

Community Based Agriculture Support Programme “Plus” (CASP+)

Annex 28. Detailed description of CASP+ Theory of Change

Complementary information to FP's B.2: CASP+ Theory of Change

1. The **overall goal** of the project is to **contribute to the country's shift towards low emission sustainable development pathways and climate-adaptive agricultural production practices**. The *specific objective* of the project is to increase public sector coordination and technical capacity for building climate resilience at the national level and enhance capacity at the district and village level for climate adaptive planning and mitigating the impact of climate change and building more effective links with the private sector to help address climate risks by improving integration with markets.
2. The Theory of Change has been developed to address some of the key barriers in the path to improve livelihood resilience and carbon sequestration in rural areas (see Figure 1. Theory of change CASP+, and Annex 22). These include:
 - [a] **Institutional barriers**: limited capacity for evidence-based planning, management and evaluation of natural resources at national and local levels; **translating into** fragmented governance of the natural resources, at local, as well as national level (e.g., pastures and forests are under different institutions regulating the access in different ways).
 - [b] **Technical barriers**: limited understanding of climate change impacts for rural populations; and low productivity of agricultural systems, limited capacity at local level and lack of stimuli to revert the trend of unproductive livestock population growth, hampering efficient and sustainable rangeland management.
 - [c] **Financial barriers**: related to **limited public investment**, increasing but geographically still scattered and not always aligned in methodology to promote integrated ecosystem management; as well as **inadequate financial system** with consequent limited financial options (products, system) in rural areas for productive investments in forestry, livestock/rangeland management and income diversification.
 - [d] **Social barriers**: such as unequal socio-economic structure, discriminating rural women and disadvantaged people, particularly within poor households and especially **female headed households** (representing 9% of the total) (**Annex 8**).
 - [e] **remoteness barriers**, related to inadequate road network especially in mountainous areas, hampering **access to markets**, **financial services** and ultimately **investment** for rural populations.
3. The underlying theory of change of the project is that **IF** coordination and capacity at the national level is strengthened and enabling environment for natural resource management is enhanced and community is assisted in the formulation of climate sensitive action plans, provision of new technologies, livestock producers provided a range of services and smallholders form

productive alliances with the private sector **THEN** vulnerable communities and households will be able to reduce emissions due to improved management of pastures, forests and agriculture land and increase water and food security and improve the resilience of vulnerable villages **BECAUSE** of a supportive policy environment which incentivizes the adoption of low emission and climate resilient technologies and practices, local government and communities transform planning and production practices to account for climate risks and improve the management of natural resources and household assets.

4. ***One of the key postulates of the theory of change of CASP+ is premised on the assertion that helping to shift the development pathway in a low emission and climate resilient direction requires a series of investments in the public sector at the national level to strengthen the governance and management regime of the natural resource base.*** While the GoT has developed a National Climate Change Adaptation Strategy (NCCAS) and approved it recently, the mechanisms for its implementation need to be strengthened. The project is based on experience that strengthening the institutional mechanisms for enhanced coordination and partnerships among key stakeholders at various levels and building capacity can improve the governance of natural resources in the country. While the Government of the Republic of Tajikistan has secured readiness support from GCF¹ to develop a National Adaptation Plan which is expected to support a coherent mechanism for adaptation planning and implementation in the country, there is need for further strengthening the existing legislation and policy reform in specific areas of natural resource management. One of the key avenues that CASP+ intends to provide to the households in the project area are more sustainable livelihood options through matching grants for livelihood diversification for vulnerable households and commercialisation and agribusiness development for common interest groups (output 3.3). These activities are expected to generate multiplier affects along the selected value chains that will help to further build demand for local enterprises and aid in diversification.
5. ***Strategic investments in regulatory and policy actions have the potential to change behaviour in markets and economies beyond one-off investments.*** By providing technical assistance to refine the existing laws, building technical capacity for dealing with climate change and providing appropriate tools such as geo-referencing and remote sensing for evidence-based planning and monitoring can make a significant difference in how decisions are made and eventually lead to improving management systems and building resilience. Based on the policy constraints in pasture law, breeding strategy and lack of clarity regarding the most appropriate options for putting the country on the path to a Green Economy, the project will focus on these three areas. MEDT and Ministry of Finance have specifically requested IFAD to provide technical assistance for the development of the Green economy strategy and building capacity for improving public projects and their green dimension.
6. ***The theory of change of the project is based on the understanding that with facilitation support and investments in planning, infrastructure, inputs and equipment,*** communities can mobilize, plan and implement Community Action Plans that address some of the key issues of vulnerability to climate risks. Through broad based village organizations which can then organize into more focused specific purpose entities such as Pasture User Unions (PUUs) that can through project assistance design and implement innovative strategies for levying

