

GCF FP Annex 7

## Stakeholder Engagement Report and Plan

Khatlon, GBAO, DRS, Sughd Regions



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## Executive summary

**Objective:** To ensure inclusive, participatory, and locally informed design of climate adaptation interventions by engaging communities, local authorities, technical institutions, and other stakeholders across the target districts.

The Stakeholder Engagement Report and Plan (SEP) will be updated during the project inception phase and periodically throughout implementation as needed to reflect stakeholder feedback, implementation progress, emerging risks, and lessons learned. Updated versions of the SEP will be disclosed through appropriate local channels and shared with relevant stakeholders within six months of project effectiveness and thereafter as required.

**Methodology:** Four interface workshops were delivered both in person and remotely across target regions. Facilitated by WFP Tajikistan and the Committee for Environmental Protection under the Government of Tajikistan, technical presentations were made, and WFP supported the organisation of two working groups in each area. Overall, 182 participants from various state institutions took part in stakeholder engagement workshops conducted in four regions/groups of districts, including: state institutions (regional and district levels), Regional and district executive authorities, Committees under the Agency for Land Reclamation and Irrigation, Committee for Land Management and Geodesy, Committee for Environmental Protection, Forestry Agency, Committee of Emergency Situations, Committee on Women and Family Affairs, Committee on Youth and Sports. The workshops also included representatives of NGOs and development partners. The workshops took place between January 13 and January 22 across all regions. Community consultations were conducted across all 14 target districts in three regions and the Districts of Republican Subordination (DRS). The consultations included Focus Group Discussions (FGDs) and individual interviews with farmers, local government authorities, and other key informants, totalling 254 respondents.

Preliminary screening undertaken during project preparation did not identify activities expected to adversely affect Indigenous Peoples as defined under the GCF Indigenous Peoples Policy. Nevertheless, the project will continue to apply the principles and requirements of the GCF Indigenous Peoples Policy throughout implementation. During project inception and subsequent implementation phases, additional screening and stakeholder consultations will be conducted as needed to ensure that vulnerable and traditionally underserved communities are meaningfully consulted and able to participate in project activities in an inclusive and culturally appropriate manner.

The IP screening was conducted through a desk-based review of national legislation, a comparative assessment against the substantive criteria of the GCF Indigenous Peoples Policy (2018), and targeted stakeholder consultations in GBAO and the Districts of Republican Subordination (DRS). In these regions, ethnic minority communities are most prevalent. While Tajikistan does not formally recognize Indigenous Peoples categories under national law, the screening specifically examined whether communities in project target areas — including Pamiri, Shughni, Rushani, Wakhi, and Yaghnoobi groups in GBAO and DRS — meet the functional criteria of the GCF IP Policy, including distinct identity, collective attachment to ancestral lands, and customary institutions. Based on this review, no project activities are expected to trigger the GCF IP Policy. However, if additional concerns

emerge during the project inception phase or through community consultations, WFP will develop a supplementary Indigenous Peoples Engagement Plan in consultation with the relevant communities and in accordance with GCF requirements.

This report summarises the outcomes of stakeholder engagement workshops conducted in January 2026 across Khatlon, Sughd, GBAO and the Districts of Republican Subordination (DRS) to inform the development of a Green Climate Fund proposal. The workshops brought together 182 representatives from national and local government institutions, NGOs and development partners to identify climate risks, barriers to adaptation, vulnerable groups and regional priorities for strengthening climate resilience in agriculture and natural resource management.

Climate change is already having significant impacts on Tajikistan's agriculture-dependent economy, where most rural livelihoods rely on irrigated farming and pasture resources. Rising temperatures, reduced snow cover and accelerating glacier melt are altering the timing and availability of water, increasing the frequency of droughts, floods and heatwaves. Dust storms, pest outbreaks, declining water quality, soil salinization and land degradation are becoming more common, placing growing pressure on agricultural productivity and rural incomes. Climate-related disasters have already caused substantial economic losses and are expected to reduce agricultural yields and long-term economic growth further if adaptation measures are not scaled up.

While these challenges are nationwide, the workshops highlighted important regional differences. In Khatlon, prolonged droughts, heatwaves, floods and severe pasture degradation are affecting the country's main livestock and crop production areas. In Sughd, increasing water scarcity, heavy reliance on ageing pumping systems and growing competition for glacier-fed water are major concerns. In GBAO and the DRS, mountainous terrain combined with glacier retreat is intensifying floods, landslides, and erosion, and isolating remote communities. Across all regions, participants reported declining water reliability, rising pest pressure and increasing land degradation.

Stakeholders also identified major barriers that limit the adoption of climate-resilient practices. Farmers face limited access to climate information and weather forecasting, affordable finance, quality seeds and modern technologies. A shortage of agronomists, weak extension services and limited availability of agricultural machinery further constrain productivity and adaptation. Existing responses, such as canal cleaning, tree planting, and limited use of water-saving technologies, remain small-scale and insufficient in the face of the rapidly growing impacts of climate change.

The workshops placed strong emphasis on identifying the most vulnerable groups. Smallholder farmers, livestock-dependent households, women-headed households, remote mountain communities and rural youth were identified as particularly exposed to climate risks. These groups often have limited access to irrigation water, land, finance and climate-resilient technologies, making it harder for them to adapt. Climate-related income losses are already contributing to increased migration and to the weakening of the long-term sustainability of rural communities.

Across regions, stakeholders highlighted a shared set of priorities for strengthening resilience. These include improving water resource management through irrigation rehabilitation, water storage, and

water-saving technologies; promoting climate-resilient agriculture through drought-tolerant crops, greenhouses, and soil health practices; restoring ecosystems through reforestation, pasture rehabilitation, and riverbank protection; and strengthening institutional capacity, training, and access to climate information. Together, these actions form a comprehensive pathway to support climate-resilient livelihoods, protect natural resources and strengthen food security across Tajikistan.

Community consultations indicated that similar climate-related challenges are observed across all regions, although the severity and importance of specific problems vary by district. For example, communities in Khuroson and Temurmaliik particularly emphasised the vulnerability of rainfed agriculture to drought, extreme heat waves, dust storms, and irregular rainfall. In Temurmaliik, where most agricultural land is rainfed, participants highlighted that extreme heat and rising temperatures, especially during the period from 20 June to 20 August, severely affect crop production and increase the risk of harvest losses. Communities also noted that some land officially registered as irrigated has effectively become rainfed due to growing water scarcity and unreliable irrigation supply. In Panjakent, farmers reported that high temperatures now begin as early as March instead of May and June, increasing pressure on already limited water resources. In Lakhsh, farmers stated that irrigation water shortages can delay watering cycles for up to 15 days during the growing season.

Extreme weather events are becoming more frequent and severe. In Roshtqala, a recent windstorm damaged the roofs of 72 houses. At the same time, farmers in Panjakent said floods affected agricultural land three times in one year, preventing some households from even completing the first planting season. In Sangvor, communities reported that seasonal movements of sheep and goat flocks from other parts of Tajikistan often do not follow agreed-upon grazing regulations. Participants explained that livestock are frequently moved to mountain pastures too early, before grazing areas are ready, and in numbers far exceeding the agreed numbers; for example, instead of the agreed 20 herds, up to 60 herds may enter grazing areas. According to communities, this is contributing to severe overgrazing, pasture degradation, and reduced grazing availability for local livestock owners.

Participants also raised concerns about weak enforcement of ecological requirements and environmental impacts linked to economic activities along river systems.



*Community consultations in Temurmaliik and Vose*



Across all districts, communities identified improving access to water as the top priority, including the rehabilitation and construction of irrigation canals and reservoirs, the installation of pumps, riverbank protection, and the introduction of water-efficient technologies such as drip irrigation. Communities reported that Water User Associations (WUAs) generally have low institutional and technical capacity, yet they still provide important services, such as water distribution and maintenance of irrigation systems. Not all communities have functioning WUAs. WUA representatives complained about farmers' low payment of membership fees, while farmers often expressed dissatisfaction with the efficiency and quality of services provided by WUAs. Current irrigation water tariffs in Tajikistan are approximately USD 0.055/m<sup>3</sup> (USD 0.045/m<sup>3</sup> water fee paid to ALRI and USD 0.009/m<sup>3</sup> WUA membership fee). In practice, however, actual payments by farmers are significantly lower due to non-volumetric charging and partial cost recovery, typically amounting to around USD 50–60 per hectare per year. Experience from Helvetas-supported WUAs in the Sughd region indicates that sustainability can be significantly strengthened through targeted capacity building, including realistic budgeting, transparent financial management, accurate water measurement, preventive O&M planning, and strengthened governance and conflict-resolution mechanisms.

Income diversification was identified as another key priority to reduce dependence on climate-sensitive agriculture. Communities highlighted opportunities in livestock production, greenhouse farming, food processing, beekeeping, small businesses, fruit drying, and production of value-added products. In addition, improved access to climate information and early warning systems for floods, droughts, and other hazards was considered essential to enhance preparedness and reduce climate-related risks.

Overall, the consultations demonstrate that climate change is already having severe impacts on livelihoods, food security, and natural resources in the target districts. At the same time, communities showed strong willingness to participate in adaptation efforts through labor contributions, local organization, and co-investment where feasible, highlighting significant potential for locally led climate resilience interventions.

## **Climate change, threats and vulnerabilities**

### **Common national trends**

Agriculture is a key sector in Tajikistan, providing livelihoods, food and income for most rural households; it employs over half of the labor force, contributes about 19% of GDP, and supports the 73% of the population living in rural areas. About 34% of Tajikistan's land (4.7 million hectares) is used for agriculture. This includes 2.8 million hectares of pasture and about 867,700 hectares of cropland. Around 70% of cropland is irrigated, underscoring agriculture's dependence on water resources.

Agriculture is also a major source of greenhouse gas emissions, contributing about 27% of total national emissions. Tajikistan is already experiencing climate change. Temperatures are expected to increase by about 0.5–1.0°C in the period 2021–2030. Climate-related disasters already cause large

economic losses. For example, extreme weather caused about USD 600 million in damage in 2010 (around 4.8% of GDP). On average, climate disasters accounted for 7.4% of GDP losses between 1996 and 2015. In the long term, climate change could reduce Tajikistan's GDP by up to 15% by 2100. Agriculture is highly vulnerable to these impacts. Around 14% of arable land is affected by salinity, including 3.5% that is moderately or severely saline. Crop yields for grains, vegetables and fruits are expected to decline by 5–10% by 2050<sup>1</sup>.

The impacts of these challenges were reflected in the stakeholder engagement workshops conducted in January 2026. Common challenges highlighted across all workshops include rising average temperatures, sharp seasonal temperature fluctuations, and reduced snow cover due to changing glacier melt patterns. These trends are increasing summer water scarcity and making heat waves more frequent and intense, causing heat stress for crops and livestock. Dust storms, pest



outbreaks, and other climate-related hazards are becoming more common, creating growing risks for agricultural production and rural livelihoods. The reduction of glaciers and snow cover is causing acute shortages of irrigation water during the growing season. Faster snowmelt is increasing the risk of spring floods while leading to summer water shortages. Mudflows frequently damage irrigation canals and agricultural land, further weakening water supply systems. Rising temperatures are increasing the demand for irrigation water and intensifying seasonal water deficits. At the same time, poor drainage is causing waterlogging and higher soil salinity, while agricultural runoff from fertilisers and pesticides is degrading water quality and contributing to secondary salinisation, exacerbated by inefficient irrigation and poor infrastructure. At the same time, climate risks differ across the north, south, southwest lowlands, river basins and mountain areas, and these differences were reflected in the workshops.

### Specifics of the regions

**Khatlon Region:** the workshop was conducted in January 13, 2026 and brought together 62 people representing Khatlon regional Government office, agro-technical specialists, Statistics, Committee of Environments protection, Ecology, Committee of Women and family affairs, Committee of Youth and Sports, CoES, Water resource management Unit, Committee on Land Management and Geodesy, Public Organizations (women-led POs), Organizations of People with Disabilities (OPDs), Committees under the Agency for Land Reclamation and Irrigation from Muminobod, Temurmalik, Vose, Danghara, Qubodiyon and Khursoon districts, Committee for the Environmental protection under the Government of Tajikistan and WFP Tajikistan.

Workshop participants highlighted that Khatlon, the country's main livestock and dairy production region, is highly vulnerable to climate change. Participants reported prolonged dry periods, frequent



droughts and heatwaves that increase water stress and reduce the productivity of rainfed crops. Dust storms were noted to damage fruit trees, vegetables and cotton, while rising pest infestations and cobweb outbreaks increasingly spoil crops before harvest.

The four target districts of Khatlon Vose, Temurmalik, Qubodiyon, DangaraR, and Khuroson are part of the Vakhsh river basin, and due to glacier melt, intense rainfall, river sedimentation, and weak riverbank



*Group work*

protection, they are at high risk of flooding between March and June. Rivers in Khatlon carry large sediment loads from eroding slopes, causing river overflow, flash floods from mountain catchments, mudflows and irrigation canal overtopping. In the Vose district, cotton and vegetable fields are at high risk of flooding and in the spring, sedimentation of irrigated canals. In Temurmalik, villages located along seasonal rivers are at risk of orchard and pasture loss and of road and bridge damage. Poor drainage was identified as a key challenge, leading to waterlogged, saline soils that degrade crop quality and yields. Qubodiyon, located in the lower Vakhsh/Panj floodplain, is prone to hazards such as flooding from major rivers, rising groundwater levels, and waterlogging, which cause cotton and wheat losses and damage to pumping stations. Overall, floods regularly damage agricultural land, irrigation systems and rural infrastructure, with Qubodiyon and Khuroson exposed to large river flooding and Temurmalik highly vulnerable to flash floods and mudflows from mountain catchments.

