

BAIKONUR

Space for Potential Cooperation amid Adversary Influence

CHRISTOPHER S. KERANEN

The Baikonur Cosmodrome—Kazakhstan’s space launch site controlled by Russia—offers an opportunity for space cooperation as Russia’s space capabilities have declined and China’s influence in Central Asia has grown. This article examines Kazakhstan’s space ambitions, the deteriorating Russo-Kazakh partnership over Baikonur, China’s increasing involvement in the domain, and the geopolitical implications of these shifts. Although there are risks involved, US space cooperation with Kazakhstan can not only secure US interests in Central Asia but also foster global space security. Such cooperation will enable the United States to support Kazakhstan’s space development goals, balance Russia’s and China’s influence, and assert the United States’ peaceful presence in Central Asia.

On 15 July 1975, in the heat of the Cold War with proxy wars raging, the United States and the Soviet Union pulled off an unprecedented feat: the Apollo-Soyuz mission. Astronauts and cosmonauts docked their spacecrafts together 150 miles above Earth, shaking hands in space and proving that even in times of fierce rivalry, cooperation in space could rise above political conflict. Today, space remains a medium for collaboration, as evidenced by the continued US-Russian cooperation on the International Space Station, even amid Russia’s war in Ukraine. For the United States, space cooperation serves as a tool for political influence, diplomatic engagement, and technological leadership on the global stage.

The Baikonur Cosmodrome, once the crown jewel of the Soviet space program, is located at the crossroads of potential international cooperation. Kazakhstan, the inheritor of this historic spaceport, has recently become a custodian of two launchpads that it hopes to use to further its identity as a spacefaring nation and attract international collaboration. Yet the involvement of both Russia and China complicates Kazakhstan’s aspirations. Though facing a declining space industry, the Kremlin remains firmly in control of Baikonur, while the People’s Republic of China’s (PRC) growing interest in space partnerships with Kazakhstan represents a significant shift in the balance of influence in Central Asia. By expanding its civil or commercial space endeavors at Baikonur,

Major Christopher Keranen, USAF, a foreign area officer trainee at the Naval Postgraduate School, Department of National Security Affairs, holds a master of science in security and intelligence studies from Embry-Riddle Aeronautical University.

the United States would not only be testing the boundaries of space cooperation but also investigating the limits of the Russo-Sino relationship in the region.

Amid increased global instability, particularly due to Russia's ongoing war in Ukraine and China's military aggression in the Indo-Pacific, the United States must prioritize space diplomacy as a means of sustaining diplomatic ties that can withstand terrestrial tensions, and Baikonur offers an ideal opportunity for such an effort. This article argues that the United States should explore space cooperation through Baikonur as an avenue of engagement with Central Asia to support Kazakhstan's space ambitions, enhance a peaceful US presence in Central Asia, and counterbalance the growing influence of Russia and China in the region.

Kazakhstan and Russia at Baikonur

Baikonur is a prominent space complex built by the Soviet Union in the mid-1950s on the vast southern steppe of Kazakhstan. The Soviets selected the location to accommodate the massive 6,717-square kilometer complex that would serve as the primary hub of their space program. The location also offered a strategic position far from Russia's borders and accessibility to a railway stop between Moscow and Tashkent.¹ From Baikonur, the Soviets launched Sputnik, the first artificial satellite, in 1957 and the first human to orbit the Earth—Yuri Gagarin aboard Vostok 1—in 1961. After the breakup of the Soviet Union, the cosmodrome fell within the sovereign territory of the Republic of Kazakhstan, which thus inherited a large part of the Soviet space legacy.

Space exploration has since become integral to Kazakhstan's national identity. Although Kazakhstan's space development is tied to its colonial past with Russia, the country has integrated space exploration into its broader nation-building efforts as a tool to assert its independence and national identity.² When Kazakhstan achieved independence in 1991 with the dissolution of the Soviet Union, it staked its claim as a key player in the space community, and the government continues developing that identity on the domestic and international stage, promoting scientific research and space equipment production with international participation.³ Kazakhstan has since created its own national space program, which has been operating its Earth observa-

1. Jacques Villain, "A Brief History of Baikonur," *Acta Astronautica* 38, no. 2 (January 1996), <https://doi.org/>.

2. Ulbolsyn Sandybayeva, "Space as Soviet Heritage and a National Project for Kazakhstan," in *European Proceedings of Social and Behavioural Sciences Social and Cultural Transformations in the Context of Modern Globalism*, ed. Dena Karim-Sultanovich Bataev et al. (Kh. Ibragimov Complex Research Institute of Russian Academy of Sciences, 29 November 2021), <https://doi.org/>.

