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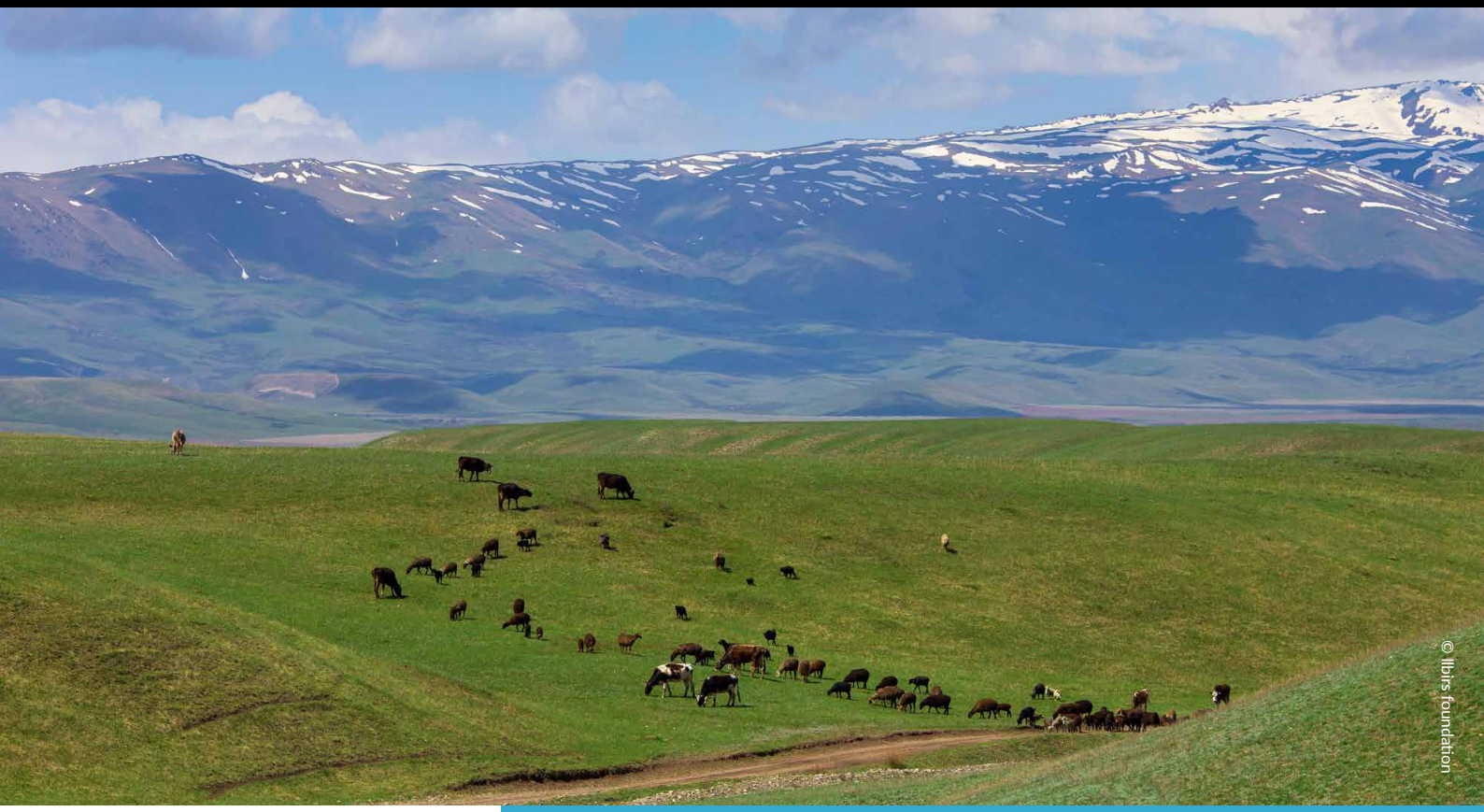
THE GOVERNMENT OF THE GRAND DUCHY OF LUXEMBOURG



POLICY BRIEF | UNEP VANISHING TREASURES PROGRAMME

Targeted Scenario Analysis of the Livestock Sector in the Tian Shan Region, Kyrgyzstan

A case study in the Village Districts of Suusamyr, Chong Kemin, Ibraimov, and Bel-Aldy

The lack of ecosystem management guidelines, income diversification, transparency and accountability within the existing pastureland management framework coupled with the severe impact of climate change could generate an estimate USD 41.2 million in lost revenue by 2040 to local herder communities.

