
- GIZ - the cooperation was possible on the basis of the «Letter of Agreement». GIZ was initiator of the joint actions on revision of the National Climate change strategy;
- CAREC - the cooperation was possible on the basis of the «Letter of Agreement»; CAREC was the Initiator of the joint actions on implementation of the climate change adaptation measures in remote areas (Esenaman, Dashoguz);
- Russian Expert on Demand programme – the cooperation was possible through the application coordinated by UNDP Country Office. The SCRL project has applied and received approval on the request on support on modelling AEZ;
- Regional Project on Climate Box – the coordination was through the UNDP Regional Office and instruction from the Program Analyst of the Environment Portfolio of the UNDP CO;
- FAO/CACILM project – the cooperation was established at the Inception Phase, based on a recognized common field of interests on promotion of the scientific-based approaches and FAO instruments (farmer school, mainstreaming climate change adaptation, resource saving technologies, etc.). The SCRL project was the initiator of the joint actions.

3.2.3. Project Finance and Co-Finance

Project Financing

This section provides an overview of the project's financing and expenditures, based on information provided by the project team. Out of a total of US\$ 3,146,347 planned for expenditure by the project, a total of US\$ 2,974,304 had been spent by the project at the time of this evaluation, which represents 95% of the total available amount. The project team expects to utilize all remaining funds by the time the project will be closed at the end of March 2022.

Table 6: Project Planned and Actual Expenditure

No.	Outcome Area	Budgeted (as per Pro Doc)	Spent	Execution Rate
Year 2016				
1	Outcome 1	311,000	44,013	14%
2	Outcome 2	96,000	59,241	62%
3	Outcome 3	96,560	2,892	3%
4	Project Admin	49,897	13,765	28%
6	Total	553,457	119,911	22%
Year 2017				

No.	Outcome Area	Budgeted (as per Pro Doc)	Spent	Execution Rate
1	Outcome 1	441,000	405,511	92%
2	Outcome 2	112,000	180,314	161%
3	Outcome 3	132,000	62,321	47%
4	Project Admin	54,100	104,005	192%
6	Total	739,100	752,152	102%
Year 2018				
1	Outcome 1	448,785	457,096	102%
2	Outcome 2	109,000	92,654	85%
3	Outcome 3	140,818	126,779	90%
4	Project Admin	50,842	21,190	42%
6	Total	749,445	697,720	93%
Year 2019				
1	Outcome 1	328,000	297,211	91%
2	Outcome 2	112,000	133,269	119%
3	Outcome 3	119,560	125,466	105%
4	Project Admin	50,125	48,770	97%
6	Total	609,685	604,715	99%
Year 2020				
1	Outcome 1	268,000	224,430	84%
2	Outcome 2	84,000	80,064	95%
3	Outcome 3	102,560	72,221	70%
4	Project Admin	40,100	13,051	33%
6	Total	494,660	389,765	79%
Year 2021				
1	Outcome 1		284,920	
2	Outcome 2		35,400	
3	Outcome 3		68,635	
4	Project Admin		21,086	
6	Total		410,041	
ALL YEARS				
1	Outcome 1	1,796,785	1,713,181	95%
2	Outcome 2	513,000	580,941	113%
3	Outcome 3	591,498	458,314	77%
4	Project Admin	245,064	221,868	91%
6	Total	3,146,347	2,974,304	95%

Project Co-financing

An important aspect of the SCRL project was co-financing provided by national counterparts. While the amount of the grant by GEF (SCCF) was US\$ 3,046,347, the amount of co-financing committed by the Government of Turkmenistan in the Project Document was US\$ 20,000,000.

The project team has tracked the amount of co-financing generated in the course of the SCRL project and the information collected by the team is summarized in the table below. As can be seen from the table, the amount of co-financing provided by state organizations amount to US\$ 27,999,485, which is well in excess of the US\$ 20 million expected from the Government of Turkmenistan. The amount of co-financing provided by local communities (beneficiaries) is US\$ 752,619. It should be noted that all the co-financing provided by state organizations and local communities was provided in kind. The project team was also able to form important partnerships with international organizations and programmes, which led to the generation of co-financing (in the form of grants) from these entities in the amount of US\$ 752,030. All in all, the SCRL project has generated a total of US\$ 29,504,134 in co-financing (as of the point of this evaluation).²⁶

Table 7: Co-financing Secured by the Project

Entity providing financing	Amount in US\$
Ministry of Agriculture and Environmental Protection	14,691,627
State Committee for Water Management	12,828,571
Local Administration of Lebap velayat	5,434
Local Administration of Dashoguz velayat	5,434
Local Administration of Danew etrap, Lebap velayat	89,079
Local Administration of Gorogly etrap, Dashoguz velayat	379,339
<i>Subtotal State Organizations</i>	27,999,485
Local agricultural communities of Danew etrap, Lebap velayat	445,933
Local agricultural communities of Gorogly etrap, Dashoguz velayat	306,686
<i>Subtotal Beneficiaries</i>	752,619
Russian on Demand Program / Russian Trust Fund	23,000
GIZ	130,000
FAO	40,000
GCF	220,000
Government of Germany	130,000
Adaptation Fund (AF)	10,000
UNEP	20,000
USAID	129,030
World Bank	50,000
<i>Subtotal Donor Agencies</i>	752,030
TOTAL	29,504,134

²⁶ The amount of co-financing presented in this report was calculated by the Project Team. The evaluation team was unable to verify this information independently. Also, it was not possible to obtain a formal confirmation of the co-financing amount by the Government.

3.2.4. Monitoring and Evaluation

M&E Design at Entry

The SCRL project was subject to an extensive and well-defined monitoring system. The design of the Monitoring and Evaluation (M&E) system provided in the Project Document was overall adequate. It comprised standard tools used in most UNDP projects in accordance with established UNDP and GEF procedures. However, as has been noted in the previous section of this report dedicated to the project design/formulation (3.1.1), the project's results framework displays significant weaknesses, especially in the way outcome indicators and targets were defined. This created challenges for the project team in terms how they subsequently proceeded to tracking and monitoring project results. **For this reason, the rating of Monitoring and Evaluation Design at Entry is “Moderately Satisfactory”.**

M&E Plan Implementation

The project team monitored a range of aspects related to the project, starting from the overall country situation and the surrounding environment, all the way to the project's immediate implementation process. The project team tracked and analyzed potential risks and brought them to the attention of the PMB, national authorities and UNDP CO. Through the UNDP Atlas system, the project team monitored critical risks such as the exchange rate of the national currency and the impact of COVID-19 and identified measures to manage and mitigate them. The adaptive measures undertaken by the project team, including the major ones listed in the previous sections of this report, were identified and carried out on the basis of the monitoring mechanisms put in place by the project stakeholders. The MTR, in particular, was useful in helping project stakeholders establish a clear baseline with regards to the project's achievements, strengths, weaknesses and challenges up to that point.

The PMB played a crucial role not only in providing strategic guidance to the project, but also in monitoring the performance of the project and providing accountability. The PMB was established in the first PMB meeting on January 24, 2017 and carried out its oversight role, provided strategic guidance and took major decisions as needed. PMB meetings were conducted biannually. Up to the point of this evaluation ten PMB meetings had taken place. The following are the dates of each meeting.

- In 2017 - 24 January and 15 August;
- In 2018 – 25 January and 29 August;
- In 2019 – 05 February and 17 September;
- In 2020 – 24 January and 02 October;
- In 2021 – 27 January and 14 October.
- The final PMB meeting is scheduled for February 2022.

PMB meetings were critical for the provision of strategic guidance to the project. For instance, in 2018 the project requested the PMB to assist with the selection of the additional farmer associations, and a relevant decision was taken on this issue. Referring to this decision, the project officially requested the Hyakimliks of Lebap and Dashoguz velayats to nominate the

additional farmers' associations for scaling up project activities. As result, three additional farmers' associations and one livestock farm were selected, and became engaged in further project activities.

The implementation process was tracked on the basis of annual work plans. At least one month before the start of the year, the Project Manager prepared that year's annual work plan. These plans were reviewed and approved by the PMB and were thereafter used as tools for planning, implementing, and tracking work flows. In addition, for each PMB meeting, the Project Manager prepared a full status report on project activities, including achievements, risks and mitigation measures.

The monitoring of the implementation of grant initiatives was a crucial aspect of the project's monitoring process. The establishment of the Grant Committee for the selection of grant initiatives was a key part of the process that ensured the impartiality and transparency of the process. The project team monitored and assessed the implementation of grant activities. Progress reports were provided to the heads of etrap and velayat administrations on a regular basis, and five local board meetings were conducted in each pilot region to discuss the concerning issues and find solutions.

Communications between the project team and PMB were efficient, especially at the sub-national level. PMB members were informed timely whenever problematic issues arose in the implementation process (i.e. implementation of small grant activities in the pilot regions, promotion and clarification of the status of legal documents prepared within the framework of the project, assistance in obtaining data for the preparation of strategic documents, etc.). PMB members from local administrations were regularly informed about progress as well as delays of project activities (including the small grant programme), operational and organizational issues, etc. Supervisors from local administrations responded immediately to project team requests and assisted in the provision of authorizations and guidance required for the implementation of project activities in the two pilot regions.

For all the strengths of the project's monitoring and evaluation system, there were also challenges. The following are the main ones identified in the course of this evaluation.

- As has been noted in previous sections of this report, the project's results framework lacked strong and meaningful indicators that would have enabled project stakeholders to track the project's achievements on a solid basis.
- Another key observation here is that the tracking and verification of project results/indicators on the ground was not done on the basis of a rigorous monitoring system. For the most part, the project team relied on scattered records from the participating communities and stakeholders in different locations and developed the results presented below by aggregating this information. The COVID-19 restrictions certainly played a role in limiting the ability of project staff to visit the project implementation sites to collect information about project results. Also, the international adviser whose tasks included the tracking and verification of data on the ground was unable to visit the country and conducted his activities remotely.

- Furthermore, as reported by the project team, several measures designed to adaptively address MTR recommendations were challenged by the COVID-19 restrictions.

Despite the significant efforts that the project team has made in document in extensive details the products of the project, for the reasons mentioned above the rating of the Implementation of Monitoring and Evaluation is “Moderately Satisfactory”.

3.2.1. UNDP Implementation/Oversight, Implementing Partner Execution and Overall Assessment of Implementation/Oversight and Execution

Performance of the Executing Agency

As has already been noted in this report, with SCRL being a NIM project, MAEP was responsible for overseeing all aspects of project implementation. Based on available documentary information and interviews with stakeholders, MAEP’s quality of engagement in this project is assessed as satisfactory. Ministry specialists and the National Project Coordinator visited the pilot regions of the project several times, got acquainted with the activities of the AICs, communicated with local people, and as a result, they increased their understanding of the relevance and importance of the activities carried out within the framework of the project. MAEP staff participated in all relevant training and awareness-raising activities of the project. Participation in these events contributed to the development of better understanding of climate change adaptation issues among ministry representatives. For example, MAEP’s Environment Protection Department developed a better understanding of climate change adaptation, its role in mainstreaming adaptation. For example, in the process of updating the National Climate Change Strategy and the Nationally Determined Contributions (NDC), ministry staff were capable to clearly formulate requests for data on the implementation of adaptation measures and forward the requests to key government departments. They became more active and supportive of project activities in several areas: promoting legislative issues, introducing innovative technologies (laser planning), creating a national agricultural consulting system, etc. Therefore, the SCRL project contributed to the development of a better understanding of climate change adaptation issues among ministry representatives.

Despite the constructive and positive role of MAEP in this project, there are a range of outstanding issues that requires MAEP’s attention as this project draws closer to its end. A number of very crucial decisions are expected from MAEP with regards to the handover of a number of processes and products that have emerged from the SCRL project. All these matters that require MAEP’s urgent attention are highlighted in the sustainability section and the second recommendation of this report.

Given the achievement of most results expected of this project and the close engagement of MAEP with the project, the rating of Executing Agency’s performance in the project is “Satisfactory”.

Performance of Implementing Agency (UNDP)

UNDP provided quality assurance, in accordance with requirements of the GoT and UNDP Policies and Procedures. Most of UNDP’s work for the project was based in its Country Office

(CO) in Ashgabat, under the supervision of the Programme Specialist for Environment and Energy and other senior programme staff, including the UNDP Resident Representative and Deputy Resident Representative. UNDP also engaged independent experts to carry out the project's midterm and terminal evaluations. The UNDP Regional Technical Advisor, based in the UNDP Istanbul Regional Hub, provided technical support in terms of project cycle management and oversight support, to ensure consistency with expectations from UNDP and GoT.

The UNDP CO provided support services to the project at the request of the National Implementing Partner. These support services included assistance with reporting requirements, procurement and direct payments. In providing such support, the UNDP CO ensured that the capacity of the government-designated institution was strengthened.

UNDP provided support to the project throughout its implementation and oversight, including in the identification of objectives and activities, preparation of the concept, preparation of the detailed proposal, approval of the Project Document, start-up of project activities, oversight, supervision, and execution of actions, and evaluation of the project. UNDP also provided financial oversight, including approval of expenditures and independent audits, monitoring and mid-term and final evaluation of progress and results will be also ensured by the country office.

The following are some key contributions of UNDP in this project;

- UNDP played a key role in the monitoring and evaluation of the project, working closely with project partners to ensure that the outputs of the project were on track through field visits, consultations and reviews with stakeholders;
- UNDP also provided advisory support to the project. Its experience with similar projects in other countries was particularly useful. To this end, the project received substantial technical assistance from the Regional Technical Advisor in the UNDP Regional Hub, in addition to the international and local consultants. The RTA has not only provided monitoring support to the project team, but has also helped with recommendations on budget allocations, guidance on operational decisions and the process for obtaining a 6-month extension of the project;
- UNDP also provided operational support to the project, especially with regards to the procurement process. Given the infrastructure-related nature of the project, procurement was an essential part of activities. This report has described some delays of the procurement process;
- UNDP also ensured the firewall between implementation and oversight responsibilities.

The Project Team played a crucial and active role in facilitating and coordinating project activities. The team was instrumental in keeping project stakeholders and board members fully informed on project-related activities. This was especially important in the context of frequent and multiple changes that took place in government institutions.

As far as UNDP's role in this project is concerned, two challenges were identified by stakeholders interviewed for this evaluation:

- High turnover of staff in the UNDP CO, especially those in positions related to decisions that needed to be made with regards to the SCRL project.
- Need for greater involvement with this project of the high-level management of the UNDP CO. Greater engagement from the high-level management of the UNDP CO might have prevented some of the delays that affected the project (and which are reviewed in more detail in the “Efficiency” section of this report).

Overall, the performance of UNDP (the Implementing Agency) has been adequate, with an appropriate level of support provided to the project team. During the MTR and terminal evaluation, no concerns were noted with regard to UNDP’s performance and its role in the project. In particular, no delays were noted in the transfer of funds and no shortcoming were detected in the conduct of monitoring activities. **Given the above, the rating of Implementing Agency’s performance in the project is “Satisfactory”.**

3.2.5. Risk Management

The project tracked and analyzed potential risks and brought them to the attention of the PMB, national authorities and UNDP CO. The project Risk Log was maintained throughout the project implementation to capture potential risks to the project and associated measures to mitigate risk. The Project Manager maintained and updated the Risk Log and ensured that risks are identified, communicated and managed effectively. Through the UNDP Atlas system, the project team monitored critical risks such as the exchange rate of the national currency and the impact of COVID-19 and identified measures to manage and mitigate them.

As noted in this report’s section on Assumptions and Risks (3.1.2), two major risks materialized in the course of project implementation – the devaluation of the currency, which was associated with increased inflation, and the restrictions imposed by the COVID-19 crisis. The risks management measures undertaken by the Project Team and outlined in the “Adaptive Management” section of this report were adequate and effective in addressing the impact on project activities. The establishment of the Grants Committee was a positive development in the project as it reduced transparency and accountability risks.

Despite the delays created by the COVID-19 crisis and the increases in the price of raw materials and labour, the project team managed to address emerging challenges and complete all grant initiatives by the end of the project’s lifetime.

3.3. Project Results

This section provides an assessment of the project's progress in the accomplishment of RRF targets, as well as an examination of achievements along the standard dimensions of UNDP evaluations.

3.3.1. Progress Towards Objective and Expected Outcomes

As can be seen from the analysis in the table below (Table 8), the SCRL project has for the most part achieved all the targets that were identified in the project's results framework at the project design stage. A few remaining objectives are expected to be completed by the end of the project's term (30 March 2022). It should be noted that the results presented in the table below are based on reporting by the project team and are not confirmed independently by the evaluation consultants. Also, as has been noted in previous sections of this report, the results framework of the SCRL project was developed in an inconsistent fashion with several ambiguous indicators that are open to interpretation. Another key observation here is that the tracking and verification of project results/indicators on the ground was not done on the basis of a rigorous monitoring system. For the most part, the project team relied on scattered records from the participating communities and stakeholders in different locations and developed the results presented below by aggregating this information.

The following are the key achievements of the project by component.

Component 1: Improving climate related socio-economic outcomes in targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions.

- ***Local Adaptation Plans*** (LAPs) were designed and adopted for six farmers' associations and two livestock farms.²⁷ LAPs continue to be under implementation, through grant means provided by the project as well as own means, with targeted assistance provided by the local project team. The implementation of LAPs was supported through the small grants initiatives.
- ***Agricultural Information Centers*** were established in two pilot regions and have served as platforms for sharing knowledge and experience with regards to aspects of climate change adaptation and effective agriculture management.²⁸
- Four ***greenhouses*** (three in Lebap and one in Dashoguz) were constructed and one was re-constructed with support from the project. Three greenhouses were installed under the small grant activities, while two greenhouses were procured either with USAID's financial assistance or under UNDP's micro-procurement.

²⁷ These included: Watan, Parahat, Babadayhan farmers associations in Danew etrap (district) and Serdar livestock farm in Chardzou etrap of Lebap velayat; and Yagtylyk, B. Ovezov and Abadanlyk farmers associations and Garagum livestock farm in Gorogly etrap of Dashoguz velayat.

²⁸ The first one in Gorogly etrap of Dashoguz velayat, and second one in Danew etrap of Lebap velayat.

Table 8: Project Results Framework

	Indicator	Baseline	Target at End of Project	Status of Indicator at end of 2021	Notes
Project Objective¹⁸ <i>Supporting climate resilient livelihoods</i>	Number of hectares of agricultural land under more resilient management utilizing	Some of the coping mechanisms employed by farmers and pastoralists in the pilot etraps Baseline value: 0	At least 20,000 ha of agricultural lands and 500,000 ha of natural pasture lands receiving reliable irrigation	21,964 ha of agricultural lands and 331,816 ha of natural pasture lands	Information on number of hectares (re-analyzed after PIR-2020) is based on the Final Reports on Local Adaptation Plan adopted by the Heads of the six farmers' associations and Garagum livestock farm. An additional 168,300 hectares of pasture lands expected upon the realization of the grant initiative in the Serdar livestock farm by the end of 2021/January 2022, to a total of 500,116 hectares of natural pasture lands.
	Number and percentage of targeted farmers/ households adopting improved on-farm soil and water conditions	Agricultural and pastoral communities not effectively applying irrigation and agricultural technologies that enhance resilience to climate risks Baseline value: 0	Climate-resilient agriculture and livestock production practices are adopted by at least 3,000 (or at least 30%) targeted farmers/households of which at least 30% are women/women-headed households.	3,026 targeted farmers/households of which at least 30% are women/women headed households	The target represents farmers (tenants) and owners of households who were provided by the project with on-site, remote agri-consultations, as well as visitors of the Agriculture Information Centers, farmer-recipients of small grants, etc.
	Number of direct beneficiaries (percentage of whom are female)	Baseline value: 0	40,000 (including 50% women)	40,018 direct beneficiaries of which 51% were women	This represents the number of farmers (tenants) working in farmers' associations, in territories where climate change adaptation measures were carried out and their family members, as well as households - owners of household plots and their family members who used the project's services.
Outcome 1 <i>Climate related socio-economic outcomes improved in target agricultural</i>	1.1. Number of targeted communities adopting participatory gender sensitive adaptation plans	Coping mechanisms currently not conceived within a common planning platform at the farmer association level and with a committed budget. Consequently, most	At least 8 farmer and/or livestock associations adaptation plans designed and budgeted through the project and linked to collective community-based actions on water savings and efficiency	In total, 8 Local Adaptation Plans were designed and adopted by farmers' associations (6) and livestock farms (2)	LAPs have been designed and adopted for following associations: <u>In Lebap velayat</u> : Watan, Parahat, Babadayhan farmers' associations in Danew etrap and Serdar livestock farm in Chardzou etrap;

	Indicator	Baseline	Target at End of Project	Status of Indicator at end of 2021	Notes
<i>communities in Lepab and Dashoguz velayats through the implementation of community based adaptation solutions</i>		current efforts are individualistic, uncoordinated and not very effective Baseline value: 0	improvements as well as soil fertility and moisture improvements as follows: (i) four adaptation plans by MTR; and (ii) eight adaptation plans by end of project		<u>In Dashoguz velayat:</u> Yagtylyk, B. Ovezov and Abadanlyk farmers' associations and Garagum livestock farm in Gorogly etrap.
	1.2 Number and percentage of farmers (disaggregated by gender) reporting improved crop production systems and livelihoods	Annual irrigation norms vary by soil type. For medium and heavy-loam soils, norms are 6,700 m3/ha for cotton; 4,500 m3/ha for winter wheat; and 29,000 m3/ha for rice. Baseline value: 0	At least 3,000 (or 30%) of targeted agricultural farmers and pastoralists (30% of which are women) reporting improved production of major crops and natural pasture	3,026 targeted farmers/households of which at least 30% are women/women headed households	This includes the number of farmers (tenants) and owners of households who received on-site and remote agri-consultations, visitors of AICs, recipients of the small grants, etc.
	1.3. Percentage additional income earned by participating households from alternative climate-resilient livelihoods	Farmers' associations and farmers constrained by lack of opportunities (beyond the growing of state mandated crops that have high demands) to broaden their livelihood base to cope with climate risks Baseline value: 0	At least 50% of the households supported through alternative climate-resilient livelihood opportunities reporting an increase of >15% of real net household farm income, of which at least 20% are women-headed households	52% of participating households from 6 farmers' associations and 2 livestock farms report 10-15% additional income earned from alternative climate-resilient livelihood activities, of which 20% are female-headed households.	Using maps of settlements and reports of local coordinators, the number of households was quantified that received the project's services i.e. were influenced by the adaptation measures introduced by the project (improvement of soil fertility, water availability), which contributed to an increase in additional income.
Outcome 2: <i>Adaptation mainstreamed in agricultural and water sector development strategy and policy</i>	2.1 Number of staff (national, velayat and etrap levels) and farmers reporting good knowledge of climate change risk reduction measures in irrigated agriculture and soil and water management (CCA TT Indicator 9)	Crop production and water use at farmer level not using climate risk management approaches Baseline value: 0	At least 3,000 (30% women) of agricultural and pastoral farmers and 100 government staff (20 % women) are trained in on-the-ground application of climate adaptation-related technologies as follows: (i) 1,000 farmers (30% women) and 50 government staff (20% women) by MTR; and	2,975 local people of which 26% are females, and 537 government staff, of which 28% are females.	The total number of participants was calculated based on registration forms used to document the participants present at each project awareness-raising event. In registration forms participants were categorized by local and public sectors, as well as by gender.

	Indicator	Baseline	Target at End of Project	Status of Indicator at end of 2021	Notes
			(ii) 3,000 farmers (30% women) and 100 government staff (20% women) by end of project		
	2.2 Number of articles included in the Water Code and Laws “On daikhan farm” and Environmental Code supporting non-structural climate change adaptation practices and their implementation	National water code and daikhan laws adopted, but no regulations or other sub-legislative acts for IWRM, roles and capacities of farmer and water use associations	A package of amendments to the legislation with economic instruments and support for water delivery and local level decision making under increased communal control (refer Output 2.4 for details of proposed legislative measures)	• The Turkmenistan Law "On the State Land Cadastre" was adopted (November 2017); • A package of amendments to the Turkmenistan Laws on Farmers’ associations and Farmers unions was adopted (November 2021); • Two sub-laws related to the land cadaster were adopted (October 2018 and November 2021). • 11 legal documents (sub-laws, concept law, model agreements etc.) have been drafted and continue to being discussed with legislative authorities for formal adoption.	A detailed list of policy, legal and regulatory documents drafted is presented separately.

	Indicator	Baseline	Target at End of Project	Status of Indicator at end of 2021	Notes
	2.3 The number of approved sector strategies and plans in the water and agriculture domain that include climate change adaptation considerations and budgetary allocations (CCA TT Indicator 12)	Water and agriculture policies remain outdated as well as poorly enforced due to underdeveloped regulations and subsidiary legislation. Tools and methods are missing to identify the most cost-effective adaptation options in the water and agriculture policies. Baseline value: 0	At least two sector plans (agriculture and water) integrate climate adaptation considerations and budgetary allocations	- The revised (updated) National Climate Change Strategy of Turkmenistan has been adopted by Presidential decree on 23 September 2019 - A total of 10 methodological guidelines have been drafted, of which 6 were formally adopted.	This indicator was formally changed in 2020 and now it reads as “Number of the approved strategies and guidelines in the water and agriculture domain that include climate change adaptation considerations and budgetary allocations.” The detailed list of strategies and guidelines prepared is presented separately.
Outcome 3 <i>National Capacity for iterative national adaptation planning established</i>	3.1 Functional iterative national monitoring, reporting and verification system for adaptation planning and management operational	Absence of a coordination structure for inter-sectoral approach to climate change that balances respective priorities of different government agencies	National monitoring, reporting and verification system to measure changes in vulnerabilities from adaptation actions with functional procedures and rules in place	- Road map and recommendations on MRV mechanisms have been developed; - Support to the revision of NDC has been provided.	The draft documents were formally submitted to state authorities for discussion and adoption.
	3.2 Number of agro-ecological zones with established climate change models of potential impacts, economic costs and benefits of adaptation actions	Planning of regional development investments with little consideration of adaptation costs and benefits Baseline value: 0	Five agro-ecological zones in the country models developed that integrate impacts, costs and adaptation actions	- AEZs (preliminary 20) were developed for 2 velayats; - A Concept Paper on modelling agro-ecological zones and its practical application is being drafted and its finalization scheduled in January 2022.	

- ***Community-based Adaptation Initiatives (Grant Initiatives)*** - The project strengthened the adaptive capacities of target communities through the allocation of small grants and the provision of agro-consultations. A total of 29 grant initiatives were funded by the SCRL project in two rounds, which were launched in 2019 and 2020 respectively. The full list of grant initiatives is presented in Annex VI of this report. The list also provides a brief summary of each initiative. The total amount of money invested from the project budget through these initiatives was US\$ 290,622. This investment generated co-financing from the grant recipients in the amount of US\$ 286,064. Mobilizing about US\$ 600,000, these grant initiatives focused on strengthening adaptive agricultural practices (improved irrigation and drainage, water flow regulation), as well as creating alternative sources of income (greenhouse production, honey, sewing club). Recipient farmers were supported with access to enhanced technologies and practices on improved soil and water management practices towards improving crop production and livelihoods. Project investments were supported by on-site and remote agro-consulting services by project specialists and external consultants, supported by targeted awareness campaigns organized with an international corporate consultant (Israel) which raised interests among many project partners, especially from the private sector.

Component 2. Mainstreaming climate adaptation measures in agricultural and water sector development strategy and policy.

- ***Policy Documents*** - Another area of significant contributions of the SCRL project was the development of policy documents and legal instruments. Annex VII of this report lists all the main policy documents and legal instruments that have been developed with the help of the project. The following are key policy instruments that were developed with the support of the project.
 - Turkmenistan's National Strategy on Climate Change (NCCST) adopted in 2012 was revised with project support and adopted in 2019.
 - The SCRL project supported the drafting of key pieces of legislation related to climate change adaptation – e.g. Law of Land Cadastre, Land Code, amendments to Law on Farmers' Associations and Law on Farmers Societies, etc.²⁹
 - The project supported the revision of Turkmenistan's Nationally Determined Contributions (NDC-2) to the Paris Agreement in the area of climate change adaptation and recommendations for designing the MRV system.³⁰
 - The project supported the Turkmen State Agricultural Institute (TSAI) in the development of guidelines for agricultural producers.³¹

²⁹ The main purpose of the amendments was to strengthen the authority and empowerment of farmers' associations and farms with the rights to use water resources (on-farm irrigation and collector-drainage networks), hydraulic structures on their territory, and technical equipment, in agreement with water management organizations.

³⁰ The SCRL project jointly with national and international partners developed the "Road Map on designing the Measurement, Reporting and Verification (MRV) system for adaptation measures". This document was presented and discussed at the national workshop with interested parties and stakeholders.

³¹ These included the manual on use of low-mineralized drainage water for irrigation of fodder crops; the manual on production and application of bio-humus in Turkmenistan; and the manual on the development of poultry as alternative source of income.

- **Trainings** – The SCRL has organized an impressive number of training events (seminars, round tables, workshops, lectures, etc.) that were aimed at strengthening the capacity of farmers, agriculture specialists and decision makers at the national and sub-national levels. A total of 148 training events were organized by the project. A total of 53 events (or 36% of all events) focused on farming techniques and skills for farmers,³² as well as writing grant applications. Another 43 events (or 29% of all events) focused on raising the awareness of stakeholders on methods for the rational use of water resources in other countries. 19 events (or 13%) focused on the development of legal instruments and regulations. Other training events focused on the development of adaptation plans (8%), data collection and analysis for adaptation policies ((8%), gender dimension of adaptation (6%), etc. About 390 farmers received project support on on-farm soil and water management practices, achieved through (i) the provision of access to small grant financing resources (14 farmers); (ii) dissemination of information materials and publications produced by the project (65); and (iii) a variety of remote and on-site agro-consultations and trainings provided on bio-humus preparation, alternative sources of income (e.g. mushroom cultivation, horticulture, greenhouse production, soybean, vegetables etc. (312).
- **Consultations** - The project organized various trainings and agro-consultations (on-site and remote) that raised the awareness and skills of farmers and the local population on alternative sources of income, irrigation technologies, and sustainable water and land use practices in both pilot regions. The project provided on-site and remote agro-consulting services on weather forecasting, soil and water analysis, irrigation schemes, land laser levelling, application of fertilizer, composting and farming techniques for different agricultural crops.³³ Agro-consulting was carried out mainly on the basis of the AICs located in the Dashoguz and Lebap regions and established communication platform. The AICs in the two pilot regions provided free consultations to the local communities on topics, such as: legislation, agro-business development, alternative source of income, education, capacity building (computer skills, internet resources etc.), employment opportunities, innovation technologies, supplies in the field of agro-industry, etc.³⁴
- **Awareness-raising Events and Information Materials** - The SCRL project organized a significant number of awareness-raising events related to a large variety of adaptation issues. A major activity was the five-day **campaign on planting fruit trees** organized in November 2021 to strengthen the climate resilience of the rural population by promoting

³² Main topics of these events included principles of laser planning, with examples of practical income generation from alternative sources, land planning using laser equipment, desalinization of irrigated lands, rational use of mineral fertilizers in cultivation of cotton, etc.

³³ Experts of the Israel company “Emnotion Ltd” provided remote agro-consultations to 10 local beneficiaries in the following areas: i) development of horticulture, ii) development of greenhouse, iii) crop rotation, iv) economic basis of planning and development of agricultural enterprises and v) development of biological plants for the production of organic fertilizers.

³⁴ Beneficiaries received information on adaptation-oriented agro-technical solutions for growing specific crops (including soya bean, tomato, apple, lemon, corn, onion, potatoes, carrots etc.), taking into account climatic characteristics obtained through the analysis of local climatic parameters for 2016-2020. Protocols were provided to agronomists for further adaptation and use under local crop production circumstances, resource availability and beneficiaries’ opportunities.

horticulture development as an alternative source of income.³⁵ A peculiar feature of awareness-raising activities is the fact that many of these events were organized in close cooperation with international project partners such as the FAO/CACILM project, the Russian on Demand program, the UNDP Global Support Program, the USAID-funded projects GSP and CTJ projects, and the UNDP “Sustainable cities” project. The project also produced a multitude of information materials such as press-releases, booklets and guidelines that have been published and disseminated among farmers, and government officials and students of different educational institutions (listed in Annex VII). As a result of project activities aimed at promoting and popularization the relevance of the idea of Integrated Water Resources Management (IWRM) and its inclusion in the curriculum of higher educational institutions at the Turkmen State Agricultural Institute, a new discipline "Integrated Water Resources Management" was introduced into the curriculum. In addition, the project published and disseminated various information materials (leaflets, brochures etc.) which helped raise awareness and improve knowledge on climate resilient technologies among the targeted communities.

Component 3. Strengthening national capacity for iterative climate change adaptation planning, implementation and monitoring in the country.

As has been noted in this report, the project’s third component, originally designed to operationalize the NEPAAM, was adjusted to support the Government of Turkmenistan to update the NCCS (2012) and NDC, taking into account the recent national reforms, acceptance of SDGs and Paris Agreement as well as recent climate change observations. The NCCS revision was done with the support from GIZ and was endorsed by the Government on September 23, 2019.

As the project team was unable to identify an appropriate end user who would apply the Agro-ecological Zones (AEZ) model in the country, the project resorted to focusing on raising awareness on model by means of a concept note on “*AEZ Modelling*” and a “*Roadmap for modeling AEZs in Turkmenistan*”. Further, the project organized a number of meetings and workshops with national partners and interested parties to promote the AEZ concept.³⁶

The project also supported the development of the Multilevel Cluster Mapping (MLCM) and a GIS system, combining agrophysical data (soil, water, topography, terrain, crops, infrastructure, vegetation, etc.) with up-to-date information on climate change parameters for

³⁵ During the campaign about 5,000 fruit tree seedlings were planted by UNDP and national partners, supported by the USAID Competitiveness, Trade and Jobs activity in Central Asia (CTJ). The tree planting campaign was preceded by a series of training sessions on horticulture development. More than 50 representatives, of which 50% are women, of the private sector, local communities, universities and local administrations participated in the campaign.

³⁶ For example, to strengthen the capacities of national and regional stakeholders on AEZ modelling, the project organized on 12 November 2021 a national workshop “*The importance of modeling agroecological zones (AEZ) for the optimal placement of crops by regions of the country*”. Key presentations were provided by the international consultant engaged with the support of the “*Knowledge Management and Capacity Building in Russia-UNDP Partnership*” regional project, focusing on international experiences in developing AEZ using digital technologies.

the Dashoguz and Lebap regions. A special webinar was organized to acquaint stakeholders with the use of MLCM. In addition, in support of the prior preliminary identified agro-ecological zones (AEZs) a two-day workshop “*The use of multicluster agro-ecological maps in the process of planning adaptation to climate change*” was organized. As a result of the MLCM process, more than 20 agro-ecological zones were identified. Based on clusterization and climate monitoring, specific agri-technological protocols were developed for different crops– wheat, cotton, corn etc.

