

## **POLICY BRIEF**

# **Windows of opportunities for transboundary conservation in Zarafshan Valley**



R. Braitsch, D. Bakhriev

## EXECUTIVE SUMMARY

As natural processes do not align with political boundaries, the Zarafshan Valley with its shared riparian ecosystem constitutes a clear case for transboundary conservation. Ongoing ecological degradation threatens biodiversity, ecosystem services, and human well-being in both Uzbekistan and Tajikistan, driven by land-use pressure, water over-use, and habitat fragmentation that undermine the remaining Tugay forests and the long-term viability of the Bukhara deer.

This policy brief demonstrates that transboundary conservation is not optional but necessary to address shared challenges and cumulative upstream-downstream impacts. It draws on an empirical study based on 35 problem-centered interviews with local, national, and international stakeholders, complemented by field observations, visual interpretation of satellite imagery, and a review of scientific and policy-relevant literature.

At present, the conditions for effective and lasting transboundary conservation outcomes are not yet fully in place. Currently, cooperation remains fragmented, thematically narrow with a clear focus on species conservation, and largely dependent on short-term projects. Moreover, key stakeholders and underlying drivers of degradation, such as water abstraction, land-use change, and declining ecosystem services, are insufficiently addressed. Institutional fragmentation, capacity gaps, and the limited involvement of influential stakeholder groups, particularly local land users, further constrain the effectiveness and scalability of a transboundary conservation process.



↑ Protected areas along the middle stream of Zarafshan river.

At the same time, the analysis identifies important developments that indicate a realistic potential for transboundary conservation to evolve. Bilateral relations between Uzbekistan and Tajikistan are constantly improving, a comprehensive willingness for cooperation is visible, and a core group of motivated institutions and individuals is already engaged in transboundary activities. These conditions constitute a clear window of opportunity.

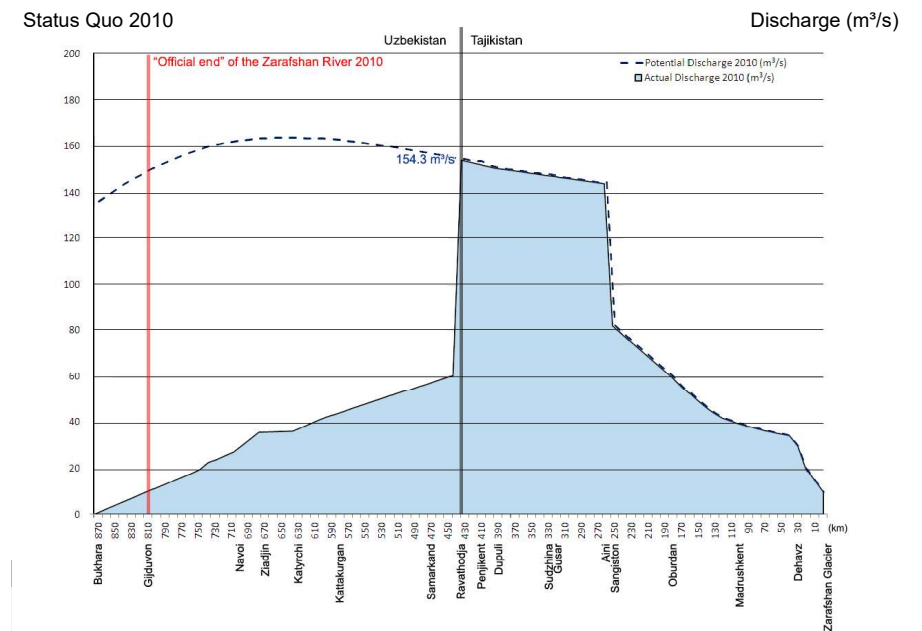
To turn this potential into a viable transboundary conservation process, cooperation must be institutionalized beyond the project level, broadened beyond a conservation-only narrative, and oriented toward addressing shared socio-ecological drivers of degradation. Strengthening technical and institutional capacities and embedding cooperation in governance structures are essential steps to prevent further ecological decline and secure the long-term resilience of the Zarafshan Valley as a shared socio-ecological system.