Mainstreaming sustainable ecosystem management into the pastureland management framework could generate, by 2040, an estimated USD 17.8 million in net economic benefits at present value. This stands in stark contrast to the financial losses expected if the improvement of pastureland management is neglected. Continuing the unsustainable trend could generate an equal amount in lost net economic benefits.

The transition to a more sustainable pastureland management, including ecosystem management, will generate short-term higher costs. However, the long-term benefits outweigh by far the initial higher costs, offering a more sustainable and profitable future for the herding communities in Kyrgyzstan.

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Kyrgyzstan's livestock sector is essential to rural communities' well-being. Yet, current pastureland policies combined with the effects of climate change have led to an increasing pasture ecosystem degradation, e.g., water supply, soil erosion, grassland scarcity, biodiversity loss, and consequently reduced economic benefits.

An economic analysis termed Targeted Scenario Analysis (TSA), commissioned by UNEP's Vanishing Treasures Programme, compared the economic impact of two development policy scenarios: the ongoing 'Business-as-Usual' (BAU) livestock management approach where overgrazing degrades natural grassland ecosystems and wildlife habitats, including the snow leopard's habitat; and poor veterinary services result in high livestock losses. These factors lead to declining livestock productivity (meat and milk) and decreasing economic returns. The BAU scenario was compared with a more Sustainable Ecosystem Management (SEM) scenario in which livestock numbers are kept within the pastureland carrying capacity; herders expand income-generating activities by diversifying income sources to non-livestock activities (e.g., beekeeping, nature-based tourism), and livestock productivity improves through, for example, sustainable pastureland management, more efficient pasture user's fees collection and management, better livestock breeding practices and expanding veterinary services.

The sector-centred TSA captures the policy objectives of the sector's decision-makers. Thus, it addressed the need for policy reform, especially in aligning the livestock sector's development goals and biodiversity protection efforts, such as protecting the snow leopard, its prey species, and its habitat.

Key decision-makers, the main clients of the TSA included the Ministry of Water Resources, Agriculture and Processing Industry and the Ministry of Natural Resources, Ecology and Technical Supervision (MNRETS); in addition, the TSA included local stakeholders such as the Village Districts (VDs), including Suusamyr, Chong Kemin, Ibraimov, and Bel-Aldy.

The TSA results show that there is a compelling reason to improve sector policy to ensure, in the long term, that ecosystem services functions support sustainable and profitable livelihoods in the Tian Shan landscape. In addition, the TSA also responded to a subset of policy questions by concluding that:

- The potential higher profits (net revenue) for herder households (HHs) resulting from the shift from BAU to SEM justify increasing public investment to support sustainable pastureland management.
- SEM's long-term economic benefits justify increasing public investment in improving and implementing specific sections of the Land Use Code, pasture management regulations, and biodiversity management regulations under Kyrgyz Law.
- SEM's potential environmental and economic impacts justify establishing an innovative financial mechanism to increase funding for PA management, biodiversity-positive agriculture, and livestock management to mitigate human-wildlife conflict.

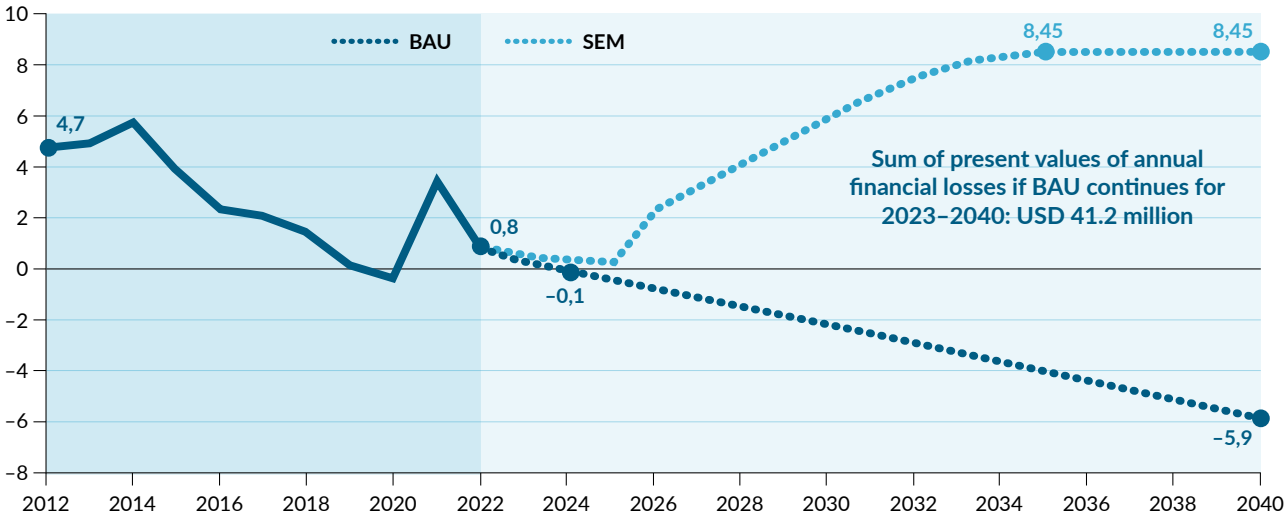
To reach these conclusions, the TSA used a range of indicators under environmental, financial, economic, employment, and equity and fairness criteria, for example:

