Research Paper
Impact Factor: 7.352
Peer Reviewed Monthly Journal
www.ijmdrr.com

IJMDRR
E- ISSN –2395-1885
ISSN -2395-1877

CLIMATE CHANGE, RURAL DISTRESS, AND MIGRATION: INSIGHTS ON CENTRAL ASIAN LABOUR FLOWS TO RUSSIA

Mohdarif Ahmed
Assistant Professor, Department of Higher Education, Jammu and Kashmir.

Abstract
Wage disparities, a lack of job opportunities, and post-Soviet structural changes are commonly used to explain labor migration from Central Asia to Russia. However, the relationship between environmental stress, rural livelihood insecurity, and climate change represents an increasingly significant layer of causality. This article summarizes peer-reviewed research on (i) observed and anticipated climate stressors in Central Asia (warming, drying, glacier retreat, and hydrological instability); (ii) how these stressors exacerbate rural distress through exposure to livelihoods based on agriculture and livestock; and (iii) why international labor migration—especially to Russia—emerges as a household risk-management and income-smoothing strategy. Based on interdisciplinary research, the paper makes the case that climate stress rarely causes migration directly. It exacerbates pre-existing vulnerabilities like low livelihood diversification, land and pasture degradation, market failures, and limited local employment opportunities. This paper asks a precise question: How do adverse climatic events like droughts and glacier melt contribute to rural distress that, in turn, sustains Central Asian labour flows to Russia?

Introduction

Russia is a major destination for labour migrants from Central Asia, especially Kyrgyzstan and Tajikistan and Uzbekistan, which have long been part of a regional mobility system. Economic explanations are still fundamental, but they become more and more insufficient if they fail to take into account the environmental and climatic factors that influence household security, rural production, and incomes. Significant warming and drying trends throughout Central Asia are documented by recent climate research, along with increased extremes and future projections that increase the risks to agriculture and water availability.

In rural and mountainous regions where households rely significantly on climate sensitive sectors like smallholder farming, irrigated agriculture, livestock, transhumance the environment livelihood migration linkage is most evident. A thorough, peer-reviewed case study from Naryn oblast in central Kyrgyzstan demonstrates how environmental issues and the effects of climate change such as drought, unusual rainfall, early winters and snowfall, and land and pasture degradation have adversely affected incomes, necessitating the use of additional livelihood strategies like labour migration.[1] This paper develops an integrative argument: climate change contributes to rural distress and deepening uncertainty in rural areas. In turn households go for migration to Russia as a coping and adaptation strategy. Importantly, climate stress does not replace economic drivers; it magnifies and reconfigures them.

[1]Sagynbekova, L. (2017). Environment, rural livelihoods, and labor migration: A case study in central Kyrgyzstan. *Mountain Research and Development, 37*(4), 456–463. https://doi.org/10.1659/MRD-JOURNAL-D-17-00029.1

According to world bank study, By 2050—without concrete actions climate change could lead more than 216 million people in 6 regions to migrate within their own countries.[2]Majority of the Population in central Asia is engaged in agriculture and Allied sector. Climate change will be an increasingly potent driver of migration in the region.As per Intergovernmental panel 2024, International migration of household members living in drought affected locations increased during the post shock year. A 2019–2022 household panel study shows the 2021 drought significantly increased international migration from affected communities, with Russia remained primary destination owing to already existing social networks.[3]Study shows that a prolonged drought could make Karakalpakstan region uninhabitable, resulting in a massive flow of environmental refugees.[4]

Over 50,000 migrants from the Uzbekistan portion of the Aral Sea area has migrated due to myriad factors including climatic stress.[5]Internal climate migration is going to increase across regions and countries including central Asia. The climate change impact will hit the poorest and the most vulnerable regions the hardest. Majority of the population in central Asian states is engaged in agriculture and allied sectors. Climate change will deepenthe pre-existing vulnerabilities like low livelihood diversification, land and pasture degradation, and limited local employment opportunities and in turn, increases the Central Asian labour flows to Russia.