Participants also stressed severe pasture degradation: pasturelands in Vose, Temurmalik, Qubodiyon, Dangara, and Khuroson districts of the Khatlon region are experiencing increasing degradation driven by overgrazing, climate change, and limited access to remote grazing areas. Since seasonal herd mobility declined, livestock grazing has become concentrated on easily accessible pastures near villages, leading to vegetation loss, soil erosion and declining forage productivity. Rising temperatures, more frequent droughts, and irregular rainfall further reduce pasture regeneration and increase the risk of land degradation, particularly in foothill and slope areas such as Temurmalik. As pasture productivity declines, livestock productivity and household incomes are affected, while soil erosion and desertification risks increase. Restoring sustainable grazing management, improving access to distant pastures and investing in water points and pasture rehabilitation are critical priorities for climate-resilient livestock systems in these districts.

## Community consultation outcomes in Khatlon: Qubodiyon and Dangara districts

Key climate change impacts experienced across communities

Focus Group Discussions and individual interviews were conducted in the Qubodiyon, Dangara, Temurmalik, Vose, and Khuroson districts, involving about 50 participants. Both districts are increasingly affected by climate change, with noticeable rises in temperature, prolonged dry periods, and more unpredictable rainfall patterns. Summers have become hotter and longer, leading to increased evaporation and higher water demand for agriculture.

Tahti Sangin sub-district in Qubodiyon district is one of the most climate-vulnerable areas, with a large number of smallholder farmers highly exposed to climate risks. Communities report significant changes in climate patterns, including rising temperatures, shifting rainfall patterns, and more frequent dust storms. These changes are affecting both daily life and agricultural production. According to farmers, temperatures in the past reached around 42°C, but in recent years they have increased to 48°C or even higher. During the summer, extreme heat limits daily activities. Family members try to stay indoors during peak hours, while women working in the fields start early in the morning and can only work until midday. After that, the heat becomes too intense to continue.



Rising temperatures and increased dust storms have also contributed to the spread of pests and diseases. As a result, crop yields have declined by at least 10% compared to 15 years ago. Farmers report that pests and diseases are now one of the most serious challenges in agriculture. To cope with these pressures, farmers are forced to use more pesticides and agricultural inputs, which significantly increases production costs. The need to purchase chemicals, pesticides, and plant “vitamins” places an additional financial burden on households, reducing their overall income and resilience.

Due to reduced and irregular rainfall, farmers are increasingly forced to begin irrigation earlier in the spring. Rising air temperatures have accelerated soil moisture loss, requiring more frequent irrigation to prevent crops from drying out. This has increased pressure on already limited water resources and raised the cost and labour required for farming. In some cases, insufficient water availability combined with high evaporation has led to partial crop losses and reduced yields. An interview with a farmer from Pushin sub-district of Danghara district indicates that, from about 100,00 ha of rain-fed vineyards, only 20-30% are yielding well. Rainfed vineyards are particularly sensitive to climate change because they rely entirely on natural moisture. Rising heat levels accelerate evapotranspiration, leading to chronic water stress, reduced yields, and declining grape quality. Changes in rainfall patterns and more frequent extreme events further increase production variability, making traditional

rainfed viticulture increasingly unsustainable without targeted adaptation measures. According to farmers, between 2024 and 2025, they lost over 50% of their yield due to drought.

Alternative income sources are very limited for farmers. At times, when household resources are insufficient, farmers sell their larger livestock. Part of the income is reinvested in purchasing smaller livestock for rearing, while the remainder is used to meet household needs. During the wheat-harvesting season, farmers purchase wheat from neighbouring farms at lower prices and store it for the coming months. Juraev Javli, from Rohinav village of Qubodiyon district, says - “My second son is currently serving in the army, while my first son is working in Russia as a labour migrant. We are considering that after completing his military service, the second son may also migrate to Russia to support the family”

No reliable weather forecast information is available to farmers. Mainly, farmers obtain weather information from online weather forecast websites. However, due to poor internet connectivity and electricity shortages (especially during winter), farmers are unable to access weather information regularly. However, farmers observed that the weather information provided on websites is not always accurate. The reliability of forecasts is generally higher for short-term periods (1–3 days ahead), while the accuracy decreases for longer-term forecasts. For longer time horizons, the information provided on these websites is often less precise and may not fully reflect actual weather conditions.

#### Existing coping mechanisms and community resources

When air temperatures rise, farmers are often forced to use more irrigation water to protect their crops. This, in turn, compels them to increase their expenses due to additional irrigation water use. In cases of excessively high temperatures, farmers widely practice additional nighttime irrigation. Night irrigation, when there is no solar heat, prevents the irrigation water from warming and harming the crops. Instead, it helps reduce the heat accumulated during the day and creates more favourable conditions for crop growth. Farmers also use the “umbrella” method on smaller agricultural plots (mainly household or kitchen gardens), providing some shade by covering planted crops with a thin, highly transparent fabric similar to gauze. However, this method of crop protection is not widely used because it requires additional costs and specialised knowledge.

Seasonal floods typically occur every year from April to the end of May. These annual floods can damage up to approximately 50% of the first planting crops. Due to damage to planted crops and to sustain their livelihoods, some farmers are forced to carry out second or even third rounds of spring planting, at least to secure minimal food reserves. In the Tahti Sangin sub-district of Qabodiyon, around 10% of households are located in foothill areas and experience damage every year during the flood season. To reduce potential losses, community members try to collect funds in advance. These funds are used to rent machinery to partially clear mud and stones from flood channels. However, local authorities are usually unable to support these activities. As a result, the channels remain partially cleared, and farmers continue to suffer damage during each flood season.

Due to the increasing frequency of dust storms, farmers are facing higher risks of crop diseases, as dust can carry viruses, pests, and harmful insects. As a result, farmers incur additional costs for pesticides and chemical treatments to protect their crops. Some households that cannot afford pesticides try to wash their crops with water after dust storms. However, this method is only feasible for small plots, such as household or kitchen gardens, and cannot be applied to larger fields. In general,

households with more than 2 hectares of cultivated land can treat only about 30–40% of their land with pesticides. In contrast, smaller households are more constrained and often treat only limited areas or none at all due to financial constraints. During strong dust storms, people—especially women, children, and older people—are forced to stay indoors because it is not possible to work outside.

In the past, dust storms typically occurred only in late summer and autumn. However, they are now increasingly observed as early as spring, and in the absence of rainfall, they can persist for up to a week. This prolonged exposure to dust negatively affects crop growth and overall agricultural productivity. Farmers have also reported the emergence of new and unfamiliar plant diseases: “My rosehip plantation was recently affected by a disease that had not previously been observed in the area. Local farmers and agronomists were unable to provide effective advice or treatment, highlighting gaps in knowledge and access to timely agricultural extension services” – farmer in Danghara, Sangtuda village.



*Rosehip planting in slopes, dust storm in spring*

During the first planting season, water availability is generally sufficient, as temperatures are moderate and irrigation demand is relatively low. However, overall water resources are limited, irrigation systems require rehabilitation, and water management remains inefficient. As a result, not all farmers receive adequate water during the second planting season (June to mid-September). During this period, temperatures have been increasing year by year, which further raises crop water demand. Farmers are therefore required to use more water to maintain their crops, while the available supply often remains insufficient. Around 20% of households in Jamoat Tahti-Sangin face serious water shortages, particularly between June and August, mainly due to their distance from water sources. This issue is especially acute for farmers in S. Khudoikulov village.

### Community consultation outcomes in Khatlon: Khuroson, Temurmalik and Vose

**Khuroson:** Khuroson District is located in the southwestern part of Tajikistan, within Khatlon Region. It lies south of Dushanbe, along the main road connecting Dushanbe with Bokhtar. Khuroson is mainly a lowland agricultural district located in the fertile Vakhsh River valley, with irrigated farming, orchards, cotton, cereals, and livestock production playing an important economic role. Focus Group Discussion (FGD) and individual farmer interviews were conducted involving 14 farmers. Crop production varies by land type and access to irrigation, with rain-fed hilly areas dominated by cereals and pulses, while irrigated lowlands support early vegetables, fodder crops, and potatoes. Livestock rearing remains an important complementary livelihood activity for most households. In addition to crop production, local households keep and raise sheep, goats, cattle, poultry, rabbits, and bees.

The FGD was conducted in Jamoat Aini, Khuroson district. This area has a more climate-vulnerable population and one of the highest concentrations of the poorest households. FGD participants reported that overall agricultural production has decreased over the past 5–10 years, with differences

observed between irrigated and rainfed areas. In areas with reliable access to irrigation water, agricultural production has remained relatively stable. However, yields in some irrigated fields have declined due to altered climatic conditions and worsening irrigation water availability. Participants noted a significant deterioration in irrigation water supply and management, resulting in lower yields. For example, cotton harvests have declined compared to 10 years ago, when irrigation water availability was better. Similar yield stagnation or decline was reported for other crops grown on irrigated land, mainly due to reduced water supply, poor irrigation infrastructure, increasing temperatures, and malfunctioning irrigation systems. The situation on rainfed agricultural land has worsened more significantly. Participants noted that crop production on rainfed fields has declined sharply compared to 5–10 years ago, largely due to changes in weather patterns, increased temperatures, crop diseases, and declining soil fertility. As an example, farmers reported that previously they could harvest around 400 kg of flax from 0.2 ha, whereas current yields have decreased to 150–180 kg from the same area. Overall, agricultural production has declined over the past 5–10 years, with rainfed areas experiencing the most severe reductions, while irrigated areas show relative stability but increasing vulnerability.

FGD participants reported several weather- and climate-related events that have negatively affected agricultural production and livelihoods in Jamoat Ayni. Intense rainfalls and flash floods were frequently mentioned. Heavy rainfall has caused flooding across low-lying agricultural lands in the jamoat. Participants noted that a significant portion of Jamoat Ayni lies at a lower altitude than neighbouring jamoats, increasing its vulnerability to flooding. In some cases, floods have also damaged household structures and kitchens.

Overall, flooding and mudflows in the Khuroson district have caused the greatest losses. They severely damage agricultural fields and are particularly dangerous to wheat, barley, and peas, often resulting in reduced yields or complete crop loss. Flooding occurs almost every year, while mudflows happen less frequently.

During individual interviews in Chorbogh subdistrict, dust storms were identified as a key challenge. Over the past five years, dust storms and high temperatures during the growing season have significantly affected crops in the subdistrict. Dust storms occur every year during the crop-growing season. Compared to previous years, their frequency has reportedly increased from 4–5 times annually to 12–15 times per year. These events mainly cause damage during the growing season from May to August. After each dust storm, crops are heavily affected by diseases, and harvest levels decrease significantly. This often leaves farmers unable to recover even their production costs. Farmers reported that they are often unable to achieve the expected harvest and sometimes cannot even cover the expenses invested in crop production. Locust infestations were also reported as recurring problems, particularly in April and May in rainfed hilly areas. These infestations affect both pastures and crops such as wheat, flax, and peas, resulting in substantial production losses.

“My biggest concern related to weather and farming is extreme heat: - mentioned during the interview, Tabarov Ahroriddin from Chorbog subdistrict. During periods without irrigation, extreme heat causes rapid evaporation of soil moisture, quickly drying out planted crops and leading to significant yield losses. This extreme heat usually lasts for a prolonged period, from early July to mid-September. Compared to other weather-related challenges, which tend to occur over shorter periods, extreme heat is more damaging due to its long duration and cumulative impact on crops. If a bad season occurs, my biggest concerns would be repaying existing debts and covering the costs of replanting crops. Reduced harvests would affect my income, making it difficult to manage financial obligations



and invest in the next planting season. Heatwaves also cause significant losses, mainly affecting orchards, fodder crops, and vegetable fields. Prolonged extreme heat leads to water stress and increases the incidence of crop diseases, lowering both the quality and quantity of production. Heatwaves occur annually and regularly affect crop production. Hailstorms also occur almost every year, mainly during the growing seasons of May and June, causing damage to crops.

Due to prolonged heatwaves, dust storms and other challenges, cultivating crops on rain-fed land has become increasingly difficult. Compared to 10–12 years ago, harvests from rain-fed areas have reportedly decreased by approximately 20–30%. “I believe the main reason for this decline is climate change,” said Qurbonov Qiyomiddin from Ayni subdistrict. If crops fail, I will borrow money and sell assets to cover these expenses and continue farming. If livestock dies, we will reduce food intake to cover expenses. Taking loans is the most common way for me to manage losses and continue farming activities. But I do not stop farming, as I don’t have another choice for feeding my family. One of the farmers from the FGD mentioned that in 2026, due to financial constraints and limited water availability, I switched from the traditional cotton crop to wheat, which requires less irrigation. If crops are damaged or yields are lost in the following season, the situation can worsen significantly due to accumulated debt and high interest rates. Without a family member working as a labour migrant in Russia to provide additional income, the financial situation may deteriorate even further, making it difficult to recover and continue farming.

Water User Associations (WUA) exist in most villages of the Khuroson district. The main problems with WUA are low capacity, poor water distribution, conflicts between users, and low payment of membership fees. WUAs often lack their own offices and have insufficient staff capacity. As a result, it is unable to distribute irrigation water adequately to all households and dehqan farms. There are also management challenges that limit its effectiveness in providing services. Another problem with WUA is conflict among users during the growing season, as river levels decrease due to high temperatures. As a result, farmers are dissatisfied with WUA and do not pay the fee. For water improvements, canal rehabilitation is vital, as many canals are not cleaned, and water distribution gates are broken, leading to water problems. One advantage of having a WUA in our community is that the existing canals generally have an official owner and management structure. To the extent possible, the WUA provides irrigation services to farmers. Farmers can contribute through labour and partial financial support by participating in canal cleaning, rehabilitation, or the construction of pumping stations and water reservoirs. Farmers could cover up to 25% of the costs.

Farmers in Ayni subdistrict face severe irrigation water shortages in summer, forced to compete for water, often irrigating at night, leading to conflicts. Up to 500 hectares of land in the Jamoat are affected by water scarcity. Agricultural land is irrigated using drainage water, which is saline and of poor quality. Only about 30% of the land receives adequate water, while 70% remains insufficiently irrigated. WUAs exist in most areas of the Khuroson district. Based on the interview results, farmers are generally aware that a local WUA structure exists for managing water distribution. At the local level, they have maps and lists of irrigated lands and can, to some extent, maintain pumping stations and sometimes carry out small repair works. The WUA faces major challenges, including a lack of machinery, weak organisational capacity for canal cleaning, insufficient funding, a shortage of staff and specialists, and an inability to repair irrigation pumps. Although it formally takes responsibility for water supply in some areas, in practice, it often does not function.