¹ GCF. Readiness Support with United Nations Development Programme (UNDP) for Republic of Tajikistan. 18 May 2020 | Adaptation Planning.

user charges on common pastures that can help to reduce herds to levels that can sustain pastures and reduce methane emissions. ***PUUs are the core of the mechanism established in the country in the last decade to delegate management of pasture to local communities and arrest pasture degradation.*** The creation of PUUs has been very well accepted by communities and has proved to be an effective forum for making actions plans for more sustainable and resilient use of pasture resources through climate adaptive investments. The PUUs have also developed and implemented Pasture Management Plans (PMP) with clear specification of pasture rotations, assessment and adherence of carrying capacities and resting periods. This has had the impact of encouraging behaviour change by changing grazing patterns, reducing livestock herds and encouraging livelihood diversification to off-farm sectors as well by strong pasture governance and enforcement systems. Evidence from previous IFAD investments² shows very positive results on pasture productivity (+15% on average), as well as on reverting the pasture degradation trend (summarized in **Annex 18f**).³ In addition, the assessment has also shown that the past project investment generated a decrease of livestock units owned by the beneficiaries⁴. This approach can ultimately lead to a reduced methane emission intensity of the economic output and to an overall net incremental sequestration thanks to improved rangeland management and forestry.

7. ***The educational facilities lack local climate change experts and human resources. This impacts the capacity of the country to plan and design investments for improved adaptation and implement many of the measures outlined in the NCCAS.*** While previous investments have been made in short training programmes,⁵ these were assessed to be of short duration and insufficient. Given the increasing vulnerability of Tajikistan to climate change, it is crucial to develop a more comprehensive programme of training that can be introduced to build the technical expertise on climate risks among a diverse set of professionals as well as orient civil servants in key decision-making positions. ***By introducing a specialization in the field of climate change in the master's programme in leading universities and by further strengthening the capacity to understand and implement the principles of agro-ecology in various disciplines such as agriculture, ecology, livestock, etc., there can be a significant paradigm shift in how resources are managed and allocated.*** Appendix 6⁶ in Annex 6 (SECAP) and provides a detailed matrix on how the project has the potential to adhere to the agro-ecology principles. The capacity of the public sector to understand climate change issues and influence their policy and allocative decision-making towards more resilient pathways can be facilitated through orientation sessions for civil servants at the Academy of Public Administration which has a mandate to upgrade their modern theoretical and practical knowledge.

8. Livestock is a very important component of the farming system in the country. In Tajikistan, the agriculture sector, is responsible for 52% of GHGs and within this sub-sector, 57% of GHG emissions were estimated to be due to enteric fermentation from livestock (and overall livestock sector representing about 70% of the agricultural emissions). A life cycle assessment (LCA) of the sector which includes all main sources of emissions along the livestock supply chain starting

² IFAD, 2022. LPDP II Impact assessment. https://www.ifad.org/ifad-impact-assessment-report-2021/assets/pdf/impact/Tajikistan/BAR_TAJIKISTAN_RI_REPORT.pdf

³ CASP+ **Annex 18f**. Rapid assessment of pasture conditions in IFAD-funded project in Khatlon region, showing a/ generalized lower degradation patterns; b/ no change or slight degradation on autumn pastures; and c/ Isolated cases of degradation in spring pasture.