According to the UN World Water Development Report 2025 "Downstream countries in Central Asia could face growing water shortages as intensive agricultural practices, climate change, and population growth continue at an unprecedented pace"The 2025 report draws attention to "the urgent need to safeguard our mountains, water resources and glaciers. These are not distant environmental concerns anymore, but these are indeed existential issues,"

Central Asian glaciers

The Tian Shan range known as the water tower of Central Asia is a major source of freshwater for hydropower, irrigation and drinking water. As per the reports, most of the glaciers in tianshan range are melting at an alarming rate. If the global warming exceeds 2°C glaciers in Central Asian region could shrink to less than half their current volume by the year 2100.[6] "The **ZhungarAlatau glacier area** has

[2]Sagynbekova, L. (2017). Environment, rural livelihoods, and labor migration: A case study in central Kyrgyzstan. *Mountain Research and Development, 37*(4), 456–463. https://doi.org/10.1659/MRD-JOURNAL-D-17-00029.1

[3]Karymshakov, K., Aseinov, A., &Azhgaliyeva, D. (2024). Drought and migration: Evidence from the Kyrgyz Republic (ADBI Working Paper).

[4]Lioubimtseva, E., &Henebry, G. M. (2009). Climate and environmental change in arid Central Asia: Impacts, vulnerability, and adaptations. Journal of Arid Environments, 73(11), 963–977.

[5]World Bank Inspection Panel. (2025, February 24). Request for Inspection (case document) — statement that the number of migrants from the Uzbekistan portion of the Aral Sea area "exceeds 50,000.

[6]The Astana Times, "Central Asia Faces Worsening Water Crisis from Glacier Melt, UN Report Says," May 24, 2025

shrunk by almost 50% since 1956. In the Alatau, feeding Almaty and Balkash basins, glacier volume has declined by over 30% since the 20th century,"[7]

A national panel from the Kyrgyz Republic finds the 2021 drought significantly increased international migration, with Russia the most feasible destination (Karymshakov, Aseinov, &Azhgaliyeva, 2024).Findings from this study suggests" international migration of household members living in drought-affected locations increased during the post-shock year. Both urban and rural households demonstrated a positive migration trend(Karymshakov et al., 2024)"[8]

This study showed that even in the short term, immediately after a climate shock international migration is the primary option for sustaining the livelihood of households, both for urban and rural populations. This effect can be ascribed to the preexisting migration networks and long-term migration trends in the Kyrgyz Republic, where the main destination for migration is the Russian Federation."[9]
"A prolonged drought could make Karakalpakstan and parts of Kazakhstan in the vicinity of the Aral Sea uninhabitable, resulting in a massive flow of environmental refugees."[10]Another study by the world bank suggests that "In the Kyrgyz Republic, reduced water availability is expected to create climate out-migration hotspots in important agricultural and pastoral areas in the northern, central, and south western regions, which are already seeing rural-urban migration, particularly from mountainous areas."

"The glaciologists from Central Asian countries believe that the problem of glacial melting requires an integrated and coordinated approach with the participation of all stakeholders in the Central Asian region. Without a unified adaptation system for the use of snow and ice resources and a strategy for the rational use of water from Trans boundary Rivers, the negative impact of glacier melting will worsen."

Conclusion

Majority of the Population in central Asia is engaged in agriculture and Allied sector. Climate stress liked roughts and glacier retreat posing water and ecological challenges across Central Asia's rural spaces. These stresses depress crops and pastures, increases salinity, and livelihood risk. These are the conditions under which households rationally diversify income and risk through migration. The best available micro-evidence shows drought increases international migration from affected Kyrgyz communities. Studies indicate that adverse climatic events are going to increase the vulnerabilities of the already vulnerable people in central Asia. Vulnerabilities will further act as a push factor of migration while Russia will remain a primary external labour destination because of the already existing migrants' social networks. The policies should avoid the binary between climate and economic migration and instead should focus on dual agenda of adaptation that reduces distress and migration system that are safe and mutually beneficial.

[7]Nurakynov, S., et al. (2023). *Accelerated Glacier Area Loss in the Zhetysu (Dzhungar) Alatau Range (Tien Shan)…*Remote Sensing, 15(8), 2133

[8]Karymshakov, K., Aseinov, D., &Azhgaliyeva, D. (2024). *Drought and migration: Evidence from the Kyrgyz Republic* (ADBI Working Paper No. 1490). Asian Development Bank Institute.
[9]Karymshakov, K., Aseinov, D., &Azhgaliyeva, D. (2024). *Drought and migration: Evidence from the Kyrgyz Republic* (ADBI Working Paper No. 1490). Asian Development Bank Institute.
[10]Lioubimtseva, E., &Henebry, G. M. (2009). Climate and environmental change in arid Central Asia: Impacts, vulnerability, and adaptations. *Journal of Arid Environments, 73*(11), 963–977.