3. Dana Omirgazy, "Kazakhstan Explores Limitless Potential of Space Industry," *The Astana Times*, 18 April 2023, <https://astanatimes.com/>.

tion satellites since 2015, and has maintained a space partnership with Russia, holding onto its role in the Soviet space program.⁴

Reports indicate that Kazakhstan will receive \$115 million annually from Russia as a lease contract up to 2025, which has been extended to 2050.⁵ Sergey Sopov, the founder and first head of Kazakhstan's national space agency, initiated the lease proposal in the 1990s. The intent was to make the spaceport a center for international cooperation on space expeditions, with the original version of the proposal allowing Russia to rent only part of Baikonur. Sopov notes that Kazakhstan planned to invite Europeans and Americans to launch from the complexes within the cosmodrome that would have fallen under Kazakhstan's control.⁶ Yet the finalized agreement gave Russia control of the entire cosmodrome.

Since Kazakhstan's independence, the Russian government has intended to move its space operations to its home front, yet it retains control over the Baikonur complex and the surrounding city, blocking other international partnerships. In the 1990s, Russian President Boris Yeltsin planned to relocate Baikonur operations to eastern Russia, but that plan was not realized until April 2016 with the first successful launch from Vostochny Cosmodrome, located 120 miles north of the Chinese border in Eastern Siberia.⁷

Today, the Russian Federation still controls access to the entire city that surrounds and supports the cosmodrome and appoints its mayor, despite the fact that Kazakhs constitute the city's majority population.⁸ Sopov contends that Russia's control of the city under the current lease agreement remains the biggest barrier to any international involvement that Kazakhstan seeks.⁹ Russia has thus far ensured that it remains Kazakhstan's only international partner at Baikonur.

Since 2004, the two countries have been working together to upgrade Baikonur's Site 45, a historic set of launchpads and support infrastructure, in what is called the

4. Planet Labs PBC, "Kazakhstan Leverages Planet Data for Agriculture, Resource Management, and Disaster Response," 25 June 2024, Planet, <https://www.planet.com/>; and Nelly Bekus, "Outer Space Tech-nopolitics and Postcolonial Modernity in Kazakhstan," *Central Asian Survey* 41, no. 2 (3 April 2022), <https://doi.org/>.

5. Bagila Bukharbayeva, "Cosmodrome Lease Extended Until 2050," *The Moscow Times*, 12 January 2004, <https://www.themoscowtimes.com/>.

6. Оксана Трофимова, "Как Проходили Переговоры России и Казахстана о 'Байконуре' и Почему Илона Маска Не Догнать [How the Negotiations Between Russia and Kazakhstan on Baikonur Took Place and Why Elon Musk Cannot Be Caught Up]," *inform buro*, 13 May 2023, <https://informburo.kz/>.

7. James Clay Moltz, "Northeast Asia's Space Launch Nationalism," *The Asan Forum* (blog), 12 August 2016, <https://theasanforum.org/>.

8. Оксана Трофимова, "Глава Байконура: Мы стремимся упростить въезд в город [Head of Baikonur: We Strive to Simplify the Entrance to the City]," *inform buro*, 18 October 2023, <https://informburo.kz/>.

9. Трофимова, "Проходили."

Baiterek project.¹⁰ Yet despite Russia's determination to phase out its reliance on Baikonur for its space operations, it is not likely willing to loosen the ties of dependence that bind Kazakhstan to Moscow. In turn, Kazakhstan is inclined to seek new partners for the Baiterek complex as it has continued to face opposition from Russia in the handling of the upgrade.

Russian efforts in the Baiterek project have stagnated in the wake of diverging environmental priorities between the two nations, coupled with problems associated with Russia's aggression in Ukraine in 2014 and 2022. Site 45 is where Russia launched the Zenit series rockets, produced in the Ukraine since the 1980s, and its upgrade was originally intended to accommodate Russian Angara rockets as opposed to the aging Soviet-era Proton rockets.¹¹ Proton rockets are not only expensive, but they use unsymmetrical dimethylhydrazine—called the “devil's venom” by scientists—a highly carcinogenic fuel that contaminates the Kazakh steppe they overfly, leaving behind toxic effects that last for decades.¹² Kazakhstan's opposition to Russia's continued use of the Proton rocket was a central issue during the original Baikonur lease negotiations and a key driver behind the lease's subsequent renegotiation.¹³ Yet Russia continues to launch Proton rockets, with plans to extend their use through 2026.¹⁴ In addition, in 2012, Russia decided to move Angara launches originally meant for Baikonur to Vostochny, leaving the Baiterek project stalled.¹⁵ Russia's 2014 annexation of Crimea further hurt its ability to use Ukrainian-produced Zenit rockets, as it was forced to create a new version of Soyuz rockets that could be built under strict sanctions.¹⁶

Efforts to transfer Baikonur's control to Kazakhstan started as early as 2012.¹⁷ In 2018, the two nations agreed to transfer the responsibility of Site 45 to Kazakhstan.¹⁸ Although Russia relinquished the site platforms, however, Kazakhstan is still bound to develop them for Russia's Soyuz-5 rocket, its new medium-class launch vehicle scheduled for December 2025 launch.¹⁹ Nevertheless, Kazakhstan has been gradually

10. Nicole Wolkov, “Baiterek Rocket and Space Complex to Contribute to Baikonur's Development,” Caspian Policy Center, 19 August 2020, <https://www.caspianpolicy.org/>.