Tabarov Ahroriddin from Ayni subdistrict explained: “I have 3 ha of land officially registered as irrigated, but it has effectively become rain-fed because irrigation water no longer reaches it. Previously, the land was irrigated, as the canals functioned properly. However, the canals have not been cleaned for many years, and the pumping station now operates at only half of its original capacity. As a result, there are serious challenges in irrigation services and water availability. Due to water scarcity, I had to switch from cotton to wheat cultivation. If the canals and pumping station were rehabilitated, the land could be restored to irrigated farming.”

Participants reported the need for comprehensive water improvements, including canal rehabilitation and construction, reservoirs for rain and snowmelt collection, repair of pumping stations and pipelines, drip irrigation, solar pumps, and riverbank reinforcement. On rainfed land, safe reservoirs should be built to collect snow and rainwater so that in summer, drip irrigation and solar pumping can be used for orchards. FGD participants reported that farmers are able and willing to contribute through a combination of cash and labour, depending on the type of activity and their capacity. They are willing to cover up to 30% of costs as a community contribution. Farmers are also willing and open to using new irrigation technologies, including drip irrigation, water reservoirs, and solar pumping systems. However, several key constraints currently prevent adoption, as highlighted above, such as a lack of money, access to knowledge, inputs, and services.

*Temurmalik:* Temurmalik District is located in the eastern part of the Khatlon Region and is characterised by hilly and mountainous terrain and a dry continental climate. Agriculture in the district relies heavily on rainfed farming and pasturelands, making local livelihoods highly vulnerable to drought, irregular rainfall, land degradation, and water scarcity. A FGD was conducted in the Kushkiya subdistrict of Temurmalik District, with 16 participants from one of the poorest, land-scarce areas. Participants reported that all agricultural land in the subdistrict is rainfed and has no access to irrigation. Farmers practice mixed farming systems, combining crop cultivation—mainly cereals, fodder, and melons—with small- to medium-scale livestock keeping. Agriculture in the area is characterised by rainfed production, limited land access, reliance on leased land, and strong dependence on pasturelands for livestock. Participants noted that agricultural production has significantly declined compared to 5–10 years ago. Farmers explained that wheat yields have decreased from around 21 bags to only 10–12 bags from the same quantity of seed. Similarly, flax production has become unprofitable, with 2 bags of seed producing only 2 bags at harvest. Overall, participants emphasised that rainfed agriculture has become increasingly unreliable, resulting in lower yields and greater production risks. The main challenges reported include:

- Reduced and irregular rainfall over recent years in Kushkiya: Farmers reported declining and increasingly irregular rainfall, with some years receiving adequate precipitation while others experienced severe shortages during the growing season. Reduced rainfall was identified as the main factor affecting agricultural production, leading to poor crop growth, lower yields, and increased farming risks. Participants noted that a lack of irrigation water is the community's biggest challenge, particularly during heatwaves, when low soil moisture further reduces crop production.
- In Bahmantur (district centre), in 2022, the flood was considered the most devastating event. Heavy rains washed away around 145 hectares of arable land along the banks of the

Surkhob River, turning productive farmland into gravel-covered land. These areas had previously been used for cultivating cereals and potatoes. In 2024 and 2025, insufficient rainfall led to a 10% decrease in potato and cereal harvests compared to previous years.

- Declining soil fertility due to prolonged use and limited soil restoration measures: Farmers noted that continuous cultivation and limited access to soil restoration measures have contributed to declining land productivity and reduced agricultural output.
- Pests and high cost of pesticides and fertilisers: Participants reported dust storms and increasing pest outbreaks, particularly locusts, large white worms damaging crop roots, and yellow beetles during the summer season. At the same time, access to fertilisers and agricultural chemicals has become increasingly difficult due to rising prices. Farmers explained that pesticide costs for one hectare are around 380 TJS, making agricultural inputs unaffordable for many households.

The greatest damage mainly occurs in spring during the crop growth stage, when low rainfall, sudden heavy rains, and pest infestations affect root development. In some years, these impacts continue into early summer and reduce final yields. Farmers identified irregular rainfall—particularly droughts and sudden heavy rains—combined with pest outbreaks as the main threats to rainfed agriculture and household income. Households cope with these challenges in different ways depending on their situation. Some take loans, others sell household assets, while many reduce food consumption due to limited purchasing power. Families with relatives working in Russia often rely on remittances to cover basic living expenses during difficult periods. FGD participants highlighted debt and financial difficulties as their main concerns during poor agricultural seasons, as crop failure and reduced production make it difficult to repay loans, cover household and education expenses, or finance replanting for the next season. Participants shared several examples of households facing serious financial difficulties following poor harvests.

Sharipova Sitoramo from Sharak subdistrict reported that agricultural production on her 1.10 ha farm has significantly declined over the past 5–10 years due to declining soil fertility, limited access to mineral fertilisers, climate change, dust storms, reduced rainfall, and water scarcity. She explained that a recent dust storm caused major losses in vegetables and lemon production, with lemon harvests decreasing from around 300 kg to 100 kg per year, tomato yields falling from 500–600 kg to 150 kg, and potato production declining from 300–500 kg to 120 kg. She noted that these losses have seriously affected her household's living conditions, forcing her to rely on bank loans to cope with financial difficulties. Currently, she has loans from three banks, which she repays mainly through her salary from the Agriculture Department.

The head of Dekhkan Farm “Amir” in Kushkiya subdistrict manages 10 ha of land across two dehkan farms and employs 8 workers. Currently, all land is rainfed, although 6 ha of orchard land could potentially be irrigated if funding becomes available. The farm cultivates wheat and barley on 6 ha of rainfed land and manages around 3 ha of young rainfed orchards that have not yet started fruit production. The household also keeps three cows and ten sheep. The farmer reported that agricultural production has declined over the past 5–10 years due to irregular rainfall, drought, and repeated pest outbreaks, particularly locusts and soil-dwelling worms that damage crop roots and reduce yields of

wheat and barley. Although chemical treatments are applied, pests continue spreading from neighbouring rainfed fields.

Out of the three villages, two do not have Water User Associations (WUAs). In the Sharak subdistrict, the existing WUA faces several challenges, including weak management capacity, limited financial resources, poor maintenance of irrigation infrastructure, weak service delivery to members, and limited ability to resolve water-related conflicts. FGD participants identified the construction of rainwater harvesting ponds as a key priority, which could also support the introduction of drip irrigation systems. They also emphasised the need to develop a water supply system, potentially by drawing water from the Surkhob River, located approximately 12 km from the community. Participants stated that farmers could mainly contribute through labour and limited cash contributions, estimating that communities could cover around 20–30% of total costs through collective labour and small financial inputs. Meeting participants also expressed a willingness to adopt modern irrigation technologies, such as drip irrigation, water reservoirs, and solar pumping systems. Still, they highlighted the need for additional consultation, training, and technical support to ensure effective adoption.

Key priorities identified during the interviews included improving access to water and water management, particularly through the construction of reservoirs on rainfed lands using modern technologies, combined with pumps, drip irrigation, and improved water supply systems. Participants also emphasised the need to expand irrigation infrastructure, including concrete channels and small pumping stations, to improve water access and enable double cropping. Other priorities included riverbank protection, tree planting with locally adapted seedlings, and the establishment of small fruit and vegetable processing workshops to reduce post-harvest losses and create employment opportunities, especially for unemployed young women.

Vose: Vose District is located in the southern part of Khatlon Region and is characterised by lowland and foothill areas with a dry continental climate. The district relies mainly on irrigated agriculture and faces increasing climate-related challenges, including water scarcity, drought, high temperatures, and land degradation.

Participants in the Vose district reported that agriculture is based on a mixed farming system combining crop production and livestock rearing. For instance, in Avazov subdistrict, the total reported agricultural land includes approximately 2,062 hectares of irrigated land and about 1,284 hectares of rainfed cultivated land. A very large area of land, about 20,973 hectares, is used as pasture, indicating that livestock grazing is a major land use activity in the Jamoat. The main crops include potatoes, wheat, barley, chickpeas, onion, and alfalfa (for livestock), along with melon crops such as watermelon, melon, and handalak, indicating both food and cash crop production. Livestock keeping is also an important livelihood activity. Households and collective farms rear cattle, sheep, goats, horses, chickens, and turkeys. Participants noted that livestock ownership is relatively significant, with an estimated total of around 5,000 animals at the household level, reflecting the importance of animal husbandry in local livelihoods. In general, the community relies on a diversified agricultural system that supports both food security and income generation, though it remains largely traditional.

Participants reported that agricultural production has shown mixed trends over the past 5–10 years, though many indicated it has generally remained unchanged. According to participants, the lack of significant improvement is mainly linked to climate change and water management problems. Participants in the Vose district reported that climate-related hazards have increased in recent years, significantly affecting agricultural production and land conditions. Overall, the community identified hailstorms, floods, mudflows, dust storms, rising temperatures, low rainfall, prolonged extreme heat, soil salinity, and crop diseases as the main climate-related threats affecting agriculture and livelihoods in Vose district over the past five years. One of the major events mentioned was hailstorms during 2024 and 2025, particularly in April–May, during the crop growth period. In April 2025 and 2026, the district experienced floods and mudflows, which damaged approximately 160 hectares of cultivated land. These events also filled drainage and irrigation canals with mud and sediment, worsening drainage problems and increasing soil salinity, which negatively affected crop development and productivity.

Strong winds and dust storms during June–August were also identified as major climate-related challenges. In addition, dust and changing climatic conditions contributed to the emergence of new crop diseases and pests, further reducing agricultural productivity. Participants further emphasised that extreme heat and rising temperatures, especially between 20 June and 20 August, negatively affect crop growth and development and increase heat stress on plants. Farmers stated that drought and lack of rainfall have had a greater impact on agricultural production than limited access to mineral fertilisers or locust infestations.

A large dehkan farm owner with 10 ha of rainfed land and 21.82 ha of irrigated land in Avazov subdistrict reported that higher temperatures and water scarcity have caused major crop losses in recent years. Cotton yields declined from 4,000–5,000 kg/ha to 1,500–2,500 kg/ha, while wheat yields dropped from 3,000–4,000 kg/ha to around 2,000 kg/ha. The farmer explained that during poor seasons, he relies on bank loans and livestock sales to cope with losses, while owning a tractor provides additional resilience. A small-scale farmer with 0.5 ha in the Avazov subdistrict identified excessive rainfall and pest infestations as the main challenges affecting production. The farmer noted that pest control is difficult because many neighbouring farmers cannot afford pesticides, allowing infestations to spread back into treated fields.

Farmers reported that the impacts of a bad agricultural season vary depending on the economic condition and resources of individual dehkan farms and households. In many cases, farmers try to cope with losses by planning and carrying out replanting or repeated cultivation to recover part of the production losses. Others reported that when facing crop failure or livestock losses, households mainly rely on bank borrowing, expecting to repay the debt in the following season. Another key coping strategy is labour migration, in which household members work abroad to earn income and support their families financially.

General water-related problems: Farmers reported insufficient water availability on part of the cultivated land, particularly during June–July, when water shortages become severe in areas supplied by the Surkhab River. Rising temperatures combined with reduced water availability during critical crop

growth stages were identified as the main concerns affecting agricultural production. Water shortages have reduced irrigation frequency and negatively affected crop yields. Participants also highlighted poor maintenance of drainage canals and non-functioning vertical wells as key constraints affecting water management and soil conditions.

**WUA-related challenges:** The WUA plays an important role in organising water distribution, irrigation schedules, and community coordination on water issues. However, it faces several challenges, including weak technical capacity, insufficient equipment, poor maintenance of canals and drainage systems, low membership fee collection, delayed payments from farmers, and limited financial resources. These constraints reduce the WUA's ability to maintain infrastructure, rent machinery, purchase fuel, and effectively manage irrigation services.

The main priorities identified by participants include water-efficient technologies, food processing, and storage facilities such as vegetable warehouses. These interventions are considered important for improving water use efficiency, reducing post-harvest losses, and increasing the value and preservation of agricultural products. Participants also emphasised the need for better access to equipment and technical services to support the installation and use of new technologies.

**Sughd region:** the workshop was conducted on January 22<sup>nd</sup>, 2026, involving 40 people from the local district Government office of the Sughd region, agro-technical specialists, Forest Agency, Committee of Environmental Protection, Ecology, Committee of Women and Family Affairs, Committee of Youth and Sports, CoES, Water Resource Management Unit, INGOs from Asht, Isfara, Panjakent, Ayni, and WFP Tajikistan.

Workshop participants from Sughd, where fruit, nut, and rice production dominate, highlighted water stress as a major concern. Participants emphasised declining water quality due to agricultural runoff, excessive fertiliser and pesticide use, and inefficient drainage. The region's strong dependence on transboundary rivers such as the Syr Darya, Isfara and Zeravshan further increases vulnerability, especially in Asht and Isfara. All four targeted districts (Asht, Isfara, Ayni and Panjakent) depend heavily on snow- and glacier-fed rivers. Warmer winters and earlier snowmelt are shifting peak river flows to early spring, causing floods during the planting period, followed by reduced river discharge and irrigation water shortages during the summer vegetation season. At the same time, higher temperatures increase evaporation losses from canals, reservoirs and soils, further reducing water availability for agriculture. The increasing frequency of droughts and irregular rainfall is particularly affecting rain-fed and foothill areas in Asht and Ayni. In contrast, downstream irrigated areas of Isfara and Panjakent face growing competition for limited irrigation water, declining reliability of canal systems, and rising risks of crop losses. These trends are expected to intensify, making improved water management, water-saving irrigation and climate-resilient planning critical for the long-term sustainability of agriculture and rural livelihoods in these districts.