Bukhara deer, Photo B. Mardonov

## WHAT'S AT STAKE?

Human interventions and the accelerating impacts of human-induced global climate change have led to a severe degradation of the transboundary riparian ecosystem in the border region of the Zarafshan Valley between Uzbekistan and Tajikistan. Although parts of this landscape are formally protected, the ecological deterioration is already undermining conservation goals and affecting the human well-being on both sides of the border. Because the riparian ecosystem itself is of transboundary nature and hydrologically interconnected, neither country can address these challenges alone. Therefore, the study has asked a simple but crucial question whether there is a solid basis for transboundary conservation in the Zarafshan Valley. The findings show that this is not yet the case, pointing to an urgent need to strengthen the foundations that make joint conservation process possible in order to respond to the challenges at hand.



↑ Discharge of the water in Zarafshan river. Groll, M., Opp, R., Kulmatov, R., Normatov, I., Stulina, G. & Shermatov, N. (2014) Water resources in Central Asia — status quo and future conflicts in transboundary river catchments — the example of the Zarafshan River (Tajikistan-Uzbekistan). Conference paper.

## CONTEXT & IMPORTANCE OF THE PROBLEM

The target area constitutes a shared riparian ecosystem whose ecological integrity is rapidly deteriorating under mounting human pressure and the accelerating impacts of climate change. The Tugay forest, once characteristic of this landscape, is declining as natural annual flooding no longer reaches the floodplain. Moreover, large areas of riparian forest have been converted into agricultural land, and embankments built to protect farmland now prevent the seasonal inundation that would be essential for forest regeneration of the remaining patches. Habitat fragmentation caused by the border fence, constructed without wildlife migration corridors, has further disrupted ecological connectivity. Undisturbed wildlife habitat is concentrated in small forested sections within the protected areas, and even these are increasingly under pressure due to illegal grazing and logging. On the Uzbek side of the border, several kilometers of forest have been cleared for security reasons, intensifying habitat loss and connectivity. At the same time, water quality and quantity are declining due to water abstraction for agriculture, gold and gravel mining, and increasing urbanization. Extreme weather events, shifts in the river course caused by intensive gravel extraction, and changing flow regimes linked to hydro-power development in Tajikistan further exacerbate the degradation of this already fragile system. These (historic) interventions on the ecosystem have reduced the landscape's capacity to retain water. As a result, floods increasingly affect upstream areas, while downstream regions face growing summer water scarcity. Infrastructure built to manage these risks often reinforces the problem by further disconnecting the river from its floodplain. These dynamics interact across the border, locking the transboundary system into a self-reinforcing cycle of ecological degradation.



↑ Zarafshan River.  
Photo: S. Shaahmedov

The social consequences are immediate and severe since local livelihoods on both sides of the border depend on water-intensive agriculture and reliable water supply. Due to the constantly rising water demand for irrigation, energy production, and urban growth in combination with falling groundwater levels caused by gravel extraction, there is insufficient water for the Tugay forest to remain healthy. As these forests lose their integrity, they can no longer provide essential ecosystem services such as water retention, air and water purification, flood regulation, cooling effects, and landscape esthetics. This creates a downward spiral in which declining ecosystem functions undermine human well-being, prompting further pressure on already overstressed land and water resources. Because the Zarafshan Valley functions as a tightly interdependent socio-ecological system, continued degradation will directly translate into worsening living conditions across borders.

The continuing degradation of the Tugay forest not only threatens the ecosystem functions but also puts biodiversity equally at risk. Habitat loss and fragmentation have severe consequences for protected species, most notably the Bukhara deer which is seen as key-conservation species of the two protected areas. The lack of functional migration corridors along the border prevents genetic exchange between populations, increasing the risk of inbreeding and long-term population decline.