11. Wolkov.

12. Mark Piesing, “The Pollution Caused by Rocket Launches,” *BBC News*, 15 July 2022, <https://www.bbc.com/>.

13. Трофимова, “Проходим.”

14. “Proton Launch Schedule,” Next SpaceFlight, accessed 3 September 2024, <https://nextspaceflight.com/>.

15. Anatoly Zak, “Zenit Rocket Facilities in Baikonur,” RussianSpaceWeb.com, last updated 10 November 2023, <https://www.russianspaceweb.com/>.

16. Anna Gussarova, “The Kremlin Strategy in Baikonur: Putting Kazakhstan's Space Program in a Box?” *Eurasia Daily Monitor*, 29 March 2018, <https://jamestown.org/>.

17. E. Kosolapova, “Kazakhstan and Russia Work on Phased Termination of Baikonur Lease,” *McClatchy - Tribune Business News*, 10 December 2012.

18. Wolkov, “Baiterek Rocket.”

19. John Sheldon, “Kazakhstan's Space Ambitions Hostage to Russian Space Launchers at Baikonur,” SpaceWatch.Global, 5 April 2018, <https://spacewatch.global/>; and “First Launch of Soyuz Rocket Due Dec 24, 2025,” TASS Russian News Agency, 17 August 2023, <https://tass.com/>.

assuming greater responsibility for the cosmodrome amidst ongoing fragmentation and the inherent provisional nature of the lease. Since 2022, Russia has relinquished 234 facilities at Baikonur to the Kazakhstan government that were formerly under the charge of Russia as part of the lease.²⁰

In March 2023, *The Moscow Times* reported that Baikonur had become a point of friction when the Kazakhstan government seized the assets of the Russian space agency Roscosmos, citing \$29.7 million in overdue payments for the Baiterek project that resulted when Western sanctions from Russia's 2022 invasion of Ukraine targeted Roscosmos' suppliers.²¹ Additionally, the sanctions greatly diminished the commercial launch potential for the Soyuz-5, which was a key source of investment revenue for Baiterek.²² The incompatibility of the two nations' visions becomes clear when considering Kazakhstan's aim to foster international cooperation and Russia's move to bolster its own status as a global space power. Kazakhstan's vision for involving other international partners at Baikonur while environmentally respecting its land is hindered by its partnership with Russia. Russia's vision is to eliminate its dependence on Kazakhstan, yet it continues to be the principal operator of Baikonur.

From the start, Kazakhstan and Russia have held divergent views concerning the use of the cosmodrome. After the Soviet Union's fall, Russia needed to retain control of what was arguably its greatest single space asset to continue development in space. For Kazakhstan, as mentioned, Baikonur represented an opportunity for international cooperation and for the country's recognition as a spacefaring nation. Yet Russia's political dominance and security influence over the fledgling post-Soviet independent states in the 1990s did not permit Kazakhstan's competing view of the cosmodrome. Today, the landscape has shifted significantly, with Kazakhstan's regional influence expanding as Russia's diminishes. The agreement granting Kazakhstan management of Site 45 marks the beginning of a shift in control over Baikonur. The window of opportunity for international cooperation at Baikonur will widen if this trend continues.

Baikonur and International Space Cooperation

Two key factors must be considered in Baikonur's potential as a source of international space cooperation. For one, Russia's current status as a space power remains tenuous at best. Secondly, Kazakhstan is an integral part of Russian state security, and Russia has a strong, strategic interest in Kazakhstan's affairs. Any prospective international partners must tread carefully in the current evolving landscape, given the uncertainty surrounding how Russia will perceive and respond to these shifting dynamics.

20. "Россия предложила Казахстану 234 объекта на Байконуре [Russia Offers Kazakhstan 234 Facilities at Baikonur]," *TASS*, 16 March 2024, <https://tass.ru/>.

21. "Казахстан арестовал имущество «Роскосмоса» [Kazakhstan Arrests Roscosmos Property]," *The Moscow Times*, 13 March 2023, <https://www.moscowtimes.ru/>; and Mike Eckel, "Sunset For Baikonur? A Contract Dispute with Kazakhstan Flashes Warnings for Russia's Legendary Spaceport," *Radio Free Europe/Radio Liberty*, 6 April 2023, <https://www.rferl.org/>.

