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CHINESE INVESTMENT IN UZBEKISTAN'S MINING SECTOR UNDER THE BELT AND ROAD INITIATIVE (BRI): STRATEGIC DRIVERS, NETWORK EMBEDDEDNESS, AND GLOBAL TRANSMISSION

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Abstract:
Chinese mining investment in countries along the Belt and Road represents not only a deepening of bilateral economic and trade cooperation but also a new variable influencing the global economic landscape. Taking Uzbekistan as a case study, this paper constructs a three-stage analytical framework of "Strategic Drivers-Network Embeddedness-Global Transmission" to systematically examine the complete logic chain of Chinese mining investment, from its motivations and local practices to the transmission of global effects. The study finds that, at the strategic driver level, China's resource security needs and Uzbekistan's "resource-based development" strategy form a deep strategic coupling, providing the fundamental impetus for large-scale investment. At the network embeddedness level, Chinese investment deeply embeds itself into Uzbekistan's industrial system through technology transfer, infrastructure construction, and capital injection, reshaping its mining sector from a "point-based extraction" model into a "full-chain integration" model, generating significant technological spillovers and localization effects. Building on this, the paper focuses on demonstrating the global transmission effects of the investment: First, it reshapes global resource supply chains by constructing a Eurasian mineral resources corridor, enhancing supply diversity and resilience. Second, it innovates the "resource-finance-infrastructure" bundled model, offering an alternative development financing approach for Global South countries. Third, it promotes the rise of the Central Asian "land power" resource hub, subtly altering the global trade and capital flow patterns historically oriented towards maritime power. The study concludes that Chinese mining investment in Uzbekistan has become a crucial window for observing the "multipolarization" trend of globalization.

Keywords: Belt and Road; Network Embeddedness; Global Value Chains; Resource Geopolitics; Development Finance; Global Economic Governance

1. Introduction

The significance of Chinese investment in Uzbekistan's mining sector extends well beyond the confines of bilateral economic cooperation. In the context of ongoing global industrial chain restructuring, intensifying competition over critical mineral resources, and systemic shifts in the geopolitical landscape, Sino–Uzbek mining cooperation is generating multidimensional impacts with global ramifications. As noted by Zhao Shengli, Chinese investment in Uzbekistan's mining

industry not only reflects the deepening of bilateral economic relations but also provides a novel analytical lens through which to understand the reconfiguration of global mineral resource allocation and the evolving architecture of the international economic order. This observation underscores the necessity of situating Sino–Uzbek mining cooperation within a broader geoeconomic and geostrategic framework. [1]

A central analytical challenge, however, lies in identifying the mechanisms through which these global effects are generated and transmitted. This question constitutes the core concern of the present study. Empirical indicators reveal the scale and structural implications of this engagement. As of January 2026, more than 5,000 enterprises in Uzbekistan operate with Chinese capital participation, reflecting a deepening level of economic interdependence. At the same time, asymmetries in trade flows evidenced by Uzbekistan's exports to China amounting to approximately $2 billion in the first eleven months of 2025, compared to imports exceeding $13 billion highlight potential concerns regarding structural dependency and trade imbalance[2]. Such asymmetry is indicative of a broader transformation in Uzbekistan's industrial ecology, driven in part by Chinese investment, with spillover effects extending into the global economic system.

Existing scholarship provides important, albeit fragmented, perspectives on China's overseas mining investment. Theoretical approaches grounded in Global Value Chains (GVCs) emphasize pathways for industrial upgrading through integration into transnational production networks. However, these frameworks have traditionally focused on North–South dynamics, often neglecting the structural transformations emerging within South–South cooperation paradigms. Similarly, geopolitical economy approaches tend to foreground resource competition and power asymmetries, frequently reducing Chinese investment to a unidimensional narrative of resource extraction. Such interpretations overlook the multidimensional character of Chinese investment practices, particularly their emphasis on infrastructure development, technological transfer, and industrial capacity-building. Emerging research, including studies published by Oxford University Press, suggests that investment flows from the Global South are contributing to the formation of alternative models of transnational governance, characterized by complex socio-material interdependencies.