⁴ "Declined by 29 per cent as a result of participation in LPDP II for beneficiaries compared to the comparison group." (ibid)

⁵ [Tajikistan-Pilot Program for Climate Resilience \(PPCR\) - Tajikistan](#) Pilot Programme for Climate Resilience supported by the Climate Investment Fund. n

⁶ SECAP's Appendix 6: Integrating Agro-Ecological Principles in CASP+.

from land use and the production of feed, through emissions from animal production to emissions related to processing and transportation of products to the retail distribution point. Globally, ruminant supply chains are estimated to produce 5.7 gigatonnes CO₂-eq per annum representing about 80 percent of the livestock sector emissions. Emissions from beef and milk production represent respectively 35 and 30 percent of the livestock sector emissions (equivalent to 4.6 gigatonnes CO₂-eq).⁷ The project's theory of change is premised on the evidence the farmers can transform their production practices to low emissions pathways and adopt production practices more adaptive to climate change and reduction in emissions with guidance and support. Without the project, the upward trend of livestock will continue and the trends of the last 5-10 years that show annual growth rates of 2% for cattle and sheep and 1% for goats are likely to continue. There are several methodologies that can be adopted that result in lower emissions and at the same time maintains or increases productivity. With the extensive grazing system largely relying on pastures vulnerable to temperature increase and shifting rainfall patterns, livestock productivity is very low. The damages of climate change to the rural ecosystems (pasture and forests mostly) require communities to take **adaptation and mitigation measures, including pasture management plans and husbandry practices** tailored to the carrying capacity, stipulating resting periods and rotational grazing to enable regeneration, etc.⁸ **Investments in climate resilient pastures and agroforestry** have the potential to restore damaged ecosystems, reduce GHG emissions, enhance carbon sequestration, reduce erosion and limit risk from mudflows, landslides and soil loss. Specifically, CASP+ will adopt a three-pronged approach for livestock investment: improving feed, breeds, health plus pasture management. Besides community investment in the CsCAPs in **output 2.2**, under output **3.1 the project will support** improvement of the genetic potential of smallholder farmers' livestock and the adoption of climate resilient innovative technologies (introduction of fodder varieties and conservation, manure management, through demonstrations and FFS). Genetic improvement is expected to encourage commercial and smallholders to switch from low yield animals to higher and more efficient stock. This is also expected to encourage reduction in herd size thereby helping to reduce GHG emissions. Climate-sensitive livestock practices promoted by CASP+ (comprising improved pasture management, better fodder production including by using climate resilient varieties, and fodder conservation, silage preparation techniques and better manure management), and promotion of livelihoods diversification will ultimately improve animal resilience and contribute reducing emissions from livestock practices (better pasture conditions, better productivity, reduction of inventories, lower emission intensity).

9. The average farm size is small with limited household resources to invest in productive infrastructure. The physical and productive infrastructure in rural areas which can help enhance the resilience of smallholders, is dilapidated and despite a commitment at strategic and policy level,⁹ the public sector is still failing to invest on a substantial scale and depth in them. However, **communities have the commitment and incentive to organize and form groups and undertake collective action to solve issues associated with their productive and common property resources.** The experience of previous projects financed by IFAD (the Khatlon Livelihoods Support Project, KLSP; Livestock and Pasture Development Project, LPDP – Phase

⁷ [Greenhouse gas emissions from ruminant supply chains. A global LifeCycle Assessment. FAO. 2013.](#)

⁸ [Strategy to Adapt and Mitigate Potential Impacts of Climate Change on Livestock Production Systems in Tajikistan. MSU and Tajik Academy of Agriculture Sciences. 2011](#)

⁹ Ibid.

I and II)¹⁰ shows that communities have been very effective in organizing and preparing collective action plans and implementing a range of sub-projects which can help them improve the productivity of their resources and make their livelihoods more climate resilient through improved adaptive skills and diversification into off-farm enterprises. The projects had environmental objectives linked to the restoration of degraded pastureland through pasture rotation plans implemented by the Pasture User Unions (PUUs). A successful approach at the village level has been the formation of broad-based Village Organizations which can organize local households and help identify village priorities and participate in the implementation of a range of investments at the village level (a model tested successfully by the Mountain Societies Development Support Programme - MSDSP). According to the KLSP evaluation,¹¹ the success of the approach was to establish and strengthen village organizations as agents for rural development and governance with the capacity to devise and implement innovative strategies for pasture management. KLSP's evaluation (IFAD, 2021) confirmed that the village level institutions are likely to continue playing a key role as rural agents of change. Building on these, CASP+ will complement the successes of community mobilization for transformative integrated ecosystem restoration.

