



Incentivizing Farm Modernization in Uzbekistan: How can land tenure rights stimulate investments?

KEY MESSAGE

- Farmers in Uzbekistan perceive key land rights to be more restricted than what is typical in a market-oriented system, such as in Kazakhstan.
- Among Uzbekistan farmers, management rights, such as the freedom to organize production, are more important for motivating investment than land tenure security or land transfer rights.
- Use rights and transfer rights currently play a limited role in stimulating investment. In fact, greater freedom in these rights may discourage investment—especially under strategic crop systems like cotton and wheat—possibly because low economic returns reduce the incentive to use land for farming itself.
- Land tenure security shows only weak links to machinery investment, likely because such assets are movable and less sensitive to tenure risk. However, perceived expropriation

risks may still limit farmers' willingness to diversify their investments and plan for the long term.

INTRODUCTION

Investing in agricultural technologies and infrastructure is essential for improving farm productivity, raising rural incomes, and advancing farm modernization in Uzbekistan. In particular, greater ownership of machinery and equipment has been linked to higher yields—for example, using cotton combines can potentially increase technical efficiency ¹. Recognizing this, the government has introduced a series of broad policy reforms aimed at opening space for private initiative in agriculture. These include reducing state control over crop production, increasing private sector involvement in input supply and marketing, allowing greater price flexibility for key commodities, and gradually shifting production decisions to farmers ². In parallel, more

¹ Bilal, M., Tadjiev, A., & Djanibekov, N. (2024). The adoption of cotton combine services and farm technical efficiency: evidence from Kazakhstan and Uzbekistan. *Journal of Agribusiness in Developing and Emerging Economies*.

This Policy Brief is brought to you for free and open access by the Center for Policy Research and Outreach at Westminster International University in Tashkent. The views and claims expressed herein do not necessarily reflect the views of CPRO/WIUT

targeted measures have supported on-farm investment in modern practices—such as improved access to finance, promotion of agricultural technologies, and the expansion of advisory services, including training and information provision.

However, while agricultural reforms have advanced in areas such as market access, input supply, progress on land tenure policy has been far more limited³. Across Uzbekistan's agricultural sector, most farmers still operate under leasehold arrangements that offer limited security, flexibility, and autonomy in decision-making. Recent reforms have formally removed some elements of state control, such as production quotas, but these changes have not addressed the underlying constraints in land rights that continue to restrict farmers' long-term planning and investment decisions. Reports indicate that farmers, including those cultivating strategic crops like cotton and wheat, continue to face weak land tenure rights⁴. For instance, illegal lease terminations and land expropriations by local authorities, often under the guise of public interest, remain common. Even after formal removal of production quotas, farmers are still informally pressured to grow crops, typically at the di-

rection of local governors or agro-cluster managers, further limiting their operational autonomy⁵. Also, legal restrictions on transferring land-use rights persist. Farmers are unable to freely rent out or rent in additional land, or use land as collateral, which undermines both flexibility and the emergence of functioning land markets. Without addressing persistent land tenure challenges, current policy efforts, such as providing credit, training, or access to modern technologies, may fall short. Lack of tenure security, operational freedom, and transferability limits farmers' ability to plan ahead, manage risk, and access land and credit. Strengthening land tenure security and rights is therefore not just optional but foundational to farm modernization and broader agricultural development efforts.

This policy brief summarizes empirical findings from a recent study by Kurbanov, Djanibekov, and Herzfeld (2025), which explores how farmers' perceptions of land tenure rights relate to their past investment behavior—measured by the number and diversity of farm machinery and equipment owned. The analysis covers farmers in both Kazakhstan and Uzbekistan, offering a useful contrast between a more market-oriented sector (Kazakhstan) and a state-regulated one (Uzbekistan).

² The Agri-food Development Strategy 2020–2030 approved by Presidential Decree No. UP-5853.

Djanibekov, N., Herzfeld, T., Petrick, M. (2024). Agriculture and rural development reforms. In: Mirkasimov, B., Pomfret, R. (eds.) *New Uzbekistan: The Third Renaissance*. Routledge, London, pp. 112–134.

³ Ni, L., Akramov, K., Fan, S. (2024) Land tenure change and agricultural production and productivity in Uzbekistan. In: Mirkasimov, B., Pomfret, R. (eds.) *New Uzbekistan: The Third Renaissance*. Routledge, London, pp. 135–163.