In the field of Uzbekistan studies, existing literature has accumulated a certain foundation. Xu Xiaotong et al. analyzed the prospects of mining investment in Uzbekistan [3], He Zixin et al. discussed its investment environment [4], and Chen Chao et al. outlined the current status of mineral resources [5]. Zhao Shengli's research was the first to systematically discuss how Chinese investment reshapes the landscape of Uzbekistan's mining market. Otorbaev's research further points out that the Central Asian region holds 38.6% of the world's manganese ore, 30% of chromium ore, and 20% of lead ore resources, with Uzbekistan possessing proven reserves of over 30 strategic metals, including 174,000 tons of lithium, 15.2 million tons of graphite, and 10,000 tons of tantalum-niobium [6]. However, most of this research remains at the bilateral level, failing to fully reveal the transmission effects of Chinese investment on the global economic system.

This paper proposes a three-stage analytical framework: "Strategic Drivers - Network Embeddedness - Global Transmission."

The Strategic Drivers layer focuses on the coupling mechanism between national strategies and corporate motivations behind the investment. China's resource security needs and Uzbekistan's "resource-based development" strategy form a strategic fit, providing the fundamental impetus for investment. Uzbekistan has clearly identified strategic minerals as a national priority and is promoting comprehensive industrial chain upgrading through the establishment of the Technology Metal Complex (TMK) [7].

The Network Embeddedness layer analyzes how Chinese investment embeds itself into Uzbekistan's industrial system and social structure. Zhao Shengli's research reveals the embedding paths of Chinese investment across three dimensions-technology transfer,

infrastructure construction, and capital injection and its localization effects, such as "improving production efficiency and technical level" and "driving local employment."

At the Global Transmission level, the analysis explores how bilateral cooperation produces broader systemic effects through mechanisms such as supply chain reconfiguration, institutional innovation in financing models, and shifts in the geopolitical landscape. This dimension constitutes the primary contribution of the study. As emphasized by Djoomart Otorbaev, Central Asian countries increasingly recognize the limitations of raw material export dependence and are seeking to avoid the “resource trap” by promoting local processing and integration into higher value-added segments of global mineral value chains[8].

2. Materials and Methods

The paper adopts a mixed qualitative approach, combining theoretical analysis with in-depth case studies. By examining representative cases in the copper, uranium, and gold sectors, the study uncovers the micro-level mechanisms through which investment practices are operationalized and translated into macro-level global effects.

3. Results and Discussion

For conceptual clarity, three key analytical categories are defined. Strategic Drivers refer to the alignment and mutual reinforcement of state-level strategic objectives and firm-level investment motivations. Network Embeddedness denotes the process through which transnational capital becomes deeply integrated into the host country’s industrial and social structures, thereby exerting long-term structural influence. Global Transmission captures the multidimensional impacts of bilateral cooperation on the global economic system, manifested through supply chain restructuring, institutional innovation, and geopolitical transformation. These concepts collectively form the analytical backbone of the present study.

Network Embeddedness: Localized Practices of Chinese Investment

A defining feature of Chinese mining investment in Uzbekistan is the shift from traditional resource acquisition towards full industrial chain integration. Zhao Shengli's research systematically reveals the multi-faceted manifestations of this transformation:

In terms of investment methods, "it presents a diversified pattern including participation in government concessions, joint-stock cooperation, overseas direct investment, technical joint ventures, and equipment exports." Specifically, "participation in government public listings and joint-stock cooperation models can balance the interests of both parties while respecting Uzbekistan's resource sovereignty, effectively reducing political and market risks through joint governance mechanisms."

In technology application, "the technical joint venture model leverages the introduction of key equipment and processes to gain long-term technological influence with relatively small capital investment." Equipment-export cooperation brings Chinese advanced production equipment into Uzbekistan's mining market, "including fully automated ore crushing production lines, digital ore dressing solution design platforms, intelligent mine safety monitoring systems, and IoT-based production scheduling systems."

In industrial chain extension, the later stages "are manifested in the combination of capital structure optimization and in-depth industrial chain layout, where substantial funds are not only used for resource extraction but also cover beneficiation, smelting, logistics, and export links, achieving a closed-loop system of production-processing-trade."