In addition, agriculture in Asht, Isfara, Ayni and Panjakent is highly dependent on pump-based irrigation systems due to the geography of the Zeravshan basin and the elevation of irrigated lands above river level. Much of the irrigated farmland lies on terraces and plains that cannot receive water by gravity, requiring multi-stage pumping from the Zeravshan River and its canals. Many pumping

stations were built during the Soviet period and are now ageing, energy-intensive and costly to operate. Frequent electricity shortages, high energy costs and equipment breakdowns often limit pumping hours, reducing the reliability of the irrigation water supply during the peak vegetation season. As climate change reduces summer river flows and increases irrigation demand, dependence on pumping is growing, placing additional pressure on farmers and water authorities. High energy costs for pumping increase production costs, limit smallholders' access to water, and contribute to unequal water distribution, particularly during drought years. Improving the efficiency, reliability and energy sustainability of pump irrigation systems is therefore critical for maintaining agricultural productivity and water security in these districts. Water distribution is particularly challenging for Water User Associations (WUAs) and farmers at the tail ends of canals, with women-headed households disproportionately affected by these shortages.

The participants also reported more frequent heatwaves, droughts, insufficient precipitation and dust storms, along with reduced winter water availability. Heatwaves and dust storms are becoming more frequent and severe in Asht, Isfara, Ayni and Panjakent. Heat stress also lowers crop yields, affects livestock productivity and increases the risk of crop failure during critical growing periods. At the same time, prolonged dry spells and degraded land surfaces are contributing to more frequent dust storms, especially in lowland and foothill areas. Dust deposition damages crops, reduces soil fertility, clogs irrigation canals and worsens air quality, further threatening rural livelihoods and agricultural productivity in these districts.

In addition, participants noted that pests affecting fruit and vegetable harvests are increasing. That drought is also shortening flowering periods and reducing nectar availability, leading to lower honey production and lower quality. At the same time, hotter and drier summers are increasing the risk of forest and shrubland fires, threatening orchards, pastures and rural infrastructure. Pasturelands in these districts are increasingly degraded due to overgrazing, reduced vegetation cover and climate stress. Limited access to distant grazing areas concentrates livestock near villages, leading to soil erosion and declining forage productivity.

#### Community consultation outcomes in Sughd: Isfara and Ayni

Farmers in Isfara and Ayni consistently report that climate change is increasingly undermining the stability and productivity of their agricultural systems. The most frequently cited changes include rising temperatures, reduced and more erratic precipitation, and a growing frequency of extreme weather events such as floods, dust storms, and strong winds. These changes are contributing to accelerated soil erosion, pasture degradation, and direct physical damage to crops.

A key concern raised by farmers is the increasing unpredictability of seasonal patterns. Warmer temperatures are causing earlier flowering in fruit trees, leaving them highly vulnerable to late-spring frosts, resulting in significant yield losses. At the same time, declining snowfall and rainfall are reducing water availability during critical growing periods, forcing farmers to rely more heavily on already constrained irrigation systems.



Farmers also highlighted worsening water-related challenges, including water scarcity and rising groundwater levels in some areas, which are leading to soil salinisation. These combined stresses are contributing to a noticeable decline in crop productivity across both districts.

The spread of pests and plant diseases has become a major and growing issue. Farmers attribute this to rising temperatures, which create more favourable conditions for pests, and to weak coordination in pest management. The predominance of individual, uncoordinated treatment practices reduces effectiveness and contributes to the rapid spread of infestations across farms.

These climate-related pressures are already translating into tangible economic losses at the farm level. Reported crop damage ranges from 10% to 40%:

- In Rarz (Isfara), a farmer reported a yield loss of up to 40% in 2025 due to low precipitation and limited access to irrigation water.
- In Vorukh (Isfara), increased temperatures have led to higher pest incidence, affecting approximately 10% of production.
- In Khojaobod (Isfara), reduced rainfall and increased pest pressure have resulted in a 20–30% decline in crop yields and income.



While most communities in both Isfara and Ayni have access to early warning information, primarily disseminated by the Committee on Emergency Situations through district authorities and local communication channels (e.g., WhatsApp groups via mahalla leaders), farmers noted that these systems are largely focused on emergency alerts. They provide limited actionable, agriculture-specific guidance (e.g., seasonal forecasts, pest advisories, irrigation planning), reducing their usefulness for day-to-day farm decision-making and climate adaptation.

Overall, farmers emphasised that climate change is not only increasing production risks but also exposing systemic gaps in water management, seed systems, pest control coordination, and climate information services, highlighting the need for more integrated and locally relevant adaptation support.

Farmers in Isfara and Ayni emphasised that water scarcity has become significantly more severe due to climate change, driven by reduced precipitation, declining snowpack, and rising temperatures that increase evapotranspiration and crop water demand. As a result, irrigation systems that were already under pressure are now unable to meet growing needs.

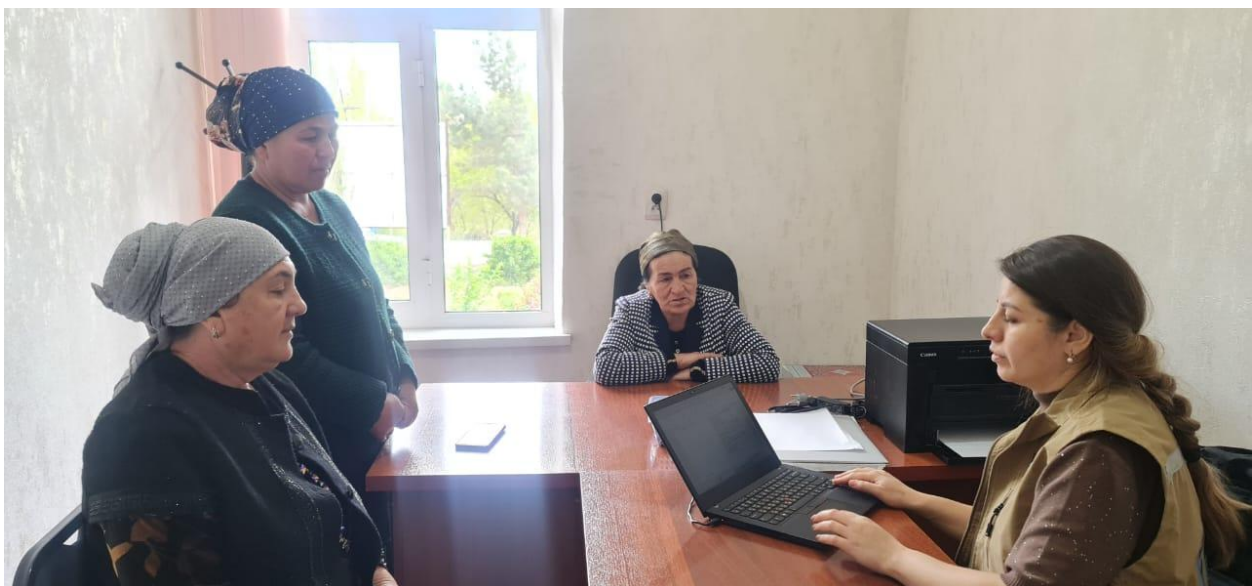
Water User Associations (WUAs) are present across most sub-districts and play a central role in irrigation management. However, farmers consistently report that WUAs face critical capacity and resource limitations, including insufficient technical expertise, lack of operational equipment, and weak planning and coordination mechanisms. These constraints are further compounded by limited transparency in water allocation and distribution, which in some cases leads to tensions among water users, particularly between upstream and downstream farmers.



From a service delivery perspective, irrigation infrastructure is increasingly unreliable and climate sensitive. Water supply depends heavily on pumping systems and canal networks that are frequently in poor condition. Pumps often operate below capacity or break down, while canals suffer from leakage, sedimentation, and structural damage. As a result, even when systems are nominally functional, water fails to reach large areas of agricultural land (over 2,000 ha), leaving farmers unable to irrigate crops during critical periods.

Farmers also highlighted a growing mismatch between rising irrigation costs and unreliable service delivery. Despite paying WUA membership fees, access to water remains inconsistent, particularly during peak demand periods intensified by climate variability.

Communities are actively attempting to cope with these challenges. Farmers regularly organize collective action (hashar) to clean and maintain canals, and local water departments provide limited technical support. Communities also contribute labor and resources to the rehabilitation of irrigation infrastructure. However, these efforts are insufficient to address systemic and climate-driven challenges at scale.



From the farmers' perspective, priority adaptation measures include:

- Rehabilitation and lining of irrigation canals to reduce water losses and improve distribution efficiency
- Repair and modernization of pumping systems, including replacement of outdated pumps and pipelines
- Introduction of water-efficient technologies, particularly drip irrigation, to optimize water use under increasing scarcity
- Construction of water storage infrastructure (e.g., reservoirs) to buffer seasonal variability and ensure a more reliable supply—requiring government and external support
- Improved access to equipment and advisory services, particularly for irrigation management and climate-resilient practices

Overall, farmers stressed that while community engagement remains strong, climate change is exposing structural weaknesses in irrigation governance, infrastructure, and service delivery, requiring coordinated investment in both physical systems and institutional capacity to ensure equitable and reliable water access.

#### Existing coping mechanisms and community resources

Farmers in Isfara and Ayni reported that climate variability and increasing frequency of shocks (droughts, floods, extreme weather) are placing growing pressure on household livelihoods. To cope with these shocks, households rely on livelihood diversification and coping strategies, though these are often reactive and unsustainable. Livestock production (primarily cattle and, to a lesser extent, poultry) serves as a key secondary source of income and a safety net. During periods of climate stress, farmers often resort to distress sales of livestock to meet immediate household needs, indicating limited resilience to shocks. In addition, most households rely on labour migration remittances, which act as a critical buffer during crisis periods but also reflect limited local economic opportunities.



At the same time, communities demonstrate strong collective action through “hashar” (voluntary labour) to maintain irrigation canals. However, farmers noted that manual efforts alone are insufficient, particularly as climate change increases sedimentation, damage, and water variability. The lack of access to machinery limits the effectiveness of these efforts, meaning that even rehabilitated canals often fail to deliver adequate water to all users.

Access to water remains the most critical and cross-cutting constraint affecting agricultural productivity and resilience. While a small number of farmers have begun adopting water-efficient technologies (e.g., drip irrigation and small-scale water-harvesting reservoirs), uptake remains very limited. Farmers expressed strong interest in scaling these solutions, but face two major barriers:

- Limited financial capacity and access to credit to invest in technologies
- Insufficient technical knowledge and advisory support for installation and management

In addition, farmers highlighted regulatory barriers that constrain adaptation. For example, the construction of small water storage reservoirs is often classified as formal infrastructure requiring complex permits, which smallholders find difficult to obtain. This limits farmer-led investment in water-harvesting solutions that are critical amid increasing climate variability.

Beyond water, farmers identified several interlinked priorities to strengthen resilience and livelihoods:

1. Irrigation and water management (highest priority)
  - Rehabilitation of canals, pumps, and pipelines
  - Expansion of water-efficient technologies (e.g., drip irrigation)
  - Improved access to reliable water supply systems
2. Post-harvest management and value addition
  - Development of storage facilities (including cold storage) to reduce post-harvest losses
  - Expansion of processing activities (e.g., drying, preservation) to increase value addition and income stability
3. Seed systems and agricultural inputs
  - Improved access to high-quality, climate-adapted seeds
  - Establishment of reliable local seed systems (e.g., seed banks)
  - Strengthened advisory services to support the adoption of improved varieties
4. Pest and disease management
  - Increased access to inputs (e.g., pesticides) and coordinated pest management approaches
  - Technical support to address rising pest pressures linked to climate change

Additional needs highlighted by communities include:

- Construction of greenhouses to stabilise production under changing climatic conditions
- Improved access to agricultural machinery and equipment
- Development of community-level storage infrastructure
- Support for niche value chains, such as sericulture, through centralized facilities

Overall, farmers emphasised that while they are willing to adopt climate-resilient practices, systemic constraints, financial, technical, and regulatory, are limiting their ability to transition from coping strategies to proactive adaptation. Addressing these barriers will be critical to strengthening resilience, improving productivity, and reducing climate-induced livelihood risks.

Community consultations in Panjakent and Asht

Panjakent is a historic city in northwestern Tajikistan, located in Sughd Region near the border with Uzbekistan. It lies in the Zeravshan Valley and is one of the country's important agricultural and cultural centers. FGD was conducted in Panjakent town involving 6 participants from local authorities

and farmers. Participants reported several noticeable changes in the climate over the last 5–10 years. The most significant change is the increase in temperatures, with unusually hot conditions now starting as early as March instead of May–June as in the past. Communities also noted that although the number of floods and avalanches has decreased, their intensity, volume, and speed have increased significantly. Agricultural productivity has declined significantly due to reduced rainfall, drought, and growing water shortages. Both rainfed and irrigated lands are affected, and some irrigated fields are no longer cultivated due to insufficient water and rising irrigation costs. Pasture conditions have also deteriorated, with reduced grass quantity and quality linked to lower rainfall, higher temperatures, overgrazing, and degraded pasture infrastructure and access roads. In addition, respondents highlighted accelerated glacier melting in recent years, which is reducing summer water availability, increasing the instability of river flows, and raising the risks of floods and mudflows.

Nasruloev Khusravjon from L. Sherali subdistrict, who owns 4 ha of irrigated land, reported that floods and mudflows have increased in recent years. He explained that this year alone, floods affected his farmland three times, causing serious damage and delaying agricultural activities. As a result, some parts of his land are still not ready for the first planting season. Nasruloev also explained that livestock diseases and worsening pasture conditions have caused significant losses for his household. He reported increased outbreaks of animal diseases, including foot-and-mouth disease and pox-related illnesses, which resulted in livestock deaths. At the same time, degraded pastures and reduced natural fodder availability weakened animal health and lowered productivity, negatively affecting household income.

Khalilov Giysiddin, who owns 2 ha of land in the same sub-district, reported that floods caused the most serious losses to his household this year. He explained that floods affected his farmland three times, severely damaging some plots and leaving them unsuitable for cultivation. Crops were destroyed, forcing him to replant later than usual. While he previously cultivated crops twice per year, this year he was able to complete only one planting season due to flooding and delays. Khalilov also noted that farmers increasingly rely on excessive use of mineral fertilizers to achieve faster, higher yields. However, he explained that this practice is harmful in the long term, as it reduces soil fertility, degrades soil quality, and contributes to the spread of crop diseases and other agricultural problems.