10. Forests perform an essential function in regulating the water balance and providing protection against natural disasters. Also, forests play a key role in the lives of Tajikistan's rural population. Firewood, fodder, medicinal plants, fruit and nuts can be sold locally at a profit and represent an important source of income diversification. Following the collapse of the Soviet Union, large areas were deforested to meet the need for fuelwood. This now makes the country more vulnerable to climate hazards and exacerbates climate change's negative impacts. Conflicts over land use between forestry offices and the local population also continue to lead to overuse and degradation of forest areas. Rehabilitating and protecting forests is therefore of vital importance in the process of adapting to climate change. The involvement of local people in resolving land use conflicts and managing the forests sustainably in a number of pilot areas has helped to slow the rate of forest degradation and promote the rehabilitation of existing forests. ***Participatory management models bring about a paradigm shift in how forests are managed through Joint Forest Management (JFM) under which forest land is leased to local communities over the long term.***¹² Those leasing the lands are allocated plots by a community-based committee and use their own labour to plant the trees according to management plans which are jointly made with the local Leskhoz, who also organize the other activities such as nurseries, fencing, site preparation and irrigation and will share the resulting produce. ***Biodiversity conservation is also contributing to the rehabilitation and long-term stability of forests and mitigating the negative impacts of climate change and carbon sequestration.*** Communities are being encouraged to work out agreements designed to prevent conflicts of interest between forest and pastureland users. This is because forests and pastureland are often in competition with each other. Women can supplement their incomes from the processing and marketing of non-wood forest products. While, the country does not yet have the policy in place to enable carbon trading, there is potential to work with a range of new partners who can put in place mechanisms for trading carbon credits on the voluntary carbon market for

¹⁰ IFAD's Independent Office of Evaluation has conducted an evaluation of KLSP, published in 2021 – available here https://www.ifad.org/documents/38714182/42864434/tajikistan_1100001408_ppe.pdf/ec8d562b-9646-a384-00c7-bb3d2429c649?t=1623402705705. Annex 18 includes also the Project Completion Report of the LPDP, and the evaluation of LPDP II.

¹¹ IFAD, 2021 - " https://www.ifad.org/documents/38714182/42864434/tajikistan_1100001408_ppe.pdf/ec8d562b-9646-a384-00c7-bb3d2429c649?t=1623402705705, reported in Annex 18.

¹² GIZ, 2020. Adaptation to climate change through sustainable forest management

the benefit of smallholders and provide them payments for ecosystem services. IFAD is beginning to develop its approach to carbon trading which could provide additional incentives for smallholders to drive sustainable change.

11. ***At the household level, livestock is a key component of the mixed farming systems and contributes significantly to agriculture GDP, food security, nutrition and household incomes. While livestock herd size has grown from 70% to 116% for the different species from 1991 to 2019¹³, productivity of the sector is extremely low due to poor feeding, low genetic potential, inadequate herd management, poor animal health, etc.*** The livestock sector in the country also displays poor reproductive performance. This has a major direct impact on carrying capacity and over-utilization of pastures, on the water footprint and GHG emissions, since around 40% of adult cows utilizing the pasture resource base are unproductive (Annex 2 Feasibility Study). This proportion could be reduced to 20% to 25% with proper herd management. There is strong demand and interest from smallholder farmers for techniques that contribute to intensifying production systems, such as improved breeding, fodder production and improved animal health. Improvements in feed quality, animal health and husbandry, coupled with stimuli to diversify livelihoods could lead to increased productivity, along with gradual reduction of the livestock population and related emissions.¹⁴ There is a significant opportunity to reduce GHG emissions, particularly methane emissions from enteric fermentation. Tajikistan has an important potential to reduce its emissions through improving feeding practices and digestibility of diets; improving yields through genetics, feeding practices and animal health, and overall animal management. High-quality veterinary services can provide the basis for increasing animal productivity, improving the detrimental health impacts of climate change¹⁵ and reducing greenhouse gas emissions. ***Incentives to reduce herd growth are critical elements to adaptation and typically include investments in more productive animals.*** Other measures include ***fodder production techniques, AI campaigns with a large outreach but limited logistical burden, improving skills through Farmer Field Schools as the appropriate tool to enhance climate sensitivity at community level and adoption of adaptation techniques including on livestock related issues in the Tajik context.***