Zhao Shengli further points out the profound significance of this model transformation: "The superimposed effect of capital inflow and technology import has brought about structural changes in Uzbekistan's mining market, where resource elements are rapidly transformed into production capacity, directly impacting Uzbekistan's domestic industrial layout, export portfolio, and market competition models."

Official initiatives in Uzbekistan confirm this transformation direction. The Technology Metal Complex (TMK), established in 2024 by presidential decree, serves as a national-level institution for the development and operation of critical mineral resources, covering the entire chain from exploration, beneficiation, to end-product manufacturing. It manages 109 projects and aims to drive systematic upgrades in the mining value chain [9]. At the 2025 Tashkent International Investment Forum, TMK held a dedicated session titled "Uzbekistan as a Strategic Center for Critical Raw Materials: Investment Opportunities in the Value Chain," showcasing its strategic intent for full-chain integration to global investors [10].

Technology transfer and capacity building constitute important dimensions of Chinese mining investment in Uzbekistan. Zhao Shengli's research reveals the complexity of this process:

Multiple paths for technology introduction. "The technical joint venture model leverages the introduction of key equipment and processes," while "equipment-export cooperation brings Chinese advanced production equipment into Uzbekistan's mining market." These technologies not only "significantly improve production efficiency" but also "provide local replicable and scalable standardization solutions in quality control and environmental management." [11]

The necessity of localization adaptation. Due to "local special geological and climatic conditions (e.g., the extreme arid environment of the Kyzylkum Desert), mature Chinese mining technologies require significant localization adaptation and innovation for efficient application." [12]

Mechanisms for talent cultivation. Zhao Shengli notes that Chinese companies "establish skills training centers, enabling local workers to acquire modern mining and safety management knowledge, thereby enhancing overall labor productivity." [13] This talent cultivation mechanism provides the human capital foundation for the sustainable development of Uzbekistan's mining industry. Otorbaev's research also emphasizes that about 60% of Central Asia's literate population is under 30, making it one of the world's youngest regions, which provides favorable conditions for technology transfer and talent cultivation [14].

A typical case in the tungsten sector illustrates this. The Turkish-capital-backed K-Tungsten project in Navoi region has progressed rapidly, drilling over 60,000 meters since mid-2025, building a camp for approximately 400 employees, with projected total tungsten trioxide (WO_3) output of 106,700 tons, aiming for first production in Q1 2028 [15]. The project leverages Uzbekistan's supportive policies for strategic minerals while contributing to the enhancement of local technological capacity.

The deep embedding of Chinese investment also faces challenges of institutional friction and cultural adaptation. Zhao Shengli's research reveals multiple challenges:

Insufficient geological exploration data. "Most of Uzbekistan's basic exploration data and geological reports date back to the Soviet era, with evaluation standards inconsistent with international norms, raising questions about the accuracy, completeness, and reliability of resource information." Furthermore, "Uzbekistan maintains a higher degree of geological data confidentiality compared to other Central Asian countries, with lower openness, making it difficult for enterprises to obtain geological data of practical investment guidance significance." He Zixin et al.'s research also confirms this issue [16].

Policy and regulatory risks. Uzbekistan's mining regulatory system "is in a gradual reform process, with foreign investment policies exhibiting significant dynamic characteristics and inconsistencies in law enforcement." [17]

Infrastructure shortcomings. "The coverage and stability of the power grid are insufficient to guarantee the continuous operation of high-energy-consuming mining and beneficiation operations. The comprehensive transportation and logistics system is weak, especially the limited capacity and high cost of railway and road connections between remote mining areas and export hubs". Uzbekistan has implemented energy sector reforms in recent years, passing 8 laws and over 90 presidential and cabinet resolutions between 2017 and 2024, increasing electricity generation from 59 billion kWh in 2016 to 81.5 billion kWh in 2024, a 38% increase [18], but the

stability of power supply for mining remains a challenge.