These were handed over to farmers’ associations and clients under the remote agro-consulting services in the two pilot regions in autumn 2021. Currently as part of the field-based agricultural consultations provided to farmers through the AICs, the agri-technical protocols are being studied by farmers for use in the 2022 cropping season. In addition, remote and field-based agricultural recommendations provided in earlier years specifically to 10 farmers were applied by the farmers, albeit with varying successes, related to e.g. insufficient farmers’ capacities to timely apply practices, lack of availability of water resources, recommended chemicals, high costs of proposed alternative cropping practices, etc.

3.3.2. Relevance

This section provides an assessment of the relevance of the project. While there may be many criteria for assessing relevance, here it will be assessed along the following dimensions: i) relevance to the country’s needs and priorities; ii) relevance to *UN Country Priorities* and UNDP’s *Country Mandate and Strategy*; and, iii) Relevance to GEF’s strategic priorities.

Relevance to the Country’s Needs and Priorities

Turkmenistan does not currently have a legal and institutional framework that directly addresses climate change adaptation in a holistic, integrated and comprehensive manner. Various analyses, including the SCRL Project Document, have noted the disconnect between policy, law, planning, budgeting and climate change adaptation and the need for a mechanism for monitoring vulnerability and adaptation indicators and using such data in development planning. In addition, adaptation opportunities are further hindered by inadequate use and availability of evidence-based methodologies and toolkits. The SCRL project was partly designed to support the implementation of the ***National Economic Action Plan for Adaptation and Mitigation*** (NEAPAM), which was envisaged to be approved in the course of the project’s implementation. However, this plan did not materialize as it was not approved by the Government.

In this situation, the project was repositioned to address key national priorities spelled out in other key strategic documents. For example, the SCRL project addressed the priorities set out in the ***National Strategy on Climate Change*** (NSCC) – a strategy originally adopted in 2012 and revised in 2019 with the support of the SCRL the project.³⁷ Furthermore, the project has

³⁷ The updated NSCC was adopted on September 23, 2019 by a Resolution of the President of Turkmenistan. The updated strategy enables government agencies to effectively implement adaptation and mitigation measures in the field of climate change in accordance with their sectoral plans. The NSCC sets forth, inter alia, the following principles: addressing climate change challenges should contribute to the country’s economy and sustainable development; innovative technologies and their transfer should be promoted as the basis for advances in climate

addressed the socio-economic status of local agricultural communities in response to climate change. As such, the project has been fully aligned with and has contributed to the achievement of the strategic goals outlined in Turkmenistan's key development policy document titled "*National Programme of Socio-economic Development of the Country for the Period 2011-2030*".³⁸ The project has provided contributions in the area of policy development, which has ensured the project's alignment with key policy documents. As has been noted earlier in this report, Turkmenistan's National Strategy on Climate Change (NCCST) adopted in 2012, was revised with project support and adopted in 2019. Further, the project supported the revision of Turkmenistan's Nationally Determined Contributions (NDC-2) to the Paris Agreement in the area of climate change adaptation and recommendations for designing the MRV system. The SCRL project also supported the drafting of key pieces of legislation related to climate change adaptation – e.g. Law of Land Cadastre, Land Code, amendments to Law on Farmers' Associations and Law on Farmers Societies, etc. Furthermore, the project supported the Turkmen State Agricultural Institute (TSAI) in the development of guidelines for agricultural producers.³⁹

Relevance to UN Country Priorities and the UNDP's Country Mandate and Strategy

The project was designed to contribute to achieving Outcome #6 of the UNDP Turkmenistan Country Programme Action Plan (CPAP): "*the national policy, legislative and institutional frameworks are responsive to climate change issues by promoting climate resilience, adaptation, climate risk management and disaster risk reduction measures at sector and community levels.*"

The project contributed to the following Country Programme Outcome Indicators:

- (Indicator 6.1.1): Share of sustainable, climate change land/water/ biodiversity/coastal management innovations and safe waste disposal piloted as part of NEPAAM;
- (Indicator 6.1.2): Number of communities benefitting from adaptation measures;
- (Indicator 6.1.3): Number of new research products produced on climate change adaptation, climate risk management /biodiversity/water and coastal management used by policy makers and local actors involved in implementation;
- (Indicator 6.2.I): Extent to which targeted institutional capacities at subnational level are strengthened in adaptation/CRM planning and implementation, to promote increased local livelihoods through sustainable use of water, land, biodiversity and coastal areas.

change mitigation and adaptation, with the two coordinated; and combating climate change should involve collective effort of the society.

³⁸ The purpose of this programme is to increase the level and quality of life of the population based on scientific and technological progress, dynamic development of the economy and social sphere, while maintaining the reproductive potential of the country's natural resources complex, as part of the earth's biosphere, as well as technological potential in the interests of present and future generations.

³⁹ These included the manual on use of low-mineralized drainage water for irrigation of fodder crops; manual on production and application of bio-humus; and manual on the development of poultry as alternative source of income.

Relevance to GEF's Strategic Priorities

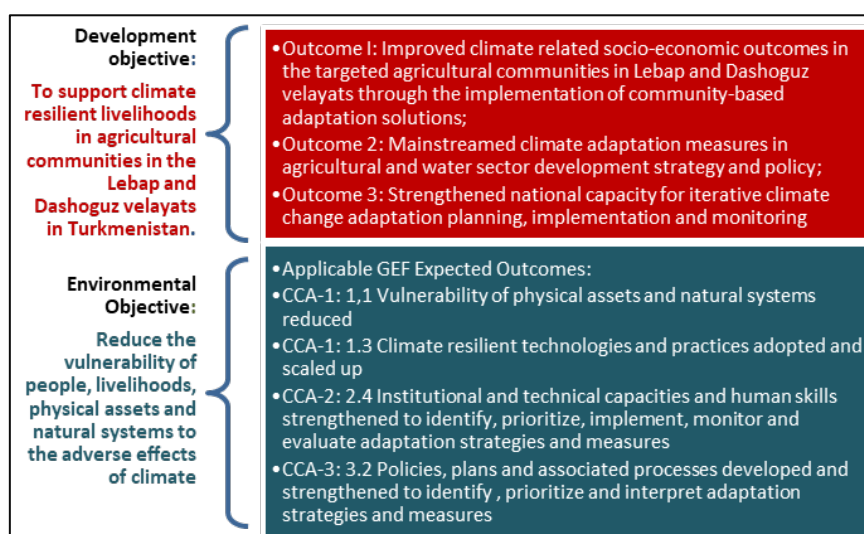
The SCRL project was designed to directly contribute to the GEF objectives shown in the table below. As such, the project is directly relevant to GEF's strategic priorities.

Table 9: Project's Alignment with GEF Objectives

Applicable GEF Strategic Objective and Program: CCA 1, 2 and 3
Applicable GEF Expected Outcomes: • CCA-1: <i>1.1 Vulnerability of physical assets and natural systems reduced</i> • CCA-1: <i>1.3 Climate resilient technologies and practices adopted and scaled up</i> • CCA-2: <i>2.4 Institutional and technical capacities and human skills strengthened to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures</i> • CCA-3: <i>3.2 Policies, plans and associated processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures</i>
Applicable GEF Outcome Indicators: • CCA-1: ○ <i>Indicator 1: Number of direct beneficiaries (percentage of whom are female)</i> ○ <i>Indicator 2: Type and extent of assets strengthened and/or better managed to withstand the effects of climate change (ha of cropland/rangeland)</i> ○ <i>Indicator 4: Extent of adoption of climate-resilient technology/practice (measured in number or percentage of users, of whom are female) or geographical area</i> • CCA-2: ○ <i>Indicator 9: Number of people (percentage of whom are female) trained to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures</i> • CCA-3 ○ <i>Indicator 12: Number of regional, national and sector-wide policies, plans and processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures</i>

The figure below shows the correspondence between the project's objectives and GEF's strategic objectives (expected outcomes).

Figure 7: Project Objectives and GEF Outcome Areas



The SCRL project was both guided by, and helped improve, the country's national priorities and policies in the area of climate change adaptation. As such, the project is rated as “Relevant”.

3.3.3. Effectiveness

With regards to the project’s effectiveness – the extent to which what was planned activities was eventually achieved – the project was able to complete most of the activities identified at the beginning. First of all, it should be noted that in the way it was designed the SCRL project was an overly ambitious enterprise with a lot of activities spread across a wide range of areas. Moreover, the project (component III) was designed to support the implementation of the National Economic Action Plan for Adaptation and Mitigation (NEAPAM), which eventually did not materialize as it was not approved by the Government. Furthermore, as has been noted in the adaptive management section of this report, in some cases the Project Document envisioned tasks that during the course of project implementation turned out not feasible for implementation. For example, the project was supposed to support the Government's efforts to develop agro-ecological zones (project component III). During the project design stage, it was assumed that the Government of Turkmenistan would be ready to engage with the project and allocate resources for the modeling of agro-ecological zones. However, there was no structural unit in the Government tasked with performing modeling of AEZs and coordinating this process in the country. In addition, there was little awareness among key national partners on the use of this tool, its benefits and requirements. This was a significant barrier for the promotion of the development of agroecological zones within the framework of the SCRL project. Due to low awareness among key ministries and state-owned organizations, the project organized information meetings and trainings and initiated the preparation of the Concept Note on modelling AEZ.

Despite the challenges, the project team has done a good job coordinating such a range of activities and stakeholders, including at the local level. The table below shows the activities that were planned under the project and the extent to which they were completed at the time of

this evaluation. As can be seen from the table, the project team was able to complete most activities, with the exception of four – two of these activities were only partially completed and two others were ongoing at the point of this evaluation (the incomplete and ongoing activities are colored in orange and yellow respectively). The activities that have only been partially completed were hampered by factors that were to a large extent outside the project's control. For example, the implementation of LAPs encountered difficulties related to the limited amount of funds by the implementing entities of these adaptation plans. This remains a challenge to the sustainability of the broader results of this project. Another partially completed activity is the one related to the securing of funding for adaptation activities (as a follow up to the grants provided for these initiatives). Securing sustainable financing for adaptation initiatives is difficult if adaptation programmes are not grounded in a sustainable funding source such as the state budget. Hence, the importance of a national adaptation plan which provides a solid set of financial commitments from the government for this area. This was not possible to achieve under the framework of this project.

Given the challenges described in this report, but also considering the contributions that have been provided by the project, the rating of the project's effectiveness is "Moderately Satisfactory". This rating is consistent with the ratings in the project implementation reviews and the project MTR.

Table 10: Expected Outcomes, Outputs and Activities

Outcome 1: <i>Improved climate related socio-economic outcomes in the targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions;</i>	Output 1: Participatory vulnerability and adaptation assessments (PVAA) in selected communities to identify priority adaptation solutions	<i>1.1.1. Completed</i>
	1.1.1. Preparation of ToR and contracting a national consultant team to support the bio-physical and socio-economic mapping and vulnerability and adaptation assessment;	<i>1.1.2 Completed</i>
	1.1.2. Supporting each etrap administration/municipality updating of the bio-physical and socio-economic inventory in the pilot areas;	<i>1.1.3 Completed</i>
	1.1.3. Identification of a range of options to address issues relating to impacts of climate change and assessment of the appropriateness of each of these possible actions for each pilot daikhan association and livestock farm;	<i>1.1.4 Completed</i>
	1.1.4. Participatory vulnerability and adaptation assessment (PVAA) conducted, clear targets are set for the entire duration, including area of two pilot regions;	<i>1.1.5 Completed</i>
	1.1.5. Discussion of the findings of PVAA at the local and national levels	
	Output 1.2: Development and implementation of local gender sensitive adaptation plans	<i>1.2.1 Completed</i>
	1.2.1. Selection of the local communities in Gorogly and Galkynysh etraps that the most vulnerable to climate change;	<i>1.2.2 Completed</i>
	1.2.2. Demonstration of the best adaptation practices to address issues relating to impacts of climate change;	<i>1.2.3 Completed</i>
	1.2.3. Provision of technical assistance and training and grants for adaptation action at the daikhan level;	<i>1.2.4 Partly completed</i> In the process of preparing the LAPs, the project team identified a list of adaptation activities that were eligible for funding, including activities that were proposed to be financed from the DAs' own funds. During the implementation of the LAPs, activities envisioned to be financed at the expense of the DAs were only partly carried out. The reason is that not all farms were sufficiently profitable, because the purchase prices for agricultural

		commodities continue to be fixed by the state and remain too low.
		<i>1.2.5 Completed</i>
	<i>Output 1.3: Implementation of innovations focused on providing additional income and supporting climate resilient livelihoods</i>	<i>1.3.1 Completed</i>
	1.3.1. Implementation of the inventory of the household in the selected local communities;	<i>1.3.2 Completed</i>
	1.3.2. Definition of the alternative income options for each selected local community;	<i>1.3.3 Completed</i>
	1.3.3. Provision of technical support, training and project grant funding to local communities;	<i>1.3.4 Completed</i>
	1.3.4. Selection of the beneficiaries for grant allocations in close consultation with daikhan associations and other relevant stakeholders;	<i>1.3.5 Partly completed.</i>
	1.3.5. Identification of additional funding and support for this activity from existing government and local development programs and schemes;	On the one hand, existing government and local development programmes and schemes are not supported by clear budget and financial resources allocation. Also, their sources remain often unclear and a specific responsible party is difficult to identify. On the other hand, the project secured additional funding and support from a variety of government-supported, donor-financed local development programs and schemes, including activities on improvement of the national legislation on water and land use, gender mainstreaming, eco-system based mgt and nature protection.
	1.3.6. Monitoring and evaluation of the grant allocation and implementation	
		<i>1.3.6 Completed</i>
	<i>Output 1.4: Participatory mechanisms for implementing and monitoring changes in community climate resilience</i>	<i>1.4.1 Completed</i>

	1.4.1. Setting up monitoring criteria together with stakeholders in the pilot sites and include explicit criteria related to gender, land use, incomes and climate resilience; 1.4.2. Consolidation at velayat level monitoring data from the pilot sites; 1.4.3. Provision of technical support and guidance for the development of the participatory monitoring framework; 1.4.4. Organization of trainings for representatives of local communities and government institutions to carry out the monitoring and analysis of the monitoring outcomes	<i>1.4.2 Ongoing</i> AICs have monitored the adoption of project-demonstrated adaptation measures aimed at strengthening community resilience in etraps and velayats. Currently, a Presentation Package is being prepared, which includes all the achievements related to adaptation measures promoted by the SCRL project. The package shall include monitoring data demonstrating the impact/success of these community resilience adaptation measures. After finalization, the Presentation Package will be shared with the Union of Industrialists and Entrepreneurs, representing the private sector across Turkmenistan's velayats and etraps. After obtaining approval from the UIE, the Presentation Package will be distributed among its members.
		<i>1.4.3 Completed</i>
		<i>1.4.4 Completed</i>
	Output 1.5: Dissemination and up-scaling of successful adaptation measures. 1.5.1. Development of the outreach strategy for different group of stakeholders; 1.5.2. Organization of the Field demonstration, site visits, workshops; 1.5.3. Awareness raising campaign among farmers and community groups; 1.5.4. Publication of booklets, brochures and project briefs on information for the project velayats to cover livelihood vulnerabilities, data and baselines on climate related events; 1.5.5. Supporting the preparation of guidelines for formulation of gender sensitive adaptation plans; 1.5.6. Active participation at the conferences, forums organized at international, national and local levels	<i>1.5.1 Completed</i>
		<i>1.5.2 Completed</i>
		<i>1.5.3 Completed</i>
		<i>1.5.4 Completed</i>
		<i>1.5.5 Completed</i>
		<i>1.5.6 Completed</i>
		<i>2.1.1 Completed</i>

Outcome 2: Mainstreamed climate adaptation measures in agricultural and water sector development strategy and policy;	Output 2.1: Capacity development for agriculture and water sector enabling effective adaptation planning with gender considerations 2.1.1. Preparation of ToR for National Expert; 2.1.2. Detailed institutional capacity review to identify specific gaps in addressing climate risks; 2.1.3. Clarification and identification of the specific training needs for key institutions to enable them to develop and apply a robust adaptive strategy for agricultural management; 2.1.4. Drafting the comprehensive and targeted training program to be discussed with national and local project partners; 2.1.5. Assessment of the impact of the training program on an ongoing basis.	2.1.2 Completed
		2.1.3 Completed
		2.1.4 Completed
		2.1.5 Completed
	Output 2.2: Guidelines to water and agriculture sector ministries on using gender disaggregated data in planning, conducting specific assessments on the needs of women and using these in sector adaptation planning and budgeting 2.2.1: Assessment of existing situation in the water and agriculture sectors on using gender disaggregated data in planning etc.; 2.2.2. Preparation of guidelines and actions to mainstream climate change adaptation; 2.2.3. Provision of technical assistance, training and communication.	2.2.1 Completed
		2.2.2 Completed
		2.2.3 Completed
	Output 2.3: Regulation and guidelines for inclusion of adaptation in national and local development planning and budgeting developed and linked to sector-based planning, coordination and monitoring processes 2.3.1. Assessment of the existing situation and gap analysis on applied practices in the water and agriculture sectors; 2.3.2. Establishment of the cooperation with scientific institutions for joint activities under this Output and identification on 5-7 potential regulations, norms, and/or standards for development; 2.3.3. Development of the criteria and selection for development 3 potential regulations, norms, and/or standards; 2.3.4. Drafting the regulations and guidelines for further discussion at the local and national levels.	2.3.1 Completed
		2.3.2 Completed
		2.3.3 Completed
		2.3.4 Completed
	Output 2.4: Institutional and legal mechanisms for water resource management integrate key principles of efficient use and climate risk management 2.4.1. Preparation of ToR for establishment of the group of legal experts;	2.4.1 Completed
		2.4.2 Completed

	2.4.2. Review of the international experience;	2.4.3 Completed
	2.4.3. Review and revise existing national legal instruments related to water management and daikhan associations;	2.4.4 Completed
	2.4.4. Drafting the secondary legislation and update the existing one;	2.4.5 Completed
	2.4.5. Organize a meeting of national stakeholders for discussion and approval.	
	Output 2.5: National sectoral planning and rural development investments take account of and address climate change related risks	2.5 Completed The achievements of this output relate to the indicator “The number of approved sector strategies and plans in the water and agriculture domain that include climate change adaptation considerations and budgetary allocations” (CCA TT Indicator 12), which was formally changed into “The number of approved strategies and guidelines in the water and agriculture domain that include climate change adaptation considerations and budgetary allocations”. Achievements include the revised (updated) National Climate Change Strategy of Turkmenistan, adopted by Presidential decree on 23 September 2019, and a total of 10 Number of methodological guidelines (10) drafted, of which 6 were formally adopted.
	Output 2.6: Ecosystem services valued and potential impacts of climate change on natural pastures assessed to inform pasture management decision-making	2.6. Completed
Outcome 3: Strengthened national capacity for iterative climate change adaptation planning, implementation and monitoring	Output 3.1: Mechanism for iterative monitoring, reporting and verification of implementation of the mainstreamed 3.1.1. Assessment of current monitoring, reporting and verification process of adaptation management	3.1.1 Completed
	Output 3.2: Vulnerability/resilience indicators and protocols for gender-disaggregated data collection, storage, processing and use in planning and decision-making	3.2 Ongoing An international consultant contracted continues developing the conceptual methodological guidelines on the use of gender-disaggregated data in adaptation planning and budgeting for water and agriculture. The workshop on presentation of

		conceptual methodological guidelines is scheduled for early February, 2021.
	Output 3.3: Actions to build the evidence base for robust decision making implemented Concept for agricultural consultation system drafted and discussed with national and local project partners. Testing the agricultural consultation system in pilot regions	3.3 Completed

3.3.4. Efficiency

To assess efficiency, the report focuses on two aspects that are closely associated with efficient project management. These parameters are categorized into the following categories: i) Expenditure and Budget Execution Rates; and, ii) Timeliness of Project Activities.

Project Expenditure and Budget Execution Rates

This report's section on "Project Finance and Co-finance" provides an overview of project expenditure. Table 6 in that section shows planned expenditures from the GEF budget as laid out in the Project Document and actual expenditure. The vast majority of GEF grant funding for the project was planned to occur in the second and third year of the project (2017 and 2018). As can be seen from the table, this actually happened – project expenditure was highest in 2017 and 2018, although budget execution for the first year of implementation (2016) was quite low at 22%. This amount of money was spent in the additional period the project received through the extension (year 2021). Also, as can be seen from the table, the execution rate for 2020 was lower (79%), which is obvious when considering the impact of the COVID-19 crisis on the project. Otherwise, budget execution for this project has been adequate. The project's overall execution rate stood at 95% at the time of this terminal evaluation.

The table below provides a summary of execution rates by project outcome and year. As can be seen from the table, there has been a lot of variability on execution rates within project outcomes and years. The outcome with the weakest execution rate is Outcome 3 (with a rate of 77% at the point of this evaluation).

Table 11: Project Co-financing

Outcome Areas	2016	2017	2018	2019	2020	Total
Outcome 1	14%	92%	102%	91%	84%	95%
Outcome 2	62%	161%	85%	119%	95%	113%
Outcome 3	3%	47%	90%	105%	70%	77%
Project Admin	28%	192%	42%	97%	33%	91%
Total	22%	102%	93%	99%	79%	95%

Timeliness of Project Activities

As has been noted in the "Adaptive Management" section of this report, the SCRL project operated under challenging circumstances – especially, the COVID-19 crisis and the fluctuation of the national exchange rate and the resulting inflation. These two challenges, combined with other factors, resulted in a number of delays that were experienced by various project activities. The table below summarizes the main delays experienced by the project and the factors that led to them.

Table 12: Main Delays Experienced by the Project

No.	Delays	Factors that led to the delays
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1	In 2020, the organization of project events – about 10 practical trainings, 5 workshops, demonstration and awareness raising activities - could not be conducted or was conducted with delays.	Due to the travel restrictions related to the COVID-19 the project team could not visit and organize project events in pilot regions. Some events were shifted to a later date while others had to be redesigned to be conducted in an online mode. Initially, the format of online events was unusual for local participants and trainers alike, and in some cases the information and materials provided were perceived by participants as insufficiently effective. In the course of 2020, the project team applied adaptive management to strengthen the technical and human capacities of facilities and staff to enable a more effective implementation of planned events.
2	Delays in the approval of about 10 legal documents (amendments to laws, regulations, guidance documents, model agreements, legal acts and procedures, etc.).	The negotiation and approval process in Turkmenistan is lengthy even under “normal” circumstances. With the outbreak of COVID-19, the approval of legal documents has become more complex. Due to restrictions related to COVID-19, the project could not organize meetings of national partners and stakeholders to discuss the draft legal acts prepared. Also, for some time during 2020 (and 2021) representatives of governmental organizations were obliged to work from home, which hampered and delayed the review of documents and discussions. The project was also requested by the Ministry of Foreign Affairs (MFA) to postpone all meetings and discussions for later.
3	Lengthy consultation, training and mentoring processes for uptake of innovative solutions.	- Local communities develop trust when they see the results. Therefore, in the project’s early years considerable effort was spent on convincing stakeholders and proving to them the effectiveness of adaptation measures (laser levelling, remote agro-consultations, bio-humus application, etc.). - The proposed innovative solutions are new for the country and require a lot of time and explanatory work on the part of the project.
4	Lengthy approval procedures with state authorities. For instance, the project had to obtain official approval for the following - Annual work plans (AWP) - Submission of project documents (guidelines, LAP, legal acts, etc.) to national partners for consideration - Data collection for revision of the NCCS, NDC and for MRV Road Map - Project progress reports, media coverage of project events, etc.	In line with government regulations, in TKM it is required to obtain prior approval from the National Implementing Partner (NIP) of the project to carry any project activity. The NIP is responsible for the content of all project documents/products, as well as for issuing official letters regarding data collection requests, AWP, annual progress reports, workshop presentations, press-releases, etc. The NIP must ensure that project documents are correct, appropriate, relevant and in line with the tasks, competencies, and priorities of the ministry before submission to other national partners.
5	Within the framework of the project, agro-consultations were provided to daikhan associations and individual farmers, including remote ones, based on the experience of	The proposed agro-consultations did not always take into account the capacities of local beneficiaries, the local environmental conditions, or the availability of resources (equipment, water, funds, etc.);

	international consultants (Emnotion Ltd company from Israel). The project experienced delays in the work of international consultants, the local project teams, and beneficiaries, which ultimately affected the effectiveness of the work.	• The offered agro-consultations and recommendations were tied to seasonal work, while the effects were not always visible immediately. Some practices recommended through agro-consultations take several years before positive impacts can be demonstrated (e.g. no-till practices), hence building confidence among farmers-beneficiaries was commonly a lengthy process; • In connection with the pandemic, difficulties arose with monitoring the implementation of agro-technological maps (ATM) containing detailed consultations to individual farmers-beneficiaries with regards to specific cropping practices, and assessing their effectiveness. Also, at some point national and local travel restrictions hampered regular (field) visits to be conducted, as a result of which not all agro-consultations were always effective; • Especially the use of the innovative platform designed for remote agro-consultations was frequently affected by problems with internet communication (the internet was disconnected for several weeks in the Lebak region after a strong hurricane in 2020), hampering the effective communication between farmers, project staff and the Israel-based consultants;
6	Delays of activities in GIS mapping and AEZ modelling	• The scope of work for modelling the AEZ should have been developed by MAEP's responsible unit with support from the project. Currently, MAEP does not have a such structural unit dealing with AEZ modelling, therefore MAEP could not support the project's objective; • The level of awareness of national specialists in the field of modelling agro-ecological zones and GIS technologies for optimal crop cultivation is low, therefore more time was needed to clarify and explain the approach and gain support; • Development and modelling of AEZs is a laborious and time-consuming process that requires the participation of many partners and large investments and time, largely beyond the capacity of the project.
7	Delays in the elaboration of the business plan for AICs	• Development of a business plan is possible only if there is an appropriate party having legal status to continue functions of the AIC; • It took longer than anticipated to follow-up all procedures required for selection and obtaining agreement on the appropriate party.
8	Delays in procurement process	• The purchase of the equipment based on a tender process was delayed due to insufficient tender applications received and procedural delays.
9	Delays in the implementation of small grants initiatives	• The implementation of small grants was delayed due to the increase in prices for local construction

		materials, a consequence of import restrictions following the start of the COVID-19 crisis.
10	Monitoring and effectiveness of gender-sensitive activities and development of a number of documents on outcome 2.2 and 3.2	Lack of a gender expert in the project.

As has been noted in this report, as a result of the delays summarized in the table above, the PMB decided in its 9th meeting to apply for a six-month no-cost extension of the project (until 30 March 2022). The extension request was approved by the UNDP GEF Executive Coordinator on 6 April 2021.

Given the challenges and delays described above, but also considering the contributions that have been provided by the project, the rating of the project's efficiency is "Moderately Satisfactory".

3.3.5. Overall Project Outcome

As had been noted in sections 3.3.1 and 3.3.3 of the report, the SCRL project has contributed across of range of areas and through a variety of activities. The following is a brief summary of the project's contributions at the outcome level.

Figure 9: Laser Land Leveling



Figure 8: Installation of Water Intake Pumps



First of all, the SCRL project contributed to productivity increase in crop production from adaptation measures implemented by the project, including mechanical cleaning of irrigation canals, installation of water regulation infrastructure and drainage pumps, laser land leveling, all contributing to improved soil physical conditions and a more efficient use of water and fertilizers, which improved crop productivity of household plots. The key adaptation measures promoted by the project are summarized in the following Table.

Table 13: Key Adaptation Measures Promoted by the Project

Adaptation measures on agricultural lands	Amount	Hectares
Installing Cipolletti water-measuring units	12 pcs	1,470
Installing water-regulating constructions	45 pcs	4,301

Installing observation wells	40 pcs	
laser land levelling to ensure faster and more uniform distribution of water, and reduce water consumption;	ha	560
Application of bio-humus, planting of soyan bean for improving soil fertility	6,050 kg	3
Construction of greenhouses (4), vegetable warehouse (1), and re-construction of greenhouse (1)	6 pcs	0.05
installing modern drainage pumps (4) with back-up options, transformer (1) and power lines (1.2 km) to drain excess water from fields and balance groundwater levels	4 pcs	1,100
Development and introduction of the inter-farm water distribution plan for six farmers associations and one livestock farm	7 pcs	5,602
Mechanical cleaning of collector-drainage system and irrigation canal	120 km	5628
Regular land levelling, deep ploughing, cultivating etc	ha	440
Water-saving technologies such as siphons (20 pcs), hosepipe (100 m) and water-measuring devices (2 pcs) for improving irrigation practices	n/a	67
Purchasing new portable diesel pumps for water intake	4 pcs	378
Installing a drip irrigation system	2 sites	10
Repairing the electric generator of an existing water intake pump with capacity 1000 rpm 22 kW	1 pc	310
Purchasing the innovative universal seeder (activity is not completed), disco harrows for application of No-till technology	2 pcs	145
Repairing of agricultural machines (2) and tractor maintenance boxes (4);	6 pcs	n/a
Leaching irrigation for soil desalinization	ha	1,900
Purchasing and planting of the fruit seedlings	4820 pcs	n/a
Purchasing the dehydrator (1) for drying fruit, sewing machines (3) and over stitching machine (1)	5 pcs	n/a
Production of honey and providing local residents with ecological pure honey,	14 hives	50
Construction of a two-chamber bio-fermenter and instrumentation for accelerated composting of organic waste;	1 pc	n/a
Total		21,964
Adaptation measures on pasturelands	Amount	Hectares
Installing solar pumps (5kWt) at Esenaman remote area and repairing sadobs (2) each 500 m3	2 pcs	105,000
Purchasing of new portable subsurface pumps (5) for the Kyrk Guyy watering point	5 pcs	181,600
Concrete casting of kak (1 ha) to improve water harvesting at the Begish sardob watering point and repairing sardobs (2) each 250m3	2 pcs	45,216

Purchasing submersible pumps (3) powered by alternative energy sources, deep-water pumps (6) complete with diesel generators (6), canvas fabric for sewing tents for shepherds, steel sheets, aluminic cans (20) for storage of potable water, and a refrigerator (1) for storing animal vaccines at Serdar livesock farm	n/a	168,300
Total		500,116.00

Figure 10: Solar Panel Installation



The project has led to key practical achievements, including (i) reduced land degradation on more than 500,116 hectares; (ii) increased livestock farm productivity (increased number of cattle sustainably grazed); (iii) sustainable energy use by means of solar panels; (iv) rationed use of water resources in an arid desert environment; and (v) overall reduced pressures on watering places promoting vegetation restoration. The project has also contributed to the improvement of the skills and knowledge of farmers and increases in

the productivity of their farms by demonstrating innovative and sustainable practices that provide alternative sources of income and supporting climate resilient livelihoods of local communities.

Overall, the SCRL project has been instrumental in directly and indirectly increasing the incomes of participating households, as well as of the local communities, including representatives of private sector (entrepreneurs) providing different agricultural services and inputs. Adaptation measures promoted by the project in the eight targeted communities have benefitted local farmers through improved irrigation technologies, sustainable water and land use practices, and better crop production. The project has benefitted about 40,000 people as direct beneficiaries, half of whom were women. More than 52% of participating households, 20% of which headed by women, have increased their well-being and improved knowledge on greenhouse development.

The rating of the project's overall outcome is "Moderately Satisfactory". This rating is reflective of the challenges with the completion and sustainability of some activities and consistent with the ratings in the project implementation reviews and the project MTR.

3.3.6. Sustainability

Socio-political Sustainability

Figure 11: Training on Drip Irrigation System



There are always socio-economic risks to the sustainability of project outcomes emanating from the country's political stability and security situation. However, the area of climate change adaptation and rural livelihoods is less political in nature and a clear priority of Turkmenistan's leadership. Furthermore, the SCRL project has demonstrated good ownership by socio-economic groups and local communities, which lowers socio-

economic risks. On the one hand, the project has increased awareness around climate change adaptation both within the government and in the communities, which is a positive factor for social sustainability. Wide consultations conducted in the course of this project have improved the understanding of climate change adaptation in the country. Further, the project contributed to making the process more open to and inclusive of the environmental community in the country. This is important for the future sustainability of this effort as the process will be more constructive and stable with the environmental movement engaged and informed of the main activities undertaken in this area. Also, the body of knowledge produced by the project has contributed to the improvement of awareness and understanding of this issue.

For all the reasons listed above, social impact risks associated with this type of project are considered low. Therefore, this dimension of sustainability is rated as "Likely".

Financial Sustainability

Financing is quite relevant for the continuity of the results of the pilot initiatives involving communities and local governments at the sub-national level. At this level, continued financing is important because it is an indication of commitment and ownership from the partners, and as such an important aspect of sustainability.

The SCRL project was successful in securing additional funding from a variety of donor-financed local development programs and schemes, including activities on improvement of the national legislation on water and land use, gender mainstreaming, eco-system based management and nature protection. However, the sustainability of funding is a challenge. For example, the implementation of LAPs encountered difficulties related to the limited amount of funds by the implementing entities of these adaptation plans.

However, it is not clear whether the grant model that was piloted through the SCRL project could be institutionalized further by integrating it in the financing model through which the Government allocates and distributes funding to local governments on a regular basis. A key aspect of the financial sustainability of the SCRL project is the ability of national stakeholders to secure funding for adaptation activities as a follow up to the project grants provided for these

initiatives. Securing sustainable financing for adaptation initiatives is difficult if adaptation programmes are not grounded in a sustainable funding source such as the state budget. Existing government and local development programmes and schemes are not supported by clear budget and financial resources allocation. Also, their sources remain often unclear and a specific responsible party has been difficult for the project to identify. Hence, the importance of a national adaptation plan which provides a solid set of financial commitments from the government for this area. This was not possible to achieve under the framework of this project.

Given the outstanding risks mentioned above, this dimension of sustainability is rated as “Moderately Unlikely”.