22. Eckel.

Opportunities for international involvement in Baikonur will grow as Russia's space capability continues to decline. A 2023 report measuring launch capacity marks this decline, showing Russia's space operations as fluctuating between a high of 22 launches in 2019 to a low of 12 launches in 2020. Meanwhile, by contrast, the United States has increased its launches every year since 2019 from 21 to 109 launches in 2023, and China has also steadily increased its launch capacity from 18 launches in 2017 to 67 in 2023.²³ Additionally, Vostochny remains a clear example of Russia's stagnation in terms of its status as a space power.²⁴ As of 2019, the development of Vostochny has cost, at a minimum, a staggering \$4.6 billion due to pervasive corruption, material/economic impacts of sanctions, and incentives needed to recruit industry experts to relocate to remote Siberia. Consequently, Russia has lacked the funds to invest in Baikonur's development or collaborate with Kazakhstan on other space capability initiatives.

In contrast, Kazakhstan has continued to develop its space capabilities. For example, it is currently working with France on building its own communication satellites.²⁵ It even purchased Starlink services from US commercial company SpaceX to provide 2,000 of its schools with high-speed internet.²⁶ As Russia struggles to match its launch rate and funding with its space ambitions, the disparity between the two nations' goals continues to grow. This widening gap encourages Kazakhstan to explore partnerships with other countries and commercial entities as it takes on greater responsibility for managing Baikonur.

In addition, the weakening of Russia's regional and global influence challenges such development of international space partnerships. Because space is an integral part of the Kremlin's military strategy, the Russian space program carries the same level of sensitivity as its national security, requiring a cautious approach from foreign actors. Since the end of the Cold War, Russia's status as a great power has deteriorated in several areas, including its economy, trade, technology, and political influence. As one scholar explains, Russia's Soviet-era superpower status and its possible current standing as a global power are today evidenced solely by its nuclear arsenal—"the only Russian asset of security and world status."²⁷ With its growing need for security dominance in the region, Russia may be reluctant to allow external actors to gain influence in Central Asia's space sector. In fact, in the wake of its own declining space capabilities, its aims

23. Jonathan McDowell, *Space Activities in 2023*, 5 January 2024, <https://planet4589.org/>.

24. Moltz, "Space Launch Nationalism"; and Laurence Peter, "Russia Corruption: Putin's Pet Space Project Vostochny Tainted by Massive Theft," *BBC News*, 19 November 2019, <https://www.bbc.com/>.

25. Ministry of Digital Development, Innovations and Aerospace Industry of the Republic of Kazakhstan, "Kazakhstan Will Produce Communication Satellites Jointly with the French Airbus Defense and Space," GOV.KZ, 18 May 2023, <https://www.gov.kz/>.

26. Dana Omirgazy, "Starlink Initiative: 2,000 More Schools in Kazakhstan to Receive High-Speed Internet," *The Astana Times*, 19 June 2024, <https://astanatimes.com/>.

27. Alexey Arbatov, "Understanding the US–Russia Nuclear Schism," *Survival: Global Politics and Strategy* 59, no. 2 (2017): 59, <https://doi.org/>.

have shifted from expanding its space program to developing capabilities to compromise Western space programs.²⁸

Furthermore, Kazakhstan remains Russia's closest military ally in Central Asia.²⁹ As recently as January 2022, Russia has deployed troops to Kazakhstan to assist in suppressing violent domestic riots over fuel prices.³⁰ Such dynamics highlight the obstacles Kazakhstan's future international space partners may face as they navigate the complexities of Russo-Kazakh space ties and Russia's attempts to maintain regional and strategic influence.

Given the growing dual-use nature of space assets, even purely civil attempts to assist Kazakhstan would be met by suspicion from Russia. Russia has displayed general distrust toward commercial space endeavors for their potential link to security issues. For example, in early 2024, the Russian Foreign Ministry accused the US Intelligence Community of using "the private sector to serve its military space ambitions."³¹ Russia is not alone in this suspicion as even in free-market countries like the United States, there is a concern among space operators that the boundary between military and civilian uses of space is becoming more difficult to define as commercial satellites proliferate and governments purchase the information collected.³² The dual-use of space capabilities can lead to unease among nations, raising suspicion that seemingly civil endeavors are meant to enhance military capabilities. This situation complicates efforts by any international actor to support Kazakhstan's space program without provoking resistance or antagonism from Russia. Notably, the recent engagement of China, Kazakhstan's other key neighbor, in Kazakhstan's space sector may clarify where Russia perceives the boundaries between acceptable civil cooperation and actions it deems threatening to its security interests.

China's Strategic Interest in Baikonur

China is a growing space power that has shown interest in involving itself in Kazakhstan's space ambitions, particularly at Baikonur. A 2022 US Defense Intelligence Agency report highlighted that "during the past 10 years, China has doubled its launches per year and the number of satellites in orbit."³³ The report illustrates the country's progress

28. Bruce McClintock and Melusine Leuret, "Russian Space Strategy and Capabilities: A Tale of Doctrine," in *The Sky Is Not the Limit: Geopolitics and Economics of the New Space Race*, ed. Alessandro Gili (Italian Institute for International Political Studies, 2024).