⁴ Centre for Public Administration. (2024). A false sense of legality: Compulsory property seizure, land grabbing and forced eviction in Uzbekistan. University of Ulster. / World Bank. (2022). Uzbekistan: Review of agriculture strategy implementation in 2020 and 2021. World Bank.

⁵ Babadjanov, J., Petrick, M. (2023) Uzbekistan's cotton clusters in the context of the industrial policy debate. *Eurasian Geography and Economics*, 66(3), 354–383.

The study does not aim to explain total investment levels among two samples of farmers, but rather to identify whether specific land rights are associated with stronger investment motivation. This question is rooted in economic theory, which holds that more secure and clearly defined land rights should encourage long-term investment. In light of Uzbekistan's Agricultural Development Strategy 2020–2030—which emphasizes farmer empowerment and decision-making autonomy—this research addresses a timely policy challenge. While previous assessments, including by the World Bank (2022), have called for stronger tenure security in Uzbekistan, this brief adds value by providing farm-level evidence on which types of land rights matter most, offering more targeted and actionable insights for reform.

DESCRIPTION OF APPROACH TO MEASURE LAND TENURE RIGHTS

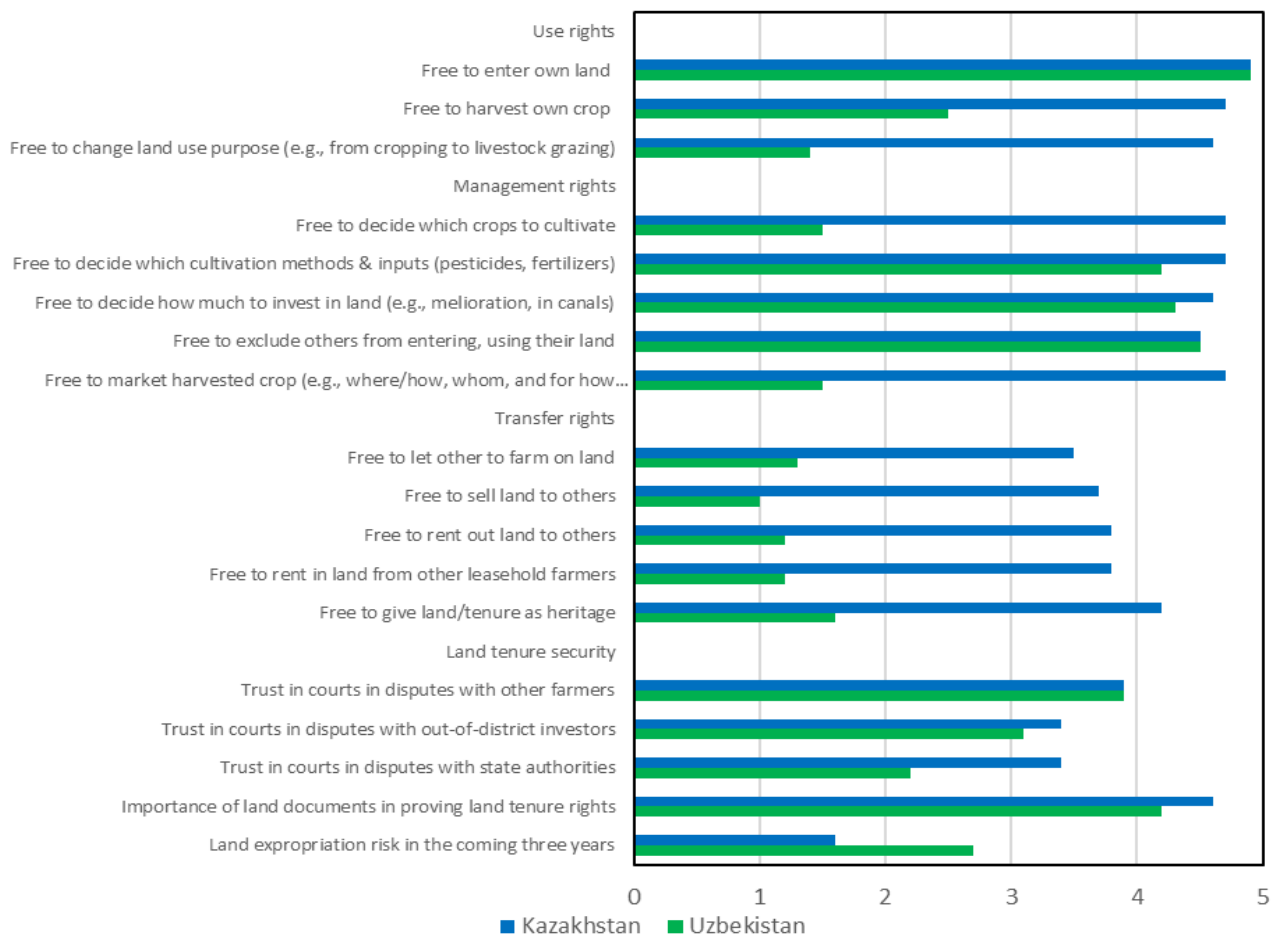
The analysis draws on a farm-level survey conducted in 2019 in Kazakhstan and Uzbekistan, covering over 900 farmers specialized in crops such as cotton, wheat, and horticulture. The data were collected as part of the [SUSADICA project](#) in the Turkistan province of Kazakhstan (N=503) and the Samarkand province of Uzbekistan (N=460). Statistical models were used to assess how different perceived land rights relate to investment in machinery and equipment. Further details on the methodology are available in Kurbanov et al. (2025).