Institutional Framework and Governance Sustainability

The SCRL project was successful in promoting legislative and regulatory changes, which is an important factor for sustainability as these changes are engrained in the country’s regulatory and policy framework. Also, the project’s extensive work on training and awareness raising is another important factor of sustainability as change in this case operates at the mentality and skills level. It was important that project investments were supported by targeted awareness campaigns, which raised interests among project partners, especially in the private sector. Equally important for sustainability was the publication and dissemination of different informative materials produced by the project.⁴⁰

Another factor of sustainability was the project’s highly participatory approach and the engagement of a large number of stakeholders in project activities. A positive factor for sustainability in this context was the engagement of stakeholders at the sub-national level. Representatives of local authorities (velayat and etrap khyakimlik) were included in the Project Management Board (PMB). In addition, local authorities (etrap khyakimlik) were also members of the Local Project Management Board, and actively discussed issues related to the implementation of project activities at local level, solved emerging problems (obtaining permits for the use of agricultural machinery, land plots, obtaining technical conditions, timely watering, etc.) It is worth to mention that the authorized representatives of the khyakimlik of velayats and etraps (supervisors) were not changed throughout the entire period of the project - 5 years. This positively contributed to the project activities, ensured its sustainability and consistent implementation of the assigned tasks. The supervisors participated in all regularly held meetings of the Project Management Board, discussions of annual work plans, grant proposals, in preparation of progress reports for the Senior Managers of the velayats. In addition, representatives of khyakimlik participated in all project’s activities (trainings, field days, workshops) on raising awareness, in a study trip to Uzbekistan, as well as in the dissemination of information and knowledge products of the project (training materials, manuals, leaflets, brochures, booklets, etc.).

⁴⁰ Key publications included booklets on the project activities, Climate Box publications, manual on bio-humus production, practical advice on horticultural practices, brochure on mushroom cultivation, leaflets on innovative water saving technologies, different thematic posters, administrative maps of farmers' associations.

The local administrations provided crucial assistance to project activities at the local level, signing project documents - local adaptation plans, grant agreements and progress reports etc. Local administrations were convinced of the effectiveness of providing agro-consultations on the basis of AICs, conducting training programs, and raising awareness and improving the livelihoods and well-being of the local population from the application of adaptation measures. Perhaps for this reason, representatives of both velayats expressed an interest in continuing the work of the AIC and transferring them on the balance sheet of the khyakimliks of the etraps.

The SCRL project supported the establishment and strengthening of a range of institutional structures. The following are some key structures.

Figure 12: Agro-Information Center in Gorogly etrap, Dashoguz



- One key sustainability concern is related to the Agricultural Information Centers (AICs). As noted earlier in this report, the SCRL project supported the establishment of two AICs. Both AICs are operational since 2017 May, but their sustainability is not guaranteed. It is not clear yet how these centers will be financed and operated after the project's closure. First, these centers have not been registered as legal entities, which limits their

independence. Second, no state organization has agreed to take over the responsibility for the continued operation of these centers. The project team has taken steps towards the development of business plans for the AICs (shown in the box below). Project stakeholders have already discussed the most suitable organization (a national subordinate agency of the MAEP, or a functional entity under the district authorities) to accept the AICs to ensure their sustainable operability after the end of the project, but no formal decision has been made yet.⁴¹ This matter requires the urgent attention of MAEP and a recommendation is made on this in the recommendations section of this report. The project should seek to obtain a formal decision by the Government on who will take responsibility for the operation of AICs upon the project's completion. If such a decision is not obtained in time, the project team must organize a handover to MAEP with a clear action plan for MAEP's attention.

Box 5: Development of Business Plans for the AICs

The project has taken the following steps towards the development of business plans for the AICs:

- An international consultant elaborated the Concept and Basics of the Business Plan to ensure the sustainability of existing Agro-Information Centers in Lebap and Dashoguz velayats;

⁴¹ One idea discussed recently by project stakeholders is to have the AICs function under MAEP's management within the newly initiated projects on NAP or/and Aral Sea.

- The project team elaborated the Road map containing the main steps for business planning for each AICs, including timeframe and responsible partners;
- Following the Road map, the project team identified a long-list of potential partner-organizations willing and suited to accept the hand-over of the AICs;
- A number of meetings was organized with potential partner-organizations and their capacity was assessed based on a set of indicators developed;
- The project team also elaborated the list of services and consultations that AICs can provide in each region, as well as the pricelist for these services and consultations;
- Training of trainers was organized for agronomists/consultants expected to disseminate the knowledge and provide agro-consultations based on AICs.

Draft business plans were being prepared at the point of this evaluation. Once a decision on the transfer / hand-over of the AICs is made officially and endorsed by the PMB, the draft business plans will be revised, in accordance with the envisioned functional structure and technical capacity, and a financial plan will be prepared. The final version of the business plans will be elaborated and adopted by the AICs with the project's technical support.

- The project supported the formulation and implementation of Local Adaptation Plans, which served as the basis for demonstrating innovative measures to adapt to climate change for local communities and farmers of farmers' associations. Another area of focus should be the extent and way in which the concept of local adaptation plans will be pursued in other locations in the country. As of the point of this evaluation, it is not clear whether other adaptation plans will be formulated and implemented in other localities. An action plan on this matter would be useful.
- Project stakeholders need to create an institutional framework for the implementation of the AEZ modelling as a tool for collecting and storing data on land inventory, for agriculture planning and investment. AEZ modelling will also facilitate operations related to the Land Cadastre, the development of the Agro-industrial complex, etc.
- The MRV Road Map was another key contribution at the institutional level. The incorporation of the MRV Road Map into the agriculture and water sector policies is expected to further promote adaptation planning processes, getting Turkmenistan closer to its commitments under the Paris Agreement. The Government needs to incorporate the MRV Road Map into agriculture and water sector policies, which will further promote adaptation planning processes towards ensuring meeting Turkmenistan's commitments under the Paris Agreement with regards to the enhanced framework transparency.
- Project stakeholders also need to identify an entity that will own the multicenter agro-ecological maps. The project must ensure a proper handover of the multicenter agro-ecological maps. Such a process is not clear yet. If a recipient for this product is not identified by the end of the project, the project team must organize an orderly handover to MAEP, accompanied with an action plan for MAEP's attention. The action plan should

include feasible options that guarantee the sustainability of the system – including the possibility of charging fees for the services obtained from the system.

- The Government should adopt the guidelines on mainstreaming climate change adaptation in the agriculture and water sectors developed through the project and integrate them into national policies/strategies.

Going forward, the challenge will be in securing the sustainability of these structures and ensuring the dissemination of institutional practices and innovations beyond the project’s target locations. While the project needs to do more to promote the upscaling and replication of the adaptation measures in other etraps of the two plot velayats, it is prudent to expect that the Government commits to that too, even though there is no specific target of indications by government entities on that. The Government needs to take over from the project the responsibility for the dissemination of project results in other localities in the country. The project team and MAEP should develop an action plan for the dissemination of project results, underpinned by specific actions and timelines, and the commitment of the Government to carry out this work.

Given the outstanding risks mentioned above, this dimension of sustainability is rated as “Moderately Likely”.

Environmental Sustainability

The SCRL project contributed to the promotion of not only climate change adaptive technologies and approaches, but also environmentally sustainable practices and an ecologically-balanced development model. The project has made significant contributions to the national objectives of strengthening the resilience of rural communities to climate change effects.

The activities involved in this project do not involve any direct environmental risk. Therefore, this dimension of sustainability is rated as “Likely”.

Table 14: Sustainability Rating

Sustainability Dimension	Risk Assessment
Financial risk	MU
Socio-Economic risk	L
Governance risks	ML
Environmental risks	L
Overall Likelihood of Sustainability	ML

3.3.7. Gender Equality and Women’s Empowerment

The SCRL project has had a significant focus on the gender dimension. The project design places women in the project target area at the center of the project by clearly recognizing that they experience specific challenges in their daily lives which are exacerbated by the effects of climate change. The project document recognizes that the needs and priorities of women, and particularly those of poor and vulnerable women, differ from those of men. The project

document also recognizes that the roles of women and men are inter-dependent and there are few, if any, areas of social or economic activity that are purely women's concerns. Hence, the project involved the active participation of both sexes in most livelihood activities.

The project's gender strategy combines mainstreamed measures to ensure that women have equal opportunity with men to be heard, participate and benefit from project activities, together with measures specifically targeted to support women without overlooking the need to ensure the support and engagement of men. It adopts a three-pronged approach that ensures a meaningful participation of women, rather than mere token representation. The gender strategy has focused on (1) raising the awareness of the overall community of the differential gendered aspects of climate change; (2) ensuring and facilitating participation of women and vulnerable groups in all aspects of project implementation and (3) specific livelihoods support to poor and vulnerable women.

The project paid special attention to the participation of female-headed households and vulnerable groups in project activities, promoting their well-being and engagement in the decision-making processes.

- Gender mainstreaming was reflected in all project activities and results. Gender responsive community-based LAPs were drafted to encourage the active involvement of women in their implementation. The small grant programme included specific criteria to encourage applications to be submitted by women-headed households. Women represented 50% of project beneficiaries.
- The participation of female-headed households and vulnerable groups in meetings was ensured, promoting their engagement in decision-making processes.
- Gender empowerment training was conducted for local authorities to further strengthen the engagement of women.
- Dissemination among rural women of information on practical methodologies and manuals on bio-humus production, mushroom cultivation, horticultural practices etc.
- Efforts to mainstream gender-disaggregated data into adaptation planning processes. The project supported the development of an instruction for the collection and storage of gender-disaggregated data. The Instruction will be tested as part of an existing system of collecting statistical data on the example of one of the farmers' associations. The project also developed a Guideline for Ministries on the Use of Gender-Disaggregated Data, as part of the instruction.
- With USAID cost-sharing, the project supported the revision of the "Guideline on the use of sex-disaggregated data towards strengthening women's needs in state sectoral planning and budgeting in water and agriculture", crucial for the mainstreaming of gender concerns in sectoral policy. The guidelines were envisioned to support the introduction of indicators reflecting how gender issues are taken into account in planning and budgeting process. The project also produced recommendations on the necessary steps to address gender issues in climate change adaptation.

Challenges

- The project lacked a dedicated gender expert in the team. To prioritize gender mainstreaming, the project would have benefitted from a dedicated gender specialist. The involvement of a gender specialist in the project would have contributed to a more effective mainstreaming of gender in the project and a more even distribution of responsibilities within the team, allowing other specialists to focus on other priority areas
- In hindsight, there was a need to collect and collate more effectively gender-disaggregated data to guide and monitor project interventions.

Overall, the evidence collected for this evaluation indicates that women have been involved in all stages of the project, from planning to implementation and monitoring. They have participated in significant numbers in working groups, trainings, baseline studies and formulation of local adaptation plans, and other project activities.

3.3.8. Cross-cutting Issues

Human Rights Approach

Overall, the SCRL project has followed a human rights approach by targeting the most vulnerable groups and regions and addressing the rights of women, people with disabilities, etc. The following is a brief summary of the main dimensions.

- Through the combination of its activities targeting resilient livelihoods through adaptation, the project has contributed to the basic right to a safe and ecologically-balanced environment.
- The project has promoted participatory transparent processes not only in project activities, but also within the government through the process of participatory development planning. The project has made local governments more open, transparent and accountable to the public.
- Through the water infrastructure projects, the project has contributed to job creation, poverty reduction and reduced vulnerabilities, which are crucial aspects of human rights.
- The project has also contributed to reducing the number of people seeking jobs outside the province and country.
- From a human-rights perspective, the affected communities are better aware of their rights in the context of climate change adaptation.

Governance

The SCRL project has contributed to governance in the area of climate change adaptation. As has been already noted throughout this report, the public sector in Turkmenistan has benefitted from technical, legal and environmental capacity development. Furthermore, as a result of the project, communities in the pilot areas and the public sector are better informed about the impacts of climate change and the need for adaptive measures. The SCRL project has generated extensive learning with regard to stakeholder consultations and consensus-based decision

making. Furthermore, as has been noted previously in this report, the project has also promoted South-South cooperation and the transfer of knowledge from other countries.

Communications

The project team had ensured good communications with internal stakeholders and external audiences. The following is a brief description of the channels through which communications have taken place.

- Project results were highlighted and discussed in various project events. For example, during seminars in pilot regions, the project team informed participants and members of local communities about ongoing activities carried out within the framework of the project, plans and achievements, the difficulties for which their active participation and support is required in order to solve them.
- At the local level, regular Local Management Board (LMB) meetings were held and were attended by heads of etrap khyakimlik, farmers' associations, as well as chief farm specialists, farm council members and activists. In these LMB meetings, local project coordinators presented the results of the project, progress of implementation of small grants, annual work plans, and raised problematic issues requiring their attention and intervention.
- At the national level, information on the results of the project was presented at the PMB meetings. Prior to PMB meetings, the Project Manager discussed with the National Project Coordinator the agenda, draft decisions, issues to be raised, etc.
- In addition, the project advertised project activities and results through the mass-media - articles and press releases on the websites of UNDP, UN, state and regional media services, Tariq, various foreign organizations (Russia, Uzbekistan), on social networks, in local newspapers and magazines, on the GEF global website.
- The project also published a large amount of information and knowledge materials, which presented a variety of information, including the results of the project, achievements, recommendations and lessons learned. These included project flyers, a brochure on project activities, a booklet on project approaches, thematic posters, information leaflets and much more were prepared.
- Every year the project participated in international conferences and exhibitions held by the Ministry of Agriculture and Nature Protection, as well as conferences on June 5 dedicated to the International Day for Nature Conservation. The project presented in these events its main results, piloted adaptation measures, as well as studies from the pilot regions.
- The project team regularly participated in events (conferences, webinars, trainings) organized by other projects and initiatives.⁴²

⁴² These include i) the FAO project (Turkey, 2017-2018), ii) the M. Succow Foundation project (Ashgabat, November 2017), iii) CAREC projects (Tashkent, April 2019; Ashgabat, December 2019), iv) 4NC & BUR, NDC projects (2020-2021), v) GIZ project (Amudayra Day, Lebap velayat, November 2017), vi) IAMO project (Baku, September, 2018); vii) EERE project (Akhal velayat, September 2019), etc.

Sustainable Development Goals

One cross-cutting area where the SCRL project could have engaged more actively is the adaptation and implementation of SDGs in Turkmenistan. The SDG process presents a unique opportunity for integrating climate change adaptation concerns into policy frameworks. The SCRL project was uniquely positioned to contribute to this process at the sub-national level through its interventions related to the local adaptation plans. The project could have assisted with raising awareness on the mainstreaming of climate change adaptation concerns into sub-national policy frameworks and assist local authorities in becoming more engaged with SDGs in their activities. However, the role of the SCRL project in SDG activities has been absent. The project document does not provide any references or links to the SDGs and no such references to SDG-related activities during the implementation phase were encountered in interviews with stakeholders. This is something that project stakeholders and UNDP could examine more closely for future activities in this area.

3.3.9. GEF Additionality

As noted above, no direct incremental environmental benefits have occurred from this project due to the fact that the removal of waste did not take place. There is potential for benefits if the lessons and the experience that have been derived through this project will be put to good use in the coming months and years.

3.3.10. Catalytic/Replication Effect

The SCRL project was intended and designed to pilot technological and institutional solutions to climate adaptation problems. Two of the country's five velayats (provinces) were selected for piloting these solutions. These are two regions that have experienced draughts and severe water shortages and are considered important agricultural production areas. Within each of the two velayats, the project selected an etrap (district) with the highest productivity in terms of agricultural and livestock output, as well as being most vulnerable in terms of climate change. Another criterion taken into account for the selection of etraps was the interest, responsiveness and willingness of their authorities to participate in climate adaptation activities - including their willingness to share experiences with other etraps and velayats in the country. Three daikhan associations and a livestock association were selected in each of the two pilot etraps for the initial phase of the project based on the following factors: vulnerability of communities to climate impacts, cohesiveness and maturity of the organization (based on past performance as assessed by the respective etrap municipalities), and extent of support already received from the local administration. This approach was conducive to testing novel approaches and technologies with the intention of further disseminating successful experiences in other regions of the country. Hence, a catalytic approach underpinned by an expectation for replication was built in the design of the project from the conceptual phase.

The SCRL project was active in introducing to the country experiences from other countries. This was achieved despite the challenging situation with international travel and communications due to the COVID-19 restrictions. The project used international experience in the following areas:

- FAO experience in monitoring of irrigated land and the participatory technology planning approach. This experience was included in the guidelines "Assessment of the reclamation state of irrigated lands" developed in cooperation with TSAI.
- The experience of the Global Forum on Rural Advisory Services (GFRAS) in the creation of agro-information centers and the provision of advisory services to agricultural producers. This experience was taken into account in the development of the concept for the creation of a national system of consulting services, as well as in the preparation of a training module for the preparation of local consultants of the AICs.
- The experience of Counterpart Turkmenistan from the USAID / Counterpart International Programme of Support of Water Users Associations in Kazakhstan and Turkmenistan "Water Management at the level Water Users Associations". This experience was used in the preparation of the training module "Development of an on-farm water use plan".
- For the development of the "Guidelines on mainstreaming climate change adaptation into sectoral plans for agriculture and water sectors" the project used the experience of international organizations such as:
 - International Standard ISO 14090. Adaptation to climate change —Principles, requirements and guidelines.
 - National Adaptation Plans. Technical guidelines for the national adaptation plan process. LDC Expert Group, DECEMBER 2012
 - FAO Strategy regarding climate change. Rome, July 2017.
- Several international consultants were engaged in seminars and the preparation of various materials. They brought the experience of international organizations and advanced practices of other countries.
- The SCRL project organized study tours for representatives of relevant government departments in Israel and Uzbekistan to learn about best practices in sustainable agriculture and water management.⁴³ Participants were acquainted with the organization of Farmer Councils, AICs, and sustainable agricultural production in the context of climate change. Furthermore, in the framework of the project "Institutional

Figure 13: Study Tour to Uzbekistan and Israel (left to right)



⁴³ In October 2019, the SCRL project organized a study tour to Uzbekistan for 13 participants from the Ministry of Agriculture and Environment Protection, State Agriculture Institute (Dashoguz city), Hyakimliks of Lebap and Dashoguz velayats as well as Gorogly etrap, the Vatan and Parahat farmers' associations, AIC employees and project staff.

Strengthening for the Implementation of the Montreal Protocol (Phase IV) and implementation of the Plan for the Phase Reduction of Hydrochlorofluorocarbons (HCFCs) in Turkmenistan (Phase I), stakeholders of UNDP projects SCRL and PVE travelled for a month to Yerevan to study the installation, repair and maintenance of refrigeration equipment and air conditioning systems.

As can be seen from the above examples, the project has played an important role in the dissemination of new ideas and approaches in the country in the area of climate adaptation.

The most important objective of the SCRL project has been the demonstration of innovative technologies and approaches in the agriculture sector. The project has invested considerable resources in the dissemination of innovative, cost-effective and environment-friendly adaptation measures, including water regulation and measuring structures, cleaning of irrigation and drainage canals, laser land levelling, installation of drainage pumps, water-saving irrigation technologies,⁴⁴ etc. National experts, including scientists from the Turkmen Academy of Sciences, demonstrated the cultivation of oyster mushrooms, production of dried fruits, desalination of saline water, energy generation using solar technologies, production of fodder using biotechnology, and a range of other measures. The box below summarizes the main technologies promoted by the project.

Box 6: Innovative Technologies Promoted by the Project

- Use of practice on land laser levelling. The project monitored the activity on land laser levelling and learned lessons that this activity will be effective if included in a mandatory measure at the state level, since a single use does not contribute to solving problems at the farm level, etc. There were recommendations and information presented in the form of information material to the government, as well as a number of practical and demonstration trainings for decision-makers. As a result, at the state level, 40 laser equipment were purchased for agricultural services.
- Use of No-till technology. Monitoring is ongoing and lessons learned are recorded. The practice was introduced in the form of presentations at seminars and is currently being implemented by FAO. There were also recommendations and information presented in the form of information material to the government.
- The use of organic fertilizers (vermicompost) as a method of combating salinization, increasing soil productivity and increasing moisture retention. The recommendations were summarized in the Guidelines for the use of vermicompost and disseminated among stakeholders.
- Consideration of climatic factors in agriculture practices. On the basis of the AICs and TSAI, agro-climatic stations were installed from which climatic information and notification of increased ultraviolet radiation were regularly received. Based on data analysis, consultations were provided to beneficiaries.
- The use of drip irrigation with a fertigation system as an effective and necessary measure for the development of horticulture under arid climate conditions. The results were constantly monitored and the government received recommendations in the form of

⁴⁴ A variety of innovative water-saving technologies were demonstrated, such as flat irrigation hosepipe, siphons, drip irrigation, water-measuring units that enhance productivity and water efficiency.

booklets, presentations. Also, the results of the work were presented in seminars and trainings.

- Attempts to use GIS technologies for modeling agro-ecological zones. Implementation of the AEZ method as a tool for decision-making in planning and budgeting agricultural production and environmental monitoring around irrigated lands.
- Creation and development of agro-information centers. The centers are enjoying great success and efficiency, especially under conditions of the development of the private sector. The presentation about the centers was provided in the media, booklets, at the meetings of the project and, as a result, the government showed interest in creating a platform for the development of such centers. Accordingly, the project has developed a concept for the development of agriculture consulting system in the country and the concept of the law on agricultural consulting system. All documents were shared with the government through official channels.

The demonstration of innovative technologies was supported with hands-on training, field demonstrations and on-site and remote consultations through AICs. The project developed training modules on weather forecasting, soil and water analyses, fertilizer and pest management, alternative sources of income (on cattle breeding, fodder crop cultivation, aquaculture, greenhouses, etc.), improved farming techniques for a variety of agricultural crops in support of more sustainable land and water resources management, production of bio-humus and compost, pest management, the preparation of grant applications, the development of inter-farm water distribution plans, etc. This has resulted in increased awareness on the negative impacts from climate change and a better understanding on adaptation options available among farmers and their households, civil servants with responsibilities for agriculture, land and water management, students and teachers alike.

While the adaptation technologies and measures promoted by the project have produced positive results, there is no consensus among stakeholders interviewed for this evaluation about their long-term impact. The key question is – to what extent these measures, technologies and approaches are going to be adopted by authorities and communities in other velayats and etraps.

There have already been some positive steps undertaken by stakeholders to disseminate the experience of the SCRL project. The land laser levelling equipment purchased under the SCRL project was demonstrated to representatives of MAEP and other ministries and departments and stories about its advantages were published in newspapers and magazines. As a result, the Government purchased 40 units of such equipment for use in the Akhal region. The solar water supply system purchased and installed as part of the project at a remote site in Dashoguz velayat was later replicated in certain regions of the Akhal velayat by a local equipment supplier. The project has reported that other activities such as the construction of the greenhouse, drip irrigation system, laser levelling, use of biohumus, planting of seedlings were replicated in other etraps (beyond the pilot sites).

For all these positive examples, there is a need for a more proactive approach and intensified efforts in promoting the upscaling and replication of the adaptation project measures in other etraps and velayats. This challenge is related to the sustainability of the project which is discussed in previous sections of this report. A more effective dissemination of the experience

of the SCRL project will require a clear dissemination plan, underpinned by specific actions and timelines, and the commitment of the Government to carry out this work. The UNDP CO could provide further support in this area through future interventions. This is one of the key recommendations identified in the recommendations' section of this report.

4. CONCLUSIONS AND LESSONS LEARNED

The SCRL project was a quite relevant intervention to Turkmenistan's needs and priorities. The project supported the long-term vision of the Government of Turkmenistan to mainstream climate change adaptation at the community, district, provincial and national levels in order to secure climate resilient livelihoods among agricultural communities. The adaptation measures promoted by the project, accompanied with hand-on investment initiatives supported by the project with grants amounting to US\$ 290,622, have produced positive results. This investment generated co-financing from the grant recipients in the amount of US\$ 286,064.

Despite the challenging circumstances that the project faced during its implementation and which will be described further in this section, the project team and stakeholders took a flexible approach and tried a variety of options, approaches and alternatives to achieve the set objectives. The project's response to the difficulties encountered during the implementation period were imaginative and adaptive.

Stakeholders interviewed for this evaluation, including beneficiaries in the Dashoguz and Labap velayats, highly valued the objectives and activities of this project. The project has focused on the vulnerable and has pursued very practical activities in the form of water infrastructure projects that have strong demonstration effects. The project has promoted innovative measures for sustainable land and water management, as well as sustainable pasture management. The following measures were found to have been the most successful.

- Measures to combat salinization of irrigated lands (leaching irrigation, mechanical cleaning of drainage networks, construction of water regulation facilities, laser levelling of irrigated lands),
- Methods of increasing soil fertility (no-till technology, introduction of soybean to crop rotation, use of vermicompost, organic fertilizers, provision of consulting services to agricultural producers, etc.),
- Water-saving technologies (drip irrigation, siphons, irrigation hoses, development and implementation of on-farm water use plans),
- Activities aimed at creating alternative sources of income (construction of greenhouses, opening a sewing club, honey production, etc.) and involving women in adaptation measures at all stages.

Going forward, project stakeholders must focus on two priorities: (i) the orderly completion of outstanding activities; and, (ii) proper handover of project products and process to the respective national counterparts. The most critical aspect that project stakeholders should focus on in the last few weeks of the project and which should be a central theme of the project's last project board meeting is the sustainability of project results. The recommendations provided further in this report provide some guidance on the critical sustainability matters that require the attention of stakeholders, and particularly MAEP which must ensure the continuity of the processes initiated under this project.

LESSONS LEARNED

The following are some major lessons that may be drawn from the experience of this project:

Lesson 1: Dissemination of Innovative Approaches and Technologies Takes Time and Requires Sustained Engagement

As has been outlined in this report, a number of interventions by development partners and the government have taken place in the area of climate change adaptation in Turkmenistan. The SCRL project builds on foundations laid out by these previous interventions. Such long-term engagement is based on the premise that addressing the challenges created by climate change requires collective action. The self-organization of farmers is a crucial aspect of such collective action. Achieving this requires the support of the public sector through the right incentives for the farmers to participate in the process of collective decision-making and individual commitments. However, the development of capabilities in the public sector, especially at the sub-national level, is a challenging task that requires a long engagement and repeated interactions between projects like the SCRL project and public organizations and local communities.

The experience of this project showed that local authorities and communities develop trust when they see practical results. The SCRL project spent considerable time in the beginning in trying to convince stakeholders of the effectiveness of adaptation measures (laser levelling, remote agro-consultations, bio-humus application, etc.). Some of the proposed solutions are innovative for the country and require ample and explanatory work on the part of the project and authorities. Further, the grant initiatives were crucial in demonstrating the usefulness and feasibility of various approaches and technologies. As has been noted in the last section of this report (section 3.3.10), while a lot of demonstrative work has taken place under this project, the dissemination of project experiences and results is still work in progress. Construed as a long-term process, this work will need to continue under the leadership of the Government. Interventions such as the SCRL project need to be conceived by taking into account the fact that ample time is needed for innovative measures to be accepted and taken up by farmers and thus the need for a lengthy period of engagement with local authorities and communities.

Lesson 2: Importance of Mandate of Government Organizations in the Area of Climate Change Adaptation

One of the challenges identified in this report is the fact that the mandate for climate change adaptation – and in particular AEZs - was not clearly defined and responsibilities for this area in the public sector are not clearly identified. A constraint to MAEP's proactive engagement with the project was the fact that adaptation responsibilities have not been clearly incorporated in ministry statutes and job descriptions of relevant specialists. Such a situation led to the need for greater efforts in coordinating the roles and responsibilities of the various MAEP departments that have functions related to climate change adaptation. This challenge was accompanied with a lack of a climate change adaptation strategy. The SCRL project has shown that the participation of government organizations in climate change adaptation activities is effective when adaptation as a public policy issue is clearly included in the mandate of a public

organization. The project has also shown that public officials engage more effectively with project activities when adaptation-related matters are clearly defined and included in their list of responsibilities and job descriptions. Therefore, for adaptive actions to be undertaken effectively it is necessary to create an institutional framework for the implementation of adaptation programmes and AEZs.

Lesson 3: Climate Change Adaptation and Local Governance as Two Closely Interrelated Concepts

Although the SCRL project was strictly defined and designed as a “climate change adaptation” project, it had a significant association with and strong implications for local governance. Adaptation activities take place at the level of communities, involving farmers and local authorities, and as such they closely interact with local institutions and norms. Climate change adaptation cannot take place in a vacuum – local governance aspects are very important and will have to be taken into account. Also, the project’s contributions in the area of climate change adaptation are inseparable from its contributions in the area of local governance. Working with sub-national governments on the assessment of vulnerabilities, formulation of adaptation plans, preparation of investment programmes and feasibility studies, monitoring and management of infrastructure projects, and so on, is extremely important for strengthening governance at the local level. It is precisely this focus on the governance aspects of climate change adaptation that makes these initiatives more sustainable and efficient. Therefore, the design of the SCRL project would have been more effective if aspects of local governance had been included more prominently in the conceptualization of the project.

Overall Project Performance Rating

Monitoring and Evaluation	
Overall quality of M&E	MS
<i>M&E design at entry</i>	MS
<i>M&E Plan Implementation</i>	MS
IA Implementation & EA Execution	
Overall Quality of Project Implementation/Execution	S
<i>Quality of UNDP Implementation/Oversight</i>	S
<i>Quality of Implementing Partner Execution</i>	S
Outcomes	
Overall Project Outcome Rating	
<i>Relevance</i>	R
<i>Effectiveness</i>	MS
<i>Efficiency</i>	MS
Sustainability	
Overall Likelihood of Sustainability:	ML
<i>Financial sustainability</i>	MU
<i>Socio-political sustainability</i>	L
<i>Institutional framework and governance sustainability</i>	ML
<i>Environmental sustainability</i>	L

5. RECOMMENDATIONS

The evaluation also identified the following key recommendations for project stakeholders. Given that the project is at its closing stage, these recommendations are forward-looking in nature and relate to measures that could be taken to promote the project's objectives and carry the agenda forward.

Recommendation	Responsible Entity	Timeframe
<i>Recommendation 1: Completing Pending Activities</i> As a first and urgent step, the Project Team and MAEP should complete all pending activities before the closure of the project. Key priorities that require the project's attention in the next few weeks are the following: • The project should finalize the preparation of the "Concept note on modelling the AEZs". • The project should focus on obtaining from the Government the adoption of the MRV road map. • Finalize the conceptual methodological guidelines on the use of gender-disaggregated data in adaptation planning and budgeting for water and agriculture. • Finalize the AIC Presentation Package. In the last Project Board meeting, project stakeholders should take note of all pending tasks and activities and make a decision on what is feasible to complete by the time of the project's closure. Whatever activities will not be possible to complete by that time should be handed over for completion to MAEP with a clear action plan that outlined the steps that are necessary for their completion.	SCRL Project Team & MAEP	Short-term
<i>Recommendation 2: Strengthen the sustainability of the project by further institutionalizing project outputs and promoting the dissemination of project approaches and technologies</i> To strengthen the sustainability of project results, the project team and MAEP should focus in the last few weeks of the project more intensively on the way in which some of the structures created by the project will be operated going forward and how the experiences and results of the project will be disseminated in other locations. In the remaining period of this project, the two partners should take a more proactive approach for the upscaling and replication of the adaptation project measures in other etraps and velayats.	GoT	Short and Medium- Term

Recommendation	Responsible Entity	Timeframe
The following are some key recommendations for the attention of the Government of Turkmenistan that will strengthen the sustainability of project results by further promoting the experience of the SCRL project: • GoT is recommended to widen and strengthen the formal responsibilities and engagement of the Interdepartmental Commission on Environmental Protection in the coordination of sectoral policy development and implementation, to ensure the proper uptake, and promotion and sustainable use of best practice experiences, including those of the SCRL project. • GoT is recommended to create an institutional framework for the implementation of the AEZ modelling as a tool for collecting and storing data on land inventory, for agriculture planning and investment. AEZ modelling will also facilitate operations related to the Land Cadastre, the development of the Agro-industrial complex, etc. • GoT is recommended to pay particular attention to the sustainability of AICs. GoT should continue the functional operation of AICs established by the project as a key structure supporting the transfer of knowledge and skills on climate change adaptation to the local farmers and community at large. The project should seek to obtain a formal decision by the Government on who will take responsibility for the operation of AICs upon the project's completion. If such a decision is not obtained in time, the project team must organize a handover to MAEP with a clear action plan for MAEP's attention. • Following the handover of MCLM to MAEP, and in acknowledgement by MAEP that the maps are a useful tool for the climate change adaptation planning process, it is recommended that the GoT considers investing in the necessary capacity building and awareness raising among decision-makers and experts on the usefulness of MCLM, the requirements and conditions for the application of this sophisticated tool necessary for incorporating the digital tool on climate change adaptation into policy development and planning. • GoT is recommended to incorporate the MRV Road Map into agriculture and water sector policies, which will further promote adaptation planning processes towards ensuring meeting Turkmenistan's commitments under the		

Recommendation	Responsible Entity	Timeframe
Paris Agreement with regards to the enhanced framework transparency. - GoT is recommended to adopt the guidelines on mainstreaming climate change adaptation in the agriculture and water sectors developed through the project and integrate them into national policies/strategies. - GoT is recommended to take over from the project the responsibility for the dissemination of project results in other localities in the country. The project team and MAEP should develop an action plan for the dissemination of project results, underpinned by specific actions and timelines, and the commitment of the Government to carry out this work.		
<i>Recommendation 3: Stronger Results Frameworks</i> - In future projects similar to the SCRL project, project stakeholders should identify more meaningful indicators that allow the project team to track and measure progress in a meaningful way. Care should be taken to identify indicators that meet the SMART criteria. These indicators should be defined in clear terms, so that the project team is able to track them effectively. - Also, sound monitoring systems need to be put in place. The verification of data obtained from the field should be done on the basis of well-defined methodologies that do not leave room for interpretation or uncertainty. - Similar projects should be designed with a greater focus on the collection and analysis of gender-disaggregated data to guide and monitor project interventions.	UNDP and GoT	Future
<i>Recommendation 4: Engagement with the Ministry of Finance and Ministry of Justice</i> In future projects similar to the SCRL project, project stakeholders should be careful to engage more closely the Ministry of Finance and the Ministry of Justice to avoid delays with budget approvals and endorsement of draft laws and regulations. In projects that involve investments from the public sector, it will be essential to have the commitment and involvement of the Ministry of Finance right from the start.	UNDP and GoT	Future

Recommendation	Responsible Entity	Timeframe
In projects that involve changes in the legal framework, it will be important to have the engagement and commitment of the Ministry of Justice.		
<i>Recommendation 5: Strengthen Engagement with SDGs at the Sub-national Level</i> In future projects related to climate change adaptation, GoT and UNDP should consider linking more effectively some of the project activities to the SDG-related activities going on in the country. Project stakeholders should explore how to use the adaptation platform to promote more actively the SDGs at the sub-national level. Such linkages could be ensured by linking adaptation measures to local governance processes, as described earlier in this report.	UNDP and GoT	Future
<i>Recommendation 6: Greater Focus on Gender Mainstreaming</i> In future projects similar to the SCRL project, project stakeholders should include a dedicated gender expert in the design of the project. The involvement of a gender specialist in the project will contribute to a more effective mainstreaming of gender in the project and a more even distribution of responsibilities within the team, allowing other specialists to focus on other priority areas		Future

ANNEXES

ANNEX I: EVALUATION TERMS OF REFERENCE

ANNEX II: KEY QUESTIONS DRIVING THE ANALYSIS OF DATA

Dimension	Key Questions
Relevance	Were project activities relevant to national priorities? Were project activities relevant for the main beneficiaries? Were project activities aligned to UNDP goals and strategies? Has the project tackled key challenges and problems? Were cross-cutting issues, principles and quality criteria duly considered/mainstreamed in the project implementation and how well is this reflected in the project reports? How could they have been better integrated? How did the project link and contribute to the Sustainable Development Goals? To what extent was the project relevant to the strategic considerations of the governments involved? To what extent was the project implementation strategy appropriate to achieve the objectives?
Effectiveness	To what level has the project reached the project purpose and the expected results as stated in the project document (logical framework matrix)? What challenges have been faced? What has been done to address the potential challenges/problems? What has been done to mitigate risks?
Sustainability	How is the project ensuring sustainability of its results and impacts (i.e. strengthened capacities, continuity of use of knowledge, improved practices, etc.)? Did the project have a concrete and realistic exit strategy to ensure sustainability? Were there any jeopardizing aspects that have not been considered or abated by the project actions? In case of sustainability risks, were sufficient mitigation measures proposed? Is ownership of the actions and impact on track to being transferred to the corresponding stakeholders? Do the stakeholders / beneficiaries have the capacity to take over the ownership of the actions and results of the project and maintain and further develop the results?
Efficiency	Have the resources been used efficiently? How well have the various activities transformed the available resources into the intended results in terms of quantity, quality and timeliness? (in comparison to the plan) Were the management and administrative arrangements sufficient to ensure efficient implementation of the project?
Stakeholders and Partnership Strategy	How has the project implemented the commitments to promote local ownership, alignment, harmonization, management for development results and mutual accountability?
Theory of Change or Results/Outcome Map	Is the Theory of Change or project logic feasible and was it realistic? Were assumptions, factors and risks sufficiently taken into consideration?