12. **Private Sector Engagement:** CASP+ envisages a key role for the private sector through helping to reduce their transaction costs in dealing with rural communities. IFAD has extensive experience of attracting the private sector in its project areas for the benefit of the smallholder by helping to organize communities so that their fragmented production is consolidated. The project intends to facilitate business partnerships or Productive Alliances between groups of smallholder farmers and private sector actors (e.g. aggregators, processors) for a range of value chains. The main rationale for this activity is the need to create incentives for more efficient livestock production. CASP+ will facilitate market linkages through ensuring the private sector a minimum volume of produce and the specified quality through helping them to build linkages with private sector input suppliers and wholesalers and retailers. The TOC is premised on the experience that these linkages require initial facilitation for holding consultation meetings with potential Productive Alliance partners such as producer groups and business operators. In addition, some of the producers also require technical assistance through a specialized service provider to help in the development of feasibility studies and business plans. Once these are established the interaction

¹³ Agency on Statistics under the President of Tajikistan. "Agriculture of Tajikistan". 2020 & Tajikistan in figures. 2020

¹⁴ Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities, FAO, Rome.

¹⁵ Climate change and animal health Juan Lubroth Animal Health Service, FAO, Rome

and linkages between the private sector and producer groups become sustainable through formal contracts and mutually beneficial partnerships. Discussions with the Private sector during the development of the FP indicated that the private sector is interested in building partnerships with CIGs as long as they are assured of good quality produce and production at scale.

13. **Access to Finance:** The project will not directly provide credit lines but will facilitate access to financial resources for its target beneficiaries through facilitating their links with existing financial services providers and with new and emerging opportunities for access to finance. Local currency financing of long-term maturity is scarce in Tajikistan given that domestic microfinance institutions have been exposed to a foreign currency risk as their source of funds were designated in foreign currency. However, IFC has recently provided one of the leading microfinance institutions namely IMON with local currency funds which will help increase and diversify lending activities and expand the microfinance network. CASP+ will facilitate linkages with such microfinance agencies in the project districts. IFAD will also liaise CASP+ with its EU-funded Action titled “Platform for Remittances, Investments and Migrants’ Entrepreneurship in Central Asia” (PRIM which is designed to promote faster, safer and cheaper transfer of remittances, as well as leveraging these flows to advance digital financial inclusion and income-generating activities.

14. **Voluntary Carbon Markets:** IFAD is currently also developing its strategy for entering carbon markets which can in the future help projects like CASP+ which have a significant potential for carbon-sequestration through its forestry and agro-forestry activities. As an organization committed to the alignment of its operations with the Paris Agreement and the global efforts to address climate change, IFAD has been focusing increasingly on the part it can play in helping smallholders adapt to climate change and reducing Green House Gas (GHG) emissions and carbon sequestration. IFAD can increasingly capitalize on the new opportunities which have opened up through which it can help translate its efforts in adaptation and mitigation into increased productivity, food security, incomes and employment for its primary target group, the small-holders and those most vulnerable to climate change. IFAD can learn from the experience of others in this arena who have developed successful pathways through, for example, making direct payments to farmers in many projects dealing with agroforestry, soil and water conservation, etc. Ensuring fair payment to farmers for payments for ecosystem services (PES) and their contribution is a way to ensure IFAD investments will result in sustainable change. IFAD can potential introduce some of these measures into CASP+ through partnerships with RaboBank which it is currently piloting in Ethiopia.

15. In order to bring about some of these changes, it is critical to enhance the ***technical capacities of national livestock institutions*** to ensure efficient provision of public animal health and production services to smallholder farmers through partnership between public and private institutions. Provision of breeding services will play a key role by allowing farmers to improve the productivity and value of animals, which will compensate for the reduction of numbers. This will also have a significant impact on emissions from the livestock sector. Dissemination of technical innovations on fodder production and conservation will support the shift to reduced dependence on pastures. Further, the project will provide pastoralists with enhanced confidence that their livestock capital will not be eroded by excess preventable mortality and that increased productivity will more than compensate for a smaller herd. This will be undertaken through the incorporation of measures recommended by the World Organisation for Animal Health (OIE) on veterinary public health, animal welfare, separation of powers between public and private veterinarians, creating an appropriate business environment for the development of private veterinary services, and controlling the use of veterinary drugs and management of biological waste disposal processes. Providing technical assistance to Veterinary Authorities in policy formulation and