As the long-term survival of the species depends on a healthy ecosystem, the urgency for coordinated transboundary action is particularly high in order to ensure a stable Bukhara deer population. Without a holistic approach, there is the risk that conservation efforts remain fragmented and largely treat isolated symptoms while leaving key drivers for biodiversity loss, such as habitat decline due to water abstraction and land-use pressure, unchallenged.

As a shared ecosystem, the Zarafshan Valley cannot be stabilized through unilateral measures. Decisions taken upstream affect downstream conditions and vice versa. This interdependence creates a strong need for a transboundary conservation approach. Without timely and coordinated action, the Zarafshan Valley risks losing both its ecological significance and its capacity to support human well-being. The current situation therefore constitutes a pressing policy issue that requires immediate and coordinated engagement by both countries and their partners, especially under the aspect that climate change is expected to intensify already existing pressures.

## PROCEDURE

The empirical study bases on 35 problem-centered interviews with local, national, and international stakeholders, complemented by field observations, visual interpretation of satellite imagery, and a review of scientific and policy-relevant literature. The findings provide an evidence-based assessment of whether current conditions in the Zarafshan Valley can already support transboundary conservation efforts.

→ It was important to listen voices of local communities. Photo: R. Braitsch



## FINDINGS

### Reasons for transboundary conservation remain mainly ecologically motivated

Among the various environmental challenges in the region, the conservation of the Bukhara deer clearly stands out as the most widely recognized and accepted reason for transboundary action. Habitat fragmentation, ecological degradation, and the risk of genetic isolation are perceived as urgent threats by protected area staff, national authorities, and international actors. Within this group, there is a shared understanding that the long-term survival of the species cannot be ensured through unilateral measures. However, this recognition remains thematically narrow. Broader systemic challenges such as the degradation of floodplain forests, declining ecosystem services, water regulation, and long-term socio-economic resilience are rarely perceived as an issue that could be handled through a transboundary approach. As a result, cooperation is largely framed around species conservation and protected area management, rather than addressing the wider drivers of ecosystem degradation.

### Willingness of stakeholder to engage in transboundary activities exist

The findings indicate a general openness toward transboundary cooperation across all stakeholder groups in both countries, however, the motivation to engage varies significantly in depth. The political rapprochement between the two countries in the recent years symbolizes for many a clear window of opportunity. Moreover, many feel very connected to the neighboring country for historical and cultural reasons. However, in terms of transboundary efforts, stakeholders tend to support cooperation when it aligns directly with their own priorities and lived realities. Protected area staff from both countries emphasize ecological urgency and habitat connectivity, while local land users associate cooperation primarily with tangible socio-economic benefits. Conservation framed exclusively in ecological terms does not resonate with their everyday concerns. As a result, local land users as most influential stakeholder group on land use and ecosystem integrity, remain largely disconnected from the

widespread transboundary conservation narrative of most other stakeholders. This lack of meaningful inclusion limits the development of a broad and resilient constituency for change. While a small group of motivated actors from the conservation sector is already engaged in cooperative activities, their efforts are not yet socially anchored and therefore vulnerable to fatigue, personal capacity, or political shifts.

### **Existing cooperation remains below the scale of the challenge**

Transboundary activities between the two protected areas already take place, including joint trainings, information exchanges, exchange visits and coordinated biodiversity assessments. These efforts are perceived positively and demonstrate that cooperation is possible in practice. However, they remain informal, issue-specific, and dependent on a small number of committed individuals and external project funding. At the same time, the scale of the conservation challenge extends far beyond the protected areas themselves. Habitat connectivity is obstructed by border fences, deforested zones, irrigation canals, headworks, and other infrastructure that reflect long-standing development priorities. These structures serve important socio-economic and political functions and cannot easily be adapted on behalf of conservation requirements. Under current conditions, transboundary cooperation lacks the institutional reach and coordination mechanisms required to address the multi-sectoral challenges. Without expanding cooperation beyond protected area boundaries and their conservation targets, existing efforts risk remaining symbolic and small-scale rather than transformative.