Localization and community relations. Zhao Shengli points out that Chinese companies face "a latent tension between the host government's growing explicit expectations for creating local jobs and promoting technological knowledge transfer, and the inherent logic of cost efficiency and standardized management in the globalized operations of enterprises."

Facing these challenges, Chinese companies have adopted a strategy of gradual adaptation. Cooperation with national platforms like UzTMK helps circumvent some local administrative obstacles. Collaboration with research institutions provides institutionalized channels for technology transfer and local talent development. In community relations, they build benefit-sharing mechanisms through local procurement, job creation, and social welfare projects. As of January 2026, there were 5,044 enterprises with Chinese capital cooperation in Uzbekistan, a figure whose growth itself reflects the effectiveness of institutional adaptation.

Case Study: Technological Embeddedness and Value Chain Extension in Tungsten Cooperation

Tungsten provides a typical case for understanding the network embeddedness of Chinese investment. Global tungsten resources are highly concentrated, with China accounting for over 80% of global mine production in 2024[19]. The United States has ceased tungsten mining since 2015, relying entirely on imports and recycling. In this context, Central Asian tungsten resources are gaining strategic importance.

In Kazakhstan, Jiaxin International Resources Investment, controlled by Jiangxi Copper, has put the Bakuuta tungsten mine into commercial production, targeting an annual tungsten ore output of approximately 3.3 million tons by 2025. The project is located about two hours' drive from the Khorgos border crossing with China, offering significant transportation convenience. A company executive noted that about a quarter of the approximately 400 on-site workers come from China, with Jiangxi Copper responsible for production technology management and sales.

In Uzbekistan, Chinese companies are also actively involved in tungsten development. The Uzbek government projects that the country's share of global tungsten reserves will increase from 2% to 5.1% by 2030, and its share of global tungsten mining output will leap from 0.005% to 14.8%. This growth is driven by the deep integration of Chinese technology and capital with Uzbekistan's resource endowments. Through technology transfer and localization adaptation, Chinese companies are not only helping Uzbekistan enhance its tungsten mining capacity but are also promoting the extension of the industrial chain from raw ore exports to deep processing.

Global Transmission: Theory and Evidence of Triple Economic Effects

Chinese mining investment in Uzbekistan, through deep network embeddedness, has generated significant technological spillover and industrial upgrading effects within Uzbekistan. However, the significance of these localized practices extends far beyond the bilateral scope—they are transmitting through multiple mechanisms into the global economic system, producing structural global impacts. Zhao Shengli's research astutely noted that Chinese investment "provides a new perspective for the allocation of global mineral resources and the adjustment of the economic landscape". This chapter systematically demonstrates, through three typical cases (copper, uranium, gold), how Chinese mining investment in Uzbekistan generates triple transmission effects on the global economy through supply chain reshaping, development financing model innovation, and geopolitical landscape adjustment.

Copper is a critical material for the new energy revolution, widely used in electric vehicles, grid construction, and renewable energy. The International Energy Agency (IEA) forecasts that demand for copper from clean energy technologies will more than triple by 2040. Uzbekistan possesses significant copper resources, with proven reserves exceeding 30 million tons, ranking 10th globally. Almalyk Mining and Metallurgical Complex (AMMC) is the country's largest copper producer and one of the world's major copper mining enterprises.

Sino-Uzbek copper cooperation has evolved from trade to investment and from resource acquisition to industrial integration, a process that vividly illustrates the micro-mechanisms of

supply chain reshaping.

Phase 1: Trade. Early cooperation was primarily based on primary product trade, with China mainly importing copper concentrate from Uzbekistan. Cooperation forms were simple. Xu Xiaotong et al.'s research indicates that during this phase, "investment scale was limited, and cooperation was mainly trade-oriented"; Uzbekistan had not yet integrated into China's copper industry chain.

Phase 2: Investment Initiation. With the advancement of the Belt and Road Initiative, Chinese companies began participating in technological upgrades and expansion projects at the AMMC, introducing advanced mining and beneficiation technologies. Zhao Shengli's research shows that in this phase, "large state-owned enterprises began to dominate investment activities, with investment amounts increasing significantly". The technology and management expertise brought by Chinese companies significantly enhanced the mine's production efficiency.