strategy implementation, improving veterinary legislation with an emphasis on the development of private veterinary services and strengthening the potential of the leading educational institution - Veterinary faculty of the National Agrarian University can help to achieve these objectives. Reforming the system of veterinary service provision is critical for enhancing the productivity of the livestock sector. This can be facilitated by change in the legislative frameworks for the development of private veterinary practice. The experience of other countries also shows that livestock productivity and production systems can be transformed by developing the institutions responsible for the development of private veterinary services such as the Veterinary Associations and the Veterinary Statutory Body. Bringing the curriculum for veterinary education in line with international standards and by enhancing the competence of the graduates of the Faculty of Veterinary Medicine will allow the sustainable development of the veterinary system in general and the provision of quality services to the animal owners by graduates.

Key assumptions and risk mitigation strategies

16. Some of the key assumptions underlying the project is that there is strong political ownership and high level of commitment for reform and improved governance of natural resources in the country. However, there is strong indication that CEP and the MoA are committed to improved management of natural resources. It is also assumed that there is sufficient understanding and data on climate change which can be provided as actionable intelligence to farming communities and decision-makers for planning and resource allocation. The project also provides for this further analysis at the outset in the planning of the community action plans to form the basis of planning and investments at the village level. There is also an implicit assumption that there is enough cohesion and willingness among communities to participate in climate action plans for making their livelihoods more sustainable. This is a valid assumption because the local communities have a long history of collaborating in the previous models where households worked together in collective state and peasant farms in the country. More recently many development partners such as the Mountain Societies Development Support Programme have organized the local farming communities into village organizations to work on collective projects. The local government system has also established a local tier termed the Mohalla Committee which is the basic building block of collective work at the hamlet level. A key assumption is the availability of climate resilient and green inputs and technologies for ready use by the private sector. The project will play an active role in facilitating linkages with the private sector to encourage them to supply the needed inputs. Another related assumption is that households would be interested in grouping together in Common Interest Groups (CIGs) to facilitate joint production and marketing. Experience in the country has shown that farming households do get together for many collective tasks and as long as the ownership rights and responsibilities are clear and each participating household gets commensurate benefits there is a commitment to form groups. Discussions with the Private sector during the development of the FP indicated that the private sector is interested in building partnerships with CIGs as long as they are assured of good quality produce and production at scale.

17. ***The theory of change for scaling up the scope and impact of the project in a cost-effective and efficient manner*** is based on several key and well tested assumptions that have proved the test of time (see also **Table 1**. Climate Stressors and Project Interventions); (i) the focus of the project on institutional strengthening, policy reform and capacity building is expected to have impact at the national level and well beyond the selected project districts; (ii) the

incorporation of climate change in the curricula of the academic and vocational institutions will be used for teaching and training to students and professionals on a regular basis for coverage across a range of sectors; iii) the establishment of a system of private veterinarian service is expected to be sustained by the demand for the service due to increased livestock productivity, reduced morbidity and mortality; (iv) the institutional strengthening of PUUs and the investments that they make are expected to be sustained beyond the project period and lead to scaling up of some of the successful management systems by the PUUs with reform in pasture laws which gives strong incentives to communities to manage the pastures; (v) the strengthening and diversification of livelihoods will generate multiplier effects that will increase incomes and employment in rural areas and the (vi) the engagement with the private sector will increase access to market for smallholders and help to forge strong and growing opportunities for both.