- Changes in livestock density and pastureland carrying capacity;
- Changes in net revenue and net benefits from livestock production in smallholder herder households (SHHs) sampling 4 Village Districts (VDs);
- Veterinarian-to-livestock ratio;
- Changes in the number of SHHs with less than seven livestock.

Key Results

The analysis revealed that shifting from BAU to SEM could significantly enhance net revenues from livestock production (including meat, milk, hide/skin, and livestock) in the four selected VDs over the long term. Under BAU, financial losses are projected to reach an estimated USD 41.2 million in present value during 2023-2040.

BAU vs SEM: Annual total net revenue at 4 VDs (Million USD)



Source: Authors' estimation

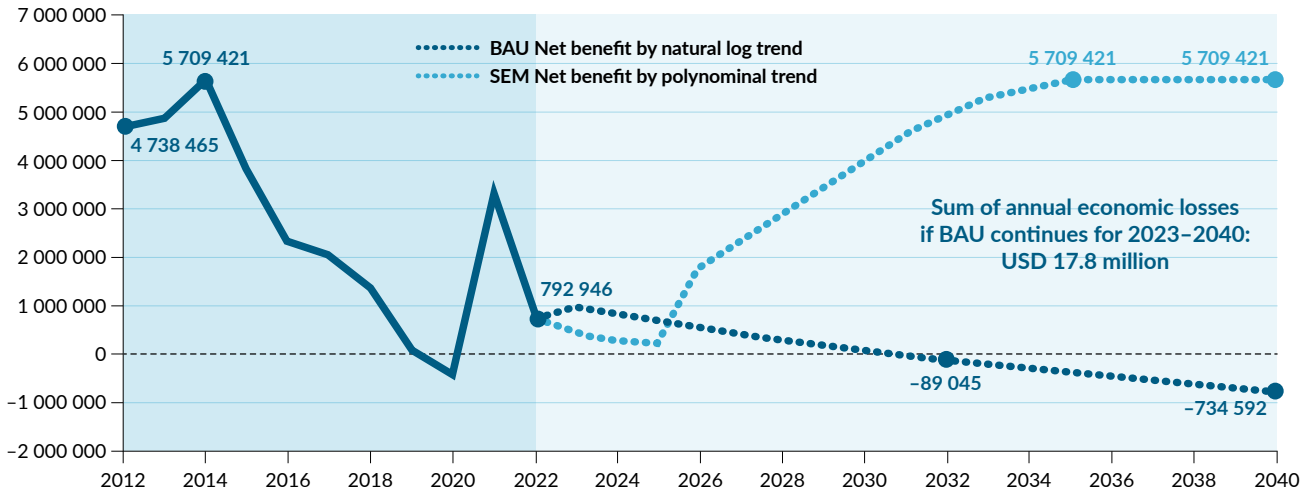
Under SEM, the number of livestock is aligned with the pasture carrying capacity (PCC). Therefore, the alignment, combined with additional SEM elements, is expected to generate positive net revenues, with an estimated USD 230.7 per livestock unit (LU) by 2040. On the contrary, continuing BAU practices will lead to losses of approximately USD 87.4 per LU by the same year.