Communities in Panjakent reported several key water management challenges. Irrigation canals and water infrastructure are old and deteriorated, requiring rehabilitation to meet current needs. Water User Associations face financial difficulties due to delayed payments of water fees by farmers and households. Additional problems include excessive and inefficient water use by some users, declining water availability, unequal water distribution, and significant water losses in irrigation networks due to leakage, seepage, and poor system efficiency. In addition, WUAs are constrained by limited institutional and technical capacity, a lack of machinery, weak and unequal water distribution systems, and conflicts between water users, particularly during periods of water scarcity.

Communities in Panjakent identified several priority improvements to strengthen water management and climate resilience in their area. The main needs include cleaning and rehabilitating existing irrigation canals, installing pumps to lift water from nearby rivers for some farms, and introducing drip irrigation systems, particularly for existing agroforestry areas. Respondents also emphasized the

need to repair and modernize water distribution infrastructure and provide farmer training on efficient water use and modern irrigation technologies such as drip and sprinkler irrigation systems. Gayrat Nizomi, who owns 4 ha of land, stated that his greatest concern is the lack of reliable access to water. He explained that farmers invest significant resources into planting crops, and when water is unavailable, they suffer both major financial losses and psychological stress. According to him, with sufficient water availability, farmers could produce yields up to twice as high.

To adapt to climate change and declining agricultural productivity, communities in Panjakent identified several alternative and diversified livelihood options. These include expanding livestock production and dairy/meat processing, establishing greenhouses for year-round vegetable production, cultivating drought-resistant and high-value crops such as cumin, sesame, and lavender, and processing agricultural products, such as jam production and fruit drying. Communities also highlighted beekeeping, small business development, labor migration and remittances, and seeking support from development projects and donor programmes as important coping and income diversification strategies.

**Asht:** Asht is a district in northern Tajikistan, located in the Sughd Region near the borders with Uzbekistan and Kyrgyzstan. The area is largely rural and highly dependent on agriculture, including cotton, cereals, orchards, livestock, and vegetable production. During the FGD with local state authorities in Asht, participants reported that the district has experienced several noticeable climate changes in recent years, including rising temperatures, changing rainfall patterns, declining agricultural productivity, increased soil erosion, and a growing incidence of crop pests and diseases. Authorities also highlighted increasing risks from floods and mudflows, emphasizing the need for stronger early warning systems, riverbank protection works, and regular cleaning of flood channels and irrigation canals. Participants noted that many of these priorities are reflected in the District Socio-Economic Development Plan for 2026–2030; however, limited local budget resources constrain the district’s ability to address these challenges effectively.

During the FGD with local authorities and water stakeholders in Asht, participants highlighted several challenges related to water scarcity and the management of Water User Associations (WUAs). Key issues include the absence or weak enforcement of clear water distribution rules, conflicts between upstream and downstream water users, and the poor condition or malfunctioning of pumping stations. These challenges contribute to unequal access to water, inefficient irrigation management, and growing tensions among water users, particularly during periods of seasonal water shortages.

A farmer from Iftikhor subdistrict, who owns 2 ha of land and participated in the FGD, identified water scarcity as the main challenge affecting agricultural production and household livelihoods. The farmer explained that due to insufficient irrigation water, agricultural land cannot be fully utilized. During the summer season, a delayed water supply can result in a 70–80% loss in crop yields. According to the participant, with reliable irrigation water, farmers could potentially harvest two crop cycles per year, improving household incomes and increasing the supply of quality products to local markets. Despite continued farming, repeated cropping has become impossible due to inadequate water availability. During difficult seasons, the household mainly copes through borrowing money to



cover debts, taxes, food reserves, and basic family expenses. Participants of the FGD in Asht expressed a strong interest in adopting water-saving technologies; however, several barriers limit wider uptake. The main challenges identified include a lack of personal financial resources, limited access to affordable credit, insufficient technical knowledge, and poor access to equipment and installation services for modern irrigation technologies

During the FGD in Asht, participants identified several other key priorities for strengthening climate resilience and livelihoods. The highest priorities included improving pasture conditions, tree planting, and promoting agroforestry measures to reduce land degradation and climate risks. Communities also emphasised the importance of improving access to climate information and early warning systems, diversifying income sources, strengthening agricultural inputs and advisory services, and improving fruit and vegetable processing and storage facilities.

**GBAO:** the workshop in GBAO was conducted on January 16<sup>th</sup>, 2026, engaging 30 people representative of the local district Government office of the GBAO region, agro-technical specialists, Forest Agency, Statistics, Committee of Environmental Protection, Ecology, Committee of Women and Family Affairs, Committee of Youth and Sports, CoES, Water resource management Unit, INGOs (potential WFP partners) from Roshqala and Ishkoshim Districts and WFP Tajikistan.



*Group work: GBAO participants*

Workshop participants from GBAO emphasized that the region is highly vulnerable to climate change due to its mountainous terrain and its strong reliance on glaciers and snowmelt. Participants reported rising temperatures, melting ice caps and more frequent heatwaves, which are increasing the risk of floods, riverbank erosion, rockfalls, landslides and avalanches. The target districts - Roshtkala and Ishkashim in GBAO face terrain-related hazards, and during periods of insufficient precipitation and rising temperatures, are also accelerating glacier retreat and reducing long-term water availability. These risks directly affect local livelihoods: in Ishkashim, potato production is vulnerable to floods, landslides and water shortages that damage fields and shorten the growing season, while in Roshtkala, orchards face erosion, spring frosts after early warming, and reduced irrigation reliability, increasing the risk of crop losses and declining productivity.

Dust storms and insufficient precipitation were noted as growing concerns, contributing to declining water availability and reduced agricultural productivity. Heavy rains were also reported to wash away fertile soil and humus layers, further degrading farmland. Participants highlighted increasing impacts on livelihoods, including more pests affecting fruit and vegetable harvests, dust damaging crops and reducing honey production, and reduced productivity of orchards and rainfed lands. Pasture and ecosystem degradation, combined with limited arable land, particularly affected women-headed

households, and were also raised as key concerns. Frequent natural hazards were reported to block roads between villages and districts, further isolating communities and disrupting access to markets and services.

#### Community consultation outcomes in Ishkashim and Roshtkala

Ishkashim is a remote mountainous district in eastern Tajikistan located along the border with Afghanistan in the Gorno-Badakhshan Autonomous Region (GBAO). The area is highly dependent on small-scale agriculture, livestock, and remittances. Farmers consistently reported significant shifts in seasonal weather patterns, including warmer winters and increasingly unstable conditions in spring and early summer. They emphasized that sudden cold spells in late June and early July—coinciding with the critical flowering stage of potatoes and grains—are becoming more frequent. These temperature drops disrupt flowering, reduce pollination, and ultimately lead to lower yields.

Respondents also noted a sharp decline in rainfall, with some reporting almost no precipitation in recent seasons. This has resulted in prolonged drought conditions, contributing to the degradation of pastures and a noticeable reduction in available grasses and wild plants. In parallel, farmers highlighted severe riverbank erosion, with rivers increasingly washing away land used for forests and grazing. These areas are vital to livestock production, as they provide pasture, winter fuelwood, and fodder reserves, making their loss a critical threat to local livelihoods.

Farmers reported that Ishkashim is one of the windiest districts in the region, with strong, dust-laden winds occurring from April to August, typically from midday until sunset. These winds significantly disrupt agricultural activities, particularly the harvesting of fruits and vegetables, and are a major driver of soil erosion. Respondents noted that wind carries sand and small stones onto cultivated land, forests, and



irrigation canals, leading to land degradation and blockage of water infrastructure. Approximately 25 hectares of forest are reportedly under threat or already degraded due to this process, which is further exacerbated by limited irrigation and increasingly dry conditions. Farmers emphasized that the rehabilitation of around 2 km of irrigation canals is critical to restoring affected land and forest areas. In addition, reduced rainfall, ongoing pasture degradation in high mountain areas, and riverbank erosion are collectively contributing to the loss of forest and grazing land, further undermining local livelihoods. Livestock health has worsened due to reduced grazing availability and rising incidence of diseases, while wildlife attacks, particularly by wolves, have become more frequent. A farmer from Zumudg village of Ptup subdistrict reported, “In our village alone, 60 animals were attacked and killed by wolves this year”.

Concerns were also raised about declining water quality, affecting both drinking water and irrigation. Limited infrastructure, including the absence of functional irrigation systems and Water User

Associations (WUAs), along with seasonal shortages of safe drinking water, were identified as key constraints that further reduce the community's capacity to cope with climate-related shocks. One of the neighboring villages, located 1.5 km from Zumudg, has 33 households. During the winter season, they have no access to drinking water and must collect it from a distant river. This situation creates severe hardship for the community, as families are forced to walk long distances in harsh conditions to secure even small amounts of water. The lack of safe drinking water increases health risks, particularly for children and older people, and places a heavy burden on daily life. It also limits opportunities for proper hygiene and livestock care, further weakening households' resilience during the cold months.

Farmers reported that overall, crop yields in Ishkashim have declined significantly due to the combined effects of reduced rainfall, prolonged drought, strong winds, and increasing water shortages. These interacting stresses are limiting crop growth, damaging fields, and reducing overall agricultural productivity, making farming increasingly unreliable.

Farmers reported receiving early warnings and weather information from the Committee of Emergency Situations (CoES) and from internet sources. However, they noted that this information is often unreliable for their specific locations, as forecasts typically reflect district centres rather than local microclimates. As a result, the reported weather conditions frequently do not match actual conditions in their villages, limiting the usefulness of these services for agricultural planning.

#### Existing coping mechanisms and community resources

Farmers reported adopting a range of coping strategies in response to increasing climate stress. A key response has been the sale of livestock, driven by declining pasture availability due to reduced rainfall and irrigation water, as well as the need to prevent losses from frequent wolf attacks. However, this has created a negative cycle: fewer animals mean reduced manure availability, leading to lower soil fertility, lower crop yields, and, in some cases, a decision to cultivate smaller areas. In parallel, households increasingly rely on labor migration, both internal (seasonal work from April to October) and external, as a critical source of income to compensate for declining agricultural productivity.

Farmers identified several priority areas to strengthen resilience and livelihoods. These include restoring agricultural productivity and diversifying income sources, such as developing value-added products, such as sea buckthorn oil. Improving agriculture remains central, with specific needs highlighted: access to small-scale machinery (e.g. mini tractors) to address labor shortages; expansion of greenhouses to extend the growing season and reduce climate risks; and rehabilitation of damaged irrigation canals to bring currently unused land back into production. Together, these priorities reflect a strong demand for practical, asset-based investments to stabilize production and reduce vulnerability to climate shocks.

Roshtqala is a mountainous district in the GBAO of eastern Tajikistan. The district relies mainly on small-scale agriculture, livestock, and horticulture. The main agricultural activities in Roshtqala include the cultivation of potatoes, wheat, barley, vegetables, fodder crops, and some oil crops, alongside orchards producing apples, apricots, mulberries, walnuts, and various berries. Livestock

keeping, particularly cattle, sheep, and goats, is also an important source of livelihoods for rural households.

In Roshqala, most of the population relies on livestock as their main source of livelihood. Communities in Roshtqala reported several major climate-related changes in recent years, including rising temperatures, rougher weather, declining rainfall, increasing water scarcity, glacier melt, and reduced river flows. Participants also highlighted more frequent floods, landslides, strong winds, soil erosion, pasture degradation, and declining agricultural productivity, all of which are negatively affecting livelihoods and food security. Most recently, a powerful windstorm damaged the roofs of 72 houses across the district, illustrating the increasing frequency and severity of extreme weather events. Participants noted that such disasters create significant financial losses and emotional stress for affected households.

Communities in Roshtqala highlighted the scarcity of arable and irrigated land as a major constraint on agricultural production and livelihoods. Due to the mountainous terrain, only a limited area is suitable for cultivation. At the same time, climate change has brought more frequent droughts and worsening water shortages to the region, further limiting agricultural production and land productivity. Some households are gradually shifting from farming to livestock keeping or other income sources, as livestock is considered more manageable under limited water conditions. Drought has also worsened pasture conditions and weakened animal health, making livestock more vulnerable to disease outbreaks and leaving households increasingly exposed to economic losses and livelihood insecurity. For example, communities identified brucellosis as one of the most serious livestock diseases affecting cattle, sheep, and goats. In the Roshtqala district, brucellosis has caused significant losses for both animals and families, posing a double threat to food security and public health.

Participants of the FGD explained that there have been periods when households had to delay or even stop planting due to poor harvests caused by drought and water shortages. Because yields were low, many families were unable to save enough seeds for the following season, as most of the harvest had to be used for household consumption during winter. At the same time, financial difficulties limited their ability to purchase seeds from the market. As a result, some households were forced to reduce cultivated areas or temporarily stop planting altogether, increasing livelihood insecurity and vulnerability to drought and climate change.

Bakhdavlatov Bakhdavlat from Barvoz village explained that drought caused the largest losses for his household. He reported that water shortages led to crop failures and drying of grasslands, leaving families without enough fodder for livestock. As a result, animals became weaker, some livestock died, and overall agricultural production declined significantly. According to him, households suffered losses both in crop harvests and livestock.

Mirakov Zafar explained that over the past five years, his household has struggled with recurring droughts that have dried up local rivers and made farming increasingly difficult. He also noted that winters have become harsher, with unexpected heavy snowfalls that caused livestock losses. Ac-

According to him, one landslide even destroyed part of the community pasture, reducing available grazing land. He stated that these events have reduced harvests, weakened livestock, and made his family's livelihoods much more difficult.

Overall, participants explained that one of the hardest coping strategies for families is selling livestock or other household assets, as in many cases, animals are the last remaining source of livelihood and income. Borrowing money is also risky, as many households struggle to repay their debts. For many years, families mainly relied on remittances from relatives working abroad to cope with economic difficulties. However, participants noted that due to the worsening global economic situation, remittances have declined significantly, as migrant family members are now barely able to cover their own living costs. As a result, rural households are left with fewer coping options and face increasing economic hardship.