Phase 3: Industrial Chain Integration. In the processing stage, UzTMK utilizes by-products from AMMC to produce high-purity metals like molybdenum, selenium, dysprosium, and rhenium, with Chinese companies providing technological and market support. This cooperation is enabling Uzbekistan to gradually move up the copper industry chain from being a simple copper concentrate exporter.

The technological spillover effects of copper cooperation are significant. Chinese expertise in areas like in-situ leaching and bio-metallurgy can help Uzbekistan improve the utilization rate of low-grade ores. Research by Zhang Da et al. indicates that mining development in arid Central Asia requires specific technological innovations, an area where Chinese companies have accumulated substantial experience . In environmental management, Chinese companies introduce technologies for tailings treatment and ecological restoration, providing a reference for Uzbekistan's transition to green mining. In 2024, Uzbekistan incorporated ESG international standards into its mining investment requirements, and the practices of Chinese companies can provide case studies for the implementation of these standards.

More profoundly, copper cooperation is reshaping the Eurasian copper supply chain. Traditionally, global copper flows have heavily relied on maritime routes—copper from Chile and Peru shipped across the Pacific to Asia, copper from the DRC and Zambia shipped across the Atlantic to Europe and North America. Sino-Uzbek copper cooperation provides a practical foundation for building a land-based copper resource corridor. Situated in the heart of Eurasia, Uzbekistan possesses a natural geographical advantage to become a land-based copper resource hub, connecting China to the east, Europe to the west, Russia to the north, and South Asia to the south. With the advancement of the China-Kyrgyzstan-Uzbekistan railway, a trans-Eurasian copper supply chain is taking shape.

Zhao Shengli's research further reveals the profound implications of this supply chain reshaping: "This change not only helps broaden its foreign trade directions but also enables it to gain greater bargaining power in the international mineral product pricing system, while improving its position in the global mining supply chain."

The supply chain reshaping exemplified by copper cooperation has threefold global significance:

First, it enhances the diversity of global copper supply. Traditionally, global copper supply has been highly concentrated in a few countries like Chile, Peru, and the DRC. The development of Central Asian copper resources provides a new source for the global market, helping to mitigate strategic risks associated with supply concentration.

Second, it increases the strategic resilience of the supply chain. The formation of a land-based copper resource corridor offers an alternative to maritime routes for copper flows, reducing over-reliance on critical chokepoints like the Strait of Malacca. Forvis Mazars' assessment notes, "The region is gradually ceasing to be the periphery of the global economy and is transforming into a space where major power interests, alternative logistics routes, and sources of resource resilience converge."

Third, it promotes industrial upgrading in the resource-rich country. Through industrial chain integration with Chinese companies, Uzbekistan is transitioning from a simple copper concentrate exporter to a participant in the mid-to-high end of the copper industry chain. This model provides a referenceable development path for other resource-rich nations.

Uranium is the fundamental fuel for nuclear power generation, holding strategic significance in the context of global energy transition and carbon neutrality. Uzbekistan is a major global uranium producer, with reserves estimated at 139,000 tons, ranking 7th globally, and accounting for about 5% of annual world production. Sino-Uzbek uranium cooperation involves multiple dimensions, including energy security, nuclear non-proliferation, and technology transfer, making it a typical case of the "Resource-Finance-Infrastructure" bundled model.

At the resource level, China, as the world's largest nuclear power builder, has a sustained strong demand for uranium. As of 2025, China has the largest number of nuclear power units under construction globally, ensuring long-term robust demand for uranium. Uranium supply from Uzbekistan helps China diversify its nuclear fuel sources, reducing dependence on major producers like Kazakhstan, Canada, and Australia.

At the technology level, Chinese companies have advantages in in-situ leaching (ISL) technology, which is suitable for Uzbekistan's sandstone-type uranium deposits, reducing extraction costs and environmental footprint. Zhao Shengli's research points out that "the technical joint venture model leverages the introduction of key equipment and processes to gain long-term technological influence with relatively small capital investment"; this is particularly evident in uranium cooperation.