### **Capacity gaps as a central constraint to transboundary conservation**

Across stakeholder groups, limited technical, financial, and conceptual capacity emerges as a major obstacle. Both protected areas face shortages in staff, equipment, financial resources and the ability to apply for funding, and ecological expertise. Knowledge gaps regarding transboundary conservation as a process persist at all levels, including among decision-makers. While recent training and knowledge-transfer activities by protected area staff demonstrate the willingness to build capacity and are an important first step, these efforts

remain to a small domain of stakeholders. Great capacity gaps are expected by local governance bodies, water authorities, border agencies, and resource users whose decisions directly affect the ecosystem.

### **Institutional and legal asymmetries constrain cooperation**

Next to capacity constraints, a key challenge for efficient cooperation on the ground is the institutional asymmetry between the two (protected) areas. The Uzbek site is managed as a national park with a higher protection status, more staff, a scientific department, and greater technical capacity in comparison. In contrast, the Tajik site used to operate under a lower protection status with limited mandates, fewer resources, and restricted capacities for research, education, and monitoring. Nowadays, the Tajik area lost its protection status, which further intensifies the asymmetry issue. These differences lead to imbalances in knowledge, data availability, and priorities. Moreover, the two sites fall under different administrative authorities, which are not direct counterparts. This misalignment creates additional barriers for coordination at the governmental level. Although national frameworks support transboundary cooperation in general, no formal mechanism currently anchors or governs between the two sides. The absence of an institutionalized framework or an official transboundary designation limits continuity, accountability, and long-term planning.

### **Overall assessment**

Taken together, the findings indicate that while the Zarafshan Valley offers compelling reasons for transboundary conservation, however, the current preconditions are weak, fragmented, and insufficiently scaled to the complexity of the challenge. Cooperation is driven by narrow ecological motivations, supported by a limited group of actors, and constrained by institutional asymmetries and capacity deficits. At the same time, the existence of political rapprochement, initial cooperation activities, and motivated individuals points to a clear window of opportunity. Strengthening transboundary conservation will require expanding the thematic framing beyond species protection, institutionalizing cooperation, addressing capacity imbalances, and systematically engaging all stakeholders whose livelihoods and decisions shape the landscape.

## POLICY IMPLICATIONS

The findings have far-reaching implications for environmental governance and transboundary conservation in the Zarafshan Valley.

**FIRST, TRANSBOUNDARY CONSERVATION IS NO LONGER OPTIONAL.** The ecological and socio-economic dynamics of the Zarafshan Valley are inherently transboundary, particularly with regard to hydrology, ecosystem services, and habitat connectivity. Decisions that continue to treat conservation, water management, and land use as national or sectoral issues risk exacerbating degradation rather than stabilizing the system. Uncoordinated actions upstream and downstream will continue to undermine conservation outcomes and human well-being on both sides of the border.

**SECOND, A NARROW CONSERVATION FOCUS LIMITS EFFECTIVENESS.** Current cooperation efforts concentrate largely on species protection and protected area management. While this provides a useful entry point, it is insufficient to address the underlying drivers of degradation, such as land-use pressure, water abstraction, and declining ecosystem services. If transboundary conservation remains framed solely as a biodiversity issue, it will fail to mobilize key stakeholders whose decisions shape the landscape, particularly local land users.

**THIRD, INSTITUTIONAL FRAGMENTATION AND ASYMMETRY WEAKEN COOPERATION.** Differences in protection status, mandates, and institutional responsibilities between Uzbekistan and Tajikistan create imbalances in capacity. Without aligning mandates and clarify roles, cooperation may remain informal, project-dependent, and vulnerable to political or personnel changes.

**FOURTH, CAPACITY GAPS REPRESENT SIGNIFICANT BARRIERS TO TRANSBOUNDARY CONSERVATION BUT ARE ALSO A STRATEGIC ENTRY POINT.** Limited technical, financial, and conceptual capacity constrains effective cooperation across all stakeholder levels. At the same time, the strong interest in trainings and knowledge

exchange demonstrates that capacity-building can generate rapid gains if pursued strategically and across all stakeholder levels.