ANNEX III: QUESTIONNAIRE GUIDE

RELEVANCE
- To what extent was this project aligned with country needs and national priorities? What is the document that outlines the government's vision and strategy for the adaptation area? To what extent was the project aligned with that document? - To what extent were the approaches taken by the project appropriate in terms of the project design and 'focus'? - How coherent was the project in terms of how it fit with the policies, programmes and projects undertaken by other government bodies? Were there any other government programmes previously or concurrently in the area of adaptation? - How strong was the Government ownership and leadership of this project? How active were the Government respective departments on the activities and challenges involved in this project? (Please, provide as many details as possible and describe the roles played by each key player).
EFFECTIVENESS
- Please, provide an outline of the key achievements in the separate section of the questionnaire at the end of this document. - What were the key adaptation measures that were promoted/tried by the project and which ones were pursued and proved successful? How were these initiatives selected? Can you provide a table with the list of mini-projects (initiatives) undertaken under SCRL, location, budget of the initiative, dates of implementation, name of beneficiary and main results? - What legislative and institutional changes occurred at the national and sub-national level? - How engaged was the Ministry of Agriculture and Environment Protection with the project? - How were local governments (Velayat and Entrap Administrations) involved in this project? - How was the private sector involved in this project? - What of the above-mentioned factors were not identified as potential risks in the Project Document and at the inception stage of the project? - What international actors were involved to contribute this project (including UNDP's IRH)? What role did they play? How did the project facilitate their engagement? - Did the project make use of any international "good practices" in this area? If so, which practices were used and how did the project tap into them in concrete terms? Was there a systematic study of these practices conducted by the project? Were there lessons that were shared in a formal way with the government and that contributed to the government's capacity to deal with this matter?
EFFICIENCY
What amount of project's resources have been spent thus far?

- What was the amount of co-financing secured for the project? How much of it was spent?
- What was the rationale for the request for project extension? On what basis was it granted?
- What was **project management structure** (incl. reporting structure; **oversight responsibility**)?
- How efficient was the decision-making process in this project? Was the role of the Project Management Board efficiently implemented?
- How efficient was the communication between the Project Team and the Project Management Board?
- What were the main project delays and what were the reasons for each of them? Please provide a detailed list of delays and factors that led to them.
- Were risks/challenges identified sufficiently quickly by the project and brought to the attention of the Project Management Board?
- How was this project coordinated with similar projects/initiatives by other development partners?
- With hindsight, what would you have structured differently in terms of how this project was set up?

SUSTAINABILITY

- What has visibly changed thanks to this project in the area of CC adaptation?
- How were the results of this project communicated to other national stakeholders, especially in other velayats?
- Have any experiences from this project been transferred/taken up in the other velayats?
- What are the options now for the Government and local communities to carry this work forward? Is there an approved action plan/strategy in place? Is there any concrete line of action that has the agreement of the government?
- From the project's (technical) perspective, what do you see as the most feasible path forward to promote the achievements of this project?
- What are the main lessons you have drawn from the experience of this project?
- What are the key materials (knowledge products) that the project is handing over to the counterparts on this matter and how useful are they (please detail their usefulness in terms of what help they practically provide)?

ANNEX IV: LIST OF INTERVIEWEES

<i>No</i>	<i>Name/Surname</i>	<i>Position</i>	<i>Agency/ Project</i>	<i>Date & time of interview</i>	<i>Notes</i>
1	Mr. Harald Leummens	International Senior Technical Advisor	UNDP/GEF/MA&EPT SCRL project	Wednesday 17/11/2021 Time:10:00	1 st meeting with main experts of the project
2	Mrs. Amangul Ovezberdyeva	Manager			
3	Mrs. Gozel Atamuradova	Land Resources Specialist			
4	Mr. Ovezdurdy Jumadurdiyev	Water Resources Management Specialist			
5	Mr. Akmurad Gardashov	Local Expert	Expert on community mobilization Lebap velayat		
6	Mr. Murad Huseynov	Local Team member	Agro Information Center; Etrap Deynau of Lebap velayat		
7	Mr. Farhat Orunov	Program Analyst for Environment portfolio	UNDP CO	19 November, 2021 Time: 10:00	2 nd meeting
8	Mr. Orazgeldy Orazliyev.	Local Partner of the project; Head of the Agriculture Division	Dashoguz velayat's Hakimlik (Local Administration)	Monday 22.11.2021 Time: 09.45	3 rd meeting
9	Mr. Klychdurdy Sapardurdyev	Chairperson	Daikhan Association "Yagtylyk"	Monday 22.11.2021 Time: 10.36	4 th meeting
10	Mrs. Ogulboldy Jumagulova	Deputy Chairperson	Daykhan Association named after "Balysh Ovezov"	Monday 22.11.2021 Time: 11.00	5 th meeting 2 persons
11	Mr. Bekmukhamed Haytekov	Chief Agronomist	Daykhan Association named after "Balysh Ovezov"		
12	Mrs. Berenova Akjagul	Local beneficiary/ Gardener	Dashoguz velayat	Monday 22.11.2021 Time: 11.30	6 th meeting
13	Mr. Berenov Begench	Local beneficiary/ Gardener	Dashoguz velayat		2 persons
14	Mr. Nurmyrat Durdyev	Local beneficiary	Dashoguz velayat	Monday 22.11.2021 Time: 11.45	7 th meeting

15	Mr. Berdy Otuzov Mrs. Guldjemal Otuzova	Water specialist	Pilot farm in the Deynau etrap of the Lebap Velayat	Monday 22.11.2021 Time 12.00	8 th meeting 2 persons
16	Mrs. Maral Muhammedova	Specialist	State Service on Hydrometeorology at the Ministry of Agriculture and Environment Protection	Monday 22.11.2021 Time 17.15	9 th meeting
17	Mr. Babageldi Kurbanov Ms. Sayara Boltayeva Mr. Yazguly Atayev Mrs. Ainabat Atayeva	Institute teachers	Turkmen Dashoguz Agricultural Institute; Dashoguz city.	Tuesday 23/11/2021 Time 9.00	10 th meeting 4 persons
18	Mr. Nizomjan Baltaev.	Specialist of Agriculture Department	Lebap velayat, Etrap Deynau	23/11/2021 Time 9.55	11 th meeting 2 persons
19	Mrs. Gulsenem Permanova	Chairwoman of Daikhan Association			
20	Mr. Nuryagdy Novruzov	Local beneficiary	Hyakimlik of the Lebap Velayat	23/11/2021 Time: 10.30	The 12 th meeting 6 persons
21	Mr. Bakhtiyar Hudyyev	Local beneficiary			
22	Mr. Turkmenov Chary	Local beneficiary			
23	Mr. Rakhymjan Rozyyev	Local beneficiary	Lebap velayat Etrap Deynau "Parahat" Daikhan Association		
24	Mr. Allakuli Rozykuliyyev Mrs. Karayakhan Rozykuliyyeva (his wife)	Local beneficiaries	Lebap Velayat		
25	Mr. Merdan Nazarov	Specialist	State Committee on Water Resources	23/11/2021 Time: 16.30	13 th meeting 2 persons
26	Mrs. Roza Berkeliyyeva	Specialist	Institute of "Turkmensuvylymtaslama"		
27	Mr. Batyr Ballyev	Manager	UNDP/ GEF project "Sustainable Urban Development" (SUD)	23.11.2021 Time 17.00	The 14 th meeting 2 persons
28	Mr. Gurban Allaberdyev	Expert	Preparation of the NDC in the frame of the SUD project		
29	Mr. Merdan Babakulov Mr. Gurbangeldy Ashirov	Deputies of the Mejlice (Parliament)	Members of the Committee on Agro-Industrial Complex and Environmental Protection of Turkmenistan	Wednesday 24/11/2021 Time: 09:00	The 15 th meeting 2 persons

30	Mr. Rakhmanberdi Hanykov	Manager	FAO project “Integrated natural resources management in drought-prone and salt-affected agricultural production landscapes in Central Asia and Turkey” (CACILM2’)	Wednesday 24/11/ 2021 Time: 10.30	The 16 th meeting 2 persons
31	Mr. Kurban Bairamov	Specialist	FAO project CACILM2’		
32	Mr. Nazar Redjepov	Head	NGO “Tebigy kuwwat”	24/11/2021 Time:16.36	17 th meeting 3 persons
33	Mr. Yolbars Kepbanov	Lawyer	NGO “Tebigy kuwwat”		
34	Mr. Timur Aliyev	Expert	NGO “Tebigy kuwwat”		
35	Mrs. Zalina Rossoshanskaya	Head	NGO “Bosphor”	24/11/2021 Time 17.15	18 th meeting
36	Mr. Pirli Kepbanov	Director	National Institute of Deserts, Flora & Fauna (NIDFF) of the Ministry of Agriculture & Environment Protection of Turkmenistan.	Thursday 25/11/2021 Time: 09:00	The 19 th meeting 2 persons
37	Mr. Nury Atamyradov	Head	Laboratory of the NIDFF		
38	Mr. Serdar Eyeberdiyev	Deputy Head	Department of Nature Protection; Ministry of Agriculture & Environmental Protection of Turkmenistan (MA&EPT)	25/11/2021 Time 9.45	20 th meeting 2 persons
39	Mr. Anna Orazovich	Specialist of the Service for Land Resources Management	MA&EPT		
40	Mr. Chary Taganov Mr. Guvanch Hanmedov	Specialists	Water project	25/11/2021 Time 10.30	21 st meeting 2 persons
41	Mrs. Zuleikha Achilova Mrs. Jeren Khakieva	Head of GSP Specialist	Government Support Program (GSP)	Friday 26/11/2021 Time: 09:00	The 22 nd meeting 2 persons
42	Mr. Ilya Shapira Mr. Alexander Zogas	Head Specialist	“Emoushen” company	Friday 26/11/2021 Time: 09:45	The 23 rd meeting 2 persons
43	Mr. Rovshen Nurmukhamedov	Head	Program Department of the UNDP in Turkmenistan (Assistant Resident Representative)	Tuesday, 30/11/2021 Time: 16:00	The 24 th meeting

44	Mr. Berdy Berdiyev.	Head of the Department for Coordination of International Environmental Cooperation and Projects; Ministry of Agriculture & Environmental Protection of Turkmenistan; National Coordinator of the SCRL project	UNDP/GEF/MA&EPT SCRL project	Friday, 3 /12/2021 Time: 17:00	The 25 th meeting

ANNEX V: DOCUMENTATION REVIEWED

UNDP Initiation Plan
UNDP Project Document
UNDP Environmental and Social Screening results
Project Inception Report
All Project Implementation Reports (PIR's)
Annual progress reports
CDRs and Annual Budget reviews (PBBs)
Annual Workplans
Work plans of the various implementation task teams
Audit reports
Finalized GEF focal area Tracking Tool at CEO endorsement and midterm
Oversight mission reports
Lessons Learnt reports
All monitoring reports prepared by the project
Financial and Administration guidelines used by Project Team
Project operational guidelines, manuals and systems
UNDP country programme document(s)
Minutes of the Project's Board Meetings and other meetings (i.e. Project Appraisal Committee meetings)
Project site location maps
Calculation of the baselines identified after the inception phase
List of training courses with the information on participants and scoring sheets
The list of projects consultants (experts and companies) and their ToRs
Thematic reports produced by the project experts
Main national policy papers

ANNEX VI: LIST OF GRANT INITIATIVES

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
1	Improvement of the ameliorative condition of irrigated lands by mechanical cleaning of on-farm drainage networks with a length of 7.5 km	"Yagtylyk" farmers association	\$ 6,428.57	\$2,271.43	February – May 2020	The grant was aimed at reducing the degree of salinization of irrigated lands in the village of Yaktylyk by carrying out mechanical cleaning of on-farm collector drainage networks with a length of 7.5 km.	The farmers association at its own expense carried out additional cleaning of the drainage collector of 16 km length. As a result, a total of 23.5 km were cleared that improved land reclamation on 599.2 hectares. In 2020, in these areas, despite the shortage of water, it was possible to increase the cotton yield by an average of 4-5 centners per hectare. As a result of the analysis of the groundwater level, it was shown that the groundwater level decreased by an average of 30 cm. The implementation of this project made it possible to additionally restore 8 hectares of derelict lands. Total number of direct beneficiaries - 3,356 people, including men - 1,150 people, women - 1,202 people, children -1,004 people. Total number of households - 476 households, including 234 targeted farmers.
2	Increasing the yield of agricultural crops by land leveling using laser technology in Yagtylyk farmers association on an area of 120 ha	Yagtylyk farmers association	\$ 4,813.71	\$4,694.57	January-August 2020	The grant was aimed at reducing the risks connected with the impact of climate change by reducing the degree of salinity of irrigated lands and increasing the yield of agricultural crops by 15%, through the planning of irrigated lands using laser technology on the area of 120 hectares	The number of hectares of agriculture lands where laser levelling practice was applied was 125,4 ha as of August 2021. Increase in the yield of agricultural crops by 6 centners per hectare. The positive impact of the project is observed in ensuring uniform moisturize of the field, saving irrigation water by 15% and increasing the efficiency of irrigation. The tendency of soil salinity in one season decreased by 10%, the growth of weeds decreased by 15%. Beneficiaries increased their income by 8%. Total number of direct beneficiaries: 140 people, of which 79 are men, 61 are women. Total number of households - 29, of which 24 are targeted farmers

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						in the territory of the village of Yagtylyk	
3	Rational use of water resources and reduction of water loss on the watersheds of irrigation networks of the Yagtylyk farmers association through the construction of 5 water regulation units	Yagtylyk farmers association	\$ 18,914.29	\$10,342.86	February 2020 – May 2021	The grant was aimed at strengthening adaptation to the impacts of climate change through the efficient use of water resources and the reduction of water loss on the irrigation watersheds of the daikhan association Yagtylyk through the construction of 10 water control structures with a capacity of 0.8 m ³ /s	In total, water supply was improved in 1,076.17 hectares of irrigated land. Tenants' incomes increased due to cost savings for water distribution (excavator hire, labor) by 30%. The construction of water regulation units for tenants ensured the timely supply of irrigation water to the fields of farmers, they began to rationally use water, saved 40-50% of the time for water regulation, disputes and disagreements in the distribution of water were reduced. Total number of direct beneficiaries - 486 leaseholders, of which 242 were women, 244 were men. Total number of households - 402, of which 145 targeted farmers
4	Improving the water availability of land users by repairing the water intake pump with capacity 1000 rpm 22 kW. (250 l / sec)	Yagtylyk farmers association	\$ 1,485.71	\$2,699.71	February 2020 – June 2021	The grant was aimed at reducing the risks associated with the impact of climate change on the water resources of the farm and organizing the timely supply of water, thereby increasing crop yields by repairing the existing water intake pump on the Shoryap on-farm canal, located on the	Within this small grant project, a transformer was repaired, power cables were purchased, payment to the craftsmen for installation, payment of transportation costs and payment for loading and unloading the transformer were covered. The operation of the pump increased the water supply in the irrigated fields of brigades No. 4 on an area of 49 ha, No. 11 on an area of 172.2 ha. In 2021, the pump provided a stable and timely supply of water. Total number of hectares: 221 ha. Total number of direct beneficiaries - 166 farmers, of which 15 were women. Total number of households: 166, of which 26 targeted farmers

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						territory of brigades No. 11 of the village of Yagtylyk	
5	Improving the adaptive potential to climate change of agricultural communities at Yagtylyk by purchasing 2 mobile diesel pumps for water intake	in Yagtylyk farmers association	\$ 8,331.43	\$1,774.29	February – May2020	The grant was aimed at reducing the risks associated with the impact of climate change on the water availability of irrigated lands and to ensure timely water supply in the required norms, thereby increasing crop yields by purchasing 2 mobile diesel pumps for water intake d/o Yagtylyk	As part of this small grant activity, the water supply of irrigated fields on an area of 487 hectares was improved. The mobile diesel pumps ensured a stable and timely water supply and solved the water shortage problems in remote areas of the farm, where the land level was 1.5 meters higher than water source. In 2020, the yield of agricultural crops increased by an average of 4 centners, in 2021 by 6-7 centners. Leaseholder income increased by 10-15%. The pumps were also used in the neighboring farmer association D. Gylych for irrigation of fields on an area of 47 hectares. Total number of direct beneficiaries - 165, of which 80 were woman. Total number of households: 129, of which 30 are targeted farmers
6	Improvement of water availability in desert pastures - installation of submersible water intake pumps on 5 wells located in remote desert pastures at the Kyrkguy site (210 km)	Garagum livestock farm	\$ 2,285.71	\$2,471.43	February – June 2020	Procurement and installation of submersible water intake pumps on 5 wells located in remote desert pastures	Submersible pumps have been used on 16 wells since their operation. The covered area of the useful impact of the pumps is 181.620 hectares. 5 submersible water intake pumps provided 5 flocks of sheep (in total 2,993 head) from the Garagum livestock farm. The purchase of pumps contributed to the timely provision of water to animals and improved working conditions for herders and their families. The pumps are also used to fill sardobs (underground reservoir) and to fill water carriers for transporting water to the remote pasture areas. Total number of herders benefited directly: 231 people, of which women: 81, Men: 90, Children: 50. Total number of households: 46, of which 16 are targeted herders (private animal owners).

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
7	Levelling of irrigated lands on an area of 99 hectares using laser technology	Garagum livestock farm	\$ 6,628.57	\$13,921.43	February – September 2020	The grant was aimed at improving the land reclamation condition and reducing the degree of salinity of irrigated lands, thereby increasing the yield of agricultural crops by 20%, by achieving a flat land surface by planning using laser technology on the area of 99 hectares in the irrigated areas of the Garagum livestock farm	Total area of agricultural land where laser levelling carried out using laser equipment is 110 hectares. Advantages of application of laser levelling at this area are the following: i) Laser levelling helped to reduce the salinity of irrigated lands by 15%; ii) yield of agricultural crops (fodder crops) increased by an average of 5-6 centner per hectare in 1 season; iii) the positive impact of the project is also observed in the provision of uniform moistening of the field, saving irrigation water by 30%; iv) the growth of weeds has decreased by 25%. As a result of this, the income of the livestock farm increased by 20% in 2021. The residents of Garayanik village received direct benefits: 269 people in total, of which women: 96, Men: 87, Children: 89. Total number of households and targeted farmers – 21.
8	Rational use of irrigation water - construction of one water regulation unit with a throughput of 0.8 m ³ / sec	Garagum livestock farm	\$ 1,671.43	\$3,771.43	February – May2020	The grant was aimed at strengthening the adaptive capacity to the impacts of climate change through the efficient use of water resources and reducing 20% of water loss during irrigation works in the irrigated area of the Garagum livestock farm by constructing one water-regulating facility with a	In total, water supply for 124 hectares of irrigated fields was improved in the livestock farm. In addition, water supply has been improved on the household plots of the Garayanik village of 35 hectares. Sustainable management and water regulation has provided additional income (25%) to farmers by saving financial, time and labor resources. This grant project contributed to the elimination of the risks of floods and the collapse of the dam of the Shasenem canal, ensured the timely supply of irrigation water to the fields of the farmers association, the rational use of irrigation water, saved time by 50% on the regulation and distribution of irrigation water, led to a reduction in water losses by 80% during its distribution. The land users of the Garayanik village received direct benefits: 395 people in total, including 145 women, 144 men, 106 children. 4 households and targeted farmers

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						capacity of 0.8 m3/sec	
9	Sustainable pasture management – repair of two sardobas with a volume of 250m ³ and concreting of a takyr with an area of 1 at the Begish Sardop site	Garagum livestock farm	\$ 30,178.29	\$8,665.71	February 2020 – continues up to date	The grant was aimed at reducing the risks associated with climate change on flooding of remote (95 km) desert pastures by expanding the territory and increasing the productive capacity of natural pastures by repairing two 250 m ³ sardobs and concreting a takyr with an area of 1 at the Begish sardop site of the Garagum livestock farm	At present, two sardobs have been completely repaired and work on the repair of the takyr (catchment area) is being completed. These provide water to 5-6 flocks of sheep of the Garagum livestock farm in total 2,180 heads of animals (sheep, goats, camels). In addition to the herders of the livestock farm, private animals in the amount of 1,620 heads use these sardobs. Repair of sardobs contributed to water supply in the Begish Sardob site in area of 45,216 ha, as well as to reduce the pressure on degraded areas in the area of 135 ha where 3 wells locate. Today, both sardobs are filled with the help of water carriers that transport water from the area of Adjy Guy. During raining days, sardobs were filled with precipitation water that comes from natural takyrs. Currently, in total 338 people directly benefit from the repaired sardobs including 14 herders - owners of 5 flocks, and 324 owners whose animals graze in Begish Sardop site. Total households - 129, of which 86 targeted farmers.
10	Development of the practice of generating income from alternative sources in rural areas – construction of the greenhouse	Garagum livestock farm	\$ 2,339.43	\$2,068.57	April – November 2020	The grant was aimed at reducing the risks from the impact of climate change on economic well-being in the village Garayanyk of the live stock of Garagum by introducing the practice of income-generating from alternative sources	This project was carried out as a demonstration and its indicators are the number of trained beneficiaries as well as the amount of crops received. To date, according to local experts, consultations have been held for 33 beneficiaries who plan to build similar greenhouses on their household plots. In the greenhouse in the winter season of 2020 and 2021, 800 kg of tomatoes and 550 kg of cucumbers were obtained. The results of the project implementation showed that in a dry climate, in desert conditions and limited water resources, it is possible to create conditions for

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						through the construction of a demonstration greenhouse with an area of 100 m2 and to share knowledge and experience of obtaining food in greenhouse conditions	obtaining good yields and income from greenhouse farming.
11	Laser levelling of irrigated land, 120 ha	Parahat farmers association, Danew etrap, Lebap velayat	\$ 4,614.29	\$9,253.71	March 2020 - January 2021	The grant was aimed at reducing the degree of secondary salinization of irrigated lands, thereby increasing crop yields by 20-25%, by carrying out planning works using laser equipment (laser planner) on the area of 120 hectares in the territory of brigade No. 3 d/a Parahat	In total, the laser levelling was made on area of 184 ha. After laser leveling, an increase in crop yields is expected by 20-25%. The positive impact of the project is noted in the provision of uniform moistening of the field, saving irrigation water by 20%. Total number of direct beneficiaries – 122 of which 37 were women. Total number of households – 21, out of them 20 targeted farmers

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
12	Construction of a vegetable warehouse, 60 m2	Parahat farmers association, Danew etrap, Lebap velayat	\$ 9,568.57	\$10,056.57	January– July 2020	The grant was aimed at strengthening the adaptive potential and improving the economic well-being of rural people, through the development of the practice of income-obtaining from alternative sources through the construction of a 60m2 fruit and vegetable storage facility in the village of Dostluk, d/a Parakhat of Danew etrap.	The construction of vegetable warehouse was completed on July 2020. Since the time of operation, in the vegetable warehouse 12 tons of watermelon, 1 ton of pomegranates, 7 tons of vegetables and fruits were kept. The total profit of the owner of the vegetable warehouse (grant recipient) from the storage of fruit and vegetable products amounted to 9,200 TM. Residents save money for their family budget by 28% from storing their products in a vegetable warehouse. Total number of direct beneficiaries: 154 of which 27 were women. Total number of households – 21, out of them 1 targeted farmer.
13	Cleaning on-farm drainage networks of 15 km	Parahat farmers association, Danew etrap, Lebap velayat	\$ 8,342.86	\$3,285.71	February 2020 – February 2021	To ensure the productivity of irrigated agriculture, it is necessary that the drainage system function properly. Without a good drainage, it is impossible to preserve soil fertility, as the degree of soil salinity will increase every year. Therefore, in order to maintain productivity	In total 20 km of on-farm drainage collectors were cleaned, of which 15 km within the framework of this small grant activity and an additional 5 km were cleaned with the own resources of farmers' association. After cleaning the drainage collectors, the reclamation status of 1,763 hectares of irrigated land and household plots of 197 hectares (total 1,960 hectares) improved. As a result, the analysis of the groundwater level showed that the groundwater level decreased by an average of 45 cm. This contributed to an increase in yield by 20-25 centners. Total number of direct beneficiaries - 3,570 of which 1,370 were women. Total number of households – 694, out of them 118 targeted farmers.

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						of the drainage system, it is necessary to have effective drainage collectors as an important component of the entire collector - drainage system in the Daikhan Association Parakhat. In this regard, the grant was aimed at reducing the risks associated with climate change by reducing the degree of salinity of irrigated lands on the territory of the d/a Parakhat through mechanical cleaning of on-farm collector drainage networks with a length of 15 km	

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
14	Construction of a water regulation units, 9 ps	Parahat farmers association, Danew etrap, Lebap velayat	\$ 8,568.57	\$4,268.57	January 2020 – continue up to date	The grant was aimed at ensuring a fair, organized and reliable supply of irrigation water to the fields of land users and thereby create conditions for rational and efficient irrigation of land by building 9 water-regulating structures on watersheds located in the territories of brigades №1, №2, №3, №4, №5, Daikhan Association of Parahat	Five out of nine water regulating units have been constructed. According to Mr. Pedjiyev Dovran, Water specialist, water losses at watersheds have been reduced by 30%. After the construction of the units, water supply improved at 2,003 hectares of land in farmers' associations and 197 hectares of land in household plots (total 2,200 hectares). The yield of crops increased by an average of 5-7 centners. The construction of the water regulation units provided: i) rational use of irrigation water; ii) saving time on water regulation (40%); iii) absence of disputes and conflicts with water management organizations; iv) reduction of water loss by 30% during the start-up of water on the watershed; v) improved control of water flow in accordance with irrigation schedules and vi) conditions have been created for keeping records of the received water. Total number of direct beneficiaries - 3,100 of which 744 were women. Total number of households – 600, out of them 40 targeted farmers
15	Ensuring working conditions and preserving the health of workers at the garage of Parahat farmers association by repairing tractor maintenance boxes	Parahat farmers association, Danew etrap, Lebap velayat	\$ 10,274.29	\$16,257.14	February 2020 – February 2021	The grant was aimed at creating the necessary (favorable) working conditions for employees of the garage d / a Parahat, ensuring the promotion of their good health and working capacity, thereby increasing the productivity of agricultural machinery repair and organize timely	After the repair of the shed in the garage, the working conditions of tractor drivers and machine operators have improved. After repairing the shed, they managed to repair 12 tractors, which carried out work on wheat fields of 865 hectares, on cotton fields of 885 hectares (total 1,750 hectares). Timely provision of leaseholders with the necessary equipment enabled increase in the yield of agricultural crops by 7-8% compared to the previous period. Total number of direct beneficiaries – 880 of which 354 were women. Total number of households – 176

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						provision of necessary equipment to tenants and land users of the Daikhan association for agricultural work in the fields in order to increase crop yields by repairing 4 boxes in the garage d/a Parahat	
16	Improvement of the ameliorative condition of irrigated lands in the Watan farmers association, by repairing the excavator and cleaning 10 km of drain channel and 4 km of irrigation canal	Watan farmers association, Danew etrap, Lebap velayat	\$ 2,888.29	\$19,357.14	February 2020 – continues up to date	The grant was aimed at reducing the risks associated with climate change and, by reducing saline areas and improving water availability, to carry out mechanical cleaning of on-farm collector drainage networks with a length of 10 km and cleaning of on-farm irrigation networks with a length of 4 km at the site "Adak", of the village of Yashlyk of d/a Vatan	All planned measures have been completed under this small grant activity including cleaning 10 km of drainage collectors and 4 km of irrigation canals. This activity enables to improve the reclamation of irrigated lands on an area of 1,470 hectares of lands in the farmers association and 332 hectares of land in household plots (total 1,802 hectares). The yield of the crops has increased by 10-15 centners per hectare and, accordingly, the income received has increased by 7-8%. Total number of direct beneficiaries – 197 of which 51 were women. Total number of households – 35, out of them 22 targeted farmers

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
17	Improving the water supply of land users and reducing the risks associated with climate change through the repair of the Aqueduct and the construction of 18 water regulation units	Watan farmers association, Danew etrap, Lebap velayat	\$ 18,685.71	\$12,571.43	February 2020 – continues up to date	The grant was aimed at improving the water availability of local land users and reducing the risks of land degradation and thereby increasing crop yields by repairing the aqueduct and building 18 water-regulating structures on the territory of the village of Pushkin pf d/a Vatan, etrap Danew	At the moment 15 water regulation units have been constructed. The aqueduct has not been repaired yet. Thanks to the construction of the water losses at watersheds reduced by 30%. The construction of the water regulation units improved water supply on 1,740 hectares of land in farmers association and 510.6 hectares of land in household plots (total 2,250 hectares), and the yield increased by 6-8 centners on average per hectare. The construction of the water regulation units provided: i) rational use of irrigation water; ii) saving time on water regulation (50%); iii) absence of disputes and conflicts with water management organizations; iv) reduction of water loss by 80% during the start-up of water at the watershed; v) improved control of water flow in accordance with irrigation schedules; vi) conditions have been created for keeping records of the received water. Total number of direct beneficiaries - 1,452 of which 492 were women. Total number of households – 472, out of them 164 targeted farmers
18	Development in rural areas of the practice of generating income from alternative sources through construction of a demonstration greenhouse	Watan farmers association, Danew etrap, Lebap velayat	\$ 5,142.86	\$2,994.29	January 2020 – September 2021	The grant was aimed at developing practices for income-generating from alternative sources by building a demonstration greenhouse with an area of 0.2 hectares in the village of Vatan, etrap Danew	The main indicator of this project is the number of trained beneficiaries as well as the amount of the harvest obtained. 14 beneficiaries received consultations on construction of similar greenhouses. The first harvests were also obtained: 250 kg of tomatoes, 80 kg of watermelons, 45 kg of melon, 15 kg of cabbage, 5 kg of beans. Currently, an income of 850 TM has been received, the accounting department keeps daily records of the products sold. The obtained harvests are distributed among local residents at an affordable price (below the market price); workers of the farmers' associations can harvest crops for their needs free of charge.