At the nuclear fuel cycle level, cooperation is gradually extending from upstream mining to midstream processing, involving steps like uranium purification and conversion. This industrial chain extension allows Uzbekistan to gradually integrate into the global nuclear fuel cycle system.

The specificity of uranium cooperation lies in nuclear non-proliferation concerns and international regulatory requirements. Uzbekistan, a signatory to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), has a safeguards agreement with the International Atomic Energy Agency (IAEA). Chinese companies investing in Uzbekistan's uranium sector must simultaneously comply with host country laws, Chinese export control regulations, and international nuclear non-proliferation obligations. This multi-layered compliance requirement encourages Chinese companies to enhance governance capabilities and transparency.

It is precisely within this highly regulated cooperation framework that the "Resource-Finance-Infrastructure" bundled model has been formed and operates. Zhao Shengli's research reveals the specific mechanisms of this model: "In terms of financing models, diversified mechanisms such as equity cooperation, long-term off take agreements, and equipment technology exports are introduced, enabling deep integration of both sides in capital operation and resource allocation. This cooperation model is often accompanied by the signing of long-term contracts, ensuring stable resource supply and controllable prices."

This model manifests in three aspects within uranium cooperation:

Financing Structure: Chinese investment often takes the form of "resources-for-projects" or "resource-backed loans," using future uranium production as collateral to secure financing, reducing reliance on Uzbekistan's fiscal credit.

Project Portfolio: Investment bundles uranium mining projects with supporting infrastructure (power, transportation, water treatment), forming comprehensive development packages. Research by Wang Lei and Su Hao points out that this "resources-for-projects" model respects the sovereignty of the host country while achieving mutual benefit.

Risk Sharing: Chinese companies bear significant upfront costs for exploration and infrastructure construction, sharing the project's post-success returns with the Uzbek side, forming a risk-sharing, benefit-sharing cooperation mechanism.

The "Resource-Finance-Infrastructure" bundled model is generating a broad

demonstrative effect across Global South countries. Analysis from the Resource Justice Network suggests that for Global South countries to achieve energy sovereignty, they must have the capacity to build clean energy systems and industries. This requires public financing to support domestic energy systems and value chains, rather than merely serving the raw material demands of consumer regions in the North. The practices of Chinese companies in Uzbek uranium cooperation precisely embody this principle—financing bundled with infrastructure construction and technology transfer, rather than purely for resource extraction.

Resource-rich countries such as Kazakhstan, Mongolia, the DRC, and Zambia are beginning to learn from or replicate the institutional arrangements seen in Sino-Uzbek cooperation. In Kazakhstan, Jiaxin International Resources Investment, controlled by Jiangxi Copper, has put the Bakuuta tungsten mine into commercial production. A company leader noted that Jiangxi Copper is responsible for production technology management and sales, a model that "ensures stable resource supply and controllable prices."

Research from Oxford University Press further suggests that investments from the Global South are forming new "global" practices in Africa. These practices are neither identical to traditional Western models nor simply neo-colonialism; they are the product of the intertwining and blending of diverse technologies and practices. The bundled model formed in Sino-Uzbek uranium cooperation exemplifies such "global" practices.

In recent years, gold has emerged as a new hotspot for Chinese mining investment in Uzbekistan. Surging gold prices have injected new impetus into Chinese mining expansion, with private companies becoming the most dynamic force in this investment wave. Zhao Shengli's research indicates that Chinese investment is "profoundly reshaping its mining market through multi-dimensional paths", with gold sector investment being particularly typical.

In September 2025, Uzbekistan auctioned 26 large gold deposits, most of which were won by Chinese companies. This round of gold investment exhibits several notable characteristics:

First, private companies take the lead. Compared to the dominance of state-owned enterprises in strategic resources like copper and uranium, the gold sector features more participation from market-oriented private companies. The case of Chifeng Gold is representative: the company's output surged from just 2 tons in 2019 to 15.2 tons in 2023, primarily driven by overseas acquisitions.

Second, focus on small-to-medium-scale mining rights. Compared to giant mines, these projects have moderate investment scales and shorter development cycles, suitable for the flexible operations of private firms. This "small and fast" investment model complements the "large and comprehensive" approach of major state-owned enterprises.