To assess land tenure conditions in a structured way, the analysis applies a “bundle of rights” approach. This framework is widely used in research and was developed by Schlager and Ostrom (1992)⁶. It recognizes that different people can hold different rights to the same resource, and that having formal access does not always mean farmers can freely exercise those rights in practice. In this study, the bundle of rights approach helps measure how complete and secure farmers perceive their land rights to be across four land tenure dimensions: Use rights, Management rights, Transfer rights and Land tenure security rights. Each bundle contains specific, sub-rights as shown in Figure 1. Farmers were asked to report to what extent they feel they can perform the corresponding actions in practice. Responses were recorded using a 5-point scale, from 1 (strongly disagree) to 5 (strongly agree), with higher scores reflecting greater freedom or security—except for land expropriation risk, where lower values indicate stronger security. To simplify comparison and analysis, an index was constructed for each bundle of land rights following established scientific methods. The size of the bundle indicates the perceived strength and completeness of farmers' rights within that dimension of land tenure.

Figure 1 shows farmers' perceptions of individual land rights, while Figure 2 displays the average scores for each of the four rights bundles.

⁶ Schlager, E., & Ostrom, E. (1992). Property-rights regimes and natural resources: a conceptual analysis. *Land economics*, 249–262.

Figure 1. Farmers' perceptions of individual land tenure rights in Kazakhstan and Uzbekistan

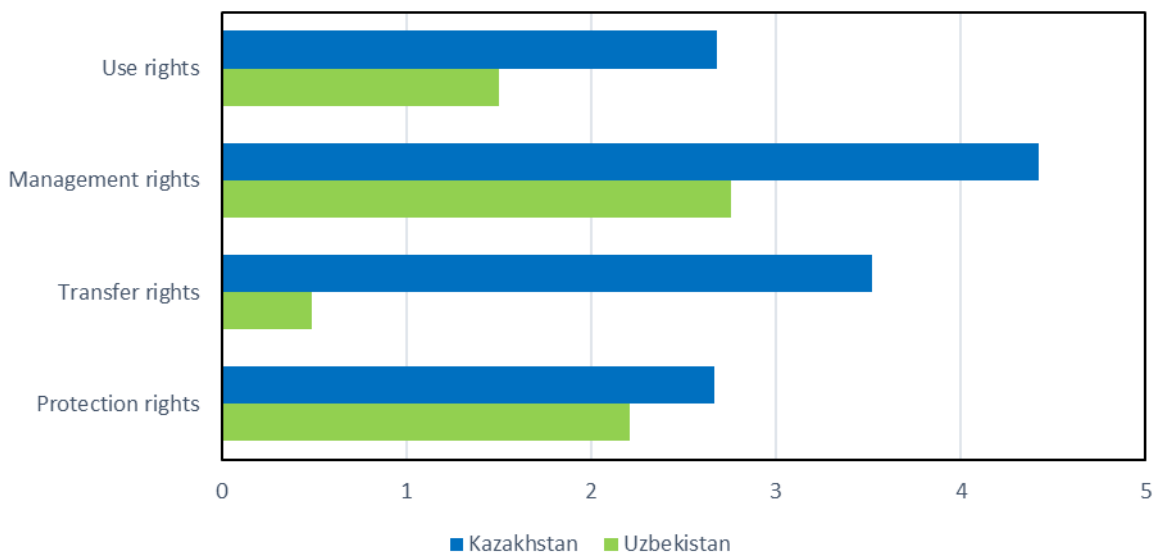


Source: Authors' visualization based on SUSADICA (2019).

