

# Disaster Risk Reduction in Tajikistan

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Opportunities for sustained action to reduce vulnerability and exposure

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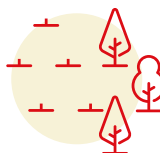


« Three key factors - deforestation, unsustainable land-use and extensive grazing contribute to the occurrence and severity of disasters in a number of watersheds and river basins. »

## Summary

Despite significant investment in disaster risk reduction (DRR) measures, rural communities in Tajikistan remain exposed to risks of loss of life and property and to shocks to the systems that support rural livelihoods. This situation is expected to worsen unless definitive measures are put in place to stabilize fragile landscapes.

Within a number of watersheds and river basins, three factors contribute to the occurrence and severity of disasters such as landslides, mudflows and flash floods:



**Deforestation** resulting from shortages in electricity and natural gas for household heating and cooking



**Unsustainable land use** management practices in agricultural production systems



**Extensive grazing** on persistently degraded mountain pastures to compensate for shortages in winter feed resources

A new phase in the national strategy for disaster risk reduction for 2019–2030 moves in the right direction in terms of building national capacities for disaster risk management, but in a critical omission, remains silent on the need to link DRR, natural resources management and sustainable rural livelihood systems.

Approaches that recognize and build on the connections between ecosystem health and disaster risk – categorized more broadly as Eco-DRR – limit rural communities' vulnerability and exposure to hazards. The Eastern Khatlon experience in implementing Eco-DRR and integrated watershed management suggests that Tajikistan can attain desired DRR outcomes through a balanced approach that considers potential losses to agricultural livelihoods within a national strategy. In light of the estimates that 75% of the national population is engaged in some form of agriculture related activity, this approach offers important advantages.

Disaster risk reduction touches on a number of sectors and institutions including agriculture, health and education. Closer intergovernmental working relationships, supported by a jointly endorsed Eco-DRR approach, are likely to help reduce the occurrence and impacts of disasters.

# Introduction

The European Union Disaster Preparedness Programme (DipECHO) has invested close to €50 million in a multitude of projects that have helped the population and governments in Central Asia prepare for and mitigate the consequences of disasters. The programme's notable achievements include the development of expertise among governmental and civil stakeholders and the refinement of contextually relevant approaches to disaster risk reduction. While challenges exist in effectively synthesizing lessons learned through the engagement of international and national organizations working throughout the country, the government of Tajikistan is working towards the integration of disaster risk reduction into national policies, budgets and legislation. The focus, however, remains largely on preparedness and early response systems and investments in structural mitigation measures to reduce vulnerability to loss of life and physical assets. Now is the time for a close examination of the connections between contemporary disaster risk and prevailing agricultural and natural resource management practices within fragile watersheds and river basins.

In post-Soviet Tajikistan, poor management of land and water use together with a depleted forest base has increased the vulnerability of rural communities to damage from the spring floods that result from intensive rainfall and snowmelt. The situation appears ripe for a shift in land use management practices, consistent with effective measures for adaptation to both short-term fluctuations in weather and long-term climate change. This approach has particular importance in Tajikistan given that 65% of the population is rural. In addition, national statistics suggest that close to 75% of the population earns an income from sources that are directly related to the agricultural sector. The production environments that provide access to stable incomes, nutrition and sustainable fuel wood are fragile, and while the linkages between agricultural production and DRR are evident in daily life, they remain noticeably absent in sectoral policies and strategies.

Ninety-one per cent of survey respondents (N=624) living in the **Muminabad district** stated that they were aware of a considerable **increase in tree plantations** within the project area over the past five years. A majority (76%) attributed this increase to greater profitability of fruit trees relative to wheat. Risk reduction also featured in decisions to plant more trees though much less prominently. Very few explicitly recognized the environmental dimensions of tree plantings. How to effectively link private economic incentives with desired environmental outcomes is a key consideration in the development of Eco-DRR approaches.

# Current realities

Drought and variability in rainfall limit access to drinking and irrigation water, and adversely affect animal health and productivity, thereby increasing food insecurity within rural areas. Declining land productivity has led to an expansion of agricultural production onto marginal lands and previously forested areas, often within fragile watersheds. Reduced tree cover, and less than desirable (from an environmental perspective) land use management practices increase the risk of disasters such as landslides, flash floods and mud flows. An overwhelming focus on DRR strategies related to mitigating loss of property and human lives is natural and warranted. Yet current realities suggest that it may be time to pay more attention to the impact of disasters on agricultural livelihood systems and, equally important, to how these livelihood systems are interlinked with vulnerability to disasters. Improving the resilience of agricultural production systems within fragile watersheds and river basins ought, therefore, be one key DRR area of focus in Tajikistan. The urgent call for paradigm shifts in the management of land and natural resources includes the need for innovation in crop mixes – more drought-tolerant and deep-rooting species and varieties of both food and forage legumes and shrubs to support better human and animal nutrition as well as improved livelihoods.