Third, industrial chain extension. Some companies are involved not only in gold mining but also in processing, smelting, and refining. Zhao Shengli's research reveals this trend: the later stages "are manifested in the combination of capital structure optimization and in-depth industrial chain layout, where substantial funds are not only used for resource extraction but also cover beneficiation, smelting, logistics, and export links."

Private sector participation brings new vitality to Sino-Uzbek mining cooperation. In terms of operational mechanisms, private companies are more flexible in decision-making and quicker to respond to markets. In risk management, they focus more on commercial returns and risk control. In localization, private companies are more inclined to form joint ventures with local partners. However, private companies also face challenges such as limited financial resources and weaker risk-bearing capacity, requiring support from financial institutions and professional service providers[20].

The deeper significance of the gold rush lies in its role in transforming Uzbekistan from a "double-landlocked" country into a "land power" resource hub. Zhao Shengli's research reveals the micro-foundations of this transformation: Chinese companies "invest in constructing dedicated railway branches, mining area storage centers, and cross-border transportation hubs, enabling mineral products to enter international markets more efficiently."

This construction of logistics infrastructure is altering the traditional flow patterns of global gold trade. Historically, global gold trade has heavily depended on maritime routes—gold from South Africa shipped to London vaults, gold from Australia shipped to Asian consumer markets. The development of Uzbekistan's gold industry provides an alternative land-based corridor for gold trade.

The advancement of the China-Kyrgyzstan-Uzbekistan railway further reinforces this trend. Financing for this railway project, valued at $4.7 billion, was finalized in December 2025. Once completed, Uzbek gold can be rapidly transported via rail to China, South Asia, the Middle East, and European markets, significantly reducing reliance on maritime routes.

Otorbaev's research points out that Central Asian countries have reached a consensus: simply relying on raw material exports may lead to a "resource trap," so they must focus on local deep-processing technologies to supply finished products within the critical mineral value chain to the global market. The industrial chain extension in the gold sector is a concrete practice of this consensus—shifting from raw gold exports to higher-value products like refined gold and gold jewelry.

The emergence of “land power,” as exemplified by intensified gold-sector activity, is precipitating structural transformations in contemporary resource geopolitics. This transformation unfolds across multiple, mutually embedded dimensions.

First, Central Asia is increasingly consolidating its position as a strategic arena for great power competition over critical mineral resources. Recent diplomatic and institutional developments underscore this trend. In February 2024, U.S. President Joe Biden initiated the first C5+1 Critical Minerals Dialogue, aimed at deepening cooperation with the five Central Asian states. This initiative was followed, in November 2025, by the announcement of a joint venture between a U.S. firm and Kazakhstan’s national mining company during a C5+1 summit, targeting the development of two tungsten deposits, supported by up to $900 million in financing from the Export-Import Bank of the United States. Concurrently, both Kazakhstan and Uzbekistan acceded to the U.S.-led Minerals Security Partnership (MSP) Forum, signaling a strategic effort to diversify supply chains and reduce structural dependence on Chinese mineral dominance.

Second, these dynamics are accompanied by an evolving plurality of resource governance paradigms. The traditional governance architecture—historically shaped by Western industrial economies—has prioritized regulatory frameworks centered on market liberalization, intellectual property protection, and environmental compliance. In contrast, Chinese investment practices in Uzbekistan’s gold sector articulate an alternative normative framework that foregrounds developmental sovereignty, infrastructure-led growth, and principles of mutual benefit. The institutionalization of this paradigm is evidenced by the outcomes of the “Central Asia–China” summit held in Astana in June 2025, where mineral resource cooperation was explicitly designated as a strategic priority, reflecting an emergent regional convergence around hybridized governance models.