A major problem related to water scarcity in the district is water loss from seepage in irrigation canals. Most of the water is lost before it even reaches the villages, or even along the stretches between villages. The main reason is the lack of essential water infrastructure, such as canals, pumps, and drip irrigation systems, which makes farming increasingly difficult. This exacerbates the water shortage, especially during dry years. Respondents noted that, in their view, one of the best options for improving the irrigation system would be the introduction of water-pipe systems and unanimously agreed that if there is an opportunity to improve access to drinking and irrigation water, communities are ready to contribute and support implementation efforts. Participants noted that households could provide labor through community harvest activities for construction and maintenance works. They also expressed willingness to make modest financial contributions, estimated at around 5–10% of investment costs, for larger projects, recognizing that water scarcity is a critical local problem and that communities themselves will directly benefit from the solutions. Participants reported that WUAs face several key challenges, including limited institutional and technical capacity, insufficient machinery and equipment for canal maintenance, and insufficient collection of membership and water fees from users. These constraints limit WUAs' ability to manage irrigation systems and maintain water infrastructure effectively.

Overall, in Roshtqala, key priorities identified for strengthening climate resilience included water-efficient technologies, livelihood diversification, and improved early warning systems. Communities emphasized the need for modern irrigation technologies to improve water-use efficiency and address increasing water shortages. Diversification of household incomes through livestock production, greenhouse farming, processing activities, and small businesses was also highlighted as important for reducing dependence on climate-sensitive agriculture. In addition, strengthening access to climate information and early warning systems for floods, droughts, and other natural hazards was considered essential for improving preparedness and reducing climate-related risks.

**Districts of Republic Subordinates (DRS):** the workshop was held on January 15<sup>th</sup>, 2026. Workshop participants from the DRS highlighted a range of interconnected climate risks affecting agriculture and rural livelihoods. Participants reported more frequent floods and heavy rainfall. The target

districts – Laksh, Sangvor and Tojikobod are in steep, narrow valleys with fragile soils and fast-flowing rivers. When heavy rainfall occurs, water runs rapidly down the slopes instead of soaking into the ground. This rapid runoff increases river discharge quickly, causing flash floods in valley bottoms where most villages and farmland are located. Steep slopes and thin mountain soils are also highly prone to erosion. Heavy rain easily washes away the topsoil, triggering landslides and mudflows that damage fields, roads and irrigation systems. River channels in these narrow valleys are confined and unstable, so increased runoff quickly leads to riverbank erosion and flooding of nearby settlements. As a result, the combination of steep terrain, fragile soils and concentrated settlements along river valleys makes these districts particularly vulnerable to floods and rainfall-driven erosion.

The participants also highlighted dust storms and drought periods as major concerns for the districts. Prolonged dry periods reduce soil moisture and vegetation cover, leaving mountain slopes and valley soils exposed. Strong winds then lift and transport dust, lowering air quality, damaging crops and accelerating soil erosion. Dust deposition reduces plant growth and pasture productivity, while drought limits water availability for irrigation and livestock.



*Group work presentation*

Warmer temperatures and milder winters in Lakhsh, Sangvor and Tojikobod are contributing to an increase in harmful insects and crop pests. Higher survival rates during winter and longer growing seasons allow pests to spread more rapidly and produce multiple generations each year. This is increasing damage to fruit and vegetable crops, reducing yields and quality, and raising production costs for farmers.

Rising temperatures and melting glaciers in upstream areas were also identified as drivers of heatwaves, water stress and growing pressure on rainfed farming systems, particularly affecting small farmers and women-headed households.

Uncontrolled overgrazing, combined with drought and declining vegetation, is accelerating land degradation, soil erosion and mudflows. Livestock health was also raised as a major concern, with farmers reporting sick animals, weight loss, reduced milk production and increased risk of disease transmission to humans.

#### Community consultation outcomes in DRS: Tojikobod

Farmers in Tojikobod report that climate change is increasingly disrupting agricultural production systems, with the most critical impacts linked to rising temperatures, prolonged dry periods, and declining water availability. These changes are creating a more hostile environment for crop production and are directly affecting household food security and incomes.

A major concern highlighted during interviews is the increased incidence of pests and plant diseases, which farmers associate with higher temperatures and water stress. Prolonged heat and drought conditions weaken crops, making them more vulnerable to infestations, while warmer conditions allow pests to spread more rapidly and survive across seasons. As a result, farmers report significant



yield reductions, particularly in staple crops such as potatoes, which are the main cash crops for most farmers in Tojikobod.

The impacts of climate shocks are already translating into severe economic stress at the household level. Farmers emphasized that in years of drought or poor harvests, they are forced to rely on negative coping strategies. For example, a farmer from Tojikobod (Midoev Khusrav) reported that in 2025, due to drought-related losses in potato production, he had to sell livestock at a reduced price to cover immediate needs and also take out a bank loan to sustain his household until the next harvest. This reflects a broader pattern where livestock, normally a productive asset, becomes a distress coping mechanism, undermining long-term resilience.

At the same time, farmers noted that income diversification provides only partial protection. Orchard production is often used as an alternative income source and can help buffer some losses; however, it is also increasingly exposed to climate risks such as irregular precipitation, temperature fluctuations, and pest outbreaks. As a result, diversification alone is not sufficient to offset growing climate-related losses.

Access to finance emerged as another critical constraint, limiting farmers' ability to adapt to climate change. Farmers reported that they frequently rely on loans to purchase inputs such as seeds, but access to credit is constrained by limited trust in financial institutions and small loan sizes. As expressed by farmers in Nushor and Sharqiyon: *"We take loans mainly for buying seeds, but banks do not give us large amounts because they do not trust us."*

This limited access to affordable finance restricts farmers' ability to invest in climate-resilient technologies and practices (e.g., improved seeds, irrigation systems, pest management), effectively trapping them in a cycle of low productivity and high vulnerability.

Overall, the consultations highlight several interconnected climate-related challenges in Tojikobod:

- Increased pest and disease pressure driven by rising temperatures and water stress
- Declining crop yields, particularly for key staples such as potatoes
- Heightened livelihood vulnerability, leading to distress sales of assets and increased indebtedness
- Limited effectiveness of existing coping strategies, including livestock and orchard income
- Restricted access to finance, constraining adaptation investments

Farmers emphasized that without targeted support to improve water access, strengthen pest management, and expand access to finance and climate-resilient technologies, climate change will continue to erode agricultural productivity and household resilience in the district.

Farmers in Zafarobod and Guliston highlighted that institutional gaps in water management are exacerbating climate-related water stress, particularly amid rising temperatures and declining water availability. In several sub-districts, WUAs are either weak or non-operational, resulting in fragmented and inefficient water distribution systems.

Farmers emphasized that the absence or limited functionality of WUAs leads to unequal and unreliable access to irrigation water, especially during peak demand periods intensified by climate variability. In Zafarobod and Guliston, farmers specifically highlighted the need to improve water distribu-

tion points and to establish or strengthen WUAs to ensure a more transparent, coordinated, and equitable allocation of water resources. Without effective local water governance, climate-induced scarcity is further amplified, disproportionately affecting smallholders and downstream users.

Overall, in Tojikobod district, farmers reported relatively better access to early warning information, primarily disseminated through local government structures and the Committee of Emergency Situations (CoES). Some farmers also access agriculture-related information through online platforms, which supports basic seasonal planning. However, despite these improvements, farmers noted that climate information remains fragmented and insufficiently localized or actionable. Existing systems tend to focus more on general alerts rather than providing tailored, farm-level advisories (e.g., crop-specific guidance, pest forecasts, irrigation scheduling), limiting their effectiveness for climate adaptation.

To cope with increasing climate risks, farmers rely heavily on livelihood diversification and coping mechanisms, though these remain largely reactive. Key sources include:

- Livestock, which serves as both an income source and a financial buffer, is often sold during crises, reducing long-term resilience
- Labor migration, with remittances playing a critical role in stabilizing household income during periods of climate stress
- Access to loans, primarily used to purchase agricultural inputs or cover short-term needs following climate-related losses

However, these strategies reflect coping rather than adaptive capacity, as they do not address underlying vulnerabilities or enable investment in more resilient production systems.

Overall, farmers stressed that climate change is intensifying existing structural challenges related to water governance, access to timely and relevant climate information, and limited livelihood options. Strengthening WUAs, improving water distribution infrastructure, and enhancing the quality and usability of climate information services are seen as critical priorities to support more effective and sustainable adaptation.

#### Existing coping mechanisms and community resources

Farmers highlighted the need to transition towards more climate-resilient production systems, particularly in response to increasing water scarcity, rising temperatures, and declining soil fertility. One of the key strategies identified is the expansion of orchard-based systems, which are perceived as more water-efficient and better adapted to local climatic conditions compared to water-intensive field crops such as vegetables.

Farmers noted that orchards (e.g., fruit and nut trees) not only require less frequent irrigation once established, but also provide more stable and diversified income streams, helping households better cope with climate variability. However, scaling orchard development is constrained by limited access to planting material, technical knowledge (e.g., pruning, pest management), and initial investment. A major cross-cutting barrier identified is limited access to modern technologies, equipment, and training. Farmers expressed a strong interest in adopting improved practices, but lack:

- Technical knowledge and extension support on climate-resilient agriculture
- Access to equipment and inputs required for improved production systems
- Financial resources to invest in new technologies

Improving soil fertility was also identified as a priority, particularly given the declining soil productivity under climate stress. Farmers emphasized the need for:

- Better access to fertilizers

- Promotion of organic solutions, including biohumus (vermicompost) production and use, which can improve soil structure, water retention, and long-term fertility under drought conditions

Water access and management remain central to all adaptation efforts. Farmers prioritized:

- Expansion of solar-powered water pumping systems to reduce energy costs and improve access to irrigation water
- Improved water management practices, including efficient allocation and use of limited resources
- Construction of water storage infrastructure (reservoirs) to capture and store water for use during dry periods

Farmers also expressed strong interest in integrated and diversified livelihood models that can enhance resilience and income stability. Key areas include:

- Agroforestry systems, combining trees with crops to improve soil conservation, reduce erosion, and enhance productivity
- Greenhouse production is used to stabilize yields and extend growing seasons under changing climatic conditions
- Beekeeping is a low-water, climate-resilient income source that also supports pollination and agricultural productivity
- Processing and value addition (e.g., drying, preservation), to reduce post-harvest losses and increase income

In addition, farmers stressed the importance of strengthening seed systems, including access to high-quality, climate-adapted seeds and planting materials, supported by advisory services to ensure proper use and adaptation to local conditions.

Overall, farmers emphasized that while there is a strong willingness to adopt climate-resilient practices, systemic constraints, particularly limited access to technology, finance, and knowledge, are preventing widespread uptake. Addressing these barriers through integrated support (infrastructure, training, and financing) is critical to enabling a transition toward more sustainable, climate-resilient agricultural systems.

### **Community consultations in Lakhsh and Sangvor**

Lakhsh is a mountainous district in eastern Tajikistan located in the Rasht Valley within the Districts of Republican Subordination (DRS). The district relies mainly on agriculture, livestock, remittances, and pasture-based livelihoods. The main agricultural activities in Lakhsh include the cultivation of potatoes, wheat, barley, vegetables, and fodder crops, as well as orchards producing apples, apricots, walnuts, and other fruits. Livestock production, particularly cattle, sheep, and goats, is also a major source of livelihoods for rural households. In Lakhsh, approximately 4,474 ha of land is irrigated, 1,802 ha is rainfed agricultural land, and around 128,973 ha is used as pasture. The size of agricultural landholdings varies significantly depending on the farm's capacity. Irrigated land typically ranges from around 0.15 ha to 4 ha per household, while rainfed land ranges from approximately 0.2 ha to 20 ha. Access to pastureland also varies widely, with households using between 0.3 ha and 25 ha for grazing and livestock production.

Communities in Lakhsh reported several interconnected challenges affecting agricultural production and livelihoods. Participants explained that crop productivity is declining due to climate change

impacts, poor-quality seed materials, and soil degradation, as many soils have become exhausted and lost fertility over time. Key climate-related problems include rising temperatures, severe heat stress, strong winds and dust storms, irregular rainfall patterns, and water scarcity during critical crop-growing periods. Farmers noted that rainfall often occurs when water is least needed, while drought persists during periods of high agricultural demand. Sudden cold spells, heavy rains, floods, and overgrazing were also identified as major challenges that damage crops, pastures, and farming activities, creating both physical and financial difficulties for households.

Kamolov Eraj explained that prolonged droughts, irrigation water shortages, crop diseases, and soil degradation have mainly caused declining agricultural production in recent years. He noted that potato diseases, including nematode infestations, have become a serious problem, while farmers lack knowledge and resources to control them effectively. Due to the short agricultural season in the district, failed crops cannot be replanted, leaving households with major financial losses. According to him, some farmers are even forced to temporarily stop farming or lease out their land until they recover financially. He also highlighted that continuous potato cultivation, driven by the district's dependence on potato production, limits proper crop rotation and further contributes to declining soil fertility and land degradation.

Communities in Lakhsh reported that rising temperatures are worsening water scarcity and creating serious irrigation challenges for farmers. Participants noted that irrigation water is insufficient, and in some cases, farmers must wait up to 15 days for their turn to irrigate fields. The absence of WUAs, combined with the poor condition of irrigation canals and high water losses, further reduces irrigation efficiency. Key priorities identified by communities



include the rehabilitation and construction of canals, the development of reservoirs for irrigation and livestock watering in pastures, riverbank reinforcement, the installation of electric and solar-powered pumps, and the introduction of drip irrigation systems. Farmers also expressed strong interest in water-efficient technologies but emphasised the need for low-interest loans, longer grace periods, and grant support to make such investments affordable.

Communities in Lakhsh identified access to water, tree planting, and storage facilities as the top priorities for strengthening livelihoods and agricultural resilience. They emphasized the need for rehabilitation and construction of irrigation infrastructure to ensure a reliable water supply, alongside improved soil quality and access to high-quality seed varieties to increase agricultural productivity. Tree planting was highlighted as important for protecting land and improving environmental conditions, while better storage facilities are needed to reduce post-harvest losses and improve food security.

Additional priorities included pest and disease control, improvement of livestock breeds, and access to agricultural machinery such as crawler tractors, moto blocks, and mini tractors.