To begin with, from Figure 1 it can be seen that farmers in Kazakhstan and Uzbekistan report notably different perceptions of their land rights. Use rights are perceived as relatively strong in both countries when it comes to physical access to land. However, significant contrasts emerge in how freely farmers feel they can change land use or harvest their crops. While Kazakh farmers report near-complete autonomy in these areas, Uzbek farmers express considerable limitations, especially regarding the freedom to change land use purpose. Management rights also show major disparities. In Kazakhstan, farmers overwhelmingly perceive control over production decisions, such as crop choice, input use, and marketing. In contrast, Uzbek farmers feel

restricted, especially in choosing what crops to grow and where or how to sell them. Transfer rights are perceived to be moderate in Kazakhstan but very weak in Uzbekistan. In particular, Uzbek farmers report minimal freedom to rent land, transfer it to others, or use it as inheritance, pointing to a tightly regulated and inflexible land tenure system. Land tenure security is mixed across both countries. Farmers in both settings generally trust courts in disputes with other farmers but show much lower trust when it comes to state authorities or external investors. Notably, Uzbek farmers report a higher perceived risk of losing land in the near future, reflecting persistent insecurity despite recent reforms.

Figure 2. Farmers' perceptions of land rights bundles in Kazakhstan and Uzbekistan



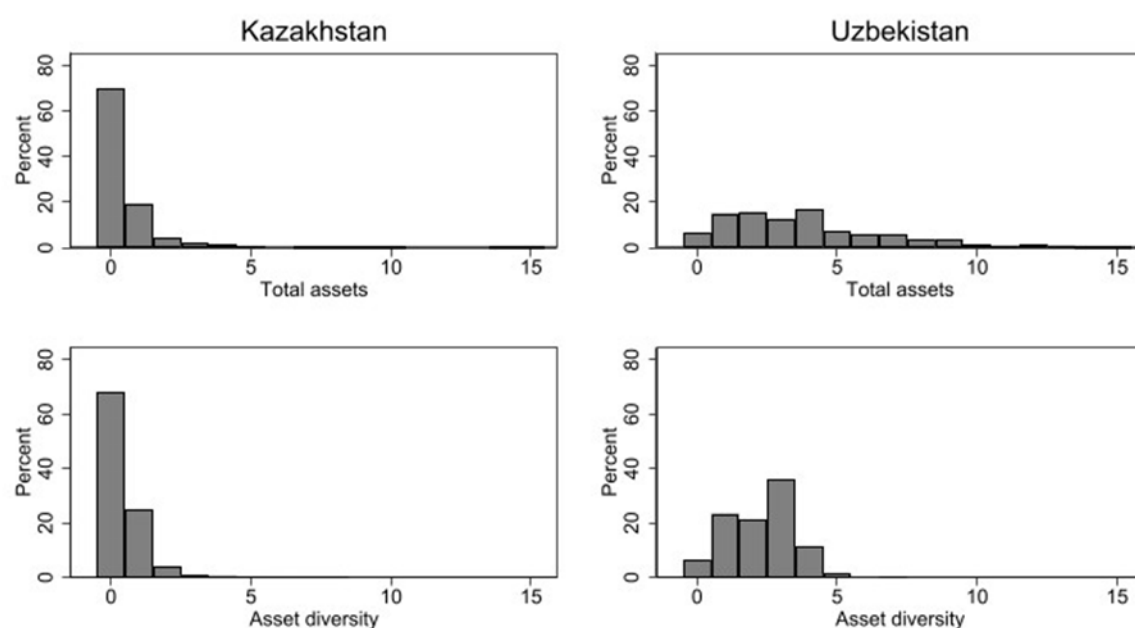
Source: Authors' calculation based on SUSADICA (2019).

Figure 2 shows the description of the four land rights bundles. Note that the maximum possible score differs by bundle: Use rights (max 3), Management rights (max 5), Transfer rights (max 5), and Land tenure security (max 4). For example, a score of 3 in the use rights bundle indicates that the farmer perceives full ability to exercise all three use-related rights. These differences reflect the number of specific rights included in each bundle and should be considered when comparing absolute values across bundles. Specifically, farmers in Kazakhstan report significantly higher levels of perceptions of all land rights bundles compared to their Uzbek counterparts. The most striking cross-country differences emerge in transfer rights, followed by management and use rights. In contrast, differences in protection rights (i.e., trust in institutions and protection from expropriation) are less pronounced, though still evident. Within the Uzbekistan sample, farmers perceive themselves as most constrained in terms of transfer and use

rights, with only slightly higher scores for protection and management rights. These patterns reflect the continued restrictions Uzbek farmers face—particularly regarding the ability to transfer land or decide which crops to grow.