29. Dmitri Trenin, *Post-Imperium, A Eurasian Story* (Carnegie Endowment for International Peace, 2011), 127, <https://doi.org/>.

30. Olzhas Auyezov, "Russia Sends Troops to Put Down Kazakhstan Uprising as Fresh Violence Erupts," Reuters, 6 January 2022, <https://www.reuters.com/>.

31. "Russia Warns United States: Use of SpaceX for Spying Makes Its Satellites a Target," Reuters, 20 March 2024, <https://www.reuters.com/>.

32. David Roza, "Experts Warn of Blurring Line Between Military, Commercial Satellites," *Air & Space Forces Magazine*, 27 July 2023, <https://www.airandspaceforces.com/>.

33. 2022 *Challenges to Security in Space: Space Reliance in an Era of Competition and Expansion* (Defense Intelligence Agency, 2022), 8, <https://www.dia.mil/>.

by explaining that China has launched three space stations into orbit and placed rovers on the moon and Mars. In June 2024, Kazakhstan reportedly signed a joint statement and 30 documents of interstate agreements with the PRC to include a memorandum outlining Kazakhstan's participation in the Chinese International Lunar Research Station project. In the joint statement, China's ministry of foreign affairs stated that it plans to "explore the possibility of commercial use of the two sides' space launch sites."³⁴ Kazakhstani news sources report that the PRC also promised a \$13.7 million grant to develop Kazakhstan's space industry.³⁵ China is rapidly increasing its space capabilities and is clearly posturing for a future space partnership with Kazakhstan.

Given China's self-sufficient space program, there are several reasons why it would partner with Kazakhstan in space capability development. Space cooperation with Kazakhstan is another channel for China to extend its rapidly evolving soft-power influence in Central Asia. In 2016, foreshadowing the space agreements formalized in June 2024, the PRC introduced the concept of the Space Information Corridor—dubbed the "Space Silk Road"—as part of its Belt and Road Initiative, which it positioned as the space technology and application pillar.³⁶ This initiative has since served as a vehicle for China to broaden its global influence through cooperative agreements with other nations.

Kazakhstan is China's largest economic trading partner in Central Asia, and in 2023, the total value of trade from the five Central Asian states with China was more than twice what it was with Russia.³⁷ Days before Kazakhstan signed the space cooperation documents with the PRC, it ratified its agreement with China made a year earlier to jointly improve the Trans-Caspian International Transport Route, the "Middle Corridor" which joins China and Europe through Kazakhstan, the Caspian Sea, Georgia, and Turkey.³⁸ That same month, to further develop the route, the PRC signed an agreement to pay over half the price for the planned China–Kyrgyzstan–Uzbekistan railway.³⁹ Soft-power influence is likely driving China's recent interest in Kazakhstan's space development.

In addition to soft-power influence, China is likely seeking future launch site options abroad as it foresees potential problems in its uptick of space launches. A Beijing-based

34. Andrew Jones, "Kazakhstan Joins China's ILRS Moon Base Program," *SpaceNews*, 5 July 2024, <https://spacenews.com/>; and "Over 30 Interstate Documents Signed During Chinese President's Visit to Kazakhstan," *interfax*, 3 July 2024, <https://interfax.com/>.

35. Fatima Kemelova, "Kazakhstan Sets to Implement Ambitious Projects with China, Iran," *The Astana Times*, 5 July 2024, <https://astanatimes.com/>.

36. Mingyan Nie, "Asian Space Cooperation and Asia-Pacific Space Cooperation Organization: An Appraisal of Critical Legal Challenges in the Belt and Road Space Initiative Context," *Space Policy* 47 (2019): 224, <https://doi.org/>.

37. Temur Umarov, "What Does Xi Jinping Want from Central Asia?," *Carnegie China*, 5 July 2024, <https://carnegieendowment.org/>.

38. "Kazakhstan Ratifies Agreement with China to Develop Trans-Caspian Int'l Transport Route," *interfax*, 1 July 2024, <https://interfax.com/>.

39. Yunis Sharifli, "Beijing Revives China–Kyrgyzstan–Uzbekistan Railway," *Eurasia Daily Monitor*, 17 July 2024, <https://jamestown.org/>.

company has already begun building a spaceport in Djibouti for launch access.⁴⁰ One regular commentator on China's space activities reports that China already operates five inland spaceports and possesses sea launch capabilities.⁴¹ Yet it will have to continue expanding its launch options—a measure that comes at the high cost of increased rocket debris falling to Earth and impacting China's densely populated areas—to keep up with its rapid satellite production, mass production of its Long March rockets, and ambitions for increased commercial launches.⁴² Furthermore, three different Chinese companies are building to compete with SpaceX's Starlink, each attempting to put up megaconstellations of over 10,000 satellites.⁴³

The completion of a Chinese-led international railway agreement will greatly increase the potential of Baikonur as an option for their launches. The China–Kyrgyzstan–Uzbekistan railway will link China to Baikonur once it reaches Tashkent. China's most advanced Long March 12 rockets, designed for commercial launch platforms, are transported via railway.⁴⁴ Baikonur's nearby launch platforms could help to alleviate the challenge of an increasing bottleneck at China's spaceports in the future.