**Sangvor:** Sangvor is a mountainous district in eastern Tajikistan located in the Rasht Valley within the Districts of Republican Subordination (DRS). The district relies mainly on agriculture, livestock, remittances, and pasture-based livelihoods. Main crops include potatoes, wheat, barley, vegetables, fodder crops, and orchards producing apples, apricots, and walnuts. Livestock production, particularly cattle, sheep, and goats, is also an important source of income for rural households.

According to the district agriculture department in Sangvor, the district has 1,885 ha of agricultural land, including 1,216 ha of irrigated land and 567 ha of rainfed land, mainly used for grain production, as well as 193,846 ha of pastureland. Kitchen gardens cover 1,381 ha, of which only 565 ha is irrigated. In Sangvor, the size of agricultural landholdings varies according to each farm's capacity. Irrigated land typically ranges from 1 ha to 10 ha, while rainfed land ranges from around 5 ha to 70 ha. Land use also varies for pasture areas, with many households allocating a significant share of available land to both farming and fodder crop production to support livestock livelihoods.

Participants of the FGD identified overgrazing as one of the key environmental problems affecting pasture conditions in Sangvor. Communities reported that seasonal movement of sheep and goat flocks from other parts of Tajikistan often does not follow agreed regulations, including early arrival to pastures and exceeding agreed livestock numbers—for example, instead of the agreed 20 herds, up to 60 herds may be moved into grazing areas. Participants also noted weak compliance with disinfection and other environmental requirements, which further contributes to pasture degradation and pressure on natural resources. Mizomuding Qalandarov explained that pasture degradation has become a serious problem in the area. According to him, flocks of sheep and goats from other parts of Tajikistan are often moved to mountain pastures too early, before the grazing areas are ready. This leads to overgrazing every year, degrading pasture conditions and leaving insufficient grazing space for local cattle and small livestock.

Other interconnected challenges identified by participants include rising temperatures, heat stress, low precipitation, water scarcity, and an increasing frequency of heavy rains, floods, and hailstorms that damage crops after planting and result in major production and income losses. Communities also reported that higher temperatures are contributing to the spread of crop pests and diseases. Pests and diseases increased due to heat stress and a lack of precipitation; additionally, poor-quality seeds reduced productivity by 50%, leaving farmers vulnerable as they invest all their resources in planting only to have their hard work destroyed by sudden hailstorms and floods. Participants noted that in some years, farmers were unable to continue agricultural activities until they secured enough inputs for the next planting season. Environmental and pasture-related concerns emphasised weak enforcement of ecological grazing requirements. Communities also raised concerns about gold-mining enterprises operating along the Khingob River, stating that their activities negatively affect irrigation canals and local water resources.

Participants of the FGD in Sangvor reported that rising temperatures are contributing to the loss of water sources and mountain springs, increasing water scarcity in the district. Communities

emphasized the need to rehabilitate irrigation canals and noted that WUAs are responsible for water distribution and maintenance of irrigation and drinking water systems. However, WUAs face challenges, including a lack of machinery, limited capacity to manage and distribute water resources, and low collection of membership fees, as many users are reluctant to pay higher fees, which currently average around 5 somoni per month.

In Sangvor, the main priorities identified by communities included improving access to water, expanding tree planting activities, and diversifying household income sources. Income diversification through livestock production, processing activities, small businesses, and other alternative livelihoods was considered essential for reducing dependence on climate-sensitive agriculture and strengthening household resilience. Communities also highlighted the establishment of processing businesses as an important priority, particularly for fruit processing and production of sea buckthorn and almond oil, which are seen as having strong local potential.

### **Barriers to climate-resilient practices and existing coping strategies across the regions**

Workshop participants further highlighted major capacity and resource gaps that limit farmers' ability to adapt to climate change. They reported low levels of farming skills and limited access to information on crop diversification and to quality agricultural inputs (seeds, fertiliser, pesticides, etc.). Participants also noted the lack of reliable weather forecasts to support seasonal planning and the selection of drought-resistant seeds and saplings. In the past, farmers relied on relatively predictable seasonal patterns, but climate change has made weather increasingly unpredictable, making access to accurate and timely forecast information more essential than ever. Access to quality seeds and planting material was described as very limited and often unaffordable, while subsidies are either insufficient or inaccessible, pushing many farmers into debt. Lack of subsidies and affordable credit products also limits farmers' ability to introduce water-saving or green technologies. Participants also noted the shortage of professional agronomists in districts and the lack of agricultural machinery, both of which constrain productivity and the adoption of climate-resilient farming practices.

Mainly, basic measures are currently being implemented, such as canal cleaning, reforestation, and riverbank protection, along with the limited introduction of water-saving technologies, water-harvesting systems, greenhouses, and other infrastructure solutions. However, the scale and sustainability of these measures remain insufficient considering the growing impacts of drought, heat and land degradation. The common practice of growing the same crop every year, combined with excessive pesticide use, is degrading ecosystems and harming the environment. Overall, participants noted the lack of systemic approaches and the limited integration of climate change and adaptation into planning and investment processes.

### **Most vulnerable groups across regions**

Particular attention during the workshops was given to identifying who is most affected and most vulnerable to these changes. Discussions highlighted that smallholder farmers, women-headed

households, households with limited land or income, remote mountain communities, and livestock-dependent families are disproportionately impacted. These groups often have less access to irrigation water, climate information, finance and climate-resilient technologies, making it harder for them to adapt to increasing climate variability and environmental risks.

**Smallholder farmers:** Workshop participants identified smallholder farmers, particularly those relying on rainfed agriculture, as one of the most vulnerable groups to climate change. Their production is highly dependent on rainfall and seasonal climate conditions, making them extremely sensitive to droughts, heatwaves and irregular precipitation. Limited access to finance, technology, climate information and extension services further constrains their ability to adapt to climate shocks, increasing the risk of crop losses, income instability and food insecurity. In Tajikistan, smallholder farmers are typically defined as those managing between 0.5 and 3 hectares of land per household.

**Livestock** herders and pasture-dependent households were identified as another highly vulnerable group. Participants highlighted growing pasture degradation and water shortages, which are reducing the availability of natural fodder and lowering livestock productivity. Declining pasture quality forces animals to graze on sparse vegetation, increasing overgrazing, land degradation and soil erosion. As a result, households face reduced milk and meat production, higher feeding costs and increased risks to their livelihoods and food security.

People living in areas exposed to floods and mudflows were also identified as highly vulnerable. Participants noted that these hazards often lead to the loss of agricultural land, damage to irrigation systems, roads and other infrastructure, and disruption of access to markets and services. Such events pose direct threats to livelihoods, food security and even human safety, increasing the vulnerability of already fragile rural communities.

**Female-headed households** were identified as particularly vulnerable to the impacts of climate change. Participants noted that women often have limited access to land, water, financing and agricultural services, which restricts their ability to adapt and invest in climate-resilient practices. Climate-related income losses and increasing livelihood pressures are forcing many women to migrate with their children to other regions in search of work, or to leave their children in the care of elderly relatives. These challenges increase social and economic vulnerability and place additional burdens on already fragile households.



**Young people** were also identified as a vulnerable group. Participants noted that many youths do not see viable opportunities in agriculture due to climate risks, low profitability and limited access to resources and modern technologies. As a result, many young people migrate to urban areas or abroad in search of better livelihoods, leading to labour shortages, reduced innovation, and a weakening of the long-term sustainability of rural communities and the agricultural sector.



## Adaptation needs and priorities by regions

### Khatlon region

#### 1. Water resources and irrigation infrastructure

Participants emphasized the need to strengthen water management systems by constructing reservoirs and installing pumps, and by scaling up water-saving technologies, including groundwater use, to ensure reliable irrigation. Small water-harvesting and recharge measures should be more widely promoted among farmers, such as the construction of small water reservoirs/small ponds, infiltration basins, and vegetated water retention areas to capture seasonal runoff, improve groundwater recharge, and reduce flood risks.

They highlighted the importance of cleaning inter-village drainage and irrigation canals, and of restoring watersheds to improve water storage, reduce losses, and increase resilience to drought and seasonal water shortages. At present, Water User Associations (WUAs), which are primarily responsible for cleaning inter-village drainage and canal systems, are unable to effectively address these issues due to a lack of machinery and equipment.

#### 2. Sustainable and climate-resilient agriculture

Participants stressed the need to improve access to quality seeds adapted to local climatic and dry conditions. They also highlighted the introduction of energy-efficient agricultural technologies, expansion of greenhouse production, and the promotion of terraced and slope farming as key measures to increase productivity, reduce land degradation and strengthen climate resilience.

Rainfed agriculture is particularly important in districts of the Khatlon Region, such as Khuroson and Temurmalik, where a large share of agricultural land depends directly on rainfall and is highly

vulnerable to drought, heatwaves, dust storms, and irregular precipitation. Proposed solutions include the introduction of drought-resistant crop varieties, conservation agriculture practices, agroforestry systems, moisture-retention measures, small-scale water harvesting, and improved access to climate information and advisory services to strengthen the resilience of rainfed farming systems

### 3. Ecosystem restoration and land protection (NbS / DRR)

Nature-based solutions are considered important for restoring degraded landscapes, addressing pasture degradation, and reducing disaster risks. Priority measures include tree planting and forest restoration to rehabilitate degraded and dried lands, establishment and rehabilitation of shelterbelts, especially in mountainous areas, and implementation of riverbank protection and anti-erosion measures to safeguard agricultural land, infrastructure, and communities. Improved pasture management and restoration measures are also needed to address widespread overgrazing, declining vegetation cover, and reduced fodder availability. Proposed approaches include introducing agroforestry systems combining fruit trees (apricot, almond, pistachio), fodder shrubs, and crops on degraded and sloped lands to improve soil stability, restore vegetation cover, and strengthen livestock-based livelihoods.

### 4. Capacity building and knowledge development

Participants highlighted the need to strengthen local capacities by integrating climate-resilient and agrotechnological practices into district-level vocational education programmes. They also stressed the importance of awareness campaigns on climate change, as well as prevention and adaptation measures targeting communities and small and medium farmers. Regular digital training sessions on modern farming practices, drought-resilient crops and crop diversification were identified as key actions to improve productivity, soil fertility and long-term resilience.

#### Districts of the Republic Subordinate

##### 1. Water resource and irrigation management

Participants emphasized the importance of strengthening water management by regularly monitoring and cleaning inter-village irrigation and drainage canals. WUAs to be strengthened both technically through improved knowledge of water distribution and basic hydrology (ratio of water consumption per crop) and operationally, by ensuring access to machinery and equipment for canal and drainage cleaning. Participants also highlighted the need to construct small water reservoirs to store irrigation water and to promote the adoption of water-saving technologies, such as drip irrigation, to improve water efficiency and reduce losses during the growing season.

##### 2. Ecosystem restoration and disaster risk reduction (DRR)

Participants stressed the need for tree planting and forest restoration to rehabilitate degraded and

drought-affected lands. Riverbank protection measures were also identified as a priority to reduce flood and erosion risks and protect agricultural land, infrastructure and rural communities.

### 3. Climate-resilient agriculture and land management

Participants emphasized the need to strengthen sustainable farming practices through regular training sessions on good agricultural practices. They highlighted the promotion of drought-resilient crops and crop diversification to improve yields, enhance soil fertility and reduce climate risks. Some drought-resistant crops, such as safflower, are increasingly being introduced; however, these crops also require appropriate processing equipment. Safflower supports slope stabilization, and its oil is highly nutritious with strong demand in the domestic market. Participants also stressed the importance of awareness-raising campaigns on climate change and preventive measures targeting communities and small and medium farmers to support the wider adoption of climate-resilient practices.

#### GBAO

##### 1. Water resource and irrigation management

Participants emphasised the need to improve irrigation efficiency by cleaning and desilting drainage systems and irrigation canals. The introduction of drip irrigation technologies was highlighted as a key priority to reduce water losses and improve water-use efficiency. Participants also stressed the importance of constructing water-harvesting systems to collect and filter runoff, thereby reducing soil erosion and improving water availability. The use of synthetic geomembranes in suitable areas was identified as a practical solution to enhance water retention and improve irrigation efficiency. Solar-powered pumping with battery storage can provide reliable irrigation for orchard development in Ishkashim and Roshtkala by lifting river water to storage tanks and distributing it through drip irrigation. This approach reduces dependence on diesel and unreliable grid electricity while allowing pumping during low-sun periods. With proper filtration and a flood-resilient intake design, it offers a sustainable, cost-effective solution for irrigating orchards on terraces and slopes where gravity irrigation is not possible.

##### 2. Energy-efficient and innovative solutions

Participants highlighted the need to introduce energy-efficient equipment and train farmers in the use of modern water- and energy-saving technologies. They also emphasized the importance of strengthening the capacity of Water User Associations (WUAs), including improving technical skills, financial management, and operation and maintenance practices to support more effective water management. In addition, participants stressed the need to review and update district development plans to integrate innovative, energy-efficient, and off-grid solutions that can improve resilience, reduce costs, and strengthen the sustainability of rural infrastructure.

##### 3. Climate-resilient and regenerative agriculture

Participants stressed the importance of improving access to quality seeds and planting materials adapted to local climatic and environmental conditions as a key step to strengthening agricultural productivity, resilience, and long-term sustainability. Participants also highlighted the need to strengthen farmers' knowledge and skills in producing biohumus, particularly vermicompost. Training would focus on practical methods for converting livestock manure and crop residues into high-quality organic fertilizer using low-cost vermicomposting systems. Improved access to vermicompost can enhance soil fertility, increase water retention, reduce dependence on chemical fertilizers and improve crop yields and resilience to drought. It can also create small income opportunities through the local production and sale of organic fertilizer within farming communities, with a focus on women and youth. Other skills and knowledge that need strengthening include mulching, cover cropping, crop rotation, and crop diversification.

### Sughd region

#### 1. Improving access to water resources

Participants emphasized the need to rehabilitate and modernize irrigation and drainage systems, including cleaning and restoring canals, as well as constructing and upgrading water-harvesting structures, reservoirs, and pumping stations. Construct or rehabilitate small reservoirs, night storage basins and farm-level water storage to buffer seasonal water shortages. The adoption of water-saving technologies, including drip irrigation, was highlighted as a priority to reduce water shortages during the growing season and improve overall water-use efficiency. Build technical capacity of WUAs in water distribution, scheduling and maintenance, and provide access to machinery for canal and drainage cleaning.

