Kazakhstan's Green Strategy: Keeping the Steppe Green

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The government of the Republic of Kazakhstan aims to become carbon neutral by 2060. However, this goal, among other climate protection initiatives Astana is carrying out, does not occur in a vacuum. Kazakhstan has a history of environmental degradation dating back to the Soviet era; a case in point is the loss of the Aral Sea, which Kazakhstan and Uzbekistan share. This analysis aims to contribute to the literature on climate change and environmental protection in Central Asia. Kazakhstan will be the focus of this analysis due to the various environmental concerns it faces and the environmental protection projects the country is engaged in. The Central Asian state cannot escape or avoid the effects of climate change and global warming. For example, the country faced a dramatic drought in the summer of 2021, which severely affected its cattle and agricultural industries. These types of extreme weather events will continue for the foreseeable future. The Central Asian country is known for its steppe, and keeping Kazakhstan's steppe green and the country's water bodies blue is a long-term, complex project. To address these challenges, a comprehensive domestic green strategy and a "green multivector foreign policy" must be developed.

This essay starts by listing Kazakhstan's main environmental challenges. Then, Astana's solutions and other green policies the government is undertaking will be discussed. Moreover, this essay proposes that Kazakhstan must develop a "green multivector foreign policy," an extension of the country's famous multivector foreign policy, to successfully and efficiently address the country's environmental challenges, which are linked to Kazakhstan's neighbors. Specifically, Kazakhstan needs to secure greater cooperation and interest from neighboring states to protect the country's main water bodies: the Aral Sea, Caspian Sea, Ural River, and Lake Balkhash.

Kazakhstan must develop a "green multivector foreign policy," an extension of the country's famous multivector foreign policy, to successfully and efficiently address the country's environmental challenges, which are linked to Kazakhstan's neighbors.

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1. The Aral Sea

The loss of the Aral Sea was caused by Soviet irrigation projects that began in the 1950s and 1960s. The seeds of the water crisis were sown in 1959 when the Soviet Union chose Central Asia as its cotton supplier. This decision led to the initiation of massive irrigation projects that affected the flow of Syr Darya and Amu Darya, the Aral Sea's feeder rivers, from which water was procured to sustain those projects.[1]

Unfortunately, even after gaining independence from the Soviet Union, Uzbekistan continued its intensive irrigation systems to protect its cotton industry.[2] As a result, the shrinkage of the Aral Sea has profound effects on the regional ecosystem and human life. An essay in the journal *Agricultural Water Management* about Uzbekistan's water management for cotton production has highlighted that the increase in water salinity has caused declines in fishing.[3]

Consequently, the Aral Sea has become a series of lakes rather than just one body of water. According to an essay in the *International Journal of Digital Earth,* the Aral Sea's surface decreased by 51.6 percent—from 26,280.8 km^2 to 12,712.3 km^2—in the 2000s and by 27 percent in the 2010s to 9,285.2 km^2 in 2020.[4]

2. Lake Balkhash

Lake Balkhash is the largest water body in Eastern Kazakhstan and the third largest in the country, after the Aral and Caspian Seas. It is 614 kilometers long and up to 26 meters deep. Water quality differs across the lake; on the western side, the water is fresh and "suitable for drinking and industrial uses," while the eastern part is "brackish to salty."[5] The lake is primarily fed by the Ili River, which originates in China's Xinjiang Uygur Autonomous Region. In this region, the Chinese government is carrying out an ambitious development project, including dam construction and irrigation projects; one well-known example is the Altash Water Conservancy Project, a dam also known as the "Xinjiang Three Gorges Dam."[6]

At the time of writing, the lake's future looks grim: "if the hydro-climatic regime of the Ili for 2020–2060 remains unchanged compared to the past 50 years, and agriculture continues to expand in China, future water supplies will become increasingly strained."[7] However, predicting the future of the lake is problematic, as it relies on precipitation projections and even global warming since rising temperatures would increase glacier melting, which could increase water flow across the Ili to Lake Balkhash. Moreover, given the political situation in Xinjiang, China's rapid policy changes on the Belt and Road Initiative, and agricultural modernization witnessed throughout Northwest China, there are significant data gaps, making it difficult to "discuss the likelihood of different future development scenarios" in the region.[8]