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
19	Construction and commissioning of a small workshop for accelerated composting of organic waste - a two-chamber bio fermenter and its instrumentation	Zaman Farmers Association of Gorogly etrap, Dashoguz velayat	\$ 9,345.71	\$3,630.86	February 2020 – April 2021	The main objective of this grant was the construction and commissioning of the first small workshop for accelerated composting of organic waste (a two-chamber biofermenter), which will function throughout the production year, regardless of climatic weather conditions, indoors	43 tons of bio-compost have been produced. Bio-compost is made from organic waste - the remnants of leaves, straw, wood, animal hair, onion husks and other raw materials that are considered garbage. About 50 tons of this "waste" were collected and utilized in the region. the number of beneficiaries who received biocompost, including people for whom the consultation was provided: 311 people. Consultations received representatives of kindergartens (11), representatives of secondary schools (9), entrepreneurs (7), local residents of the village of Ovlyaboi, Zaman Gengeshlik (31), owners of greenhouses from S. Rozmetov etrap (3), citizens of Dashoguz city, all women (191).
20	Obtaining fixed assets in the form of a disco-harrow for the use of soil-protective and resource-saving No-Till technology to increase soil fertility, increase yields and reduce the cost of some agricultural activities	Parahat farmers assosiaion, Danew etrap, Lebap velayat	\$ 9,786.90	\$65,357.14	February 2020 – June 2021	The grant was aimed at the introduction and application of zero-tillage technology in the conditions of the region - "soil-protective and resource-saving agriculture, in order to increase soil fertility, increase crop yield and reduce the cost for agrotechnical measures	The introduction and application of No-Till technology contributes to i) increased yields by 10% on irrigated fields with an area of almost 614 ha; ii) increased the profit received by 10-15% due to improving moisture retention by 8-10% and saving the amount of water by 25-26% when growing fodder, corn, and reducing the cost of agrotechnical measures and fertilizers by 10-15%. Total number of direct beneficiaries - 3,351 of which 945 were women. Total number of households – 812, out of them 20 targeted farmers

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
21	Improvement of water supply for local farmers and reclamation of irrigated lands by repairing a JCB-240 excavator."	Farmers Association Babadayhan of Danew etrap, Lebap velayat	\$ 11,285.71	\$42,571.43	February – June 2021	The grant is aimed at improving the water availability and reclamation condition of irrigated lands in the territories of the Daykhan association Babadaykhan, etrap Danew by cleaning 22.5 km of on-farm irrigation and 12 km of collector-drainage networks by repairing the JCB-240 excavator	Improved the reclamation of irrigated land on an area of 2,027 hectares and household plots of 507 hectares (total 2,534 hectares). All cleaning-up works were completed in 2021. An increase in yield at the end of 2021 was 10-15 centners per hectare. Increase in the income of the local population by 10%. The groundwater level dropped by an average of 25-30 cm. Currently, the excavator is in good condition, continues cleaning drainage and irrigation canals. Total number of beneficiaries is 6,966 who benefit from the improvement of the reclamation of irrigated lands and on household plots after cleaning the drain collector with a length of 12 km and cleaning the irrigation canals with a length of 22.5 km. Total number of households – 1,594, out of them 211 targeted farmers
22	Improvement of water supply for land users and reduction of the risks irrigation water shortage induced with climate change in the f/a "Babadaikhan" through the construction of 15 (p.p. 13-0.3 m ³ / s and 5-0.8 m ³ / s) water regulation units	Farmers Association Babadayhan of Danew etrap, Lebap velayat	\$ 13,571.43	\$8,257.14	February 2021 – continues up to date	The grant is aimed at improving water availability in conditions of irrigation water shortage connected with climate change, thereby achieving high crop yields and incomes by building 15 water-regulating structures within 5 months on the Karyagach, Dvoynik, Shirin, Hashim, Dovlet, May and Yalkym watersheds of Babadaykhan Daikhan	At the moment, 10 water regulating units have been built, which have improved water availability on an area of more than 715 hectares. The water regulating units improved the water supply on agricultural land on an area of 3,079.3 hectares and 497 hectares of household plots. There is increase in the yield of agricultural crops by 6 - 7% annually. The construction of water regulation units provide to farmers many advantages such as: i) timely supply of irrigation water to the fields of tenants; ii) avoiding water losses, ensure rational use of water; iii) saving time on water regulation (35%); iv) no disputes and conflicts in the distribution of water; v) strengthen control over water distribution in accordance with irrigation schedules. the grant has not been fully completed. In this regard, the number of direct beneficiaries has not been estimated. Upon completion of this grant, the recipients of the services will be 9,401 people, of which 2,820. Total number of households – 2,170

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						AssociationThe grant is aimed at improving water availability in conditions of irrigation water shortage connected with climate change, thereby achieving high crop yields and incomes by building 15 water-regulating structures within 5 months on the Karyagach, Dvoynik, Shirin, Hashim, Dovlet, May and Yalkym watersheds of Babadaykhan Daikhan Association	
23	Development in rural areas of the practice of alternative income generation and adapting local residents to climate change by overhauling the existing greenhouse with an area of 250 m2.	Farmers Association Babadayhan of Danew etrap, Lebap velayat	\$ 2,365.71	\$1,428.57	February - October 2021	The grant is aimed at reducing the risks from the impact of climate change on the economic well-being of people of Babadaykhan village through the introduction of the practice of income-generating from alternative sources, thereby teaching the female part of the population to run a	In the past this greenhouse was abandoned. 12–13-year-old lemons that were inside were frozen during the winter. Under this small grant activity the walls were re-built, heating system improved. Soil and organic fertilizer have been delivered for improvement of the soil fertility. At the present greenhouse was restored and operationally functioning benefiting he residents of the farmers' associations

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						greenhouse through the overhaul of a greenhouse with an area of 250 m2 located on the territory of Babadaykhan d/a	
24	Installation of drip irrigation system to save water resources and develop sustainable horticulture in the context of climate change.	Farmers Association Babadayhan of Danew etrap, Lebap velayat	\$ 12,780.00	\$8,170.86	February - September 2021	The grant is aimed at the development of sustainable agro-production by creating optimal conditions for the survival of seedlings and increasing yields by at least 30%, through the use of water-saving technologies - the installation of a drop irrigation system on a garden plot of 5 hectares in Babadaykhan d/a	Activities on procurement and instalation of the drip irrigation system was completed. At the moment 22 gardeners were consulted. The grant is a demonstration activity for other gardeners, as many gardeners have expressed a desire in installation of drip irrigation in their gardens. Other gardeners in the neighbourhood also received the electricity supplied within this small grant activity. It is expected that yields will increase by at least 30% and save water by 70-80%. Total number of beneficiaries is 115 people, of which 37 were women. Total number of households – 23
25	Improvement of water supply for local farmers by purchasing portable pumps.	Farmers Association Babadayhan of Danew etrap, Lebap velayat	\$ 14,285.71	\$5,045.71	February – June 2021	The grant is aimed at mitigating the impact of climate change by improving the water availability of local farmers, as well as reducing the risks of withdrawing these lands from the	Under this small grant activity two pumps were procured for farmers to use them to irrigate the agricultural fields of the Farmers association. To date, water supply has been improved on irrigated fields with a total area of 128 ha. The mobile diesel pumps ensured a stable and timely water supply and solved the water shortage problems in remote areas of the farm. The efficiency of irrigation works on the farm has improved by 25 - 30%. An increase in yields at the end of 2021

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						acreage fund by purchasing 2 (two) mobile pumping units with a capacity of 0.35 m3/sec.	was by 10-12%. Number of the direct beneficiaries - 2,182 people, of which 672 were women. Total number of households – 583, out of them 72 targeted farmers
26	Development of alternative sources of income by opening a sewing club to train young girls in sewing	Farmers Association named after B. Ovezov of Gorogly etrap, Dashoguz velayat	\$ 10,028.57	\$3,727.43	January – September 2021	The grant is aimed at strengthening the adaptive potential to the impact of climate change by expanding alternative sources of income by opening a sewing circle during 2 months and further training young girls in sewing in the village of Ch.Arazglyldzhov, gengeshlik named after B.Ovezov	Until today, 5 girls aged 16 to 24 have been trained in the sewing club and 110 orders have been completed. The total income received was 6,050 manats. Part of the income was spent on the purchase of additional circle accessories and materials, and part was paid as a fee to the seamstresses.
27	Development of alternative sources of income in the Galaly village of Gengeshlik named after B. Ovezov by producing honey and providing local residents with ecological pure honey	Farmers Association named after B. Ovezov of Gorogly etrap, Dashoguz velayat	\$ 9,520.00	\$4,042.86	January – September 2021	The grant is aimed at strengthening the adaptive capacity and providing rural villagers with healthful honey by expanding the capabilities of the apiary and increasing honey production in the village of Galaly, gengeshlik named after B.Ovezov	During the 2021 season, three harvests were obtained, in total 120 kg of honey were gained and an income of 8,400 manats was received. At the same time, the grant recipients in order to assist local residents, sold honey at a cost of 70 TKM manats, when it costs 100 manats on the local market.

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
28	Improving the methods of sowing agricultural crops and introducing innovative technologies to increase the yield of agricultural crops and provide the population of the Gorogly district with agricultural products.	Turkmen Yoly gengeshlik of Gorogly etrap, Dashoguz velayat	\$ 16,690.00	\$2,078.00	April – November 2021	The grant is aimed at improving the methods of sowing crops and introducing innovative technologies through the purchase of a universal precision sowing machine to provide the population of the Gerogly etrap with a high variety of agricultural products, thereby contributing to the food security of etrab.	To implement the goals of this grant, a universal seeder was purchased within the framework of the UNDP tender, which was delivered to Gengeshlik Turkmen Yol in December 2021. The equipment supplier conducted the training on the use and operation of this equipment, in which more than 15 local specialists participated. Currently, work is underway to plan the use of the equipment according to the approved schedule.
29	Sustainable pasture management and improving the adaptive capacity of livestock breeders to climate change	Serdar livestock farm	\$ 29,800.00	\$11,028.57	May – December 2021	The grant is aimed at reducing the risks related with the impact of climate change on livestock productivity and food security of the region by improving the working conditions of livestock breeders, increasing the adaptive capacity of shepherds, increasing livestock income, as well as increasing the productive capacity of pastures in the	To implement the goals of this grant, 3 submersible pumps powered by alternative energy sources, 6 deep-water pumps complete with diesel generators, canvas fabric for sewing tents for shepherds, steel sheets for harvesting animal drinkers and a refrigerator for storing animal vaccines were purchased and delivered to the Serdar livestock farm. Representatives of the live stock received all the equipment at the end of 2021 and are currently using it for its intended purpose for sustainable pasture management.

No.	Project Title	Location	Amount of Grant by project (US\$)	Amount of Co-financing by Recipient (US\$)	Implementation Dates	Short Description	Achievement/Impact
						territories of the Serdar livestock farm, the Chardzhou etrap of the Lebap Velayat during 4 months.	
	Total amount allocated		\$ 290,622.33	\$286,064.57			

ANNEX VII: LIST OF POLICY DOCUMENTS

No.	Key Documents	Notes
Policy Documents		
1	Concept paper for the development of the National Agricultural Extension System in Turkmenistan	This document is very useful for further development of the agriculture extension services (AES) in the country and ensure the sustainability of the Agro-information centers in the future. The importance and relevance of the development of AES was outlined in the National Socio-Economic Development Plan of Turkmenistan until 2030
2	Final report on the implementation of gender-sensitive local adaptation plans	Information contained in the Final report on implementation of the Local adaptation plans can be used by MAEP for the following: i) preparation of the Ministry's report on implementation of the SDGs (particularly #13 on Climate action); ii) revision of the NDC and iii) preparation of BUR/BTR reports under the Paris Agreement
3	Report of implementation of the small grant activities	Same as for the #2
4	Informative package of materials dedicated to the climate change adaptation of the SCRL project	Under preparation. The Presentation package on adaptation measures to climate change will increase awareness of the provide sector and scale up the project activities throughout the country It can also help the government and UNDP in defining new (follow-up) projects
5	Report of implementation of the Training program of the project	This information will help UNDP and MAEP to improve the capacity building programs to be implemented under the new initiatives
6	Concept for the draft law on the Creation of Agricultural extension services in Turkmenistan	The concept law was drafted for further development of the agriculture extension services (AES) in the country and ensure the legal status of the Agro-information centers created under the SCRL project and creation of the new AICS in the other districts and provinces of the country. The development of such centers in other regions will make it possible to develop and support small and medium-sized businesses, to avoid the risks of agro-producers, to increase the labor market, to provide information about available opportunities, to provide co-working places, to create a platform for the exchange of experience between the scientific environment and practitioners etc.
7	Guidelines on mainstreaming climate change adaptation into the local development plans of agriculture and water sectors	The Guidelines provide a voluntary support mechanism through which a country can plan and take / implement steps and actions to ensure effective adaptation. The country is fully responsible for the process of developing and implementing a national adaptation plan in its territory.

8	Manual on optimal application of the fertilizer for the cotton	Practical advises and recommendations on the optimal application norms of fertilizer for agricultural producers elaborated based on scientific studies and research
9	Manual on production and use of bio-humus in Turkmenistan	Practical advises and recommendations on the production and application norm for agricultural producers elaborated based on scientific studies and research
10	Manual on the use of the drainage water for irrigation of agricultural plants	Practical advises and recommendations on the utilization of the drainage water for agricultural producers elaborated based on scientific studies and research
11	Manual on development of the inter-farm water use plan	Rules and procedures on the development of the interfarm water use plan for agricultural producers elaborated based on scientific studies and research
12	Manual on assessment of the meliorative condition of the arable lands	Rules and procedures on the assessment of reclamation state of irrigated lands for agricultural producers elaborated based on scientific studies and researches
13	Manual on the development of poultry of as alternative source of income	Rules and procedures on the development of poultry for agricultural producers elaborated based on scientific studies and researches
Legal Documents		
14	Law of Land Cadastre	– Improving legal regulation in the field of water and land legislation; – Promoting increased resilience of local communities to climate change; – Creation of a regulatory framework for the development of rural entrepreneurship; – Promoting more rational use of natural resources; – Creation of a more favourable climate for agricultural investment <i>A detailed explanatory note on project's work on improvement of legal aspects is available.</i>
15	Land Code	
16	Amendments to Law on Farmers' associations and Law on Farmers Societies	
17	Adaptation of the methodology for the assessment of ecosystem services to the economic activities of the pilot regions	The methodology will be useful for the appropriate department of the MAEP for assessment of the eco-system services for better planning process and sustainable pasture management
18	Development of Nationally Determined Contributions (NDC-2) to the Paris Agreement in terms of adaptation to climate change	The information on climate change adaptation was prepared and used for the revision of the NDC which is an important commitment of the country under the Paris Agreement
19	Recommendations for the designing of a MRV system	Developed recommendations for the design of a domestic measurement and reporting system taking into account the new Enhanced Transparency Framework (ETF).
20	National Strategy of Turkmenistan on Climate Change	The revision of the National Strategy of Turkmenistan on Climate Change was carried out in the light of the adoption of new commitments under the global Paris Agreement and in the context of the Sustainable Development Goals. In addition, the text of the national strategy adopted in 2012 contains a provision on its updating every five years.
21	Instruction on the collection, processing and storage of gender-disaggregated data in	To introduce new indicators in order to take gender indicators into account in planning and budgeting process, since in agriculture the gender aspect is important (for example, from

	sectoral planning and budgeting for adaptation	the point of view of the use of water resources in rural areas, the use of water resources to provide food for the family, etc.)
22	Conceptual methodological guidelines on the use of gender-disaggregated data in sectoral adaptation planning and budgeting for water and agriculture ministries	
23	Concept paper on modelling Agro-ecological zones and its practical application	This document will be useful for improving the understanding of key actors and stakeholders on the advantages of the modelling of Agro-ecological zones.
24	Report on co-financing by the Government	This document can be useful for the preparation of information for the NDC, NC and Adaptation reports of the country as it contains data on finance (contribution) allocated by the government and some technical assistant projects to adaptation measures
25	Materials on modelling AEZ	– Crop-specific agro-technological protocols – Farmer questionnaires (similar to the FAO SHARP program) – Development of an interface for the provision of remote agro-consultations – GIS repository of soil, relief and climate clusters for the Lebap velayat – Demonstration AEZ GIS repository for identifying the suitability of growing selected crops depending on two parameters (temperature and wind). The demo-version can be expanded following the identification of quantitative data for other parameters (soil, groundwater level, irrigation water quality, humidity, etc.) – Methodical recommendations for the creation of AEZ – Developed technologies and projects of some adaptation materials – Reports Providing tools to increase the resilience of local communities to future water-related problems, which makes it necessary to better plan and develop agro-production, as this directly affects food security and socio-economic stability.

List of Publications

1. Brochure “Introduction of innovative water-saving technologies”, 2017, Prepared and published in three languages (Russian, Turkmen and English).
2. Brochure “Approaches and principles for the implementation of adaptation measures in the pilot regions”, 2017, Prepared and published in three languages (Russian, Turkmen and English).
3. SCRL project brief, 2017, Prepared and published in three languages (Russian, Turkmen and English).
4. Booklet about internationally funded projects in the field of environment and climate protection in Turkmenistan, 2017, SCRL project covered the 50% from total cost of publication, and 100% cost of edition and translation.
5. Banner about climate change related projects implemented by UNDP CO Turkmenistan devoted to the UN Environment Day, 2017, This banner along with other informative materials of the project were placed at the international agriculture exhibition held in November 2017.
6. UNDP Brochure, 2017, SCRL project partially covered the consultancy fee to Ms. JULIE GALA PUDLOWSKI KATZIR, author of the brochure
7. Leaflets about economic efficiency of adaptation measures (prepared within AF project), 2017, SCRL project covered the costs of design of the leaflets
8. Booklet about project activities provided by the agro-information centres, 2018, Prepared and published in two languages (Russian, Turkmen)
9. Booklet about production and utilization of bio humus 2018, Prepared and published on cost-sharing base with USAID GSP.
10. Booklet on usage of return water in agriculture etc., 2018, Prepared and published on cost-sharing base with USAID GSP in two languages (Russian, Turkmen)
11. Calendars of different size and format (wall, desk and quarterly and organizer) with picture of flora, fauna and beautiful national landscapes, 2018, Prepared and published upon request of the State Committee on Environment Protection and Land Resources.
12. Climate Box (toolkit); 2019, SCRL project partially covered the cost of publication of Climate Box
13. Updated version of the National Climate Change Strategy of Turkmenistan; 2019
Prepared and published on three languages (Russian, Turkmen and English);
14. Manual on development of the Inter-farm water use plan; 2019 Prepared and published in Turkmen language.
15. Manual on assessment of the reclamation (meliorative) state of arable lands; 2019
Prepared and published in Turkmen language.
16. Manual on the optimal application of mineral fertilizers for the cotton; 2019, Prepared and published in Turkmen language.
17. Booklet “Bio-humus – black golden of agriculture”, 2019, Prepared and published in two languages (Russian and Turkmen) on cost-sharing with USAID GSP.
18. Calendars of different size and format (wall, desk and quarterly and organizer) with picture of flora, fauna and beautiful national landscapes, 2019, Prepared and published upon request of the Ministry of Agriculture and Environment Protection.

19. Desk calendars with UNDP projects activities, Prepared and published upon request of UNDP CO.
20. Brochure on SCRL project activities, 2020, Prepared and published in two languages (Russian and Turkmen). Thematic posters on (i) sustainable water management; (ii) improvement of the quality of arable lands; (iii) optimization of the mineral fertilizers of the cotton, 2020, Prepared and published in Turkmen language
21. Leaflets on the use of digital technology for irrigation planning in the context of climate change, Prepared and published in Turkmen language.
22. Information material on the topic "Innovative water-saving technologies for irrigation of row crops", 2020, Prepared and published in Turkmen language, Informational and methodological materials for the AIC staff with the necessary information adapted to local conditions, 2020, Prepared and published in Turkmen language.
23. Different thematic maps of all 6 farmers associations and 2 livestock farms, 2020, Prepared and published in Turkmen language.
24. Calendars of different size and format (wall, desk and quarterly and organizer) with pictures of flora, fauna and beautiful national landscapes, 2020, Prepared and published upon request of the Ministry of Agriculture and Environment Protection.
25. Instruction on the technology of vermi-composting - production of vermi-compost, 2021, Prepared and published on cost-sharing base with USAID GSP. Published in two languages (Russian, Turkmen).
26. Practical advisory document on horticultural practices; 2021 Prepared and published on cost-sharing base with USAID GSP. Published in Russian language.
27. Brochure on mushroom cultivation 2021 Prepared and published on cost-sharing base with USAID GSP. Published in two languages (Russian, Turkmen).
28. Booklet about oyster mushroom cultivation - history, feasibility and prospects of cultivation in Turkmenistan; 2021 Prepared and published on cost-sharing base with USAID GSP. Published in two languages (Russian, Turkmen).
29. Manual on use of the drainage waters for irrigation of agricultural plants, 2021, Prepared and published on cost-sharing base with USAID GSP. Published in Turkmen language
30. Manual on production and use of bio-humus in Turkmenistan 2021 Prepared and published on cost-sharing base with USAID GSP. Published in Turkmen language.
31. Manual on the development of poultry as an alternative source of income 2021, Prepared and published on cost-sharing base with USAID GSP. Published in Turkmen language.
32. Leaflets on innovative water saving technologies, 2021, Prepared and published in Turkmen language.
33. Informative materials on topics demonstrated during Field days –the study of soil properties in pilot regions and their importance in making decisions regarding sustainable water resources management; detailed instructions for determining the optimal parameters of the furrow irrigation technique. 2021 Prepared and published in Turkmen language.

ANNEX VIII: LIST OF EVENTS ORGANIZED BY THE PROJECT

Events Organized within the Framework of the Project in the Period 2017-2021

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
Ashgabat City					
1	Inception workshop of the project «Supporting Climate Resilient Livelihoods in Agricultural Communities in Drought-Prone Areas of Turkmenistan».	22-23 December 2016, Avaza	The inception workshop was mostly concerned with the definition of the organizational structure, which includes the UNDP Country Office, other relevant regional technical advisers of the programs, and stakeholders.	National and local project partners and stakeholders. Total number of participants was 33, of which 3 were women.	The composition of the Project Management Board (PMB) was approved, while goals and objectives were set for the project. In addition, the members of the PMB decided to approve the submitted work plan for 2017, taking into account all comments and suggestions received.
2	Workshop to discuss the results of "Participatory Vulnerability and Adaptation Assessment in local communities".	16 May 2017, Ashgabat	Discussion on the results of the assessment made for the existing land and water use practices, carried out jointly with local stakeholders. These results determined current and projected climate risks, causes and degree of land degradation, soil salinization, etc.	National and local project partners and stakeholders. Total number of participants was 25 people, of which 3 were women.	Assessment of vulnerability related to the impact of climate change.
3	Workshop on the dissemination of knowledge on Israel agricultural technologies.	27 June 2017, Ashgabat	The main purpose of the workshop was to familiarize national specialists of state institutions with the existing Israel practices in the field of agriculture and sustainable water management.	National and local project partners and stakeholders. Total number of participants was 25 people, of which 5 were women.	Presentations on innovations and achievements in agriculture in Israel, its experience in implementing water-saving technologies, the existing system of agricultural advisory support service, as well as information on land and water legislation in the country.
4	Workshop to discuss the current regulatory framework of Turkmenistan in the field of land use and conservation.	03 November 2017, Ashgabat	Discussion on the recommendations for the draft of the new Land Code of Turkmenistan, as well as recommendations from experts in the field of land use and conservation.	National and local project partners and stakeholders. In total 25 people participated, of which 1 was a woman.	The preliminary version of the draft law was presented and approved for further activities to promote regulatory legal acts in the field of land use within the framework of the UNDP project.
5	Workshop to discuss the new draft "Land Code of Turkmenistan".	23 February 2018, Ashgabat	Overview of the main provisions of the new draft "Land Code of Turkmenistan".	National and land project partners and stakeholders. Total number of participants was 25 people, of which 1 was a woman.	The workshop participants gave their comments and suggestions on the text of the new draft "Land Code".

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
6	National Workshop on updating the National Climate Change Strategy of Turkmenistan (NCCS).	14 November 2018, Ashgabat	The purpose of the working meeting was to discuss the issues of updating the National Climate Change Strategy of Turkmenistan adopted by the Government of Turkmenistan in 2012.	National partners of the project, international organizations and stakeholders. Total number of participants was 35 people, of which 9 were women.	At the workshop, representatives of key ministries and departments reported on the activities carried out to implement the national strategy of Turkmenistan on climate change and their visions for updating the strategy, taking into account sectoral development programs. At the end of the workshop, key results from the presentations were gathered, while preliminary recommendations and proposals were given by the ministries and departments on updating the NSTIC.
7	Workshop on updating Turkmenistan's National Strategy on Climate Change.	11 June 2019, Ashgabat	Presentation of the National Climate Change Strategy structure and discussion of comments received from national partners.	National partners of the project, international organizations and stakeholders. Total number of participants was 44, of which 11 were women.	The structure of the document, the content of the main sections and the action plan for the implementation of the Paris Agreement were presented. The participants gave their suggestions and comments to on specific issues.
8	National workshop on integrating local adaptation plans into the national adaptation planning and budgeting processes.	9-10 July 2019, Ashgabat	The purpose of the national workshop is to share best practices in integrating local adaptation planning processes with national adaptation and budgeting processes.	National partners of the project, international organizations and stakeholders. Total number of participants was 28, of which 3 were women.	The workshop highlighted examples from different countries and combined presentations with exercises for smaller groups. Three areas of adaptation plans have been the focus of best practices: climate risk assessment; enabling environment analysis, adaptation planning and implementation capabilities; and public and private sources. Participants mastered methods for national and local assessment; integrating local analysis into national plans and vice versa.
9	Practical workshop on the use of innovative laser equipment for the planning of agricultural fields.	18 September 2019, Ak Bugday district	Introduction of participants with the principles of laser planning, as well as practical exercises on land planning using laser equipment.	National partners of the project, international organizations and stakeholders. Total number of participants was 30, of which 1 was a woman.	The participants assimilated skills of land planning with the help of laser equipment, got acquainted with the device and operation of the laser technology.
10	Gender workshop with international consultant Gulnara Ibrayeva.	5-6 December 2019, Ashgabat	The introduction of gender approaches in the collection, processing and analysis of data in agriculture and other	National and local partners of the project.	The workshop discussed various aspects based on the relationship: climate change - gender - agriculture. The issues of formulating guidelines for the preparation of

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
			sectors for effective adaptation planning at the local level.	Total number of participants was 27, of which 16 were women.	adaptation plans with the inclusion of the gender factor in pilot territories were discussed.
11	Workshop to discuss the work plans of the Working Group of Legal Experts for 2019-2020 on the preparation of draft laws for land and water use.	20 December 2019, Ashgabat	Discussion of the work plan of the Working Group of Legal Experts for 2019-2020 on the preparation of draft laws for land and water use.	National and local partners of the project. Total number of participants was 21, of which 5 were women.	The participants have studied and approved the submitted work plan of the Working Group of Legal Experts for 2019-2020.
Pilot Etrap Gorogly, Dashoguz Velayat					
1	Workshop to discuss the results of participatory vulnerability and adaptation assessment in local communities.	11 May 2017	Introduction of participants with the results of the vulnerability assessment of the Dashoguz pilot region.	Representatives of hyakimlik Gorogly, Goroglysuvsodhalyk Production Dpt, Gengeshliks of Garagum and Yagtylyk. Total number of participants was 17, including: 4 women and 13 men.	The participants prepared a draft of the climate risk map and developed a preliminary version of the strategy and measures for adaptation in the region.
2	Workshop on training need assessment of the local agricultural communities in Yagtylyk farmer association.	12 May 2017	Using PRA tools to identify agricultural problems and needs for compiling the topics of trainings and workshops.	Specialists, managers, tenants, foremen of the Yagtylyk farmer association, specialists of Yagtylyk Gengeshlik. Total number of participants was 21, including: 3 women and 18 men	The actual agricultural problems of the Daikhan association were identified by the method of brainstorming, the priority of issues was then assessed by ranking. The topics of trainings and workshops have been developed. A seasonal community calendar has been created.
3	Workshop on training need assessment of the local agricultural communities of Garagum livestock farm.	12 May 2017	Using PRA tools to identify agricultural problems and needs for compiling the topics of trainings and workshops.	Specialists, managers, shepherds, veterinarians, specialists of Garagum Gengeshlik. Total number of participants was 14, including: 2 women and 12 men.	The actual agricultural and general problems of animal husbandry were identified by brainstorming. Through ranking, an assessment of the priority of issues was made. The topics of trainings and workshops for livestock breeders have been developed. A seasonal community calendar has been created.
4	Workshop "Presentation of the methodology for local ecosystem services assessment".	22 June 2017 Dashoguz	Introduction of participants with the concepts of ecosystem services and approaches to determine their value, using the example of pasture lands.	Specialists, managers, tenants, foremen Yagtylyk farmers' associations, specialists of Yagtylyk Gengeshlik.	The participants received information about the current state and methods of pasture management; methods of restoration of pasture lands; methods of

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
				Total number of participants was 34, including: women - 9 men - 27	conducting geobotanical studies and determining the productivity of pastures.
5	Workshop "Alternative sources of income in agriculture through the use of innovative technologies and sustainable practices"	18 June 2019	Introduction of participants with examples of income generation from alternative sources.	Activists of farms, agronomists, foremen, entrepreneurs, farmers, teachers and students of the TSAI, representatives of the Gorogly etrap hyakimlik. Total number of participants was 25, including: women - 7 men - 18	The participants were informed about the cultivation of fruit trees, through the use of innovative technologies. They were introduced to the mastered methods of growing "Oyster mushrooms" using the biotechnological method as an alternative source of income. They learned about the methods of producing vermicompost as an alternative source of income for rural communities, about the methods of restoring saline and degraded lands, and got acquainted with the methods of applying innovative technologies on pastures.
6	Workshop "Irrigation planning using FAO AQUACROP model"	10 September 2019	Generalization of the results obtained through targeted studies of two projects, and adaptation of data set methods introduced into the AQUACROP model.	Participants of targeted research work of two UNDP projects, local suppliers of agroconsulting services, teachers, graduate students and students of the TSAI, chief specialists of the pilot farmers' associations of Gorogly etrap, specialists of Etrap water management organizations. Total number of participants was 22, including: women - 1 men - 21	The participants classified the initial information on the blocks of the AQUACROP program. The participants in the groups entered data into the model and were able to obtain results on the productivity of water and irrigated land. The participants learned how to make the necessary decisions through numerical experiments.
7	Workshop on introduction of land users with Turkmenistan legislation in the field of agriculture.	19 February 2020	Introduction of local land users with legislative acts in the field of land use.	Representatives of the Union of Youth, specialists, tenants, agronomists, farmers' association Abadanlyk and B.Ovezov, water management experts of farmers' associations, specialists of Goroglysu hodzhalyk PD, representatives of Gorogly etrap hyakimlik.	The participants received consultations and answers to emerging questions in the field of land use and, in general, work in agriculture.

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
				Total number of participants was 14, including: women – 2, men – 12	
8	Workshop "Implementation of the basic principles of Integrated Water Resources Management in the educational processes of Turkmen Agriculture State Institute"	27 May 2020	Training of specialists in decision making processes regarding sustainable water resources management. Introduction of students with sources of information and practices on the rational use of water resources.	Teachers, students of the TSAI, laboratory assistants, specialists of Goroglysuvkhozhalik PD, specialists of UNDP and FAO projects. Total number of participants was 37, including: women - 9 men – 28	The participants learned about the Sustainable Development Goals as a concept, plans on their achievement, and possibilities of implementing SDGs in Turkmenistan. The possibility of introducing the discipline of integrated water resources management into the educational process of the TSAI was discussed.
Pilot Etrap Danew, Lebap Velayat					
№	Name of the workshop	Date	Aim of the workshop	Participants	Results achieved
1	Workshop to discuss the results of participatory vulnerability and adaptation assessments in local communities.	04 May 2017	Introduction of participants with the results of the vulnerability assessment in the pilot region of Lebap.	Representatives of the Hyakimlik of the Lebap Velayat and hyakimlik Danew etrap, Berzensuvhodzhalyk PD, Gengeshliks of Dovletabat and Parakhat Total number of participants was 27, including: women – 1, men – 17	The participants prepared a draft of the climate risk map and developed a preliminary version of the strategy and adaptation measures in the region.
2	Workshop on the training need assessment of local agricultural communities in the Watan farmer association.	05 May 2017	Using PRA tools to identify agricultural problems and needs for compiling the topics of trainings and workshops.	Specialists, managers, tenants, foremen of Watan farmer association, specialists of Dovletabat Gengeshlik. Total number of participants was 18, including: women – 7, men – 11	The actual agricultural problems of the Daikhan association were identified by the method of brainstorming, the priority of problems was assessed through ranking. The topics of trainings and workshops have been developed. A seasonal community calendar has been created.
3	Workshop on the training need assessment of local agricultural communities in the Parahat farmer association.	05 My 2017	Using PRA tools to identify agricultural problems and needs for compiling the topics of trainings and workshops.	Specialists, tenant managers, foremen of Parahat farmer association, specialists of Parahat Gengeshlik.	The actual agricultural problems of the Daikhan association were identified by the method of brainstorming, the priority of problems was assessed through ranking. The topics of trainings and

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
				Total number of participants was 25, including: women -12 men – 13	workshops have been developed. A seasonal community calendar has been created.
4	Workshop "Presentation of the methodology for local ecosystem services assessment"	16 June 2017, Lebab	Introducing the participants with concepts of ecosystem services and approaches to determine their value, using the example of pasture lands.	Specialists, tenant managers, foremen of farmers' associations, specialists of Gengeshlik, etc. Total number of participants was 29, including: women -13 men – 23	The participants received information about the current state and methods of pasture management; methods of restoration of pasture lands; methods of conducting geobotanical studies and determining the productivity of pastures.
5	Workshop on the participation of women in the decision-making process at the local level, including the design of local adaptation plans for the development of their regions.	21 November 2018	The goal was to overcome the negative effects of the unbalanced relationship between sexes and ensure their equality.	Specialists of the hyakimliks of the Lebab velayat and Danew etrap, managers, foremen, tenants of the farmers' associations, specialists of Gengeshliks, International Consultant Ms. Gulnara Ibraeva Total number of participants was 31, including: women -13 men – 18	Discussion with of civil servants and members of Daikhan associations on the participation of women in decision-making at the local level, including their participation in the design of adaptation plans for the development of their regions.
6	Workshop "Alternative sources of income in agriculture through the use of innovative technologies and sustainable practices".	21 December 2019	Introduction of participants to examples of practical income generation from alternative sources.	Specialists of the hyakimliks of the Lebab Velayat and the Danew etrap, activists of farmers' associations, agronomists, foremen, entrepreneurs, farmers. Total number of participants was 27, including: women - 5 men – 22	The participants received information about the cultivation of fruit trees, through the use of innovative technologies. They were introduced to the mastered methods of growing "Oyster mushrooms" using the biotechnological method as an alternative source of income. They learned about the methods of producing vermicompost as an alternative source of income for rural communities, about methods of restoring saline and degraded lands.
7	Workshop on introduction of land users with the	21 December 2019	Introduction of local land users with legislative acts in the field of land use.	Specialists of the Hyakimliks of the Lebab Velayat and Danew etrap, Chief specialists	The participants received consultations and answers to emerging questions in the field of land use and, in general, work in agriculture.

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
	Turkmenistan legislation in the field of agriculture.			of the pilot farmers' associations of Danew etrap, specialists of Berzensuvhodzhalyk PD. Total number of participants was 16, including women – 8 men - 8	
Online Workshops					
1	Dissemination of agricultural advisory services and knowledge in the context of Turkmenistan.	16 October 2020	Creation of facilities for the dissemination of agricultural advisory services and knowledge in the context of Turkmenistan, using the example of Agro-information centers of the project.	Lebap: representatives of the Hyakimliks of the Lebap Velayat and the Danew Etrap - 5 people Dashoguz participants – 17 people Other participants – 33 people Total number of participants was 55 people, 10 of them were women	Information about agro-consultations was provided, using the established Agro-Information Centers (AIC) for effective management of adaptation planning.
2	Practical workshop "Prospects for the development of mushroom farming in pilot regions as an alternative source of income"	10 March 2021	Introduction of participants with the methods of fisheries management in the context of the region as one of the promising directions for obtaining alternative income.	Dashoguz: representatives of Gorogly etrap hyakimlik, interested farmers of farmers' associations Yagtylyk, Abadanlyk and B.Ovezov, Garagum livestock farm. In total 21 people including: women – 5, men – 16 Lebap: representatives of the hyakimliks of the Lebap Velayat and the Danew etrap, representatives of the farmers' associations Watan, Parakhat and Babadaykhan, Serdar livestock farm. In total 19 people including: women - 10, men - 9 Other participants – more than 10 people.	The participants discussed possible directions for the development of mushroom farming in the conditions of the pilot regions of Dashoguz and Lebap as a source of alternative income. They also got acquainted with the method of production of universal complex fertilizer, as an alternative to the mineral fertilizers used, and as one of the measures to increase soil fertility.