Table 1. Climate Stressors and Project Interventions

Sector	Climate Risk	Proposed Intervention
Ecosystem and natural resources affected by climate change stressors		
Fragility of mountain environments	Fragility of mountain areas to increased temperatures, unpredictable and heavy rainfall that leads to mudslides causing damage to farm terraces, crops, buildings, assets and infrastructure. At least 10% of Tajikistan's population is living on degraded lands, while soil erosion affects about 70% of arable land.	Enabling environment for climate adaptive, inclusive and integrated management of pastures, forest and livestock resources (output 1.2). Technical assistance in undertaking a comprehensive climate change analyses at district level, and a road map for transforming development planning for propagating green growth in public sector projects that promote paradigm shifts for efficient use of natural resources (output 2.1). An innovative framework for identification of climate-related challenges at district level (output 2.1), such as the District Climate Resilience Diagnostics (DCRD) to support planning at district and village level through better understanding of climate stressors, and to identify a portfolio of investments that protect and make local communities more resilient through Climate-sensitive Community Action Plans (CsCAPs) (output 2.2).
	The mean annual precipitation is projected to decrease by an average 5% by 2030 and there are sudden increases in temperatures that impact patterns of glacial snow melt. The unpredictable river water flows increases risks of flooding, mudslides and unpredictability of water supplies for both irrigation and domestic use.	Based on the evidence emerging from the DCRD (output 2.1), identification of infrastructure schemes that improve water availability such as irrigation schemes and provision for protective works to prevent flooding and mudslides through the CsCAPs (output 2.2)
Increased vulnerability of crops and livelihoods	Increase in temperatures and unreliability of precipitation leads to reduction in crop yields and increased irrigation demand (especially for rice, wheat and sunflower).	Based on evidence emerging from the DCRD (output 2.1), identification of schemes and required agriculture equipment for productivity improvement through the CsCAPs mechanism that can assist small producers deal with the detrimental impact on crops (output 2.2). Research institutions and private sector will be invited to present proposals for the production of technical innovations (output 1.1). These practices will then be disseminated to the target beneficiaries, and scaled up through private markets (output 3.3).

Sector	Climate Risk	Proposed Intervention
Growing degradation of Pastures	<p>Degradation of pastures due to the extensive grazing system largely relying on pastures vulnerable to temperature increase and shifting rainfall patterns. A temperature increase of 2-4°C in February and March can lead to 20% decrease in winter/spring pasture productivity, a decline that is greatly exacerbated during dry spells.</p>	<p>Strengthen Pasture Users Unions (PUUs), Pasture Users associations (PUAs) and Pasture Commissions (PCs) – as their apex bodies (output 2.1) in developing pasture management plans and husbandry practices tailored to the carrying capacity, stipulating resting periods and rotational grazing to enable regeneration of pastures.</p> <p>The project includes also an innovative set of incentives (output 2.2) for improved productivity of pastures through a community-managed system for reinforcing improved pasture governance (PUU self-managed incentives for improved productivity of livestock and reduced animal inventory growth).</p> <p>Restored rangeland represent a substantial source of carbon sequestration (above and below ground).</p>
Land and forests degradation	<p>Forests are deeply impacted by climate change.¹⁶ Climate change can create new habitats for tree species and make existing habitats unsuitable. Some trees could go extinct, especially those with small survival range in terms of temperature and precipitation needs. Climate change is creating warmer temperatures, deeper droughts and drier vegetation which leads to an increase in the extent of forest fires. Droughts lead to high tree mortality due to carbon starvation and depletion of energy sources and become more vulnerable to pests and pathogens.</p> <p>In addition to these factors, several other factors have been responsible for deforestation which are linked to poor governance, lack of community approaches, over-exploitation and climate hazards. The current state of the forests now makes the country more vulnerable to climate hazards and exacerbates climate change's negative impacts.</p>	<p>The areas covered by forest is the land cover type with less erosion in Tajikistan. Only 8% of the actual forest land is situated in the project area, however it includes more than 21% of the potential area for reforestation of the country.</p> <p>The project will invest in the innovative and climate adaptive Joint Forest Management (JFM) approach tried previously by several agencies. Under JFM, forest land is leased to local communities for use of non-timber forest products. Forests produce wide range of ecosystems including reduced risks of erosion and limit risk from mudflows, landslides and soil loss (output 2.2), besides generating carbon sequestration.</p>
Increased vulnerability of Livestock	<p>Climate variability can impact livestock through its impact on fodder and forage availability, degradation of pastures, stimulate emergence of diseases in livestock and introduce new disease vectors, etc.¹⁷ Low productivity has a major direct impact on carrying capacity and over-utilization of pastures, ultimately a missing opportunity for carbon sequestration through pasture improvement.</p>	<p>Strengthen the technical capacities of national livestock institutions to ensure provision of animal health and production services to smallholder farmers, and strengthening the potential of the leading educational institution - Veterinary faculty of the National Agrarian University (output 1.1).</p> <p>Development of private veterinary services and providing technical assistance to Veterinary Authorities in policy formulation, improving veterinary legislation with an emphasis on the development of private veterinary services (output 1.1).</p> <p>Enhance breeding services and incorporation of measures recommended by the World Organisation for Animal Health, OIE (output 1.2).</p> <p>Provide smallholder livestock farmers Artificial Insemination (AI) services, animal health and</p>

¹⁶ [5 Ways Climate Change Impacts Forests. August 2021.](#)

¹⁷ As reported in Annex 2, Chapter 1, climate change is lowering productivity of the livestock sector productive and reproductive capacity.