DESCRIPTION OF (PAST) INVESTMENTS

Figure 3. Farmers' reported ownership of machinery and equipment in Kazakhstan and Uzbekistan



Source: Authors' calculation based on SUSADICA (2019).

Figure 3 presents two indicators of past farm-level investment: the total number of machinery and equipment owned (total assets), and the number of different types of machineries and equipment owned (asset diversity). Farmers reported which technologies they own from a predefined list. In Kazakhstan, investment levels are heavily concentrated at the low end. Around 65% of farmers do not own any machinery, and fewer than 10% own more than two items. The picture is similar for asset diversity: approximately 70% of farmers report owning no different types of equipment, indicating minimal investment. In contrast, investment in Uzbekistan is more widespread. About 50% of farmers own at least two or more pieces of machinery, and a similar share report owning three or more different types of equipment. This suggests a more even and active pattern of investment compared to

Kazakhstan. One likely reason for the higher investment levels observed in Uzbekistan is that the sampled farms tend to be larger in size than those surveyed in Kazakhstan. At the same time, smaller landholders in Kazakhstan may find it more economically practical to rely on machinery rental services or shared technologies, rather than acquiring their own equipment.

DESCRIPTION OF ECONOMETRIC RESULTS

For clarity and readability, the econometric findings are described narratively here, focusing on the main associations relevant for policy—rather than presenting detailed model outputs. These insights are based on statistical models that assess whether farmers who report stronger perceived land rights also report higher investment levels, measured through the number and diversity of machinery and equipment owned. The models were estimated separately for the Kazakhstan and Uzbekistan samples.

In Uzbekistan, where land tenure is generally perceived to be more restricted, only perceived management rights show a positive association with machinery investment. Management rights refer to farmers' control over production processes, including decisions on input use, land management practices, and marketing. When farmers have autonomy to manage operations independently, they appear more willing to commit to longer-term improvements such as acquiring their own farm machinery and equipment.

In contrast, both use rights and, to a lesser extent, transfer rights show a negative relationship with investment in Uzbekistan. Farmers who report more flexibility in how they use or transfer land tend to invest less in farm machinery and equipment. This goes against standard expectations, which usually link stronger land rights to higher investment incentives. However, anecdotal evidence sug-

gests that under current conditions, especially in strategic crop sectors like cotton and wheat, many farmers see limited economic returns from production. As a result, some may choose to rent out land or switch to short-term, high-value crops, rather than committing to long-term machinery investments. These patterns highlight that greater autonomy in land use does not automatically translate into investment, especially when profitability remains low and alternative land uses appear more attractive.

In Kazakhstan, among the four bundles of land rights, perceived use rights—especially the freedom to choose crops—show the strongest positive association with machinery investment. This finding suggests that crop choice flexibility enables farmers to pursue more profitable crops and adapt their production strategies in response to changing input availability, water access, or market opportunities.

The link between land tenure security and investment in machinery is generally weak, but still reveals some important patterns. First, farmers who perceive stronger protection rights, for example, higher trust in courts and credibility of land tenure documents, actually report lower investment levels. This is surprising and goes against expectations, where stronger legal protection is usually seen as a way to ensure that investments are safe from loss.

Second, the risk of losing land shows more consistent patterns. In both countries, farmers who feel more at risk of

land expropriation tend to own fewer types of machinery, suggesting they are less willing to invest in a broad set of technologies. This fits with the idea that when tenure feels uncertain, farmers prefer to limit or simplify their investments, and avoid diversifying their business activities. In Kazakhstan, this risk also relates to owning fewer total machines. But in Uzbekistan, the pattern is different: farmers who perceive more land expropriation risk tend to invest in more of the same kind of equipment—possibly focusing on technologies they already use or see as “safe”.

One reason for weak relationships in both countries may be that farm machinery is a movable asset—it can be sold or leased if land is lost. This makes it less sensitive to tenure risks compared to permanent improvements like irrigation system investments, planting trees. Still, the findings highlight that fears about land loss may hold some farmers back from diversifying their investments, and point to continued constraints on long-term investments and farm modernization. Overall, these patterns suggest that tenure insecurity can alter how farmers invest, even if the relationship is not always strong or expected.