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
				Total number of participants was 57 people, 31 of them were women	
3	Practical workshop "Practical recommendations for the development of horticulture as an alternative source of income"	16 March 2021	Transferring participants practical knowledge and skills of gardening in the pilot regions of the project.	Dashoguz: representatives of Gorogly etrap hyakimlik, interested gardeners of farmers' associations Yagtylyk, Abadanlyk, B.Ovezov and Niyazov. In total 22 people including: women – 6, men – 16 Lebap: representatives of the hyakimliks of the Lebap Velayat and the Danew etrap, representatives of farmer associations Watan, Parakhat, Babadaykhan, Serdar livestock farm. In total 24 people including: women - 8, men - 16 Other participants – 11 people, 8 of them were women Total number of participants was 57 people, 27 of them were women	The participants learned about the role of gardening in achieving sustainable development of regions; got acquainted with modern methods of gardening development; and learned about their advantages and disadvantages. Additionally, they got acquainted with the system of protection of apple orchards from pests, diseases, and weeds.
4	National workshop on the methodology for economic assessment of ecosystem services.	30 March 2021	Introduction of participants to the basic principles and methodology in economic assessments of ecological systems services, using the example of pastures of the Serdar livestock farm of the Chardzhev etrap, Lebap Velayat.	Dashoguz: representatives of the etrap Gorogly hyakimlik, representatives of the Garagum livestock farm, farmer association Yagtylyk and farmer association B.Ovezov. In total 10 people. Lebap: representatives of the khyakimliks of the Lebap Velayat and the Danew etrap, representatives of the Watan, Parakhat, Babadaykhan farmers' associations, Serdar	The participants got acquainted with the basic principles and methodology of economic assessment of environmental systems services.

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
				livestock farm. In total 11 people Others: about 10 participants Total number of participants was more than 25 people, 5 of them were women.	
5	Workshop "Discussion of guidelines for the inclusion of adaptation issues into local development plans for agriculture and water management".	14 April 2021	Raising awareness of the project partners about the importance of applying guidelines that include adaptation issues in local agricultural and water development plans, while involving stakeholders in this process.	Dashoguz: representatives of the hyakimlik etrab Gorogly, managers and specialists of the "Goroglysuvkhudzhalyk" Production Department, water mgt experts of farmers' associations Yagtylyk, Abadanlyk and B.Ovezov. In total 21 people including: women – 5, men – 16 Lebap: representatives of the hyakimliks of the Lebap Velayat and the Danew etrap, representatives of Watan, Parakhat, Babadaykhan farmers' associations, Serdar livestock farm. In total 15 people including: women - 10, men - 5 Other participants – 8 people, 2 of them were women. Total number of participants was 46 people, of which 19 were women.	The participants discussed the need to integrate climate change adaptation into sectoral planning; the importance of integration and adaptation in the agricultural and water sectors; reviewed the existing guidelines for the process of adaptation to climate change; explored the possibilities of applying the guidelines within the project.
6	Workshop "The use of multicluster agroecological maps in the process of climate change adaptation planning". Teleconference.	10-11 May 2021	Advancement of digital technologies and innovative tools for adaptation to climate change. Assistance in the development of Agro-information centers of the project by replicating climate-resistant practices and applying new innovative	Dashoguz: representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap, managers and specialists of the "Goroglysuvkhudzhalyk" Production Department,	The participants understood the need to adopt a systematic approach to climate change adaptation, acquired knowledge about the criteria in the development of agro-ecological zones, and learned to characterize each zone in detail using specific software. Mastered the skills of developing multicluster cartographies of various agroecological

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
			approaches for planning agricultural production at the local level.	Teachers and students of TSAI, representatives of the Land Management Department of the Gorogly etrap hyakimlik, representative of the TSAI Dashoguz. In total 10 participants. Lebap: representatives of the hyakimliks of the Lebap Velayat and Danew etrap, specialist of Berzensuvhojalyk PD. In total 5 participants. Other participants – more than 35 people. Total number of participants was 52 participants, of which 20 were women	zones for subsequent planning; mastered and assessed the potential impacts, economic costs and benefits of adaptation measures.
7	National workshop on the development of measurement, reporting and verification (MRV) system on climate change adaptation measures in Turkmenistan.	24 August 2021	The purpose of the workshop was to discuss with national partners and stakeholders the international guidelines and best practices, as well as preliminary conclusions and recommendations for the development of measurement, reporting and verification system in Turkmenistan.	Total number of participants was 25 people - representatives of key ministries and departments, universities, international consultants, experts of UNDP projects	International consultant Mr. Glen Andersen was the main speaker of the workshop, who presented the importance of developing national adaptation plans, their implementation, monitoring and reporting as the main requirements of the Paris Agreement, and that the UNFCCC requirements for "reporting" will change by 2024. The workshop participants got acquainted with the new guidelines and specific approaches to the upcoming changes of UNFCCC reporting requirements. Unlike other international conventions, reporting under the Paris Agreement consists of a combination of mandatory and voluntary provisions.
8	National workshop "The importance of modeling Agro-ecological zones for optimal placement of agricultural crops by regions of the country". (in hybrid format)	12 November 2021	The purpose of the workshop was to formulate the possibilities of modeling AEZ at the national level and to assess the existing potential of stakeholders, with the input of with national partners of the project.	22 participants physically attended - representatives of the Ministry of Finance and Economy, Ministry of Defense, Ministry of Agriculture and Environmental Protection, Hyakimliks of Lebap Velayat, Gorogly etrap and Danew etrap, NIDFF, State Committee	Russian scientist Mr. Vasenev I. introduced the workshop participants to the international experience in creating agroecological zones using digital technologies. As a result of the workshop, the participants learned the theoretical foundations of AEZ modeling for optimal placement of crops depending on soil and

№	Name of Event	Date, Place	Event Objective	Participants	Results Achieved
				of Statistics, State Committee for Water Management, TSAU, Hydrometeorology Service, etc. Participants from TSAI and other organizations took part virtually – more than 15 participants, including 10 women. Total number of participants was 44 people.	climatic factors, taking into account future climate changes.
9	Workshop on strengthening the adaptation potential to climate change with the help of gender statistics. (in hybrid format)	1-2 December 2021	Introduction of an innovative approach to the collection of gender-disaggregated statistics at the local level.	21 participants from Dashoguz physically attended. 9 participants from Lebap and others took part virtually. The participants represented Gengeshliks, farmers' associations, etrap hyakimlik, local statistical bodies, etc. Total number of participants was 34 people, of which 13 were women.	The workshop contributed to the establishment of mutually beneficial cooperation and dialogue with statistical departments between local authorities. They received full information on the goals and objectives of using gender disaggregated data for adaptation planning, and got acquainted with previously developed instructions for the collection and exchange of such data at the level of ministries and farmers' associations. A mixed interactive approach is proposed to be applied at further workshops, as this approach promotes more active participation of national partners (however, the application of this approach should take place in an offline format).

ROUND TABLES 2017-2021

№	The theme of the round table	Date	Aims of the round table	Participants	Results achieved
Ashgabat City					
1	Round table to discuss legal issues.	18 June 2021	Introduction of the participants to the concept of the draft Law of Turkmenistan "On the system of agricultural consulting in Turkmenistan", as well as discussion of the status of previously developed normative legal acts in the field of land and water use.	Project partners and interested parties. Total number of participants was 12 people (of which 3 were women)	The participants were introduced to the concept of the draft Law of Turkmenistan "On the system of agricultural consulting in Turkmenistan", and also discussed the status of previously developed normative legal acts in the field of land and water use. Recommendations and comments were given to the draft law.
Pilot Farms of Danew, Lebap Velayat					
1	Round table "Gender profile of agriculture and adaptation planning at the level of the Daikhan association"	01 August 2019	Round table on the topic "Gender profile of agriculture and adaptation planning at the level of the Daikhan association"	Representatives of the hyakimliks of the Lebap Velayat and Danew etrap, representatives of the Watan and Parahat farmers' associations Total number of participants was 20 people, including 13 women and 7 men	Dayhan women were prepared for the water shortages caused by climate conditions, in order to diversify their production and introduce more sustainable sources of income for their household farms.
Online Round Tables					
1	Round table to discuss cooperation assistance between Hyakimliks, Gengesh, water management organizations and local communities for irrigation planning, in the context of vulnerability reduction to climate risks.	23 April 2021	To assist in establishing cooperation between Hyakimliks, Gengesh, water management organizations and local Communities for irrigation planning, in the context of vulnerability reduction to climate risks.	Dashoguz: representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap, managers and specialists of the Goroglysuikhudzhalyk Production Department, water management experts of farmers' associations Yagtylyk, Abadanlyk, B.Ovezov. In total 17 people including: women – 1, men – 16 Lebap: representatives of the hyakimliks of Lebap velayat and Danew etrap, representatives of farmers' associations Watan, Parakhat, Babadayhan, and Serdar livestock farm, representatives of "Dovletabat", "Parakhat" and	The participants have understood the need for joint and coordinated actions for irrigation planning, in the context of reducing vulnerability to climate risks.

				"May" Gengeshliks of Danew etrap, "Bersensuwhojalyk" Production Department. In total 15 people including: women – 5, men – 10. Other participants – more than 10 people. Total number of participants was 43 people, of which 7 were women	
2	Round table to discuss the draft Law on the system of agricultural consulting in Turkmenistan.	25 August 2021	Introduction of the participants to the draft Law of Turkmenistan "On the system of agricultural consulting in Turkmenistan", as well as discussion of the status of previously developed normative legal acts in the field of land and water use.	Dashoguz: representatives of the hyakimliks of Dashoguz velayat and Gorogly etrap, specialists of the "Goroglysuwhojalyk" Production Department. In total 5 people. Lebap: representatives of the hyakimliks of the Lebap Velayat and Danew etrap, representative of Berzensuwhojalyk Production Department. In total 6 people. Other participants – more than 10 people. Total number of participants was more that 20 people.	The participants were introduced to the draft Law "On the system of agricultural consulting in Turkmenistan", and also discussed the status of previously developed normative legal acts in the field of land and water use. Recommendations and comments were given.

TRAININGS 2017-2021

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
Ashgabat					
1	Joint training on the use of laser planner with the participation of equipment suppliers, Ashgabat – Gokdepe. The training was organized jointly with the UNDP EERE project.	20-22 December 2017	Introduction to a general concept of laser planning, advantages and practical exercises in the field.	Representatives of the pilot farmers' associations of the project and the UNDP project team. Total number of participants was 39 people.	The training consisted of a theoretical and a practical part. The participants learned about the advantages of laser planning, in the field in Geok-tepe, at the pilot site of the EERE project. They were able to observe the assembly of laser equipment, arrived from Uzbekistan. The equipment was assembled by Uzbek specialists, representatives of the Chirchikmash plant. The participants also tested the laser planner on the field. Carrying out laser planning by machine operators and engineers themselves.
2	Training "Modeling of agroecological zones in the pilot regions of the project".	24 January 2018	Presentation of the recommended model by an international consultant.	With the participation of the international consultant Mr. A. Zogas and interested parties. Total number of participants was 14 people, of which 2 were women.	Modern methods and means of agriculture intended for agriculture, crop production and animal husbandry were presented.
3	Training "Taking into account natural and climatic factors at the irrigation planning process of agricultural crops"	14-15 August 2018	The purpose of organizing this training was to introduce participants to the methods of planning irrigation of agricultural crops using the AquaCrop model, while taking into account natural and climatic factors.	National partners of the project. Total number of participants was 32 people, of which 2 were woman	The participants gained knowledge about the AquaCrop model; performed exercises on predicting cotton yields under the condition of limited water resources; assessed the impact of irrigation on the planned harvest with limited water distribution; and developed a model for irrigation of crops, in a shortage of water condition, using the AquaCrop model. All groups have successfully completed their tasks.
Pilot Etrap Gorogly, Dashoguz Velayat					
1	Training "Participatory land use planning in the context of climate change".	21-22 June 2017	Introduction to general concepts, methods and tools of joint land use planning.	Specialists, managers, shepherds, veterinarians, tenants of Yagtylyk farmer association and Garagum livestock farm, representatives of Gorogly etrap hyakimlik. Total number of participants was 31 people, including: women – 11, men – 20	The actual agricultural problems of the pilot sites have been identified. The ranking was carried out according to the relevance of the problems. A preliminary joint land use plan has been drawn up separately for each farm.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
2	Training "Laser planning of irrigated lands using laser technology".	14-15 March 2018	Introducing local specialists and land users to the advantages of laser technology and improving the knowledge and skills of participants when using laser equipment.	Specialists, managers, tenants, foremen of farmers' associations Yagtylyk and Kylych, Garagum livestock farm, representatives of the hyakimliks of Dashoguz velayat and Gorogly etrap, specialists of Goroglysuvozhalyk PD, Managers, teachers and students of the Dashoguz TSAI. Total number of participants was 39 people, including: women – 7, men – 32	The participants analyzed the cause-effect relationship of land surface irregularities; conducted a comparative analysis of traditional and laser technology; assessed the economic efficiency of the laser planner; studied the technique of irrigation of row crops on planned lands; and together with the trainers prepared a SWOT analysis of the adaptation potential of WUAs. In addition, during the practical part of the training, the participants learned how to conduct topographic surveys using a laser level; have got acquainted with the laser planner kit and the technology of laser planning.
3	Training "Combating salinization of irrigated lands".	23-24 May 2018	To convey to the participants the concept and skills of countering salinization of irrigated lands at the farm level.	Specialists, managers, water mgt experts, agronomists, foremen, tenants of Yagtylyk farmer association and Garagum livestock farm, representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap, specialists of "Goroglysuvozhalyk" PD. Total number of participants was 30 people, including: women – 3, men – 27	The participants became aware of the need to counter salinization of irrigated lands; assessed the land reclamation condition in practice; drew up a plan of irrigation and reclamation measures to improve the reclamation condition; and were familiarized with some PRA methods for assessing the reclamation condition of irrigated lands. During the practical classes, the participants were familiarized with observation wells, measured the groundwater level and its mineralization. At the end of the training, the participants acquired concepts and skills to combat salinization of irrigated lands, which contributed to raised awareness, publicity, responsibility, which served as motivation for the participants to treat the use of irrigated lands fairly and seriously in the future.
4	Training "Development of local adaptation plans and community mobilization".	24-25 April 2018	Joint development of local adaptation plans of the pilot daikhan associations "Yagtylyk" and "Garagum", in Gorogly etrap for further implementation within the context of climate change.	Specialists, managers, water mgt experts, agronomists, foremen, tenants of Yagtylyk farmer association and Garagum livestock farm, representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap, specialists of "Goroglysuvozhalyk" PD, and "Goroglygallaonumleri". Total number of participants was 30 people, including: women – 2, men – 28	The participants got informed on the existing financial plans of the farm, and the importance of incorporating adaptation measures into them. The participants prepared preliminary adaptation measures to include in the financial plans of the farm, inter-farmwater use plans, and the agrotechnical map of cotton cultivation. The participants also took steps to develop local adaptation plans and involve local communities.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
5	Training "Optimization of mineral nutrition of cotton".	12-13 June 2018	Knowledge and skill transfer on the rational use of mineral fertilizers in cotton growth.	Specialists, water management experts, agronomists, foremen, tenants of the Yagtylyk farmer association, representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap, specialists of "Goroglysuvozhalyk" PD, "Goroglygallaonumleri", teachers of the Dashoguz TSAI. Total number of participants was 24 people, including: women – 5, men – 19	Participants, in small groups, assessed the needs of mineral fertilizers in cotton; mastered the concept of agrochemical cartography and express methods of agrochemical analysis; gained skills in calculating the dose of fertilizers and learned about the timing and methods of applying mineral fertilizers.
6	Training "Monitoring and assessment of degradation of irrigated lands".	11-12 October 2018	Knowledge and skill transfer on monitoring and assessing degradation of irrigated lands.	Teachers, students, laboratory assistants of the Dashoguz TSAI, specialists, water mgt experts, agronomists, foremen, tenants of the Yagtylyk farmer association and Garagum livestock farm, representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap. Total number of participants was 27 people, including: women – 8, men – 21	The participants gained knowledge and skills in assessing the degree of degradation of irrigated lands; were informed about the principles of the existing land degradation control system; and gained knowledge on the use of measuring instruments.
7	Training on the development of small grant proposals for members of the Yagtylyk farmer association's community.	28 February - 01 March 2019	Teach members of the local community how to write project proposals for small grants.	Activists, tenants, foremen, agronomists and other specialists of the Yagtylyk farmer association, representatives of the Gorogly etrap hyakimlik Total number of participants was 15 people, including: women – 1, men – 14	The participants gained knowledge on writing project proposals for their communities. According to the Daikhan Association, 6 draft versions of project proposals were prepared.
8	Training on the development of small grant proposals for members of Garagum	05-06 March 2019	Teach members of the local community how to write project proposals for small grants.	Activists, shepherds and other specialists of the Garagum livestock farm, representatives of the Gorogly etrap hyakimlik	The participants gained practical knowledge on writing project proposals for their communities. 5 draft versions of project proposals were prepared for the Garagum livestock farm.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
	livestock famr's community.			Total number of participants was 17 people, including: women – 2, men – 15	
9	Training "Development and implementation of inter-farm water use plan".	25-26 April 2019	Transfer of knowledge on general concepts and skills for drawing up inter-farm water use plans, and their application.	Activists, peace workers, foremen, agronomists, teachers and students of TSAI, representatives of Gorogly etrap hyakimlik Total number of participants was 24 people, including: women – 2, men – 22	The participants gained practical knowledge on drawing up inter-farm water use plans. The issues of rational use of water at the economic level were discussed. The water needs of agricultural crops were determined. A draft version of inter-farm water use plans (IWUP) was prepared. The issues of the introduction of IWUP at farm level were discussed. Methods of choosing irrigation techniques for different agricultural crops were learned.
10	Training "Study of operation principles of drip irrigation system and introduction to equipment configuration".	14-15 May 2019	Transfer of knowledge to students and teachers on the operation and maintenance of the drip irrigation system.	Students, teachers of TSAI, UNDP project staff and specialists of the bidder company on installation of the drip irrigation system Total number of participants was 21 people, including: women – 1 men – 20	The participants gained knowledge on the operation and maintenance of the drip irrigation system. Also in practice, they independently tested the system, carried out maintenance of drip tapes and water intake pumps.
11	Training "Participatory land use planning in the context of climate change".	18-19 February 2020	Transfer of knowledge and skills on joint land use planning to the participants.	Representatives of the Union of Youth, specialists, tenants, agronomists of Abadanlyk and B.Ovezov farmers' associations, water mgt experts of farmers' associations, specialists of Goroglysuvozhalyk PD Total number of participants was 26 people, including: women – 3, men – 23	The participants learned about the concept of joint land use planning; the main principles and approaches of joint land use planning; and got acquainted with the Legal foundations of joint land use planning in Turkmenistan. A draft plan for the joint land use was prepared.
12	Training "Development of small grant project proposals" for the communities, B.Ovezov farmer association.	25 June 2020	Educate the community members on project proposal writing.	Activists, tenants, foremen, agronomists and other specialists B.Ovezov farmer association, representatives of Gorogly etrap hyakimlik.	The participants gained knowledge on writing project proposals for their communities. According to the Daikhan Association of B.Ovezov, 4 draft versions of project proposals were prepared.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
				Total number of participants was 14 people, including: women – 3, men – 11	
13	Training "Development of small grant project proposals" for communities of Abadanlyk farmer association	26 June 2020	Educate the community members on project proposal writing.	Activists, tenants, foremen, agronomists and other specialists of farmer association Abadanlyk, representatives of Gorogly etrap hyakimlik. Total number of participants was 13 people, including: women – 2, men – 11	The participants gained knowledge on writing project proposals for their communities. According to the Daikhan Association, 4 draft versions of project proposals were prepared.
14	Hand-on training in the region of Dashoguz, Gorogly etrap, on the development of greenhouses and vermicultivation on household plots.	20 August 2021	The purpose of the practical training was to demonstrate sustainable practices; improve skills for the development of vermicultivation as a natural animal protein for poultry breeding; and the development of greenhouse farming on household plots based on organic fertilizers.	Farmers, tenants, foremen, agronomists and other specialists of Abadanlyk farmer association, representatives of Gorogly etrap hyakimlik. Total number of participants was 19 people, including: women – 4, men – 15	The participants mastered the methods of using compost worms as a natural animal protein in poultry breeding; familiarized themselves with the requirements and conditions for breeding; learned about the destroyers of compost worms and measures to reduce them. Participants gained knowledge and skills regarding greenhouse farming, using the example of growing vegetables (cucumbers and tomatoes).
15	Hand-on training on "Planting rules and recommendations for the care of a new garden".	06 November 2021	The purpose of the event was to improve the skills of local agricultural societies, and to promote the expansion of horticulture development practices.	Farmers, tenants, foremen, agronomists and other specialists Abadanlyk farmer association, representatives of Gorogly etrap hyakimlik, TSAI, members of UoIE Total number of participants was 22 people, including: women – 3, men – 19	During the workshop, experts spoke in detail about the main stages of preparing the site and planting fruit trees. The planting scheme was presented and recommendations for combining crops were given. Separate topics were: the protection of seedlings against low temperatures; soil requirements and tree placement, and how to irrigate them. At the end of the workshop, the methods of planting fruit trees were effectively demonstrated. In total, about 5,000 seedlings of fruit trees (tall and dwarf) were planted in two project regions, purchased with the support of the USAID project on Competitiveness, Trade and Job Creation in Central Asia (CTJ) in the official nursery of Samarkand, Uzbekistan.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
16	Training of local consultants to disseminate knowledge and skills on integrated management of natural resources in the Agro-information centers of the project.	11 November 2021	The main purpose of the training was to provide skills for the dissemination of knowledge among agricultural producers. An additional value of the training was the informing of local consultants regarding the work of independent providers of environmental services.	Representatives of hyakimlik etrap Gorogly, specialists of pilot farmers' associations, TSAI and Regional Nature Conservation Departments, local representatives of water management organizations of Gorogly etrap. Total number of participants was 20 people, including: women – 3, men – 19	Local consultants were able to assist farmers in knowledge and experience sharing in the field of agriculture; local-level capacity building and introducing of modern technologies in agriculture. The moderator of the training was Mr. Akmurad Gardashov, the national expert of the UNDP project.
Pilot Etrap Danew, Lebap Velayat					
1	Training "Participatory land use planning in the context of climate change".	14-15 June 2017	To provide participants with general concepts, methods and tools of joint land use planning.	Specialists, managers, tenants of Watan and Parahat farmers' associations, representatives of Danew etrap hyakimlik. Total number of participants was 31 people, including: women – 14, men – 17	The actual agricultural problems of dense areas are revealed and ranked by relevance of the problems. A preliminary joint land use plan has been drawn up separately for each farm.
2	Training "Laser planning of irrigated lands using laser technology".	07-08 February 2018	Introducing local specialists and land users to the advantages of laser technology, and improving the knowledge and skills of participants when using laser equipment in practice.	Specialists, managers, tenants, foremen of Watan and Parahat farmers' associations, representatives of hyakimliks of Danew etrap and Lebap velayat, specialists of Berzensuvhojalyk PD. Total number of participants was 26 people, including: women – 7, men – 19	The participants analyzed the cause-effect relationship of land surface irregularities; conducted a comparative analysis of traditional and laser technology; assessed the economic efficiency of the laser planner; studied the technique of irrigation of row crops on planned lands; and together with the trainers prepared a SWOT analysis of the adaptation potential of WUAs. In addition, during the practical part of the training, the participants learned how to conduct topographic surveys using a laser level; got acquainted with the laser planner kit and the technology of laser planning.
3	Training "Development of local adaptation plans and community mobilization".	12-13 April 2018	Joint development of local adaptation plans for pilot farmers' associations "Watan" and "Parahat" of Danew etrap, for further implementation in the context of climate change.	Specialists, managers, water mgt experts, agronomists, foremen, tenants of the Watan and Parahat farmers' associations, representatives of the hyakimliks of the Danew etrap and the Lebap Velayat, specialists of Berzensuvhojalyk PD.	The participants got informed on the existing financial plans of the farm, and the importance of incorporating adaptation measures into them. The participants prepared preliminary adaptation measures to include in the financial plans of the farm, inter-farmwater use plans, and the agrotechnical map of cotton cultivation. The participants also took steps to develop local adaptation plans and involve local communities.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
				Total number of participants was 34 people, including: women – 13, men – 21	
4	Training "Combating salinization of irrigated lands"	15-16 May 2018	To convey to the participants the concept and skills of countering salinization of irrigated lands at the farm level.	Specialists, managers, water mgt experts, agronomists, foremen, tenants of the Watan and Parakhat farmers' associations, representatives of the hyakimliks of the Danew etrap and the Lebab Velayat, specialists of Berzensuvhojalyk PD. Total number of participants was 31 people, including: women – 8, men - 23	The participants became aware of the need to counter salinization of irrigated lands; assessed the land reclamation condition in practice; drew up a plan of irrigation and reclamation measures to improve the reclamation condition; and were familiarized with some PRA methods for assessing the reclamation condition of irrigated lands. During the practical classes, the participants were familiarized with observation wells, measured the groundwater level and its mineralization. At the end of the training, the participants acquired concepts and skills to combat salinization of irrigated lands, which contributed to raised awareness, publicity, responsibility, which served as motivation for the participants to treat the use of irrigated lands fairly and seriously in the future.
5	Training "Optimization of mineral nutrition of cotton"	19-20 June 2018	Knowledge and skill transfer on the rational use of mineral fertilizers in cotton growing to the participants.	Specialists, water mgt experts, agronomists, foremen, tenants of the Watan and Parakhat farmers' associations, representatives of the hyakimliks of the Danew etrap and the Lebab Velayat, specialists of Berzensuvhodzhalyk. Total number of participants was 25 people, including: women – 5, men – 20	Participants, in small groups, assessed the needs of mineral fertilizers in cotton; mastered the concept of agrochemical cartography and express methods of agrochemical analysis; gained skills in calculating the dose of fertilizers and learned about the timing and methods of applying mineral fertilizers.
6	Training "Monitoring and assessment of degradation of irrigated lands".	20-21 September 2018	Knowledge and skill transfer on monitoring and assessing degradation of irrigated lands to the participants.	Specialists, water mgt experts, agronomists, foremen, tenants of Watan and Parakhat farmers' associations, representatives of the hyakimliks of the Danew etrap and the Lebab velayat. International expert Mr. Alexander Zogas. Total number of participants was 25 people, including: women – 6, men - 19	The participants gained knowledge and skills in assessing the degree of degradation of irrigated lands; were informed about the principles of the existing land degradation control system; and gained knowledge on the use of measuring instruments.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
7	Training on the development of small grant project proposals for members of the Watan farmer association's community.	27-28 March 2019	Teach members of the local community how to write project proposals.	Activists, tenants, foremen, agronomists and other specialists of Watan farmer association, representatives of Danew etrap hyakimlik. Total number of participants was 14 people, including: women – 3, men – 11	The participants gained knowledge on writing project proposals for their communities. 5 draft versions of project proposals were prepared for the Daikhan Association.
8	Training on the development of small grant project proposals for members of the Parahat farmer association' community.	10-11 April 2019	Teach members of the local community how to write project proposals.	Activists, tenants, foremen, agronomists and other specialists of Parahat farmer association, representatives of Danew etrap hyakimlik. Total number of participants was 15 people, including: women – 5, men – 10	The participants gained practical knowledge on writing project proposals for their communities. According to the Daikhan Association, 5 draft versions of project proposals were prepared.
9	Training "Development and implementation of inter-farm water use plan".	21-22 May 2019	Transfer of knowledge on general concepts and skills for drawing up inter-farm water use plans, and their application.	Specialists, water mgt experts, agronomists, foremen, tenants of Watan and Parakhat farmers' associations, representatives of the hyakimliks of the Danew etrap and Lebap velayat, "Berzensuvhojalyk" PD. Total number of participants was 27 people, including: women – 7, men - 20	The participants gained practical knowledge on drawing up inter-farmwater use plans. The issues of rational use of water at the economic level were discussed. The water needs of agricultural crops were determined. A draft version of inter-farmwater use plans (FWUP) was prepared. The issues of the introduction of FWUP in farms were discussed. The methods of choosing irrigation techniques for different agricultural crops were learned.
10	Training "Participatory land use planning in the context of climate change"	27-28 February 2020	Transfer of knowledge and skills on joint land use planning to the participants.	Representatives of the Youth Union, specialists, tenants, agronomists, water mgt experts of Watan and Parahat farmers' associations, specialists of Berzensuvhojalyk PD.	The participants learned about the concept of joint land use planning; the main principles and approaches of joint land use planning; and got acquainted with the Legal foundations of joint land use planning in Turkmenistan. A draft plan for the joint land use was prepared.

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
				Total number of participants was 22 people including: women – 5, men – 17	
11	Training "Development of small grant project proposals" for the communities of Babadaykhan farmer association.	18 June 2020	Educate the community members on project proposal writing.	Activists, tenants, foremen, agronomists and other specialists of Babadaykhan farmer association, representatives of Danew etrap hyakimlik. Total number of participants is 17 people, including: women – 6, men – 11	The participants gained knowledge on writing project proposals for their communities. According to the Daikhan Association of B.Ovezov, 4 draft versions of project proposals were prepared.
12	Training "Development of small grant project proposals " for communities of Serdar livestock farm	19 June 2020	Educate the community members on project proposal writing.	Managers, shepherds, veterinarians, specialists of the Serdar livestock farm, representatives of the Danew etrap hyakimlik. Total number of participants was 12 people, including: women – 2, men – 10	The participants gained knowledge on preparation of the small grant project proposals for their communities. As result of the training 1 project proposal for small grant was prepared.
13	Hand-on training on the development of greenhouses and vermicultivation on household plots in the project region of Lebap, Danew etrap	21 August 2021	The purpose of the practical training was to demonstrate sustainable practices; improve skills for the development of vermicultivation as a natural animal protein for poultry breeding; and the development of greenhouse farming on household plots based on organic fertilizers.	Farmers, tenants, foremen, agronomists and other specialists Watan, Parakhat, Babadaykhan farmers' associations, representatives of the hyakimliks of the Lebap velayat and Danew etrap. Total number of participants was 18 people, including: women – 6, men – 12	The participants mastered the methods of using compost worms as a natural animal protein in poultry breeding; familiarized themselves with the requirements and conditions for breeding; learned about the destroyers of compost worms and measures to reduce them. Participants gained knowledge and skills regarding greenhouse farming, using the example of growing vegetables (cucumbers and tomatoes).
14	Hand-on training "Planting rules and recommendations for the care of a young garden"	06 November 2021	The purpose of the event was to improve the skills of local agricultural societies, and to promote the expansion of	Farmers, tenants, foremen, agronomists and other specialists Watan, Parakhat, Babadaykhan, Azatlyk, Pelvert farmers' associations, representatives of the	During the workshop, experts spoke in detail about the main stages of preparing the site and planting fruit trees. The planting scheme was presented and recommendations for combining crops were given. Separate topics were: the protection of seedlings against low temperatures; soil requirements and tree placement, and how to

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
			horticulture development practices.	hyakimliks of the Lebap Velayat and Danew etrap, members of the Union of Industrialists and Entrepreneurs. Total number of participants was 33 people, including: women – 6, men – 27	irrigate them. At the end of the workshop, the methods of planting fruit trees were effectively demonstrated. In total, about 5,000 seedlings of fruit trees (tall and dwarf) were planted in two project regions, purchased with the support of the USAID project on Competitiveness, Trade and Job Creation in Central Asia (CTJ) in the official nursery of Samarkand, Uzbekistan.
15	Training of Trainers (ToT) on dissemination of knowledge and skills in the field of integrated management of natural resources in the Agro-information centers of the project in the pilot regions	16 November 2021	The main purpose of the training was to provide skills for the dissemination of knowledge among agricultural producers. An additional value of the training was the informing of local consultants regarding the work of independent providers of environmental services.	Representatives of hyakimlik Danew etrap, specialists of pilot farmers' associations, Regional nature Conservation Departments, Local representatives of water management organizations Danew etrap. Total number of participants is 21 people, including: women – 4, men – 17	Local consultants were able to assist farmers in knowledge and experience sharing in the field of agriculture; local-level capacity building and introducing of modern technologies in agriculture. The moderator of the training was Mr. Akmurad Gardashov, the national expert of the UNDP project.
Online Trainings					
1	Training to raise awareness on the use of digital technologies in irrigation planning with the participation of TSAI and TSAU ^{a45} .	03 June 2021	Raising awareness of the project partners regarding the efficiency of water use through digitalization of decision-making processes, focusing on irrigation planning.	Dashoguz: 7 people - specialist, mirab, agronomists, representative of Gorogly etrap hyakimlik and "Goroglysuvozhalyk" PD. Lebap: 9 people - representatives of the hyakimliks of the Lebap Velayat and the Danew etrap, specialists of "Berzensuvhodzhalyk". Other participants – about 5 people. Total number of participants was 21 people, 8 of them were women.	The participants got acquainted with the Manual on the national strategy of electronic agriculture; modern digital technologies for irrigation planning; learned about the methods of using climate data to predict the spread of pests and plant diseases; received information about the availability of using modern digital GIS technologies and high-precision GPS (GNSS) equipment in Turkmenistan.

^{a45} TSAI – Turkmen State Agricultural Institute; TSAU- Turkmen State Agricultural University

№	Theme of the training	Data	Aims of the training	Participants	Results achieved
2	5-day training "Peculiarities of atmospheric circulation and synoptic processes on the territory of Turkmenistan and neighboring states". (in hybrid format)	22-26 November 2021	Introduction of specialists of the "Hydrometeorological Service of Turkmenistan" and other organizations, to the features of synoptic processes and forecasting methods, necessary for extracting hydrometeorological information.	The participants were: the weather forecaster of "Turkmengidromet", specialists of the National Institute of Deserts, Flora and Fauna, SIC ISC on SD, teachers of the Turkmen State University named after Makhtumkuli, the Turkmen State Agricultural University named after S.A.Niyazov (Ashgabat) and the Turkmen State Agricultural Institute (Dashoguz). Total number of participants was 27 people, about 17 of them were women (updated information).	Strengthening the potential of the "Hydrometeorological Service" in providing high-quality services to the population and organizations, environmental scientists and climatologists. Improving the professional level of scientific and technical personnel to solve national prognostic tasks, and contribute to the stable development of economic and agricultural sectors.