For the past decade, Caritas Switzerland (CaCH) has maintained a strategic and collaborative partnership with the Swiss Development Cooperation and the EU DipECHO initiative to uncover, test, adapt and roll out contextually relevant approaches for DRR. These approaches, now ready for broad uptake outside of Eastern Khatlon, are consistent with the need to align priorities for stable incomes and food security in rural communities with priorities for effective environmental services that support disaster risk reduction. A focus on community preparedness to effectively respond in the face of a disaster has been supported with measures for stabilizing disaster-prone watersheds through the establishment of multi-purpose plantations that are based on environmentally and economically sound associations of crops and natural vegetation. Given a maturation period on the order of five to six years for healthy orchards to bear fruit, the associated crops (fodder and vegetables) interplanted between trees provide much needed income, food and nutrition to support rural households. Built on a framework with equal priorities for economic, environmental and social needs, sustainable agroforestry systems endeavour to enhance rural livelihood systems, improve measures for food and livestock security, assist in the stabilization of disaster-prone landscapes and simultaneously ease pressure on surrounding forests and pastureland by producing fuel wood and fodder.






« A mix of regulatory policy and economic incentives has encouraged tree planting on disaster-prone lands, contributing to dual benefits for the environment and sustainable livelihoods. »

There are clear connections between disaster risk and food security within rural communities.

A joint survey of **624**  households administered by Caritas Switzerland and OXFAM UK revealed that **34%** of responding households produce more than half of their annual food needs on their own land, with another **42%** indicating some percentage (up to one-half) of their annual needs being produced on private (non-communal) land. When presented with a list of statements, and asked which ones were applicable to their households in the event of a severe landslide or

 flooding affecting their household, **35%** answered that they would face food shortages but could get by for one season with savings; **31%** of the responses indicated that there would be significant risk of not being able to feed the household but that they were confident that the government would support them; **19%** of the respondents stated that there would be little impact on food security within their household; **11%** of the responses indicated that they would need the support of international organizations to feed themselves in the aftermath of the disaster. While the results are specific to the Muminabad district, similarities across rural farming communities suggest a need for attention to the vulnerability of agricultural livelihood systems, and the threats to well-being more generally, related to natural disasters.

CaCH has noted that the primary incentives for rural households to invest in multipurpose plantations – other than support received – are limited rural employment opportunities and recent prohibitions on the planting of trees on irrigated farmland. This mix of policy and economic factors encourages the planting of trees on marginal and

fragile lands that are prone to disasters and combines a public good – environmental benefits – with private benefits in the form of higher incomes. This perfectly acceptable approach merits consideration in policy discussions related to those sectors that are relevant to effective disaster risk reduction.

# Recommendations



## 1 Support the national process for introduction and formal release of deep-rooting, drought-tolerant varieties of grains, legumes and leguminous shrubs through more effective and gender-sensitive rural advisory services.

In Ayni, Khovaling, Muminabad and Shamsidin Shohin districts, slightly more than half of the respondents to the autumn 2018 survey indicated that they had tried new varieties of crops within the past three years, with results suggesting that female farmers are less likely to have introduced new varieties relative to their male counterparts. The choice of a new variety was influenced by how the varieties were promoted – high-yielding varieties attracted 75% of respondents; drought-tolerant varieties, 42%; and disease-resistant varieties, 26%. Farmers, both male and female, were quick to point out changes in crop mixes that have been influenced by fluctuating weather patterns within their villages. Focus group discussions revealed that livestock health and the land degradation resulting from livestock grazing in fragile environments also influenced the mix of crops.

Despite the efforts of national and international organizations, farmers have not widely adopted the use of legumes in crop rotations or the use of no-till or minimum-till practices. Most rural communities place high priority on improving food and forage production, and clearly understand the linkages between agricultural production and disaster risk, but without external support are unable to navigate towards an optimal production system that places economic considerations on an equal footing with environmental considerations. The nascent system of public and private rural advisory services urgently needs to improve gender-aware systems for knowledge transfer of available technologies (inclusive of seeds and land use management practices) to support sustainable agricultural practices and to simultaneously mitigate disaster risk.



## 2 Encourage the spread of multi-purpose plantations in fragile watersheds and strengthen local nurseries that can supply healthy and affordable rootstock.

The profitability of fruit and nut orchards is now well recognized within rural communities, but key challenges to expansion remain – poor quality of seedlings, high costs, access to irrigation water at planting time and uncontrolled livestock grazing. The project-based distribution

of free or subsidized tree stock has increased tree plantings, but the evidence suggests that without the sustained local availability of high-quality seedlings in private and state-owned nurseries, further uptake will be limited. Coupled with technical support and training on the production and care of existing and newly introduced varieties, the availability of seedlings could lead to the revegetation of fragile watersheds with both private benefits from diversified income opportunities and public benefits in the form of increased food and nutritional security.



## 3 Strengthen and diversify the range of partnerships and linkages between national research and ministerial institutions, international organizations and the system of international agricultural research centres.

Enhancing the resilience of rain-fed and irrigated agricultural production systems – and, where possible, the sustained intensification of agricultural production – will require the introduction and release of drought-tolerant and high-yielding varieties. Tajikistan is currently testing a number of crops in this regard, yet many of these either bypass the national system of introduction and varietal release or do not entail large-scale verification trials. In light of the pressure on state budgets, and given their close connections to rural communities through programmatic interventions, international organizations are natural interlocutors for building on existing partnerships between international research centres and the government in order to translate research outcomes into practical, development-oriented outcomes for farmers.

Achieving sustainability requires a change in mindsets and strategies at all levels. National strategies and policies ought to firmly embed the inextricable linkages between DRR and environmentally sound and profitable agricultural production systems and should provide for sufficient budgetary resources and national plans to support any desired paradigm shift. Whether or not policymakers adopt this approach may be a matter of political economy. Contemporary realities, however, require urgent attention.





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