China's space cooperation in Kazakhstan tests Russia's tolerance for outside security influences, since China's civil and commercial space ambitions are tied directly to its military ambitions. The key drivers behind China's rapid advancements in space capabilities during the early 2000s were closely aligned with bolstering its military power.⁴⁵ Its anti-satellite kinetic weapon test in January 2007 that destroyed one of its inactive weather satellites revealed to the international community the nation's true intentions behind its space activity. As one expert points out, although China's civil manned spaceflight program and international efforts like lunar research serve to alleviate international concerns and distract from PRC intentions of military operations in space, the military remains the “dominant force influencing China's space policy.”⁴⁶

Its commercial space initiatives remain fundamentally state-controlled, differing only in sources of funding.⁴⁷ Such efforts stop short of fully commissioning private space development, reflecting this desire to diversify funding sources while retaining centralized, government control over the industry. If Moscow is concerned that

40. “Preparing for Launch,” *The Economist*, 21 January 2023.

41. Andrew Jones, “China Completes New Commercial Launch Pad to Boost Access to Space,” *SpaceNews*, 5 January 2024, <https://spacenews.com/>.

42. Yong Xiong and Nectar Gan, “Suspected Chinese Rocket Debris Seen Falling over Village After Launch, Video Shows,” *CNN*, 24 June 2024, <https://www.cnn.com/>.

43. Rachel Cheung, “The Clash of Constellations,” *The Wire China*, 2 June 2024, <https://www.thewirechina.com/>.

44. Andrew Jones, “China to Debut New Long March Rockets in 2024,” *Space.com*, 1 March 2024, <https://www.space.com/>.

45. Roger Handberg and Zhen Li, *Chinese Space Policy: A Study in Domestic and International Politics* (Routledge, 2009), 159, <https://doi.org/>.

46. Erik Seedhouse, *The New Space Race: China vs. the United States* (Praxis, 2010), 12, 40, <https://doi.org/>.

47. Lucie Sénéchal-Perrouault, “Chinese Commercial Space Launchers: Historical Perspective; Policy Framework” *Space Policy* 66 (1 November 2023): 101572, <https://doi.org/>.

commercial and civil involvement from other countries at Baikonur could introduce dual-use capabilities or ties to foreign militaries, any Chinese space involvement would reveal the boundaries of its tolerance. China's governmental and military control of space endeavors may create potential for geopolitical friction as its reach exceeds its borders. Yet it could also establish a precedent for the limits of Russian-accepted international involvement at Baikonur.

Space cooperation is another way for China to carefully intensify its influence in Central Asia while navigating preexisting geopolitical tensions with Russia. Russia's invasion in Ukraine incited sanctions that derailed China's trade with Europe through Russia. China's trade interests then had to pivot toward the Trans-Caspian International Transport Route through Central Asia.⁴⁸ Since Russia's invasion, President Xi Jinping has been more outspoken as a supporter of Central Asian autonomy. In 2022, during Xi's first official visit abroad after the start of the COVID-19 pandemic, he stated to the Kazakhstani press, "No matter how the international situation changes, we will continue to resolutely support Kazakhstan in protecting its independence, sovereignty and territorial integrity . . . [and] categorically oppose the interference of any forces in the internal affairs of your country."⁴⁹ In 2024, Xi repeated his statement of support at the Shanghai Cooperation Organization meeting.⁵⁰ Although both countries share leadership in the organization, which promotes regional security, Russia remains wary of China's growing dominance, as it threatens to further undermine Russia's influence in the region.⁵¹

The Russo-Sino relationship is complicated and requires historical analysis beyond the scope of this article. Nevertheless, it is clear that although China and Russia have demonstrated their cooperative stance through joint military exercises, the prospect of a formal military alliance remains highly unlikely.⁵² As one study contends, power is shifting in the region, but China's and Russia's regional interests overlap rather than collide as much as Western media may wish to think.⁵³ Such interests are concurrent, and whether or not China's interests dominate the region, it will

48. Natalia Konarzewska, "China Backs Kazakhstan Against Russian Threats," *The Central Asia-Caucasus Analyst*, 12 January 2023, <https://www.cacianalyst.org/>.

49. Paul Bartlett, "Xi Vows to Back Kazakh 'Sovereignty' in Central Asia Power Play," *Nikkei Asia*, 22 September 2022, <https://asia.nikkei.com/>; and also see Amy Gunia, "Why Xi Began His First Trip Since the Pandemic in Kazakhstan," *TIME Magazine*, 14 September 2022, <https://time.com/>.