**ADDITIONALLY, THERE IS A CLEAR WINDOW OF OPPORTUNITY.** Improved bilateral relations, political willingness, and the presence of motivated individuals and institutions provide favorable conditions for action. If this window is not used to formalize cooperation and broaden stakeholder engagement, the momentum may be lost and future interventions may face higher political and social barriers while the socio-ecological system further degrades.

↓ Zarafshan ring-necked pheasant. Photo: T. Abduraupov



## POLICY RECOMMENDATIONS

To translate these implications into action, the following recommendations are proposed:

### **1. USE THE BUKHARA DEER AS AN ENTRY POINT, NOT AS THE ENDPOINT.**

The necessity to conserve the Bukhara deer population on a transboundary level provides a widespread and accepted aim which could serve as a starting point for cooperation. Effective cooperation requires a shared evidence base. The two countries should harmonize their monitoring approaches and regularly exchange their data. However, it should be used as a gateway to address broader system dynamics. Therefore, it is necessary to leave the conservation-only narrative and systematically address underlying, transboundary drivers such as habitat fragmentation, water governance, over-exploitation of natural resources and land-use pressure that directly and indirectly deteriorate the status of the Bukhara deer. This directly leads to the second recommendation:

### **2. BROADEN THE THEMATIC SCOPE OF TRANSBOUNDARY CONSERVATION.**

The full scope of values resulting from transboundary conservation needs to be more understood. Activities should explicitly integrate water management, land use, and ecosystem services alongside biodiversity conservation. Framing transboundary conservation around shared socio-economic issues will increase policy relevance, align conservation goals with development priorities, and create incentives for engagement beyond the conservation sector. To include local land users, district administrations, water authorities, and border agencies into transboundary processes, this requires participatory formats that link conservation goals to livelihood concerns. Without social anchoring, transboundary conservation will remain fragile and limited in impact.

### **3. ESTABLISH A JOINT ADVISORY BOARD AND INSTITUTIONALIZE TRANSBOUNDARY COOPERATION BEYOND PROJECT LEVEL.**

To move transboundary conservation beyond fragmented, project-based cooperation, a joint advisory board, anchored at the ministerial level, should be established as a permanent platform for dialogue and coordination. This body should bring together protected area administrations, water and land-use authorities, local land users, and border agencies and district-level institutions from both countries. Its purpose would be to ensure that diverse perspectives, interests, and constraints are systematically heard, negotiated, and integrated into decision-making. To be effective, the advisory board must be embedded within a formal institutional framework that defines cooperation aims, mandates, and responsibilities. A bilaterally signed institutional framework would provide reliability, continuity, reduce dependency on individual projects or actors, and create a stable mechanism through which transboundary challenges can be addressed in a coordinated and transparent manner. Crucially, this should be supported by an independent budget, specifically dedicated to coordinative activities to provide regular transboundary exchange. Such a mechanism would not replace but complement existing protected area cooperation and give political backing.

### **4. BUILD TRANSDISCIPLINARY TECHNICAL CAPACITY.**

Effective transboundary conservation requires targeted investment in technical capacity across sectors. Stakeholders need a shared understanding of how to implement transboundary conservation as a long-term process and of how ecosystem degradation directly affects human well-being and livelihoods. Capacity-building must also include water authorities, district administrations, and other land-use relevant sectors whose decisions shape ecosystem dynamics. Moreover, protected area staff should build up their skills in ecological monitoring, fundraising, project management, international cooperation, and supported with adequate financial resources and technical equipment as transboundary conservation is resource intensive. To ensure continuity, dedicated positions for transboundary coordination, scientific monitoring, and project management should be formally embedded within responsible institutions rather than added to existing workloads of protected area staff.



Исполнитель:



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For more information you can contact

**Ronja Braitsch**, the author,

✉ [ronja.braitsch@outlook.de](mailto:ronja.braitsch@outlook.de) or

**Rustam Murzakhanov** from Succow Foundation

✉ [rustam.murzakhanov@succow-stiftung.de](mailto:rustam.murzakhanov@succow-stiftung.de)