3. Nuclear Radiation

Like the Aral Sea, nuclear radiation is another issue stemming from the history of the Soviet Union. On August 29, 1949, the Soviet Union tested its first

atomic bomb in Semipalatinsk, a city in Eastern Kazakhstan. The selection of this testing site was of particular offense to Kazakhstanis as "the region held a sacred meaning to Kazakhs."[9] Around Semipalatinsk, we find the steppe, hills, low-range mountains, pine forests, and the Irtysh River; the region also "nurtured" many famous Kazakhstani writers, poets, and musicians.[10]

For several decades, Semipalatinsk was the site of Soviet nuclear testing. After the dissolution of the Soviet Union, the Kazakhstani government decided to remove its nuclear arsenal.[11] Unfortunately, to this day, many Kazakhstanis still suffer from the effects of radiation due to decades of indiscriminate nuclear testing.[12]

4. Air Pollution

Air pollution has been a major challenge in Kazakhstan. This situation is part of a broader structural problem, as coal still accounts for much of its power generation mix. As a result, the country's energy sector "[accounts] for the fourth highest carbon intensity globally."[13] A 2022 analysis by the International Energy Agency on Kazakhstan's energy transition plans notes, "Kazakhstan generates more than 70 percent of its electricity from its abundant resources of coal."[14] Moreover, households also pollute (though obviously at a much lower scale) as air pollutants originate "from dispersed small residential heating stoves and boilers."[15] A 2021 analysis of coal usage in Kazakhstan by *Eurasianet* states, "nationwide, 75 percent of households burn solid fuels (generally coal) at least sometimes to keep warm."[16]

While Kazakhstani cities are not "as bad as" top air-polluted cities like India's Dehli, Bangladesh's Dhaka, or China's Chengdu (the top three in order of ranking), the situation poses serious health problems for inhabitants of Kazakhstan's two major cities. Astana ranked 49th on US Environmental Protection Agency's Air Quality Index for the worst air quality and city pollution.[17] Moreover, the capital is not the only city in the vast Central Asian country that experiences air pollution. The situation is similarly problematic in Almaty.[18] According to the global air-quality monitoring platform IQAir, concentrations of polluting particles "in Almaty regularly exceed the WHO Ambient Air Quality Guidelines by as much as 17 times in winter months."[19]

There is no easy solution to tackle air pollution in Kazakhstan since residents rely heavily on fossil-fuel-based systems for heating and lighting. Residents living on the outskirts of large cities, who lack access to gas infrastructure, use "everything from coal to household waste and cheap fabric" to power their stoves.[20] Inefficient urban planning is also to blame, as high-rise buildings can block airflow.[21]

5. The Ural River and the Caspian Sea

The Ural River, which flows through Russian and Kazakhstani territories into the Caspian, is dwindling, along with river pollution and the consequent decline in fish populations.[22] Europe's third-longest river, the Ural River "has been gradually depleting for decades due to a combination of harmful water

management policies, local dependence on the river, industrial pollution, and climate change."[23] A 2021 essay in the *Journal of Physics* about water quality in the Russian part of the Ural River lists the main economic activities found along the Ural: agro-industrial, oil refining, metallurgical, mining of non-ferrous metals, water intake for the population of large cities, energy, woodworking, engineering, and chemical industry.[24] In their testing of the Russian Ural's water, the authors found high quantities of zinc and copper.

The Caspian Sea is full of vibrant marine life: fish in the Kazakhstani part of the Caspian include seven sturgeon species, salmon, Caspian barbel, carp, and seals.[25] However, protecting the Caspian is complicated as five countries border it—Azerbaijan, Kazakhstan, Iran, Russia, and Turkmenistan. In 2018, the five states signed a convention in Aktau, a Kazakhstani port by the Caspian, to end a long-standing border dispute over the Caspian Sea.[26] However, while the dispute is resolved, inter-state cooperation in protecting the Caspian environment does not appear to exist.