50. "Китай и Казахстан: Общее Стремление к Новым Горизонтам — Председатель КНР Си Цзиньпин [China and Kazakhstan: A Common Aspiration for New Horizons – President of the People's Republic of China Xi Jinping]," Kazinform International News Agency, 2 July 2024, <https://www.inform.kz/>.

51. Wen-Chih Chao, "The Political Economy of China's Rising Role in the Shanghai Cooperation Organization (SCO): Leading with Balance," *Chinese Economy* 55, no. 4 (August 7, 2022): 300, <https://doi.org/>.

52. "Asia," in *The Military Balance 2023* (International Institute for Strategic Studies, 2023), 210.

53. Umarov, "Xi Jinping"

make little difference.⁵⁴ In fact, its economic interests have overlapped with those of other international interests in many other countries, which has enabled the Belt and Road Initiative's success. Thus, while China's economic influence in Central Asia will continue to synergize with Russia's security dominance, it is arguably in space where the two interests will clash.

Despite the risks and challenges China faces in engaging in space cooperation with Kazakhstan or in particular at Baikonur, it still views the endeavor as a valuable opportunity. Yet given the connection between China's military aspirations and its civil and commercial space activities, a commercial space presence at Baikonur would place its interests at odds with Russia's ambition to remain the dominant security force in Central Asia. In short, economy and security will intersect in space endeavors.⁵⁵

US Interests in Kazakhstan

The 2022 *US National Security Strategy* outlines US diplomatic goals in Central Asia to "advance climate adaptation, improve regional energy and food security, enhance integration within the region, and build greater connectivity to global markets."⁵⁶ A partnership specifically with Kazakhstan's space program could directly contribute to US security strategy in the region.

If Kazakhstan had a reliable and advanced independent space program, it could become the preferred provider of space services for all other Central Asian countries, fostering greater regional integration and advancement. The United States could strengthen Kazakhstan's space program by helping to develop advanced remote-sensing capabilities to monitor climate change and improve food security, directly supporting regional climate adaptation and resource management. The National Aeronautics and Space Administration's (NASA) food security program, for example, leverages remote-sensing technology to improve food security by monitoring vegetation health, water availability, water quality, and air quality globally.⁵⁷

Western commercial space companies like OneWeb and SpaceX have already established agreements with the Kazakhstan government to enhance connectivity by providing satellite broadband to remote parts of the country.⁵⁸ Satellite imagery enables experts to monitor climate phenomena, such as shrinking ice caps, shifting

54. Temur Umarov and Alexander Gabuev, "Is Russia Losing Its Grip on Central Asia?," *Foreign Affairs*, 30 June 2023, <https://www.foreignaffairs.com/>.

55. Gahyun Helen You, "The Final Frontier: Outer Space Security & Governance," *Foreign Policy*, 16 September 2024, <https://foreignpolicy.com/>.

56. Joseph R. Biden Jr., *National Security Strategy of the United States of America* (The White House, 2022), 39, <https://bidenwhitehouse.archives.gov/>.

57. National Aeronautics and Space Administration (NASA) Earth Sciences Division 610, "Food Security," NASA, accessed 26 December 2024, <https://science.gsfc.nasa.gov/>.

58. See Dana Omirgazy, "Kazakhstan Tests Eutelsat-OneWeb to Expand Internet Coverage to Remote Areas," *The Astana Times*, 23 October 2024, <https://astanatimes.com/>; and "Starlink Initiative: 2,000 More Schools in Kazakhstan to Receive High-Speed Internet," *The Astana Times*, 19 June 2024, <https://astanatimes.com/>.

migration patterns, fluctuations in plant populations, and other environmental changes. Additionally, US support could help Kazakhstan establish a competitive commercial launch industry, strengthen its integration into global markets, and enhance regional connectivity, positioning Kazakhstan to deliver essential space services to its Central Asian neighbors.

While sharing remote-sensing technology carries risks due to its dual-use nature, and competitiveness in commercial launches is a distant goal, the more significant benefit is the long-term partnership those efforts would build between Kazakhstan and the United States. As noted by one analysis, the West lacks a long-term strategy for Central Asia, focusing instead on short-term objectives like counterterrorism and military operations in Afghanistan. Instead, the West needs a comprehensive approach with measurable goals that emphasizes a continued presence without relying on numerous military bases.⁵⁹ Collaborating with Kazakhstan to enhance its space capabilities also aligns with a 2023 RAND report's recommendation to adopt a "less-hardline approach" in a region that avoids empowering adversaries, while also addressing a potential friction point in the Russo-Sino relationship.⁶⁰ By prioritizing a long-term partnership with Kazakhstan through space cooperation, the United States can advance its broader diplomatic and strategic goals in Central Asia, enhancing stability and strengthening relationships without relying on military escalation or short-term objectives.