INDIVIDUAL AND GROUP MEETINGS 2017-2021

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
Ashgabat City					
1	Meeting to discuss the report "Assessment of institutional capacity for effective planning of climate change adaptation".	20 December 2017	Review of the report "Assessment of institutional capacity for effective planning of climate change adaptation".	Representatives of key ministries, departments, local authorities and specialists in the field of climate change and climate risk reduction. Total number of participants was 31 people, of which 2 - women	The participants took note of the presented Report. Representatives of key ministries and departments were given the opportunity to make interventions in accordance to their priorities. A draft training program on adaptation and reduction of climate change risks was proposed.
2	Working meeting to discuss plans for 2018-2019 on the preparation of draft regulatory legal acts in the field of land use.	10 August 2018	The main purpose of the meeting was to discuss Working Group's plan on the preparation of draft laws for 2018-2019, while getting expert recommendations in the field of land and water use.	Members of the working group and project staff. Total number of participants was 17 people.	The participants were presented with the Work Plan of the Working Group regarding draft laws in the field of land management for 2018-2019, and the overview and analysis of the current water legislation of Turkmenistan. The participants expressed their proposals on draft laws in the field of land use - the Rules for Maintaining the State Land Cadastre; and Methodological Guidelines for carrying out work on soil bonification and economic assessment of irrigated lands.
3	Working meeting to discuss draft regulatory legal acts in the field of land and water use.	26 October 2018	The purpose of the meeting was to discuss the new draft of the Land Code of Turkmenistan and the recommendations provided by a group of legal experts involved in the project.	Working group members and project staff. Total number of participants was 11 people, including 1 woman.	The participants were presented with a draft of the new edition of the Land Code of Turkmenistan.
4	Working meeting to discuss draft regulatory legal acts in the field of land and water use.	14 December 2018	The purpose of the meeting was to discuss draft regulatory legal acts in the field of land and water use.	Members of the working group and project staff. Total number of participants was 15 people.	Discussion of the following draft regulatory legal acts in the field of land and water use: – A standard lease agreement for agricultural land. – A standard contract for the supply of water for irrigation. – The Law of Turkmenistan "On Amendments to the Law of Turkmenistan "On Daikhan Associations"" (new edition) dated March 30, 2007. – The Law of Turkmenistan "On Amendments to the Law of Turkmenistan "On the Farmers farm"" dated November 9, 2013.
5	Internal meeting with international organizations on the National Climate Change Strategies (NCCS).	12 February 2019	The purpose of the meeting was to discuss the process of updating the NCCS, as well as proposals from international organizations.	With the participation of Ms. Natia Natsvlishvili. Representatives of international organizations	Representatives of international organizations learned about the current status of the NCCS renewal process, and also expressed their readiness to facilitate this process and provide information on the activities carried out in their organizations.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
				(EBRD, UNRC office, UNODC, GIZ, USAID, OSCE, CAREC, UNICEF etc) also participated. Total number of participants was 35 people.	
6	Working meeting to discuss draft regulatory legal acts in the field of land and water use.	20 February 2019	The purpose of the meeting was to discuss the progress of work on finalizing the NPA projects, which were discussed at the last meeting – in December 2018.	Members of the working group and employees of the SCRL & EERE project. Total number of participants was 20 people.	The participants of the working group listened to the draft NPA and discussed the work plan of the Working Group for 2019-2020.
7	Final meeting, presentation of the results from the legal experts on normative legal acts, in the field of land and water use, and discussion of areas for possible cooperation.	09 April 2019	The purpose of the meeting was to inform interested parties about the preparation of draft regulatory legal acts for 2017-2019, and to outline specific measures to improve legislation in this area for 2019-2020.	Members of the working group and employees of the SCRL & EERE project participated. Total number of participants was 16 people, including 1 woman.	The results of the Working Group on the preparation of draft laws in the field of land use, which were discussed and finalized with the participation of interested parties, were summarized. The plan of the working group for the next period was presented.
8	Internal meeting with international organizations on the National Climate Change Strategies (NCCS).	28 May 2019	The purpose of the meeting was to present a brief report on the progress of the work on updating the NCCS, and to hold consultations with ministries and departments.	Representatives participated Embassies of Italy, Great Britain, WHO, EBRD, USAID, GIZ, CAREC, etc. Total number of participants was 28 people, including 10 women.	The participants of the meeting learned about the current status of the NCCS update process. Consultations were made with key agencies on collecting information, preparing recommendations and preparing next stages.
9	Internal meeting of legal experts on the Land Code (Gokdere).	28 May – 01 June 2019 Gokdere	The purpose of the meeting was to discuss the provisions of the draft Land Code, with the involvement of experts from relevant ministries and departments, as well as the Mejlis of Turkmenistan.	Members of the working group and employees of the SCRL project participated. Total number of participants was 10 people, 2 of them were women.	A detailed study of all articles of the Land Code in order to intensify work on improving land legislation. Following the results of the five-day meeting, the new draft version of the Land Code was finalized and submitted for study and approval.
10	Working meeting of a group of legal experts on regulatory legal acts in the field of land and water use.	15 April 2020	Improving the institutional and legal mechanism for the effective use of water and land resources, including the key principles of climate risk management.	Representatives of the Ministry of Agriculture, Department of Land Resources of the Ministry of Agriculture, Parliament, State	The results of the work of the expert group on the development of the NPA were discussed. A number of meetings with relevant departments were organized.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
				Water Management Committee, Union of Industrialists and Entrepreneurs, Hyakimliks of Lebap and Dashoguz velayats. Total number of participants was 22 people, of which 3 women.	
11	Working meeting of a group of legal experts on regulatory legal acts in the field of land and water use.	25 June 2020	The main purpose of the meeting was to discuss drafts of the regulatory legal acts, in order to improve the institutional and legal mechanism for the effective use of water and land resources, including the key principles of climate risk management.	Members of the working group and project staff. Total number of participants was 20, of which 3 women.	The drafts of the following regulatory legal acts were discussed: * Methodological guidelines for the development of technological standards for the use of water; * Regulations on the use of inter-farmreclamation systems; * The procedure on land plots ownership, use and lease.
12	Meeting to raise awareness among students on climate change issues, the "Climate Box". Organized jointly with the UNDP Regional Climate Education project.	30 June 2020	The main goal was to increase the level of knowledge and awareness of TSU students about the current trends of climate change, and measures taken to contrast the risks.	Students and teachers of the Turkmen State University named after Makhtumkuli, representatives of NIDFF and project staff. Total number of participants was 33 people, of which 24 women.	The participants learned about the ongoing activities of UNDP projects in terms of adaptation to climate change. Several copies of the Climate Box (a textbook on climate change) were handed over to the teachers and staff of the university.
13	A series of working meetings with interested parties to discuss the possibility of national partners to organize the process of agroecological modeling, taking into account technical capabilities and available resources.	24-26 February 2021 03 November 2021	Possibilities and approaches to modelling agroecological zones (AEZ) are formulated with the help of national partners. Assessment of the existing potential of stakeholders.	Representatives of interested ministries and departments (MAEP, Hydromet, Ministry of Defence, Agriculture Scientific Center, Technopark) and project staff. Total number of participants was 15 people, of which 1 - woman Representatives of the Agriculture Scientific Center and project staff.	Following the meetings, conclusions and next steps of the project were formulated: • Raise awareness among specialists and universities regarding the benefits of EES modeling through workshops and field meetings, within the framework of the UNDP project; • Prepare recommendations on the inclusion of EES in the educational process of the relevant universities of the country; • Prepare a concept note on AEZ modeling by EoP for distribution to interested parties.

№	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
				Total number of participants was 5, of which 1 woman	
Pilot Etrap Gorogly, Dashoguz Velayat					
1	Introductory meeting on the UNDP project with representatives of the Hyakimlik Dashoguz velayat.	21 February 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives of the hyakimlik velayat, specialists of the agro-industrial complex, the Committee of the Environmental Protection. Total number of participants was 21 people, including: women -2, men – 19	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. Issues of partnership with local executive authorities were discussed.
2	Introductory meeting on the UNDP project with representatives of the hyakimlik Gorogly Etrap of Dashoguz velayat.	21 February 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives and specialists of Gorogly etrap hyakimlik, specialists of "Goroglysuhojalyk" PD, "Obakhyzmat", "Goroglygallaonumleri" Total number of participants was 22 people.	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. Issues of partnership with pilot Daikhan associations and gengesliks were discussed.
3	Introductory meeting on the UNDP project with representatives and specialists of the Garagum livestock farm of Gorogly etrap of Dashoguz Velayat	22 February 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives of the hyakimlik, Gengeshlik, specialists and managers of the Garagum livestock farm. Total number of participants was 26 people, including: women -4, men – 22	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. Issues of partnership with pilot livestock and gengeslik were discussed.
4	Introductory meeting on the UNDP project with representatives and specialists of the Yagtylyk farmer association of Gorogly Etrap of Dashoguz velayat.	22 February 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives of the hyakimlik, Gengeshliks, specialists and managers of the Yagtylyk farmer association. Total number of participants was 29 people, including: women – 6, men – 23	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. The issues of partnership with the pilot Daikhan associations and gengeslik Yagtylyk were discussed.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
5	Working meeting of the UNDP project team with representatives of Turkmen State Agricultural Institute (TSAI) in Dashoguz.	14 February 2018	Introduction of TSAI representatives and interested project partners to the goals and objectives of the project for 2018, and discussion of the necessary conditions for implementation.	TSAI managers and teachers, UNDP Project specialists. Total number of participants was 10 people, including: women – 3, men – 7	Joint activities were developed and agreed upon, plans were made to include them in joint plans with TSAI. The issues of cooperation for the development of three manuals have been resolved.
6	Working meeting of representatives of the UNDP project with the management and teachers of TSAI Dashoguz in the TSAI Educational Farm.	15 March 2018	Introduction of representatives of the UNDP project to the activities of the TSAI Educational Facility, and discussion of joint plans.	Leaders and teachers of TSAI, specialists of the UNDP project. Total number of participants was 10 people, including: women – 3, men - 7	The participants got acquainted with the successful stories of the TSAI teachers. A draft plan of joint events was prepared.
7	Working meetings on the Implementation of the Agro-Consulting Information System in the Dashoguz velayat for the project beneficiaries and provision of individual consultations for the members of the Union of Industrialists and Entrepreneurs.	24 September 2018	Introduction of entrepreneurs and farmers of the Dashoguz velayat to innovative approaches for climate change adaptation in the agricultural sector. This was achieved by introducing a model for predicting climatic, agro, and meteorological risks, as well as consulting experts to increase crop yields and income - through effective and rational use of natural resources.	Entrepreneurs, heads of economic association, individual enterprise, farmers union, representatives of hyakimliks of Dashoguz velayat and Gorogly etrap, international consultant Mr.Alexander Zogas. Total number of participants was 27 people, including: women – 6, men - 21	The participants were informed about the global practice in using innovative technologies in agriculture, and about the results of the work carried out on clustering the territory of the pilot sites Lebap and Danew.
8	Working meetings on the Implementation of the Agro-Consulting Information System in the Dashoguz velayat for the project beneficiaries and provision of individual consultations for farmers in the Gorogly pilot etrap.	24 September 2018	Introduction of entrepreneurs and farmers of the Gorogly etrap to innovative approaches climate change adaptation in the agricultural sector. This was achieved by introducing a model for predicting climatic, agro, and meteorological risks, as well as consulting experts to increase crop yields and income - through effective and rational use of natural resources.	Entrepreneurs, heads of economic association, individual enterprise, farmers union, representatives of the hyakimlik of the Gorogly etrap, international consultant Mr. Alexander Zogas Total number of participants was 8 people, including: 1 woman, men - 7	The participants were informed about the global practice in using innovative technologies in agriculture, and about the results of the work carried out on clustering the territory of the pilot sites Lebap and Danew.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
9	Field working meeting with community members of the Yagtylyk farmer association.	10 August 2018	Collection of ideas and proposals to include in local adaptation plans for the economy.	Specialists of Yagtylyk Gengeshlik, specialists and managers of the Yagtylyk farmer association Total number of participants was 14 people, including: women -4, men - 10	Participants compiled a list of adaptation measures to be included in local adaptation plans for the economy.
10	Field working meeting with residents of Garayanik d/a, Garagum gengeshlik.	12 August 2018	Collection of ideas and proposals to include in local adaptation plans for the economy.	Residents of Garayanik farmer association, specialists of Garagum livestock farm Total number of participants was 17 people, including: women – 5, men - 12	Participants compiled a list of adaptation measures to be included in local adaptation plans for the economy.
11	Introductory meeting on the UNDP project with representatives and specialists of Abadanlyk and B. Ovezov daikhan associations of Gorogly etrap, Dashoguz velayat.	13 February 2019	Acquaintance with the goals and objectives of the project, agreement on the composition of the Local Project Council, and discussion of the planned activities of 2019.	Representatives of khyakimliks of Dashoguz velayat and Gorogly etrap, representatives of the UNDP project, representatives of farmers' associations and Abadanlyk and B. Ovezov gengeshliks, representatives of TSAI in Dashoguz. Total number of participants was 23 people, including: women – 2, men - 21	The participants received brief information about the planning process of local adaptation plans of Daikhan associations; discussed issues of women's participation in the planning process, as well as the possibility of developing alternative incomes. The participants were informed about the events planned for 2019.
12	Field meetings with beneficiaries of pilot project sites on the economic efficiency of the project.	16 June 2019	Collecting the necessary information to prepare a report on the economic efficiency of the UNDP SCRL project.	Specialists of Yagtylyk farmer association, Garagum livestock farm, TSAI representatives, project expert on economic efficiency, local project specialists Total number of participants was 20 people, including: women - 3, men – 17	The complete information necessary for the preparation of the report on economic efficiency has been obtained.

№	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
13	Field meetings with representatives of Abadanlyk farmer association of Gorogly etrap.	17 July 2019	Introduction of the UNDP project specialists to the economic activities of the Abadanlyk farmer association.	Chairman, specialists of Abadanlyk farmer association, representatives of the UNDP project. Total number of participants was 18 people, including: women - 4, men – 14	The inspection of enterprises for the production of food, irrigation and collector drainage networks was carried out.
14	Working meetings with foremen of Abadanlyk farmer association.	24 September 2019	Discussions regarding agricultural issues of the farmer association, which will ultimately serve to compile a list of measures for the adaptation plans.	Chairman, specialists and foremen of Abadanlyk farmer association, experts of the local team of the UNDP project. Total number of participants was 17 people, including: women – 2, men – 15	Completed questionnaires by foremen on existing problems in agriculture of the Abadanlyk farmer association.
15	Working meetings with the foremen of the farmer association named after B.Ovezov.	01 October 2019	Discussions regarding agricultural issues of the farmer association, which will ultimately serve to compile a list of measures for the adaptation plans.	Chairman, specialists and foremen of B.Ovezov farmer association, experts of the local team of the UNDP project. Total number of participants was 22 people, including: women – 6, men – 16	Completed questionnaires by foremen on existing problems in agriculture of the B.Ovezov farmer association.
16	Field working meetings to discuss inter-farm water use plans for 2020 in the Gorogly etrap.	27-28 January 2020	Holding working meetings with local specialists in the Gorogly etrap to discuss inter-farm water use plans for pilot farms in 2020.	Chief agronomists, water mgt experts of Abadanlyk, Yagtylyk farmers' associations, Garagum livestock farm, B.Ovezov farmer association and specialists of the Water Use Department of the Goroglysvhojalyk Production Department of the	Inter-farmwater use plans for 2020 were discussed, after being developed by specialists of pilot farms and coordinated by specialists of the water use department "Goroglysvhodzhalyk". The head of Goroglysvkhodzhalik, and water management experts of farmers' associations signed water use plans developed for Yagtylyk, Abadanly, B.Ovezova farmers' associations and Garagum livestock farm.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
				Gorogly etrap, Dashoguz Velayat Total number of participants was 38 people, including women – 2, men - 36	
17	Field meetings with representatives of Abadanlyk and B.Ovezov farmers' associations.	28-29 May 2020	Discussing local community adaptation plans with key specialists, and providing expert support on their implementation.	Chairmen, chief agronomists, water mgt experts and other specialists of the Abadanlyk and B.Ovezov farmers' associations. Total number of participants was 16 people, including women – 2, men - 14	The main issues regarding the implementation of local adaptation plans were discussed, expert support was provided to key specialists who are directly responsible for the implementation of the Local Adaptation Plans (LAPs).
18	Working meeting with grant applicants of farmer association Abadanlyk and B.Ovezov farmers' associations.	25 September 2020	Selection of grant applications to prioritize, while giving additional financial analysis to support their implementation.	Grant applicants of "Abadanlyk" and B.Ovezov farmers' associations. Total number of participants was 12 people, including women – 2, men – 10	2 grant applications from B.Ovezov farmer association and 1 grant application from Abadanlyk farmer association were selected.
Pilot Etrap Danew, Lebap Velayat					
1	Introductory meeting on the UNDP project with representatives of the Lebap Velayat hyakimlik.	28 February 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives of the hyakimlik velayat, specialists of the agro-industrial complex, the Committee of the Environmental Protection. Total number of participants was 19 people, including: women -1, men – 18.	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. Issues of partnership with local executive authorities were discussed.
2	Introductory meeting on the UNDP project with representatives of the Danew Etrap hyakimlik of Lebap Velayat.	28 February 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives and specialists of Danew etrap hyakimlik, specialists of "Berzensuvhojalyk", "Obakhyzmat", "Danewgallaonumleri"	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. Issues of partnership with pilot farmers' associations and gengeshliks were discussed.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
				Total number of participants was around 20 people.	
3	Introductory meeting on the UNDP project with representatives and specialists of the Watan farmer association of Danew Etrap of the Lebap Velayat.	01 March 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives of hyakimlik, Dovletabat Gengeshlik, specialists and managers of Watan farmer association Total number of participants was 30 people, including: women -4, men – 26.	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. Issues of partnership with pilot farmer association and gengeshlik were discussed.
4	Introductory meeting on the UNDP project with representatives and specialists of the Parakhat farmer association of Danew Etrap of the Lebap Velayat.	01 March 2017	Introduction of participants to the planned activities of the UNDP SCRL project.	Representatives of hyakimlik, Parakhat Gengeshlik, aksakals, specialists and managers of Parakhat farmer association Total number of participants 29 people, including: women – 6, men – 23	The participants were introduced to the project document and the components of the UNDP project, as well as the planned activities for the implementation of adaptation measures. The issues of partnership with the pilot farmers' associations and gengeshlik were discussed.
5	Field working meeting of the UNDP project team with representatives of the Watan farmer association of Danew Etrap of the Lebap Velayat, on the "Ot paya" field.	19 September 2017	Inform local project participants, identify their priorities and promote mutual understanding on the need to mobilize collective action to solve collective problems.	Representatives of hyakimlik, Dovletabat Gengeshlik, aksakals, specialists and managers of Watan farmer association. Total number of participants was 26 people, including 16 – women, 10 - men	Field days were conducted, focused on discussions regarding water and soil quality linked to the development of adaptation plans. Assessment of the participation of farmers in the construction of water-regulating structures, observation wells.
6	Field working meeting of the UNDP project team with representatives of the Parakhat farmer association of Danew Etrap of the Lebap Velayat near the Miryab water outlet.	20 September 2017	Inform local project participants, identify their priorities and promote mutual understanding on the need to mobilize collective action to solve collective problems.	Representatives of hyakimlik, Parakhat Gengeshlik, aksakals, specialists and managers of Parakhat farmer association. Total number of participants was 24 people including 11 – women, 13 - men	Field days were conducted, focused on discussions regarding water and soil quality linked to the development of adaptation plans. Assessment of the participation of farmers in the construction of water-regulating structures, observation wells, as well as in the cleaning of the Kemtarash irrigation canal.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
7	Field working meeting with members of the Watan farmer association's communities.	11 July 2018	Collection of ideas and proposals to include in local adaptation plans of the farmer association.	Specialists of Dovletabat Gengeshlik, specialists and managers of Watan farmer association. Total number of participants was 16 people, including: women -8, men – 8	The participants compiled a list of adaptation measures to be included in the local adaptation plans of the farm.
8	Field working meeting with members of the Parahat farmer association's communities.	12 July 2018	Collection of ideas and proposals to include in local adaptation plans of the farmer association.	Specialists of Parahat Gengeshlik, specialists and managers of Parahat farmer association. Total number of participants was 15 people, including: women – 5, men – 10	The participants compiled a list of adaptation measures to be included in the local adaptation plans of the farm.
9	Working meetings on the Implementation of the Agroconsulting information system in the Lebap Velayat, for project beneficiaries, individual consultations, UIE members.	19 September 2018	Introduction of entrepreneurs and farmers of the Dashoguz velayat to innovative approaches for climate change adaptation in the agricultural sector. This was achieved by introducing a model for predicting climatic, agro, and meteorological risks, as well as consulting experts to increase crop yields and income - through effective and rational use of natural resources.	Entrepreneurs, heads of economic association, individual enterprise, farmers union, representatives of the khyakimlik of the Lebap velayat and Danew etrap, international consultant Mr.Alexander Zogas. Total number of participants was 14 people, including: women – 5, men - 9	The participants were informed about the global practice in using innovative technologies in agriculture, and about the results of the work carried out on clustering the territory of the pilot sites Lebap and Danew.
10	Working meeting to discuss specific issues of the land legislation of Turkmenistan (within the framework of the event 2.3.6 AWP-2018).	22 November 2018	Legal advice on land lease.	Activists, tenants, foremen, agronomists and other specialists of farmers' associations of etrap Danew. Total number of participants was 15 people, including women – 5, men – 10	The participants received legal advice on lease registration, obtaining loans.

№	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
11	Field working meetings with the foremen of the Watan farmer association.	23 November 2018	Discussions regarding agricultural issues in the economy are held, in order to compile a list of measures for adaptation plans.	Chairman, specialists and foremen of farmer association Watan, experts of the local project team and a specialist in community mobilization of UNDP. Total number of participants was 19 people, including women – 3, men – 16	The completed questionnaires by foremen on existing problems in agriculture of the Daikhan association Watan were received.
12	Field working meetings with the foremen of the Parahat farmer association.	23 November 2018	Discussions regarding agricultural issues in the economy are held, in order to compile a list of measures for adaptation plans.	Chairman, specialists and foremen of the farmer association Parahat, experts of the local project team and a specialist in community mobilization of UNDP. Total number of participants was 16 people, including: women – 4, men – 12	The completed questionnaires by foremen on the existing problems in agriculture of the Daikhan association of Parakhat were received.
13	Introductory meeting on the UNDP project with representatives and specialists of the Babadaykhan farmer association of Danew etrap and the Serdar livestock farm of the Chardzhev etrap, of the Lebap Velayat.	21 February 2019	Introduction to the goals and objectives of the project, coordination and composition of the Local Project Council; and discussion of activities planned for 2019.	Representatives of the hyakimliks of the Lebap Velayat and the Danew etrap, representatives of the UNDP project, representatives of the Babadaykhan farmer association, Serdar livestock farm and the "May" gengeshlik. Total number of participants was 25 people, including: women – 7, men - 18	The participants received brief information about the planning process of local adaptation plans of Daikhan associations; discussed issues of women's participation in the planning process, as well as the possibility of developing alternative incomes. The participants were informed about the events planned for 2019.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
14	Working meetings with representatives of "Parakhat" and "Watan" farmers' associations.	22 February 2019	Discussion of activities described in the adaptation plan; and appointment of the responsible persons for each event.	Activists, tenants, foremen, agronomists and other specialists of Watan and Parahat farmers' associations representatives of the hyakimliks of the Lebap velayat and etrap Danew and specialists of the of Dovletabat and Parahat gengeshliks. Total number of participants was 19 people, including 3 – women, 16 –men	Adaptation plans are relevant and can improve the social and economic situation in farmers' associations, reduce risks, reduce vulnerability, and vice versa, increase resilience to the adverse effects of climate change. Participants are required to actively participate in all MAP events, assist members of local communities in the implementation of their grant projects.
15	Introduction of the participants with the activities of the project - a meeting to assess the needs in the Serdar livestock farm, Lebap Velayat.	24 May 2019	Identification of problems related to climate change; analysis of climate risks associated with IC in the desert zone - by drawing up a situational vulnerability map of problems for livestock farming.	Specialists, shepherds of Serdar livestock farm. Total number of participants was 15 people including: women – 4, men – 11	Together with representatives of the Serdar livestock, topical issues of sustainable pasture management were identified, the causes and consequences of existing problems were analyzed, the needs of farmers were identified.
16	Working meeting with women farmers in Lebap Velayat.	12 June 2019	Meeting with women farmers in the Lebap Velayat to assess the activities of the project, with the participation of the national consultant Ms. Selebap Zhumayeva.	Activists, tenants, foremen, agronomists and other specialists of Watan and Parahat farmers' associations. Total number of participants was 19 people, including 14 – women, 5 -men.	National consultant Ms. Selebap Zhumaeva got acquainted with the activities of the project.
17	Meeting with women farmers in the Agro-Information Center of Danew etrap.	09 September 2019	Meeting with Ms. Sofia Ivanova, UN Data Management and Reporting Specialist, and Ms.Mahri Eeberdyeva, UN Public Relations Specialist.	Activists, tenants, foremen, agronomists and other specialists of Watan and Parahat farmers' associations Total number of participants was 19 people, women – 14, men – 5	The purpose of such meetings is to ensure the participation of various groups of the population in this process, to identify their needs and possible contribution to the implementation of national priorities of the country for the preparation of a new Partnership Program.

No	Theme of meeting	Date	Target of the meeting	Participants	Result achieved
18	Field working meetings to discuss inter-farmwater use plans for 2020 in the Danew etrap.	30-31 January 2020	Holding working meetings with local experts at the Deneuve stage to discuss inter-farmwater use plans of pilot farms for 2020.	Chief agronomists, water mgt experts of "Watan", "Parakhat" and "Babadaykhan" farmers' associations, specialists of Water Use Department of the "Berzensuvhojalyk" production department of Danew etrap of the Lebap velayat. Total number of participants was 40 people, including women – 15, men – 25	Inter-farmwater use plans for 2020, developed by specialists of pilot farms and coordinated by specialists of the Water use Department of the Berzensuvhodzhalyk Production Department, were discussed. The head of Berzensuvkhojalyk and Mirabami farms signed water use plans for the farmers' associations of Watan, Parakhat and Babadaykhan.
19	Field working meetings with the foremen of the Babadaykhan farmer association.	03-04 April 2020	Discussions regarding agricultural issues in the economy are held, in order to compile a list of measures for adaptation plans.	Chairman, specialists and foremen of Babadaykhan farmer association, experts of the local project team and a specialist in community mobilization of UNDP. Total number of participants was 17 people, including: women - 3, men – 14	The completed questionnaires by foremen on existing problems in agriculture of the Daikhan association Watan were received.
20	Field day to discuss local adaptation plans.	7-8 May 2020	Field day to discuss local adaptation plans of the Babadaykhan livestock farm, and the Serdar livestock farm of the Danew etrap, Lebap Velayat.	Representatives of the hyakimliks of the Lebap Velayat and the Danew etrap, agronomists, water mgt experts of the Babadaykhan farmer association, specialists of the Serdar livestock farm. Total number of participants was 24 people, including women – 7, men -17	Discussing local community adaptation plans with key specialists, and providing expert support to their implementation.
Online Meetings					
1	The final working meeting to discuss the activities of legal experts on the preparation of	29 October 2020	Brief the participants on Working Group's activities on the preparation	Dashoguz: 6 people - specialists of Goroglysuvozhalyk,	The participants got acquainted with the status of the NPA developed for the period 2018-2020, and with the plan of legislative work for 2021. The results of the Working Group

	draft laws, in the field of land and water use.		of draft laws, in the field of land and water use for 2020.	representatives of the Gorogly etrap hyakimlik, the local project team. Lebp: 9 people – specialists of Berzensuvhojalyk, representatives of Danew etrap hyakimlik, local project team. Other participants – about 10 people. Total number of participants was 24 people, of which 1 woman.	were presented, and the participants gave further recommendations on the work of the group.
2	Consultative meetings with representatives of ministries and departments of Turkmenistan to discuss draft instructions describing procedures for collecting, processing, and using gender-disaggregated data in sectoral planning and budgeting, taking into account issues of adaptation to climate change.	26 November 2020	Discussion of the draft instructions describing the procedures for collecting, processing, and using gender-disaggregated data in sectoral planning and budgeting, taking into account issues of adaptation to climate change.	Dashoguz: representatives of the hyakimliks of Dashoguz velayat and Gorogly etrap, representatives of the gengeshliks of Gorogly etrap - B.Ovezov, Turkmen Yoli, Yagtylyk and Garagum. In total 12 people including: women - 1, men - 11 Lebap: representatives of the hyakimliks of Lebap velayat and Danew etrap, representatives of the gengeshliks of Danew etrap - "Dovletabat", "Parahat" and "May". In total 11 people including: women - 6, men – 5 Other participants – more than 30 people. Total number of participants was about 60 people, of which women - 17	The proposed gender-disaggregated vulnerability assessment procedures in pilot farmers' unions were evaluated, including measures to collect gender-disaggregated data, data analysis, reporting on results, sending reports for review and archiving, aimed at reducing the gap between men and women in access to and control over economic, political and social resources.

3	Consultative meetings with representatives of pilot farms of Dashoguz and Lebap velayats.	27 November 2020	Discussion of the draft instruction describing the procedures for assessing vulnerability by gender in the pilot regions of the project, as well as the collection, processing and use of gender-disaggregated data for local planning and decision-making, taking into account issues of adaptation to climate change.	Dashoguz: representatives of the hyakimliks of the Dashoguz Velayat and the Gorogly etrap, specialists of Yagtylyk farmer association, Abadanlyk farmer association, B.Ovezov farmer association, Garagum livestock farm. In total 10 people including: women - 5, men - 5 Lebap: representatives of the khyakimlik of the Lebap Velayat and the Danew etrap, specialists of the Watan, Parakhat, Babadaykhan farmers' associations, Serdar livestock farm. In total 10 people including: women - 4, men – 6 Other participants – more than 20 people. Total number of participants was 43 people, of which 20 women.	The proposed sets of vulnerability/resilience indicators to test the degree of vulnerability to adaptation measures, and resilience to climate change for both women and men were discussed.
4	GEF/UNDP SCRL, FAO CACILM -2 Projects joint working meeting with members of local communities and specialists on the use of weather data and forecasts, obtained from the project's weather stations for irrigation planning, using the Aquacrop/FAO program.	28 April 2021	Discussion of irrigation planning issues in conditions of limited water use, using data and weather forecasts obtained from the project weather stations for irrigation planning, using the Aquacrop/FAO program.	Dashoguz: representatives of the hyakimliks of the Dashoguz Velayat, etrap Gorogly, etrap Gurbansoltan - eje, managers and specialists of the "Goroglysuvozhalyk" PD, "Gurbansoltanezhe-Suvhojalyk" PD, water mgt experts of Yagtylyk, Abadanlyk, B.Ovezova, Andalyb farmers' associations of the	The results of the compiled SWOT analysis were presented and used as a tool for assessing the possibilities of using the Aquacrop/FAO program, which will make it possible to establish a link between the strengths and weaknesses of farms.

				Gorogly and Gurbansoltan - eje etrap. In total 12 people. Lebap: representatives of the hyakimliks of the Lebap Velayat and Danew etrap, specialist of "Berzensuvhojalyk", representatives of Watan, Parakhat and Babadaykhan farmers' associations, Serdar livestock farm. In total 14 people. Other participants – more than 15 people. Total number of participants was 41 people, of which 14 were women.	
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INFORMATION DAYS 2017-2021

№	Theme of information days	Date	Targets of information days	Participants	Results achieved
Ashgabat City					
1	Information session with students on the contest with the topic "Gender stories".	3 April 2018	Informing students of TSAU and TSAI about the rules and conditions of the competition organized within the framework of the project. Topic: "Gender stories".	Students and teachers of TSAU. Total number of participants was 33 people, of which 18 were women.	Students and teachers learned about the importance of women's participation.
2	Information day dedicated to the Science Day for the tourist school.	16 April 2018	This event was dedicated to the "Day of Environmental Knowledge", and aimed to promote environmental education; and expanding students' knowledge regarding opportunities and benefits of agrotourism, in the Amu Darya River valley.	Students and teachers of the tourist school . Total number of participants was 33 people, of which 14 were women.	The students were introduced with the activities of the project, and the connection with agrotourism. Creative amateur activity of students was also organized, and a quiz dedicated to the day of environmental knowledge was held.

№	Theme of information days	Date	Targets of information days	Participants	Results achieved
3	Presentation of the essay within the contest "Women. Agriculture. Climate Change Adaptation".	14 July 2018	The aim of the competition was to increase students' knowledge regarding the role and contribution of women to the development of agriculture and the fight against climate change. Also, the implementation of conditions for adaptation to the already existing consequences of climate change, such as drought, desertification, water scarcity, etc.	Students and teachers of agricultural universities. Total number of participants was 29 people, of which 10 were women.	Students and teachers learned about the importance of women's participation in addressing climate change issues. 10 presentations were listened to, from which 3 were awarded.
Pilot Etrap Gorogly, Dashoguz Velayat					
1	Information day for TSAI students, to prepare for the contest on writing essays on gender issues "Women. Agriculture. Climate Change Adaptation".	06 April 2018	Conducting consultations for students regarding the rules of writing essays, and informing on rules and conditions of the competition.	Teachers, Head of the Educational Department, TSAI students. Total number of participants was 61 people, including: women – 25, men – 36	The students got acquainted with the rules and conditions of the competition. Preliminary versions of the essays were written.
2	Information day dedicated to the International Climate Day, and the distribution of Climate Boxes.	21 May 2021	Distribution of Climate Boxes among secondary educational institutions to build the initial understanding of children regarding climate and its role in people's lives; and the importance of solving environmental problems related to global warming.	Representatives of the Main Department of Education of Dashoguz velayat and etrap Gorogly, heads of educational departments of secondary schools of Turkmen yol and Garagum gengeshliks, B.Ovezov and Yagtylyk farmers' associations of Gorogly etrap. Total number of participants was 19 people, including women - 4, men – 15	The participants learned the methods of interactive application of the Climate Box. The latters were successfully distributed.
Pilot Farms of Danew Etrap, Lebap Velayat					
1	Information day dedicated to the International Climate Day and the distribution of Climate Boxes.	21 May 2021	Distribution of Climate Boxes among secondary educational institutions to build the initial understanding of children regarding climate and its role	Representatives of the Main Department of Education of the Lebap Velayat and the Danew etrap, heads of educational	The participants learned the methods of interactive application of the Climate Box. The latters were successfully distributed.