The Caspian Sea suffers from pollution problems, particularly due to untreated sewage and industrial waste introduced mainly by the Volga River and from oil extraction and refining.[27] Overfishing and pollution are taking their toll on the Caspian Sea's marine life. For example, in late 2022, about 2,500 endangered seals washed up on the coast of Russia's Republic of Dagestan. Dagestan's Ministry of Natural Resources stated that "natural factors" had caused the animals' death and that the number of dead seals could be much higher.[28] In 2018, Kazakhstan arrested four Azeris and sentenced them to six months in prison for illegally fishing sturgeon in Kazakhstan's Caspian waters.[29] The future of Kazakhstan's fishing industry has been analyzed in the journal *Water*.[30] Threats to fishing include pollution from oil extraction and wastewater discharges, over-exploitation, and local poaching. Looking to the future, the *Water* analysis argues that the fishing industry is "unlikely to become a major contributor to Kazakhstan's gross national product."[31] However, if the proper policies are implemented (e.g., installing devices to avoid fish kill when water is withdrawn from reservoirs), this industry could attract more investment (which would support Astana's economic diversification strategy), create new jobs, and increase food production.[32]

Threats to fishing include pollution from oil extraction and wastewater discharges, over-exploitation, and local poaching.

One obvious lesson is that Kazakhstan cannot protect its share of the Caspian Sea alone. The other four Caspian Sea states must also become more environmentally conscious towards this vital body of water. There is already a legal framework to protect the sea, namely the 2003 Tehran Convention; however, ongoing media coverage and academic research demonstrate that the Convention is not stopping this potential environmental catastrophe.[33] The same lesson can be applied to the Ural River, as Kazakhstan depends on the activities of the upstream country, Russia.

6. The Effects of Extreme Weather Patterns in Kazakhstan

Throughout the past several years at the United Nations Climate Change Conference (COP), scientists have raised the alarm about a global environmental crisis if our attitude toward the environment does not change. In Kazakhstan's case, the country is not exempt from the effects of climate change, and they are as grim as elsewhere. According to a report by the UN Economic and Social Commission for Asia and the Pacific (ESCAP), future climate projections for Kazakhstan indicate "a warming trend ... with an annual average temperature rise of 2.2–2.7 [degrees Celsius] by mid-century" in comparison with the 1985–2005 period.[34] Moreover, monthly precipitation is expected to increase by 1.7–1.8mm during the 2040–2059 period. Consequences of these significant changes will include heatwaves, droughts, and glacial melting, as well as mudslides and landslides in mountainous regions, including South Kazakhstan, Zhambyl, Almaty, and East Kazakhstan.[35] For example, back in 2015, hundreds of residents living on the outskirts of Almaty had to evacuate their homes due to a mudslide caused by "several days of extremely hot weather," which resulted in the "abrupt melting" of a glacier in a mountain close to the city.[36] Similar landslides hit the Almaty region in 2022.

As for droughts, declining precipitations during the summer and rising surface air temperatures can rapidly deplete soil moisture; water scarcity and droughts are also likely in the Western, Southern, and Southeastern regions.[37] For example, in the summer of 2021, a severe drought hit Kazakhstan's Southern and Western regions (Kyzylorda, Mangystau, and Turkestan provinces), which experienced "record temperatures up to 46.5°C (recorded on July 7)."[38] As a result, livestock (cows and horses) were lost due to the lack of rain.[39] The drought also led to poor grain harvests.[40]

Climate-induced impacts can also affect the country's agricultural sector. As explained by a 2021 Asian Development Bank/World Bank report, yields of wheat—Kazakhstan's most important crop—are highly susceptible to precipitation variations, as the crop "is mostly rain-fed and much of Kazakhstan's wheat is grown in northern areas with little potential for irrigation."[41] Poor harvests will affect domestic consumption and international commerce as Kazakhstan is Central Asia's largest grain producer. Moreover, Astana is seeking to increase grain exports to the European Union.[42] Thus, future droughts, exacerbated by climate change, will affect the food security of Kazakhstanis and the country's agricultural exports. In other words, climate change will severely affect the country's agricultural industry, hurting exports, economic incomes, and the food baskets of Kazakhstan and its neighboring countries.