Third, the ongoing transformation entails a substantive “re-centering” of historically peripheral, landlocked economies. Uzbekistan, long constrained by its “double-landlocked” geography, is undergoing a geoeconomic repositioning facilitated by sustained inflows of Chinese capital and infrastructure investment. This process is enabling the country to evolve into a continental resource hub linking East Asia, South Asia, West Asia, and Europe. Empirical assessments indicate that both Kazakhstan and Uzbekistan are emerging as significant actors in global tungsten supply chains, thereby incrementally challenging China’s historically dominant position. This shift transcends national boundaries, constituting a broader reconfiguration of Eurasian geoeconomic space.

Importantly, the three global transmission mechanisms identified—supply chain restructuring, financing model innovation, and the rise of land-based geoeconomic power—operate not as discrete phenomena but as an integrated and self-reinforcing system.

Supply chain restructuring provides the material substrate for financial innovation. The

consolidation of a Eurasian mineral corridor enhances the feasibility of the "resource–finance–infrastructure" bundled model by strengthening asset-backed creditworthiness and reducing transaction and logistical costs. In this regard, the vertically integrated industrial chain model observed in copper-sector cooperation offers a replicable template for expansion into uranium, gold, and other strategic mineral sectors.

Financing model innovation, in turn, furnishes the institutional architecture underpinning the rise of land power. By aligning long-term resource contracts with infrastructure development and risk-sharing mechanisms, the bundled model enables landlocked economies to circumvent structural dependence on maritime trade routes. The institutional arrangements developed within uranium-sector cooperation further provide a transferable framework for mobilizing private capital in gold-sector investments.

Finally, the rise of land power feeds back into both supply chain diversification and the diffusion of innovative financing practices. As Central Asia's prominence as a resource hub intensifies, its developmental trajectory assumes demonstrative value for other Global South economies. This generates a dynamic process of "demonstration–diffusion–reinforcement," whereby policy models and investment strategies—such as the "small and fast" private-sector mining investments associated with the gold rush—are increasingly replicated in resource-rich regions from the Democratic Republic of the Congo to Zambia.

At the micro-foundational level, these macro-structural transformations are underpinned by localized economic effects. As noted by Zhao Shengli, Chinese investment not only enhances production efficiency and technological capacity within Uzbekistan's mining sector but also contributes to employment generation and broader economic development. These localized spillovers constitute the essential transmission channels through which global geoeconomic restructuring is operationalized.

4. Conclusion

Chinese mining investment in Uzbekistan generates salient global transmission effects through three interrelated mechanisms: supply chain reconfiguration, institutional innovation in development finance, and the re-scaling of geoeconomic spatiality.

First, evidence from copper-sector cooperation indicates an ongoing restructuring of global resource supply chains toward a nascent Eurasian mineral corridor. This process enhances both the diversification and resilience of global supply by integrating Central Asian deposits into broader value chains. Uzbekistan's endowment - comprising proven reserves of more than 30 strategic metals, with only approximately 40% of its territory geologically explored - suggests substantial latent capacity to reinforce long-term supply security.

Second, uranium-sector cooperation elucidates the operational logic of the "resource–finance–infrastructure" bundled model. By synchronizing resource extraction with infrastructure provision and financial arrangements, this model reduces coordination failures and mitigates investment risks in capital-intensive sectors. Its growing diffusion from Central Asia to Sub-Saharan Africa demonstrates its viability as an alternative development financing paradigm for Global South economies, particularly where conventional financing mechanisms remain constrained.

Third, developments associated with intensified gold-sector activity illustrate the gradual emergence of Central Asia as a "land power" resource hub. This transformation is reconfiguring historically maritime-centric trade and capital flow patterns. Empirical indicators including the advancement of the China–Kyrgyzstan–Uzbekistan railway, the expansion of enterprises with Chinese capital participation in Uzbekistan, and increasing strategic competition in critical minerals such as tungsten underscore a broader shift in geoeconomic orientation.

These three dimensions are not discrete; rather, they operate in a mutually reinforcing manner, constituting a coherent mechanism through which Sino-Uzbek mining cooperation produces global transmission effects. In the context of an ongoing reconfiguration of global resource governance, this case provides a theoretically and empirically rich lens for examining the evolving

economic logic of South–South cooperation under the Belt and Road framework. More broadly, it offers a critical vantage point for observing the structural dynamics of an increasingly multipolar global economic order.

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