№	Theme of information days	Date	Targets of information days	Participants	Results achieved
			in people's lives; and the importance of solving environmental problems related to global warming.	departments of secondary schools of the Dovletabat, Parakhat and May gengeshliks of the Danew etrap. Total number of participants was 18 people, including: women – 9, men - 9	

FIELD DAYS 2017-2021

№	Topic of field classes	Date	Objectives of field training	Participants	Results achieved
Pilot Gorogly Etrap, Dashoguz Velayat					
1	Field day to inform specialists and tenants of the Yagtylyk settlement about methods of improving the reclamation condition of irrigated lands.	28 July 2018	Knowledge and skill transfer on water accounting, measurement of groundwater level and its mineralization, methods of rational irrigation of lands.	Yagtylyk Gengeshlik specialists, specialists, managers and tenants of Yagtylyk farmer association. Total number of participants was 20 people, including: women -1, men – 19	The participants gained knowledge on measuring the groundwater level and its mineralization; learned how to keep records of water using the Chippoletti spillway; mastered methods of rational use of water using siphons. The participants received soil samples for analysis.
2	Field day on displacement in the farmer association "Yagtylyk" etrap Gorogly Hydroelectric unit No. 7.	07 March 2019	Knowledge and skill transfer on the preparation of a hydrometric post; on measuring the amount of irrigated water; and keeping a logbook.	Chief mirab and agronomist, heads of a group of tenants interested in water measurement, Head of the Taze yab system, hydrometer of the hydroelectric unit, employee of the Water Use Department of the Goroglyetrapsuvhodzhalyk, teachers and students of TSAI. Total number of participants was 44 people.	The participants carried out practical measurements of the cross-section and flow rate of water with a hydrometric propeller and cameral work. Participants calculated the volume of water and recorded it in the water accounting log. They also built a curve of irrigation water discharge.
3	Field day for the introduction to three manuals in the farmer	19 November 2019	To introduce participants to the contents of the three manuals prepared within the framework of the	Specialists of the Gengeshlik Yagtylyk, specialists, managers and tenants of the Yagtylyk	The participants got acquainted with the contents of three manuals prepared by the UNDP Project specialists, in collaboration with TSAI teachers. The

№	Topic of field classes	Date	Objectives of field training	Participants	Results achieved
	association "Yagtylyk" etrap Gorogly.		UNDP project; and to transfer knowledge and skills on the application of these manuals.	farmer association, representatives of the hyakimliks of the Dashoguz velayat and Gorogly etrap, teachers of TSAI. Total number of participants was 27 people, including: women -1 men – 26	participants put into practice some of the methods described in the manuals.
4	Field days to introduce gardeners to the technology of pruning fruit trees and other methods for rejuvenating the garden in the TSAI educational farm and the Gorogly etrap.	18-19 March 2020	Introduction of participants to the technology of pruning fruit trees, grafting seedlings and training in other methods for rejuvenation of fruit trees.	TSAI teachers and students, gardeners and farmers of farmer association B.Ovezov, farmer association Yagtylyk, farmer association Niyazov, farmer association Abadanlyk, farmer association Bereket, representatives of hyakimlik etrap Gorogly. Senior specialist Ms. Kerimova U. S. Total number of participants was 64 people, including: women – 20, men – 44	The participants gained practical knowledge and skills in pruning, shaping and grafting fruit trees.
5	Field day to determine the optimal parameters of the furrow irrigation technique, in the pilot region of the Gorogly etrap, Dashoguz Velayat.	24 July 2021	Informing water users about innovative, low-cost, and water-saving irrigation technologies for row crops. Raising awareness of decision-makers at the field level on the choice of furrow irrigation techniques for row crops.	Head of farmer association Ak derek, water mgt experts Yagtylyk and B.Ovezov farmers' associations, chief agronomist of Gorogly Gallaonumleri, foremen, tenants, representatives of the Velayat and Etrap hyakimliks. Total number of participants was 13 people.	Water users received skills and knowledge on the choice of water-saving techniques, technical means and optimal usage of furrow irrigation of row crops, depending on climatic and economic conditions.
6	Field day dedicated to the study of soil properties of pilot regions and its importance in making decisions	08 October 2021	Introduction of local specialists and tenants to the simplest methods for determining the mechanical	Managers and specialists of farmer association Ak Terek, chairmen, agronomists,	The participants were introduced to the simplest methods for determining the mechanical composition, moisture capacity and water

№	Topic of field classes	Date	Objectives of field training	Participants	Results achieved
	on sustainable water management in the pilot region of Gorogly etrap.		composition, moisture capacity, and water permeability of the soil; and the significance of these indicators for the introduction of water-saving innovative technologies.	foremen, tenants, Yagtylyk and B.Ovezov farmers' associations, representatives of the Velayat and Etrap hyakimlik, teachers and students of TSAI Dashoguz. Total number of participants was 27 people.	permeability of the soil; and the importance of these indicators for the introduction of water-saving innovative technologies.
Pilot Danew Etrap, Lebap Velayat					
1	Field day to inform specialists and tenants of d/a Watan about methods of improving the reclamation condition of irrigated lands.	12 July 2018	Knowledge and skill transfer on water accounting, measurement of groundwater level and its mineralization, methods of rational irrigation of lands.	Specialists of Dovletabat Gengeshlik, specialists, managers and tenants of farmer association Watan. Total number of participants was 24 people, including: women -11, men – 13	The participants gained knowledge on measuring the groundwater level and its mineralization; learned how to keep records of water using the Chippolletti spillway; mastered methods of rational use of water using hoses. They received soil samples for analysis.
2	Field day on Innovative methods of measuring the amount of irrigated water and keeping a logbook.	14 June 2019	Knowledge and skill transfer to the participants regarding the preparation of a hydrometric post; measuring the amount of irrigated water; and keeping a logbook.	Water mgt experts and agronomists, foremen, tenants of the farmers' associations Watan, Parakhat, Babadaykhan, interested farmers, the head and employees of Berzensuvhodzhalyk. Total number of participants was. 34 people.	The participants carried out practical measurements of the cross-section and water flow velocity with a hydrometric turntable and desk work. Water volume was calculated and recorded in the water accounting log. The participants constructed a curve of irrigation water consumption.
3	Field day for introduction to three manuals in the Watan farmer association of etrap Danew	21 November 2019	To Introduce participants to the contents of the three manuals prepared within the framework of the UNDP project, and to transfer knowledge and skills on the application of these manuals.	Representatives of the hyakimliks of the Lebap velayat and etrap Danew specialists of the Dovletabat Gengeshlik, specialists, managers and tenants of Watan farmer association. Total number of participants was 26 people, including: women -9, men - 17	The participants got acquainted with the contents of three manuals prepared by specialists of the UNDP Project. The participants put into practice some of the methods described in the manuals.

№	Topic of field classes	Date	Objectives of field training	Participants	Results achieved
4	Field day - obtaining alternative sources of income - vermicompost.	21 December 2019	Alternative source of income and support for climate-sustainable economic activity of local communities, including women. Biohumus - a reserve for improving the efficiency of agriculture.	Representatives of the hyakimlik of the Lebap Velayat and the Danew etrap, farmers, housewives, tenants of the Watan, Parakhat and Babadaykhan farmers' associations. Total number of participants was 34 people, including: women – 16, men - 18	Dissemination of experience among the local community, including women, on the production and application of organic fertilizers at the local level, as well as as an alternative to mineral nutrition of agricultural crops.
5	Field day to determine the optimal parameters of the furrow irrigation technique in the Babadaykhan farmer association of Danew etrap, Lebap Velayat.	15 July 2021	Informing water users about innovative, low-cost, water-saving irrigation technologies for row crops; and raising awareness of decision-makers at the field level on the choice of furrow irrigation techniques for row crops.	Chairman, mirab and chief agronomist of the farm, foremen, groups of tenants Babadaykhan and Watan farmers' associations. Total number of participants was 12 people, including: women – 4, men – 8	Water users received skills and knowledge on the choice of water-saving techniques, technical means and optimal usage of furrow irrigation of row crops, depending on climatic and economic conditions.
6	Field day on the study of soil properties in pilot regions, and its importance in making decisions on sustainable water management in the Danew etrap, Lebap Velayat.	15 October 2021	Introduction of local specialists and tenants with the simplest methods for determining the mechanical composition, moisture capacity, and water permeability of the soil; and the significance of these indicators for the introduction of water-saving innovative technologies.	Representatives of the khyakimlik of the Lebap Velayat and the Danew etrap, Water mgt experts and agronomists, foremen, tenants of the Watan, Parakhat, Babadaykhan farmers' associations and specialists of the Dovletabat, Parakhat and May gengeshliks. Total number of participants was 31 people, including: women – 19, men - 12	The participants were introduced to the simplest methods for determining the mechanical composition, moisture capacity, and water permeability of the soil; and the importance of these indicators for the introduction of water-saving innovative technologies.

STUDY TOURS

#	Study Tour	Date and place	Aim of the study tour	Participants	Results
1	Study Tour on sustainable agriculture and water management – Israel technologies.	28 March – 4 April 2017 Israel	To study the advanced agricultural practices in Israel, with an emphasis on the concept of agricultural sustainability, its planning and application in various branches of the agricultural industry. Special attention was paid to the topic of rational and efficient management of water resources, on which the sustainability of agricultural production depends to a greater extent. The study tour was organized and conducted by the Galilee International Management Institute (Israel) located at Kibbutz Mizra. Kibbutz Mizra is located between the cities of Afula and Nazareth.	Representatives of the State committee on Environment Protection and Land Resources, Parliament of Turkmenistan, Ministry of Agriculture and Water Management, UNDP project manager and project experts. Total number of participants was 7 people, of which 1 is a woman.	Participants learnt that innovative technologies applied in the agriculture sector of Israel received perfect electronic control systems, new design solutions. However, the success of the introduction of new technologies was determined not by these technical changes, but by the use of an integrated approach and effective financial mechanisms in a market economy.
2	Study Tour on establishment of the Agricultural extension services – Uzbekistan's experience.	10 – 19 October 2019	The study tour was aimed at familiarizing with the practice of agriculture in Uzbekistan, with an emphasis on the concept of developing a network of agricultural knowledge, information and advisory services. Particular attention is paid to the legal framework and approaches to improve the quality of training, consulting and professional development services in the industry.	Representatives of the Ministry of agriculture and environment protection, Turkmen state agricultural institute, Hyakimliks of Lebap and Dashoguz velayats, Hyakimliks of the Danew and Gorogly etraps, specialists of Watan, Parahat farmers' associations, project manager and project experts. Total number of participants was 12 people, of which one woman	Participants of the study tour get familiarized with main principles of the establishment of the AES. During the study tour several forms of AES were studied including: 1) Non-government non-commercial organization – KRASS 2) Extension service under Tashkent Agrarian University (TAU) 3) Extension service under Farmers Council 4) State-private partnership Each of these above indicated form has advantages and disadvantages. For instance, • Extension service established at the Farmers Council may easily and directly get contact with farmers and provide them necessary assistance and grant allocations from Government Fund. • Extension service established at TAU carries out different research and attract additional

#	Study Tour	Date and place	Aim of the study tour	Participants	Results
					finance from foreign companies (KOPIA, KOIKA, JIKA etc) Extension service in the form of state-private partnership may easily attract financial resources of the different private organizations.

ANNEX IX: CO-FINANCING TEMPLATE

ANNEX X: UNDP-GEF TE AUDIT TRAIL

The Terminal Evaluation Audit trail is annexed in a separate file.

ANNEX XI: MANAGEMENT RESPONSE

Project Title:

UNDP PIMS ID:

GEF ID:

Terminal Evaluation Completion Date:

Date of Issue of Management Response:

Prepared by:

Contributors:

Cleared by:

Terminal Evaluation recommendation 1.				
Management response: ⁴⁶				
Key action(s)	Time frame	Responsible unit(s)	Tracking ⁴⁷	
			Comments	Status ⁴⁸
1.1				
1.2				
1.3				

Terminal Evaluation recommendation 2.				
Management response:				
Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
2.1				
2.2				
2.3				

Terminal Evaluation recommendation 3.				
Management response:				

⁴⁶ Select one: Fully Accept, Partially Accept, Reject

⁴⁷ Status of implementation is tracked electronically in the Evaluation Resource Centre (ERC).

⁴⁸ Select one: Not initiated, Initiated, Completed, Completed, No longer applicable

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
3.1				
3.2				
3.3				

Terminal Evaluation recommendation 4.				
Management response:				
Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
4.1				
4.2				
4.3				

ANNEX XII: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form⁷

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Elinor Bairaktari

Elinor Bairaktari

Name of Consultancy Organization (where relevant):

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

ANNEX XIII: TE REPORT CLEARANCE FORM

Terminal Evaluation Report for *(Project Title & UNDP PIMS ID)* **Reviewed and Cleared By:**

Commissioning Unit (M&E Focal Point)

Name: _____

Signature: _____

Date:

Regional Technical Advisor (Nature, Climate and Energy)

Name: _____

Signature: _____

Date:

ANNEX XIV: THEORY OF CHANGE

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
<i>Component 1: Improved climate related socio-economic outcomes in the targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions</i>	<i>Output 1.1 Participatory vulnerability and adaptation assessments carried out in selected communities to identify priority adaptation solutions</i>	1.1.1 Lack of understanding of the climate and environmental related issues and options for community adaptation	Technical	M	1) bio-physical and socio-economic resource mapping to develop understanding of key environmental and climate changes in the natural resource base
		1.1.2 Lack of ability to identify causes and incidence of agricultural land degradation to identify “hot-spots” and to assess the presence or absence of incentives that guide unsustainable land and water use and farming and grazing practices and inform community decisions;	Technical	M	2) Surveys and assessment to identify root causes of vulnerabilities and unsustainable resource uses
		1.1.3 Lack of tools and methods for mapping vulnerability and local capacities within agricultural communities	Technical	M	3) Assessment and mapping of vulnerability and local adaptive capacities within the pilot daikhan associations and livestock farms
	<i>Output 1.2 Gender Sensitive Adaptation Plans developed and effectively addressing climate risks</i>	1.2.1 Agricultural communities do not have the opportunity to participate in the decision-making process on water and agricultural activities	Institutional	M	1) Introduction of Participatory Gender-Differentiated Village Adaptation Action Planning to define community agriculture, livestock and water management and climate adaptation investments.
		1.2.2 Existing local planning does not include incorporation of CC risks	Institutional	M	2) The multi-year action planning process would be based on the biophysical and socio-economic and vulnerability mapping exercises and result in the preparation of Participatory Adaptation Management Plans that integrates climate considerations
		1.2.3 Lack of guidance on adaptation planning at the farmer level	Regulatory/ Behavioral	M	3) Etrap administration and daikhan associations will guide the adaptation planning process with technical support from the Project Management Unit (PMU).
		1.2.4 Lack of adequate and substantial financial incentives for promotion of adaptation measures	Financial/ Institutional	M	4) the project would promote the use of innovative financial instruments for fund-transfer to intended beneficiaries, including collaboration with the Daikhanbank for expansion of the preferential credit lines to farmers’ associations, daikhan farms,

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
					landowners and other land users in the pilot areas for supporting climate resilient livelihoods in agriculture and livestock production
	<i>Output 1.3 Alternative income and livelihood innovations enhancing climate-resilience of agricultural communities</i>	1.3.1 Lack of access to basic goods and services, technology and practices to manage climate risks	Institutional/ Behavioral	L	1) risk management at the micro-level to maximize benefits and opportunities, improved processing and storage facilities, seed improvement and high value chain development activities, testing of new technologies for improving incomes and up-scaling, including alternate energy (micro-hydro, solar, etc.) for community based processing, drying and cooking, gravitational irrigation, improved village storage, packing, better transport methods to markets to reduce damage, microfinance, etc. In terms of vegetable seed, better primary level processing and handling at the farm level to reduce labour costs, improved livestock breeds and fodder management and improved feeding methods, and sustainable harvest methods to reduce damage to fodder trees
		1.3.2 Lack of diversification of incomes and livelihoods as means for managing climate risks	Institutional	M	2) Programs for diversification of the agricultural economy (e.g. bee-keeping, mobile dairy farms, etc.) to ensure food security in times of climatic extremes and help cope in times of economic difficulty.
		1.3.3 Lack of technical support, capacity and funding to local communities for enhanced practices and diversified incomes	Institutional/ Financial	L	3) The project would provide technical support, training and project grant funding to local communities (pilot daikhan associations and livestock farm) for improved risk management and income diversification
	<i>Output 1.4 Participatory mechanisms for implementing and monitoring change in community climate resilience</i>	1.4.1 Lack of programs to access impact of development activities	Technical	L	1) Participatory monitoring systems designed to capture the impacts of the on-the-ground investments on community climate resilience, vulnerability and incomes. Monitoring criteria will be set up together with stakeholders in the pilot sites and include explicit criteria related to gender, land use, incomes and climate resilience
		1.4.2. Lack of capacity and tools to measure changes in community resilience	Institutional	L	2) technical support and guidance for the development of the participatory monitoring framework and training of local communities and government institutions to carry out the monitoring and analysis of the monitoring outcomes.

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
	<i>Output 1.5 Successful adaptation measures up-scaled</i>	1.5.1 Limited documentation of best practices on adaptation	Institutional	L	1) identification and document best practices based on field experiences and preparation of notes Promotion of dialogue and discussion between research institutions, community institutions and velayat and national level policy makers to build linkages between practice and policy.
		1.5.2 Lack of opportunity for building learning into policy	Policy	L	2) Promotion of dialogue and discussion between research institutions, community institutions and velayat and national level policy makers to build linkages between practice and policy. National and regional workshops to facilitate dissemination of field lessons and help inform legal and policy reform relevant to climate change
		1.5.3 Lack of sharing of experiences and successful models of climate risk management	Institutional	L	3) Promotion of localized information dissemination mechanisms (field demonstrations and site visits, workshops, training events and media publicity) and support for programs to improve awareness and capacities of farmers and community groups and enhance the use of information communication technologies to disseminate adaptation best practices.
<i>Component 2: Adaptation mainstreamed in agricultural and water sector development strategy and policy</i>	<i>Output 2.1 Capacity development for agriculture and water sectors enabling effective adaptation planning with gender considerations</i>	2.1.1 Lack of knowledge of gaps in institutional capacity for mainstreaming of adaptation with gender considerations.	Institutional	M	1) Detailed institutional capacity review to identify specific gaps in addressing climate risks and to clarify and refine the specific training needs for key institutions to enable them to develop and apply a robust adaptive strategy for agricultural management in drought prone areas of Turkmenistan
		2.1.2 Lack of effort to comprehensively address sectoral capacity gaps to enable mainstreaming of adaptation with gender considerations.	Institutional	M	2) Development and implementation of a comprehensive and targeted training program that would focus upon enabling stakeholders to apply practical steps in their daily work to strengthen the adaptive elements of current water and agriculture management capacity.
		2.1.3 Absence of clear institutional mandates and responsibilities for long-term delivery of climate adaptation and risk management training and capacity development programs	Institutional	M	3) The project will set up linkages with suitable national institutions such as the Agricultural Institute of Dashoguz, Agricultural University of Ashgabat, National Research Institute “Turkmensuwlylymtaslama” and the Land Management Service

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
					under the Ministry of Agriculture to ensure continuity and sustainability of the capacity building and training effort. It would support training of trainers, design of training modules and preparation of training materials.
	<i>Output 2.2 Guidelines provided to water and agriculture sector ministries on using gender disaggregated data in planning, conducting specific assessments on the needs of women and using these in sector adaptation planning and budgeting</i>	2.2.1 Absence of appropriate tools for planning, assessment and budgeting for climate adaptation in agriculture and water sectors	Regulatory	M	1) Guidelines and other tools for integration of adaptation to climate change embodied within the land, water and environmental legislation, as well as in the form of regulations at the departmental levels, complemented by improved competence within these departments and agencies to their adoption
		2.2.2 Lack of capacity and understanding of linkages between climate events and water availability and agricultural production,	Institutional	M	2) The project would provide technical assistance and training and communication for enhancing understanding of linkages between climate events and water availability and agricultural production.
	<i>Output 2.3 Regulation and guidelines for inclusion of adaptation in national and local development planning and budgeting developed and linked to sector based planning, coordination and monitoring processes</i>	2.3.1 Adaptation planning at national and local level challenged by quality of governance at all levels and the challenge of establishing linkages across national, provincial, district and village levels for vulnerability assessments, adaptation planning and implementation within the framework of the NEPAAM.	Institutional	M	1) provision of technical assistance and training to improve the understanding and awareness of etrap and velayat municipality staff in the pilot areas to the linkages between climate change and its impacts on local level agricultural productive, livelihoods and the economy as the first step towards trying to mainstream climate adaptation into etrap and velayat level planning and budgetary processes.
		2.3.2 Lack of expertise and experience in local level adaptation planning and budgeting	Institutional	M	2) identification of tools and methodology (that have been tested and demonstrated elsewhere) to integrate climate adaptation actions that could be modified and applied in the local planning and budgeting context.

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
		2.3.3. Lack of clear guidelines and approaches for integrating local adaptation planning with national planning and budgeting processes	Regulatory	L	3) supporting preparation of planning guidelines and other tools to facilitate linkage of local level adaptation plans with national adaptation planning and budgeting processes for the water and agriculture sectors.
	<i>Output 2.4 Institutional and legal mechanisms for water resource management integrate key principles of efficient use and climate risk management</i>	2.4.1 Absence of single organization structure for water management based on basin principles constraints the efficient use of water resources and is a significant barrier to promoting adaptation to climate change.	Institutional	H	1) The project will facilitate a shift to basin management and promote the application of integrated water resources management (IWRM) principles and approaches.
		2.4.2 Lack of delegation of responsibility for management, operation and maintenance of water supply systems to water users	Regulatory	M	2) The project will support the review and revision of the laws on daikhan (farmer) associations to enhance their mandates to cover management, operation and maintenance of irrigation networks as well as water distribution.
	<i>Outcome 2.5 National sectoral planning and rural development investments take account of, and address climate change related risks</i>	2.5.1 Sectoral plans in the agriculture and water do not integrate climate adaptation measures into programs, plans and budgets.	Institutional	M	1) The project will provide technical and policy support to the Ministry of Economy and Development to coordinate the process for integrating climate adaptation and risk management into public-sector decision making and budgeting in the agriculture and water sectors.
	<i>Output 2.6 Ecosystem services valuated and potential impacts of climate change on natural pastures assessed to inform sustainable pasture management decision-making</i>	2.6.1 Lack of tools for economic valuation of the ecosystem services constraint sustainable pasture management.	Institutional	M	1) developing a methodological framework for assessing the carrying capacity of, and developing options for sustainable pasture use and management in changing climate scenarios
		2.6.2 Lack of proven models for assessing impacts of climate change on the productivity and carrying capacity of the pastures,	Institutional	M	2) Sustainable climate resilient pasture management plans developed and implemented in pilot etraps

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
<i>Component 3: Strengthened national capacity for iterative climate change adaptation planning, implementation and monitoring</i>	<i>Output 3.1 Mechanism for iterative monitoring, reporting and verification of implementation of the mainstreamed adaptation actions established</i>	3.1.1 Absence of reliable monitoring and assessment system to assess vulnerabilities and sustainable development benefits from investments	Institutional	M	1) The project would finance the creation of a system for monitoring, reporting and verification of implementation of adaptation actions under NEPAAM.
		3.1.2 Absence of institutional arrangements for coordination, mainstreaming, funding and measurement, reporting and verification of adaptation (and mitigation) actions; provide support for training of staff at sectoral and administrative levels for undertaking the monitoring, reporting and verification of adaptation (and mitigation) actions, and providing facilitation support to sector agencies for mainstreaming of adaptation actions into their respective sector plans and programs.	Institutional	L	2) The project would support the hiring of 2-3 key technical staff to support the proposed NEPAAM Secretariat in coordination, mainstreaming, funding and measurement, reporting and verification of adaptation (and mitigation) actions
		3.1.3 Lack of capacity at sectoral and administrative levels for undertaking the monitoring, reporting and verification of adaptation (and mitigation) actions	Institutional	L	3) The project would provide training of staff at sectoral and administrative levels for undertaking the monitoring, reporting and verification of adaptation (and mitigation) actions, and providing facilitation support to sector agencies for mainstreaming of adaptation actions into their respective sector plans and programs.
	<i>Output 3.2 Vulnerability/resilience indicators and protocols for gender-disaggregated data collection, storage, processing and use in planning and decision-making</i>	3.2.1 Lack of indicator frameworks and protocols for data collection, storage, processing, use and verification for adaptation. In particular, this would require: (i) the development of a set of indicators to measure adaptation vulnerability and climate resilience; (ii) the establishment of procedures for collecting data, undertaking data analysis, communicating results, submitting reports and archiving; (iii) the establishment and operationalization of an assessment, review and verification process; (iv) definition of coordinating	Institutional/Regulatory	L	1) The project would support: (i) the development of a set of indicators to measure adaptation vulnerability and climate resilience; (ii) the establishment of procedures for collecting data, undertaking data analysis, communicating results, submitting reports and archiving; (iii) the establishment and operationalization of an assessment, review and verification process; (iv) definition of coordinating procedures for information management with sector and administrative entities; (v) establishment of quality assurance

Expected Outcome	Output	Barrier	Barrier Type	Overall Risk Category	Risk Mitigation
		procedures for information management with sector and administrative entities; (v) establishment of quality assurance			
		3.2.2 Lack of capacity and skills for monitoring of vulnerability and adaptive capacity	Institutional	M	2) The project will provide technical support and training to core sector staff for operationalization of the monitoring system in the pilot areas covered under component 1 of the project.
	<i>Output 3.3 Actions to build the evidence base for robust decision making implemented.</i>	3.3.1 lack of clear linkage between research and practice in the agriculture sector in Turkmenistan in climate risk and vulnerability assessment and adaptive actions that constraints ability to inform public and private (including local communities and other stakeholders) decision-makers to uptake of successful adaptation approaches	Institutional	L	1) The project would support evaluation of the current state of adaptation research and knowledge in the country, assessment of the relevance of existing adaptation research and practice in the country and identification of approaches to ensure how adaptation research and practice lessons and recommendations may be replicated and better implemented
		3.3.2 Lack of clear understanding of climate risks and impacts at the agro-ecological level that constraints ability to adopt to changing climate scenarios	Institutional	L	2) The project will also support the development of more detailed modeling of agro-ecological zones that would help inform long-term government investment policy in the agriculture and water sector to deal with future climate scenarios.
	<i>Output 3.4 Communication and outreach strategy to support the medium and long-term adaptation planning of NEPAAM developed and implemented.</i>	3.4.1 Lack of capacity for medium and long-term adaptation planning and budgeting within the overall goal of reducing vulnerability of the population and key sectors to the impacts of climate change.	Institutional	M	1) The preparation of a communication and outreach strategy to promote meaningful stakeholder participation in the adaptation action, implement direct outreach to diverse communities and communicate adaptation implementation activities and outcomes to the broader public.
		3.4.2 Lack of understanding and participation of key target groups in climate risk management	Institutional	M	2) Implementation of communication and awareness plan through training curriculum and manual, posters and brochures, journal articles, press releases, video and television documentaries, policy briefs, websites, etc.

The following is a revised and improved version of the project's Theory of Change.

Interventions	Intermediate Outputs	Outcomes	National Priority
1) Bio-physical and socio-economic resource mapping 2) Surveys and assessment to identify root causes of vulnerabilities and unsustainable resource uses 3) Assessment and mapping of vulnerability and local adaptive capacities within the pilot daikhan associations and livestock farms	Participatory vulnerability and adaptation assessments carried out in selected communities to identify priority adaptation solutions	Component 1: Improved climate related socio-economic outcomes in the targeted agricultural communities in Lebap and Dashoguz velayats through the implementation of community-based adaptation solutions	Secure climate resilient livelihoods in agricultural communities
1) Introduction of Participatory Gender-Differentiated Village Adaptation Action Planning to define community agriculture, livestock and water management and climate adaptation investments. 2) Multi-year action planning process based on the biophysical and socio-economic and vulnerability mapping exercises and result in the preparation of Participatory Adaptation Management Plans that integrates climate considerations. 3) Etrap administration and daikhan associations will guide the adaptation planning process with technical support from the Project Management Unit (PMU). 4) The project promotes the use of innovative financial instruments for fund-transfer to intended beneficiaries, including collaboration with the Daikhanbank for expansion of the preferential credit lines to farmers' associations, daikhan farms, landowners and other land users in the pilot areas for supporting climate resilient livelihoods in agriculture and livestock production	Sensitive Adaptation Plans developed and effectively addressing climate risks		

Interventions	Intermediate Outputs	Outcomes	National Priority
1) Risk management at the micro-level to maximize benefits and opportunities, improved processing and storage facilities, seed improvement and high value chain development activities, testing of new technologies for improving incomes and up-scaling, including alternate energy (micro-hydro, solar, etc.) for community based processing, drying and cooking, gravitational irrigation, improved village storage, packing, better transport methods to markets to reduce damage, microfinance, etc. In terms of vegetable seed, better primary level processing and handling at the farm level to reduce labour costs, improved livestock breeds and fodder management and improved feeding methods, and sustainable harvest methods to reduce damage to fodder trees	Alternative income and livelihood innovations enhancing climate-resilience of agricultural communities		
2) Programs for diversification of the agricultural economy (e.g. bee-keeping, mobile dairy farms, etc.) to ensure food security in times of climatic extremes and help cope in times of economic difficulty.			
3) The project would provide technical support, training and project grant funding to local communities (pilot daikhan associations and livestock farm) for improved risk management and income diversification			
1) Participatory monitoring systems designed to capture the impacts of the on-the-ground investments on community climate resilience, vulnerability and incomes. Monitoring criteria will be set up together with stakeholders in the pilot sites and include explicit criteria related to gender, land use, incomes and climate resilience	Participatory mechanisms for implementing and monitoring change in community climate resilience		

Interventions	Intermediate Outputs	Outcomes	National Priority
2) Technical support and guidance for the development of the participatory monitoring framework and training of local communities and government institutions to carry out the monitoring and analysis of the monitoring outcomes.	Successful adaptation measures up- scaled		
1) Identification and document best practices based on field experiences and preparation of notes Promotion of dialogue and discussion between research institutions, community institutions and velayat and national level policy makers to build linkages between practice and policy.			
2) Promotion of dialogue and discussion between research institutions, community institutions and velayat and national level policy makers to build linkages between practice and policy. National and regional workshops to facilitate dissemination of field lessons and help inform legal and policy reform relevant to climate change			
3) Promotion of localized information dissemination mechanisms (field demonstrations and site visits, workshops, training events and media publicity) and support for programs to improve awareness and capacities of farmers and community groups and enhance the use of information communication technologies to disseminate adaptation best practices.			
1) Detailed institutional capacity review to identify specific gaps in addressing climate risks and to clarify and refine the specific training needs for key institutions to enable them to develop and apply a robust adaptive strategy for agricultural management in drought prone areas of Turkmenistan	Capacity development for agriculture and water sectors enabling effective adaptation planning with gender considerations	Component 2: Adaptation mainstreamed in agricultural and water sector development strategy and policy	

Interventions	Intermediate Outputs	Outcomes	National Priority
2) Development and implementation of a comprehensive and targeted training program that would focus upon enabling stakeholders to apply practical steps in their daily work to strengthen the adaptive elements of current water and agriculture management capacity.			
3) The project will set up linkages with suitable national institutions such as the Agricultural Institute of Dashoguz, Agricultural University of Ashgabat, National Research Institute “Turkmensuwlymtaslama” and the Land Management Service under the Ministry of Agriculture to ensure continuity and sustainability of the capacity building and training effort. It would support training of trainers, design of training modules and preparation of training materials.			
1) Guidelines and other tools for integration of adaptation to climate change embodied within the land, water and environmental legislation, as well as in the form of regulations at the departmental levels, complemented by improved competence within these departments and agencies to their adoption			
2) The project would provide technical assistance and training and communication for enhancing understanding of linkages between climate events and water availability and agricultural production.	Guidelines provided to water and agriculture sector ministries on using gender disaggregated data in planning, conducting specific assessments on the needs of women and using these in sector adaptation planning and budgeting		

Interventions	Intermediate Outputs	Outcomes	National Priority
1) Provision of technical assistance and training to improve the understanding and awareness of etrap and velayat municipality staff in the pilot areas to the linkages between climate change and its impacts on local level agricultural productive, livelihoods and the economy as the first step towards trying to mainstream climate adaptation into etrap and velayat level planning and budgetary processes.	Regulation and guidelines for inclusion of adaptation in national and local development planning and budgeting developed and linked to sector based planning, coordination and monitoring processes		
2) Identification of tools and methodology (that have been tested and demonstrated elsewhere) to integrate climate adaptation actions that could be modified and applied in the local planning and budgeting context.			
3) Supporting preparation of planning guidelines and other tools to facilitate linkage of local level adaptation plans with national adaptation planning and budgeting processes for the water and agriculture sectors.			
1) The project will facilitate a shift to basin management and promote the application of integrated water resources management (IWRM) principles and approaches.	Institutional and legal mechanisms for water resource management integrate key principles of efficient use and climate risk management		
2) The project will support the review and revision of the laws on daikhan (farmer) associations to enhance their mandates to cover management, operation and maintenance of irrigation networks as well as water distribution.			
1) The project will provide technical and policy support to the Ministry of Economy and Development to coordinate the process for integrating climate adaptation and risk management into public-sector decision making and budgeting in the agriculture and water sectors.	National sectoral planning and rural development investments take account of, and address climate change related risks		

Interventions	Intermediate Outputs	Outcomes	National Priority
1) developing a methodological framework for assessing the carrying capacity of, and developing options for sustainable pasture use and management in changing climate scenarios	Ecosystem services valuated and potential impacts of climate change on natural pastures assessed to inform sustainable pasture management decision- making		
2) Sustainable climate resilient pasture management plans developed and implemented in pilot etraps			
1) The project would finance the creation of a system for monitoring, reporting and verification of implementation of adaptation actions under NEPAAM.	Mechanism for iterative monitoring, reporting and verification of the mainstreamed adaptation actions established	Component 3: Strengthened national capacity for iterative climate change adaptation planning, implementation and monitoring	
2) The project would support the hiring of 2-3 key technical staff to support the proposed NEPAAM Secretariat in coordination, mainstreaming, funding and measurement, reporting and verification of adaptation (and mitigation) actions			
3) The project would provide training of staff at sectoral and administrative levels for undertaking the monitoring, reporting and verification of adaptation (and mitigation) actions, and providing facilitation support to sector agencies for mainstreaming of adaptation actions into their respective sector plans and programs.			

Interventions	Intermediate Outputs	Outcomes	National Priority
1) The project would support: (i) the development of a set of indicators to measure adaptation vulnerability and climate resilience; (ii) the establishment of procedures for collecting data, undertaking data analysis, communicating results, submitting reports and archiving; (iii) the establishment and operationalization of an assessment, review and verification process; (iv) definition of coordinating procedures for information management with sector and administrative entities; (v) establishment of quality assurance	Vulnerability/resilience indicators and protocols for gender-disaggregated data collection, storage, processing and use in planning and decision-making		
2) The project will provide technical support and training to core sector staff for operationalization of the monitoring system in the pilot areas covered under component 1 of the project.			
1) The project would support evaluation of the current state of adaptation research and knowledge in the country, assessment of the relevance of existing adaptation research and practice in the country and identification of approaches to ensure how adaptation research and practice lessons and recommendations may be replicated and better implemented	Actions to build the evidence base for robust decision making implemented.		
2) The project will also support the development of more detailed modeling of agro-ecological zones that would help inform long-term government investment policy in the agriculture and water sector to deal with future climate scenarios.			

Interventions	Intermediate Outputs	Outcomes	National Priority
1) The preparation of a communication and outreach strategy to promote meaningful stakeholder participation in the adaptation action, implement direct outreach to diverse communities and communicate adaptation implementation activities and outcomes to the broader public. 2) Implementation of communication and awareness plan through training curriculum and manual, posters and brochures, journal articles, press releases, video and television documentaries, policy briefs, websites, etc.	Communication and outreach strategy to support the medium and long-term adaptation planning of NEPAAM developed and implemented.		