POLICY RECOMMENDATIONS

A combination of operational autonomy, secure tenure, and profitable economic opportunities is essential to enable farmers to plan long-term and invest in productivity-enhancing technologies. Policy actions in these land tenure dimen-

sions are therefore critical to the success of agricultural reforms in Uzbekistan. Importantly, this does not require a full overhaul of the land tenure system, but rather targeted improvements in specific rights—such as management rights, protection from expropriation, and, greater crop choice flexibility—and in how these rights are exercised and perceived by farmers.

Based on these findings, the following policy measures are recommended to support farm investment in Uzbekistan:

- Advance tenure reform through both liberalization and targeted improvements. A first-best policy option is to liberalize land tenure more comprehensively, as seen in Kazakhstan, by allowing farmers greater autonomy in land use, crop decisions, and transfer rights. However, if full liberalization remains politically unfeasible, a second-best approach should focus on targeted improvements in specific land rights within the current state-led system—especially strengthening management rights, ensuring protection from expropriation, expanding crop choice flexibility.
- Strengthen management rights under current production specializations. Farmers should have greater freedom to organize how, when, with whom, and by what means they cultivate their crops. Strengthening these day-to-day management rights—such as input choice, investment decisions, and production methods—can boost motivation and encourage

investment in appropriate technologies.

- Emphasize sufficient economic returns alongside land tenure improvements. Expanding farm operational autonomy, especially crop choice freedom may not automatically lead to higher investment unless production becomes economically more attractive. Unlike in Kazakhstan, where crop choice is clearly linked to investment, Uzbekistan's conditions suggest that use rights reform must be paired with better price incentives, input access, and marketing options. Ultimately, farming must offer returns sufficient to justify long-term capital commitments.
- Strengthen tenure security where it most affects investment. Tenure security alone may not be enough to drive investment—especially in movable assets like machinery—but the data show that perceived risk of expropriation is associated with lower asset diversification. Reforms should therefore prioritize (1) reliable enforcement of land rights through courts and local institutions, and (2) reducing arbitrary expropriation risks. In line with World Bank (2022) recommendations⁷, Uzbekistan should minimize the legal grounds under which land can be taken.
- Improve the broader environment for investment. Land tenure reforms will be more effective if embedded in a supportive investment environ-

ment. This includes affordable credit, functioning input and output markets, access to technologies, and consistent agricultural policies. These complementary measures are essential to unlock investment potential, especially for small and medium-sized farms.

- Monitor perceptions and investment behavior. Regularly tracking how farmers perceive their land rights can provide essential feedback for refining policy. Perception-based monitoring can help identify where reforms are working, where they are not, and how investment responses are evolving over time.

⁷ World Bank (2022). "Strengthening Land Administration and Institutions in Uzbekistan." Washington, DC: World Bank.

DISCLAIMER

The study's findings, interpretations, views, conclusions, and recommendations, as contained in this publication, reflect the authors' and do not necessarily reflect the official opinion of WIUT or CPRO.

AUTHORS

Zafar Kurbanov, Doctoral Researcher, Leibniz Institute of Agricultural Development in Transition Economies (IAMO).

Dr. Nodir Djanibekov, Research Associate, Leibniz Institute of Agricultural Development in Transition Economies (IAMO).

Prof. Dr. Thomas Herzfeld, Director, Leibniz Institute of Agricultural Development in Transition Economies (IAMO).

ACKNOWLEDGEMENTS

This policy brief is based on research conducted under the project SUSADICA: Structured doctoral programme on Sustainable Agricultural Development in Central Asia. The project received financial support from Volkswagen Foundation (VolkswagenStiftung), Ministry of Agriculture of the Republic of Uzbekistan, Ministry of Innovative Development of the Republic of Uzbekistan.

THE POLICY BRIEF IS BASED ON THE FOLLOWING PUBLICATION:

Kurbanov, Z., Djanibekov, N., & Herzfeld, T. (2025). Land property rights and investment incentives in movable farm assets: Evidence from post-Soviet Central Asia. *Comparative Economic Studies*, 67(2), 396-425. <https://doi.org/10.1057/s41294-024-00251-z>

To recommend a topic for a policy brief or collaborate with the CPRO, e-mail cpro@wiut.uz.