Risks are inevitable with increasing US influence in Central Asia, but space cooperation offers a means to mitigate those risks while maintaining effectiveness. Kazakhstan has several strategic relationships with Russia and China through the Shanghai Cooperation Organization, the Commonwealth of Independent States, the Collective Security Treaty Organization, and other cooperative ventures. As discussed earlier, Russia's response to such influence remains unpredictable, especially given the growing dual-use nature of space technologies, which raises concerns about the potential for Western military involvement. Yet according to the 2021 Space Priorities Framework, the United States plans to "engage diplomatically with strategic competitors in order to enhance stability in outer space."⁶¹ Emphasis on strengthening Kazakhstan's organic space capabilities is a careful approach that is crucial to minimizing any destabilizing effects of a US-Kazakhstan space agreement. While this analysis does not exhaustively explore all the pros and cons of US engagement in Central Asia, it argues that if the region is a strategic priority, space cooperation in Kazakhstan remains a valid and effective approach.

US involvement in Kazakhstan's space development could risk prompting Russia and China to set aside their potential friction in this domain and unite against such an

59. Jennifer D. P. Moroney, "Western Approaches to Security Cooperation with Central Asian States: Advancing the Euro-Atlantic Security Order in Eurasia," in *Security Dynamics in the Former Soviet Bloc*, ed. Graeme P. Herd and Jennifer D. P. Moroney (Routledge, 2003), 182.

60. Miranda Priebe et al., *Future U.S. Peacetime Policy Toward Russia: Exploring the Benefits and Costs of a Less-Hardline Approach* (RAND Corporation, 17 May 2023), <https://www.rand.org/>.

61. "United States Space Priorities Framework," The White House, press release, 1 December 2021, <https://bidenwhitehouse.archives.gov/>.

effort. This, however, is unlikely due to the political costs it would impose on both countries. The Kremlin would have to decide whether to view PRC involvement at Baikonur as a threat to its influence or accept Kazakhstan's right to pursue a multi-vector foreign policy in space, which could pave the way for US participation.⁶² Any of China's objections to US space cooperation in Kazakhstan could draw unwanted international attention to its own controversial efforts to expand its space influence, such as its development of a spaceport in Djibouti, which takes advantages of gaps in international space regulations.⁶³

Since Kazakhstan's space ambitions are inextricably tied to its national identity, it would likely be willing to accept US assistance in growing its space capabilities. Any resulting anti-Western opposition shared between Russia and China would strain their individual relationships with Kazakhstan, testing the country's multi-vector foreign policy. Kazakhstan's space aspirations would thus be set in opposition to the interests of its neighbors, potentially resulting in a significant expenditure of their political capital.

Conclusion

The historic Apollo-Soyuz joint mission was in planning three years before the end of the Vietnam War. Today, NASA is cooperating with Russia's Roscosmos to launch Americans on two Russian Soyuz rockets from Baikonur through 2025.⁶⁴ While legal restrictions limit the sharing of space technology between the United States and China—in particular, NASA and the White House are prohibited from engaging in bilateral agreements or coordination with China in space exploration without explicit congressional approval—the potential collaboration with Kazakhstan at Baikonur could foster transparency and strengthen the future of space exploration.⁶⁵ The United States must prioritize space diplomacy to maintain diplomatic relationships capable of superseding the growing global instability driven by Russia's war in Ukraine and the escalating situation in the Indo-Pacific. Though Kazakhstan maintains strategic connections to Moscow and Beijing through various international agreements, space cooperation offers an opportunity for the United States to enhance diplomatic relations, showcase global leadership in space exploration, and create lasting opportunities in Central Asia.

At a minimum, the United States could focus on developing Kazakhstan's civil space program outside of Baikonur. Future opportunities could also include establishing a commercial space launch agreement at the Baiterek complex—creating a foothold for launch capabilities and deepening relations with all Central Asian partners. The success

62. Zhanibek Arynov, "Is Kazakhstan's Multi-Vector Foreign Policy Threatened?," *Horizons: Journal of International Relations and Sustainable Development*, no. 21 (2022).

63. Benjamin Silverstein, "China's Space Dream Is a Legal Nightmare," *Foreign Policy*, 26 December 2024, <https://foreignpolicy.com/>.

64. John Uri, "45 Years Ago: Soyuz and Apollo Launch - NASA," NASA, 15 July 2020, <https://www.nasa.gov/>; and "Events," NASA, accessed 2 September 2024, <https://www.nasa.gov/>.

65. Department of Defense and Full Year Continuing Appropriations Act, Pub. L. No. 112-10, 125 Stat. 28, <https://www.congress.gov/>.

of US efforts will ultimately depend on global space governance and geopolitical factors. If the United States seeks to engage more deeply in Central Asia, space cooperation with Kazakhstan offers a promising avenue. Further research will refine an actionable, specific strategy for extending US involvement in Kazakhstan's space program, but recognizing the potential benefits is the first critical step. Æ

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