Sector	Climate Risk	Proposed Intervention
		<p>training services to increase productivity of livestock (output 3.1).</p> <p>Introduce incentives which reward smallholders which adopt enhanced productivity measures such as culling of unproductive animals. CASP+ will introduce an innovative scheme designed to increase animal productivity, reduce livestock numbers without sacrificing yields or income (output 2.2).</p>
<p>The livestock sector and its value chains contribute to about a sixth of greenhouse gas (GHG) emissions globally and around 30% in Tajikistan.</p>	<p>Climate risks lead to farmers holding larger stock of low productivity animals as they try to mitigate the risk from disease and high mortality. Availability of fodder is also impacted by climate change which further leads to poor feeding practices and contributes to poor digestibility and increase GHG emissions from enteric fermentation.</p>	<p>Improving animal feed digestibility and improved management practices that can help reduce emissions (output 2.2, output 3.1, output 3.2).</p>
<p>Decreasing forage Production</p>	<p>Forage production is decreasing because of climate trends which are contributing to declining soil fertility, variable patterns of water availability, and more frequent and severe drought episodes. Farmers have limited knowledge and technical support in production and conservation of forage. Climate Change will have far reaching consequences for dairy, meat and wool production mainly arising from its impact on grassland and pastures.</p>	<p>Dissemination of technical innovations on fodder production, feed preparation and conservation will support the shift to reduced dependence on pastures (output 2.2).</p>
<p>Limited Access to climate finance</p>	<p>Perception of high risk and limited ability to attract finance due to high risks of climate change.</p>	<p>Link the project beneficiaries to formal sector institutions which can provide access to financial services such as the Platform for Remittances, Investments and Migrants' Entrepreneurship in Central Asia – PRIME Central Asia to increase access to formal remittances and expand digital financial inclusion of migrants, remittance recipient families and returnees, with a focus on women and youth in rural areas.</p>
<p>Additional socio-economic challenges exacerbated by climate change stressors</p>		
<p>Poorly developed value chains of perishable products with limited links to markets.</p>	<p>Current production systems are not adapted to climate change risks, incur high production and post-harvest losses and are not integrated with market opportunities. It is estimated that 30% of food is lost in developing countries from harvest to processing due to climate factors and poor links to markets that exacerbate the situation.</p>	<p>An innovative system of establishing productive alliances which build smallholders capacities in climate resilient production practices and promote business opportunities for small producers by developing linkages between smallholders and private sector actors (output 3.1).</p> <p>The collection of milk through establishing milk collection centers (output 3.1) can potentially transform the dairy production system leading to change in the practice from open grazing to stall feeding, demand for higher productivity animals with greater focus on animal health and hygiene and reduction in the number of low productivity animals. The establishment of the centres will also reduce loss and waste of dairy produce.</p> <p>The linkage with the private sector will also open up the possibility of accessing new technologies that are increasingly becoming available in the market such as more efficient irrigation systems such as drip, sprinkler, waterboxxes, solar panels for</p>

Sector	Climate Risk	Proposed Intervention
		<p>generating energy and simple green-house technologies (as part of the Common Interest Group support under output 3.3).</p> <p>In addition, discussions will also be held with the private sector (output 3.2, output 3.3) to assess the potential for value chain financing (including financial institutions providing climate-sensitive products) especially as part of the milk collection system in which farmers can be paid upfront to secure the milk supply and to enhance the feed for enhanced dairy production, or common interest groups with other agricultural and value addition activities.</p>
Gender imbalances in access to and control over productive resources.	Women are extremely vulnerable to the effects of climate change due to the fact that they are responsible for many of the tasks which are impacted by climate threats such as access to food, fuels for cooking, water for domestic purposes and fodder for stall-feeding animals.	A Gender Action Plan that encourages participation of women and enhances their access to improved practices and technologies, in management of community and mountainous ecosystems (output 2.2) and in the managing economic assets and entrepreneurial activities (output 3.2) especially since women face the brunt of climate risks.

Figure 1. Theory of change CASP+