#### 2. Adapting agriculture to drought and heat

Participants stressed the importance of introducing drought-resilient and locally adapted crops and seeds, diversifying agricultural production, expanding greenhouse farming and promoting climate-resilient agrotechnologies. Priority adaptation measures highlighted included promoting drought-resilient crops such as apricot, almond, pistachio, pomegranate, safflower, chickpea, and barley, alongside water-efficient technologies such as drip irrigation, solar pumping, and small water storage systems. Combined with soil-moisture conservation practices and climate-smart greenhouses, these measures can significantly improve agricultural resilience to increasing heat and water scarcity in Isfara, Asht, Ayni and Panjakent. These measures were identified as essential to increase productivity and reduce farmers' vulnerability to rising temperatures and more frequent droughts.

#### 3. Restoring and protecting land and pasture resources

Participants highlighted the need for reforestation, the establishment of shelterbelts, slope terracing, the restoration of degraded and saline lands, and improved pasture management, including the

creation of watering points for livestock. These actions were seen as critical for reducing land degradation, improving soil fertility and supporting sustainable livestock production.

#### 4. Reducing disaster risks and ecosystem degradation

Riverbank protection measures were identified as a priority to prevent floods and erosion, alongside actions to reduce the risks of mudflows and landslides. Participants stressed that these measures are essential to protect agricultural land, infrastructure and rural communities from increasing climate-related hazards.

#### Quotes from the stakeholders' engagement workshop held in Khatlon and DRS

##### Women-led Public Organization (PO)

Over the last two to three years, the adverse effects of climate change have become obvious, tangible and devastating. Especially, more and more small households are contacting organizations to report problems that, 10 or 15 years ago, were less common and less concerning. Nowadays, everyone talks about them.

For instance, dust storms now last for weeks. Small households with gardens and orchards can no longer produce fruit. In the past, especially for women, orchard fruits were used to dry, sell and use during lean seasonal periods. But now, because of the dust storms, fruits do not grow well; they become covered with harmful insects and webs and fall off before fully ripening.

On top of this, families no longer see domestic animals as assets. Short rains and less grass have raised fodder prices, which poor households cannot afford. As a result, they sell their cows, since keeping them has become too expensive.

Dust storms and heat waves force families to purchase and install air conditioners. Usually, they buy them through bank loans or credit. As a result, they struggle to choose between repaying debts and buying food and fertilizers, among other necessities.

These factors now contribute to existing food insecurity and push both men and women to migrate. Some leave their children with grandparents to care for them, while others move with their entire families. Many go to Dushanbe in search of better-paying jobs, becoming internally displaced. Others travel to Russia, the main host country for migrants, despite facing risks of deportation and financial difficulties there.

#### Quotes from Tajikabad:

##### Agro Specialist, Department of Agricultural Management

Dust storms and short rains are the main problems we face in the region. We rely heavily on arable land and water, but over the last two to three years, this has become more challenging.

We are losing our pastures as more herds use the land, preventing grass from growing well and disturbing the natural balance. In addition, dry soil and dust cause worms to appear on the grass, which then eat it, further reducing pasture quality for flocks.

Less milk, less meat, as flocks struggle to find food in overgrazed areas to produce enough. There is little interest among youth in working in the agro-sectors, especially in pasture management; they prefer to sell off land and migrate, as they say, because it is easier for them.

### **Stakeholder Engagement during Project Implementation**

Stakeholder engagement during project implementation will be institutionalized through a structured, multi-level approach involving national, district, and community stakeholders.

At the national level, key stakeholders will include Hydromet, the Agency for Land Reclamation and Irrigation (ALRI), the Committee of Emergency Situations (CoES), and relevant line ministries. WFP will have overall responsibility for coordination and oversight, ensuring that all national stakeholders are effectively engaged, aligned, and contributing to project implementation in line with national priorities and GCF requirements. To operationalize this, WFP's RAM unit will develop a detailed implementation plan based on the project logframe, which will further guide stakeholder engagement by clearly defining activities, sequencing, roles, and coordination mechanisms.

At the district level, stakeholders will include district authorities, district-level Committees for Environmental Protection, District Adaptation Committees (DACs), jamoat administrations, and sector departments (agriculture, water, environment, disaster management). Engagement will be anchored in these institutional structures, with DACs serving as the primary coordination platforms to ensure regular consultation, joint planning, and monitoring. Engagement will be further strengthened through the development and application of district-level climate risk profiles, enabling more targeted, context-specific engagement based on detailed analyses of local vulnerabilities, risks, and priorities in each district.

At the community level, stakeholders will include smallholder farmers, livestock keepers, women and youth groups, vulnerable households, Water User Associations (WUAs), pasture user groups, forest user groups (e.g., Leskhoz), and community leaders. Engagement will be conducted through participatory planning processes, extension services, inclusive participation, and support for the adoption of climate-resilient practices. These mechanisms will be particularly important for reaching women-headed households, remote communities, and other vulnerable groups identified in the stakeholder consultations.

Engagement across all levels will follow defined timelines and frequencies, including quarterly district-level coordination meetings and regular community consultations aligned with agricultural cycles, ensuring continuous interaction and responsiveness throughout implementation.

A continuous feedback loop will be established, linking community-level consultations and WFP's Community Feedback Mechanism (CFM) to the project's monitoring and evaluation system. Grievances and feedback will be systematically collected, tracked, and addressed through a multi-tier Grievance Redress Mechanism (GRM), with clear escalation pathways from community to district and national levels. This integrated approach will ensure inclusive participation, responsive decision-making, and adaptive management, while strengthening transparency and accountability throughout project implementation.

The stakeholder engagement and grievance mechanisms will integrate SEAH-sensitive procedures to ensure safe, confidential, and survivor-centred handling of complaints. This will include confidential and accessible reporting channels, referral pathways to appropriate support services where available, trained focal points, and clear codes of conduct for project staff, contractors, and partners. Information related to SEAH complaints will be managed on a strict need-to-know basis to protect privacy and confidentiality. Awareness-raising on grievance channels and expected standards of conduct will be integrated into community consultations and engagement activities. Retaliation against complainants or survivors will not be tolerated. Special attention will be given to ensuring accessibility for women, youth, persons with disabilities, female-headed households, and other vulnerable groups through inclusive consultation and gender-sensitive communication.

The project grievance redress mechanism (GRM) will incorporate measures to ensure safe, confidential, and survivor-centered handling of Sexual Exploitation, Abuse and Harassment (SEAH)-related complaints. Multiple confidential reporting channels will be made available during implementation, including referral through trusted community structures and designated focal points where appropriate. Information related to SEAH complaints will be handled with strict confidentiality, and survivors will be referred to available support services in line with national systems and applicable WFP safeguarding procedures. Stakeholder engagement activities will also include awareness of safeguarding principles, respectful conduct, and available grievance channels.

To operationalize these commitments, WFP will designate a country-level Gender Focal Point — drawn from the WFP Tajikistan Country Office — with overall responsibility for SEAH prevention, response coordination and GRM oversight. At the community level, female contact persons will be identified and trained in each target district to serve as trusted, accessible entry points for SEAH-related concerns, particularly for women and girls who may not be comfortable approaching male community leaders or formal authorities. WFP acknowledges that formal survivor support services are limited in remote project areas, particularly in GBAO and DRS. During the project inception phase, WFP will map available referral services — including health facilities, legal aid and psychosocial support — and establish agreed referral pathways with local service providers before commencement of field activities. SEAH-related complaints will be managed through a dedicated, restricted-access channel within the project GRM, entirely separate from general operational grievances. Access to SEAH complaint information will be limited strictly to the WFP Gender Focal Point and designated senior management. Survivors will retain the right to determine whether and how their case is pursued.



## **Information Disclosure and Accessibility**

Project-related information will be disclosed to communities and stakeholders through multiple accessible channels, including community meetings, jamoat- and district-level consultations, local government structures, Water User Associations, women's groups, farmer associations, local media, and digital communication platforms where connectivity allows. In GBAO and DRS — where communities speak Shughni, Rushani, Wakhi, and other Pamiri languages as their primary language — project information and consultation materials will be made available in local languages in addition to Tajik, using verbal communication and visual formats (diagrams, illustrated guides) as the primary modality for communities with lower literacy levels. Physical copies of key project information — including a summary of project objectives, community entitlements and grievance channels — will be made available at jamoat offices and community meeting points in all 14 target districts throughout implementation. Digital channels (including WhatsApp groups via mahalla leaders, which are already in use for early warning dissemination) will supplement, but not replace, in-person disclosure. Consultation updates, project progress summaries, and grievance mechanism information will be disseminated regularly throughout implementation. The SEP will be updated and re-disclosed in accordance with the timeline set out in the executive summary of this document, and updated versions will be shared with the GCF Secretariat as part of annual progress reporting.

### Stakeholder Engagement Plan – Implementation Phase

Level	Stakeholder Type	Engagement Methods	Roles & Responsibilities	Timeline	Frequency	Monitoring Role	GRM Linkage
National Level	Hydromet, ALRI, CoES, Line Ministries	<ul style="list-style-type: none"> <li>- Project Steering Committee (PSC)</li> <li>- Technical Working Groups</li> <li>- Policy dialogue workshops</li> </ul>	<p>WFP, CEP/CIIP: oversight and coordination</p> <p>Ministries: technical input</p>	Entire project cycle	PSC: 2x/year; TWGs especially for component 3: quarterly	<ul style="list-style-type: none"> <li>- Review progress and results</li> <li>- Validate policy alignment</li> <li>- Oversee M&amp;E finding</li> </ul>	<p>Final escalation level for grievances</p> <ul style="list-style-type: none"> <li>- Address systemic/policy issues raised through GRM</li> </ul>
District Level	District Authorities, District Adaptation Committees (DACs), Jamoats, sector departments (agriculture, water, environment)	<ul style="list-style-type: none"> <li>- DAC coordination meetings</li> <li>- DAP planning/review sessions</li> <li>- Multi-stakeholder workshops</li> </ul>	DAC: coordination; Sectors: technical support	Continuous (linked to DAP cycles)	<ul style="list-style-type: none"> <li>- DAC meetings: quarterly</li> <li>- Review workshops: bi-annual</li> </ul>	<ul style="list-style-type: none"> <li>- Track implementation progress</li> <li>- Validate community feedback</li> <li>- Report to national level</li> </ul>	<p>First formal grievance resolution level</p> <ul style="list-style-type: none"> <li>- Register, review, and escalate unresolved issues to WFP</li> </ul>
Community Level	Farmers, households, women/youth vulnerable groups	Community meetings; participation in competitive process for activities in Outcome 2, FGDs trainings; demo plots, Awareness campaigns	<p>Participate in planning and implementation</p> <ul style="list-style-type: none"> <li>- Provide feedback on interventions</li> <li>- Adopt climate-resilient practices</li> </ul>	Seasonal (aligned with agriculture cycle);	<p>Community meetings: monthly/bi-monthly</p> <ul style="list-style-type: none"> <li>- FGDs: quarterly</li> <li>- Trainings: seasonal</li> </ul>	<p>Provide participatory monitoring data</p> <ul style="list-style-type: none"> <li>- Report effectiveness of interventions</li> <li>- Identify local issues/risks</li> </ul>	<ul style="list-style-type: none"> <li>- Primary entry point for grievances</li> <li>- Complaints submitted via meetings, local leaders, or CFM channels</li> <li>- Sensitive complaints, including SEAH-related concerns, may also be submitted through confidential</li> </ul>

Level	Stakeholder Type	Engagement Methods	Roles & Responsibilities	Timeline	Frequency	Monitoring Role	GRM Linkage
							channels and referred according to survivor-centred procedures
Community Structures	WUAs, Pasture User Groups (PUGs/PUUs), Leskhoz, community committees	<ul style="list-style-type: none"> <li>- Regular coordination meetings</li> <li>- Joint planning sessions</li> <li>- Asset management committees</li> </ul>	<ul style="list-style-type: none"> <li>- WUAs: water allocation, O&amp;M of irrigation systems</li> <li>- PUGs/PUUs: pasture management</li> <li>- Leskhoz: forestry and land restoration</li> </ul>	Continuous	Monthly (especially irrigation/grazing seasons)	<ul style="list-style-type: none"> <li>- Monitor infrastructure performance</li> <li>- Report operational issues</li> <li>- Support local data collection</li> </ul>	<ul style="list-style-type: none"> <li>- First level for operational complaints (e.g., water distribution conflicts)</li> <li>- Escalate unresolved issues to DAC</li> </ul>
Private Sector	Input suppliers, irrigation tech providers, financial institutions (MFIs), service providers	Meetings, Public-private dialogues, business forums; partnerships	<ul style="list-style-type: none"> <li>technologies/services</li> <li>- Co-investment and scaling</li> <li>- Support market linkages</li> </ul>	Phased (pilot → scale-up)	Quarterly but can be more depending on nature of outcome and activity	<ul style="list-style-type: none"> <li>- Report service uptake and performance</li> <li>- Provide feedback on market constraints</li> </ul>	<ul style="list-style-type: none"> <li>- Address service-related complaints (e.g., equipment, services)</li> <li>- Linked to GRM via project</li> </ul>
NGOs/Partners	Local NGOs, INGOs, UN agencies, donor projects	<ul style="list-style-type: none"> <li>Coordination meetings</li> <li>- Joint field missions</li> <li>- Knowledge sharing events</li> </ul>	<ul style="list-style-type: none"> <li>- Technical support</li> <li>- Co-implementation</li> <li>- Avoid duplication and ensure alignment</li> </ul>	Throughout	Semi annual	<ul style="list-style-type: none"> <li>Support monitoring and learning</li> <li>- Provide independent feedback</li> </ul>	<ul style="list-style-type: none"> <li>- Support referral of grievances</li> <li>- Ensure alignment with safeguards</li> </ul>

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<sup>i</sup> Climate Risk and Opportunity Assessment, Tajikistan Market Driven Rural Development Activity, 2023