At the household level, the continuation of BAU practices is expected to result in an average annual loss of USD 3,630 per herder household from livestock operations, compared to significantly higher net revenues under SEM between 2023 and 2040. The Key factors contributing to the improved financial outcomes under SEM include:

- Livestock production aligns with PCC, maintaining environmental sustainability and preventing grassland degradation, leading to increased meat and milk yields.
- Over time, healthy grasslands and fewer livestock resulted in a decline in production costs.
- Increased non-livestock revenue streams include beekeeping, rural tourism, and cash crops.
- Increased investment in pastureland management reduces livestock loss due to better veterinary services and effective pasture monitoring.

The study also indicates that alternative income-generating activities, such as beekeeping and tourism, have steadily increased in the last four years. Under SEM, this trend is expected to continue, increasing the

BAU vs SEM scenario: Net economic benefit of the livestock production in 4 VDs (USD)



Source: Authors' estimation

share of non-livestock livelihoods in total net revenue by 1.1% annually. This is a slow increase, calling for increased investments in these livelihoods to facilitate the reduction of reliance on livestock.

When assessing net economic benefits under SEM, by 2040, the livestock sector's economic contribution is expected to produce an estimated net gain of USD 17.8 million in present value. This stands in stark contrast to the financial losses projected under BAU. While the transition to SEM involves short-term higher costs, the long-term benefits outweigh the initial high costs by far, offering a more sustainable and profitable future for the herding communities in Tian Shan.

The TSA results underscore the urgent need to invest in extension services for the livestock sector, update pasture management's legal and regulatory framework, and support alternative income-generating activities at the SHHs level to accelerate the transition to SEM and avoid costly environmental, financial, and economic outcomes. In addition, the benefits of SEM extend beyond financial gains, with positive impacts on equity, gender inclusion, and environmental resilience. For example, by involving women in alternative livelihood efforts, SEM increases women's participation in decision-making.

Recommendations

1. Pastureland and Livestock Management Reforms:

- Amend the Pasture Law (2009) to incorporate sustainable, wildlife-friendly practices. Although the law currently includes provisions to align livestock numbers with grassland carrying capacity, these measures have not been effectively enforced. Thus, a robust monitoring system is needed to assess livestock populations and their impact on grassland health to enhance compliance.
- Increase awareness of pasture fee regulations by setting a mechanism to increase acceptability by local communities (pasture user and fodder fees).
- Introduce different categories of pastureland user fees and link user fees with community pastureland management plans.
- Develop standards for formulating community pastureland management plans at different levels.
- Strengthen the fee collection system, implement fair access policies, and ensure transparent and equitable fees. Allocate resources to improve enforcement of Article 10, Clause 2 of the Kyrgyz Law on Pastures, ensuring timely fee payments and fines/penalties as stipulated in the regulation for non-payment within deadlines.
- Increase investment to improve the complementarity of the extension services offered by the Ministry of Agriculture, the private sector, and NGOs. Improvements in extension services will enhance herders' awareness of the impact of unsustainable practices and the technical know-how on sustainable pasture and livestock management that protects natural resources and ecosystem services.
- Establish sustainable livestock supply chains and certifications to enhance market access and competitiveness through eco-labels and organic standards.

2. Alternative non-livestock livelihoods:

- To diversify income and reduce reliance on livestock, intensify and promote beekeeping and small-scale cash crops.
- Develop the financial and technical capacity of existing and future herder-led tourism initiatives that blend cultural and nature-based experiences.
- Support sustainable tourism revenue-sharing mechanisms and integrate biodiversity conservation into accreditation and certification schemes of existing platforms, such as the Kyrgyz Community-Based Tourism Association. By leveraging these established networks, stakeholders can promote eco-friendly practices more effectively and ensure that tourism revenue benefits local communities while supporting biodiversity conservation efforts.

3. Financial Transparency and Accountability:

- Introduce result-based budgeting (RBB) at the local level to align public resource allocations with measurable improvements in pastureland management. By defining clear objectives and realistic goals, such as the annual percentage improvement in grassland restoration and the veterinarian-to-livestock ratio, RBB can improve the efficiency and cost-effectiveness of extension services.
- Introduce a financial mechanism, such as a biodiversity revolving fund linked to pasture fees, to support specific biodiversity protection action. The revolving fund can receive new income periodically - such as proceeds from environmental taxes, sector user fees/fines (e.g., pastureland, forest, water), fines, donors' contributions, etc. - to replenish or augment the original capital annually.

For more information about the project, visit us at **https://vanishingtreasures.org**.