Astana's Green Strategy

As discussed, Kazakhstan faces numerous environmental challenges—including threats to its primary water bodies (Aral Sea, Caspian Sea, Lake Balkash, and Ural River), air pollution, the legacy of Soviet-era nuclear testing, and the ongo-

ing effects of climate change—which have made weather events like droughts more extreme and destructive. This section describes what Astana is doing to remedy these problems.

Regarding marine environmental protection, the Kazakhstani government has invested time and resources to protect its portion of the Aral Sea, and the fishing industry is slowly recovering. For example, according to some media outlets, the water level of the Aral Sea has increased "by almost half a meter," or 40.90 MiliBars (MBs), due to increased water flow to the sea.[43] In addition, heavy snowfalls and abnormal frosts during the winter of 2022–2023 mean more water will flow into the Aral Sea when spring arrives and the snow melts. Moreover, "the number of fish farms is expected to increase to 55 as part of the regional fisheries development project. The establishment of 12 pond farms and 16 fish farms will increase the volume of fish production and export," reports *Astana Times*, Kazakhstan's state newspaper.[44] In other words, there is a reason to be cautiously optimistic about the Aral Sea and its marine life.

One crucial international partner is UNDP's Biodiversity and Ecosystem Services Network (BES-Net) project, which aims to combat the effects of desertification, restore land productivity, and support improved livelihoods.[45] BES-Net organized events in Kazakhstan to teach farmers about land restoration, such as seed bank management, soil and water conservation, usage of pollinators for land rehabilitation, and crop-growing strategies.[46] The Kazakhstani government is also working to make the country greener: one project aims to plant two billion trees by 2025.[47] Another initiative aims to plant 1.5 million hectares of trees at the bottom of the Aral Sea by 2025, a joint project of Kazakhstan and Uzbekistan.[48]

Protecting Lake Balkhash is more complicated, given its dependence on the Ili River. Unfortunately, at the time of writing, the author has not found records of meetings between Astana and Beijing discussing projects along the Ili River and how they can affect Kazakhstan.

One obvious alternative to address air pollution is to switch from coal to natural gas. However, there is limited gas availability for local consumption in Kazakhstan. Sanzhar Zharkeshov, Director of the national gas company QazaqGaz, blamed "low tariffs that disincentivize extraction," which he said should be changed to realize power plant conversion from coal to gas.[49] One project that can help the situation is the transformation of a combined heat and power plant to burn natural gas instead of coal as part of the larger objective of cutting carbon emissions by some three million tons (around 56 percent) and ending emissions of particulate matter and nitrogen oxides (NOx).[50] Conversion of the plant is expected to be completed by 2026; the project is part of the Green Cities Program of the European Bank for Reconstruction and Development (EBRD), which aims to identify, prioritize, and connect cities' environmental challenges through sustainable infrastructure investments and policy measures.[51]

A Green Economy

A key component of Kazakhstan's green strategy is its economy, which relies heavily on the country's energy industry, namely the export of gas, oil, and minerals like uranium.[52] Hence diversification has become a state priority. In recent years, Astana has attempted to diversify its economy by developing and bringing investment to other sectors, such as agriculture, information technology, banking and finance, and tourism.

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An exciting component of this diversification strategy relevant to our analysis is Astana's desire to develop a green economy by attracting green investments and advancing green finance. The Astana International Financial Centre (AIFC) has established the Green Finance Centre (GFC), which aims to "bring investments to [a] sustainable economy through trending financial instruments, such as green and social bonds."[53] GFC also acts as a regional thinktank providing consulting services in green finance and sustainable development for governments, quasi-state organizations, and entrepreneurs.[54] Another critical institution is the Agency of the Republic of Kazakhstan for the Regulation and Development of Financial Markets (ARDFM), which has teamed up with EBRD to "promote environmental, social and governance (ESG) standards and good corporate climate governance (CCG)" among Kazakhstani financial institutions.[55]

Ultimately, green investment can help achieve carbon neutrality.[56] Thus, attracting these types of investors must become a priority for Astana. According to the Ministry of National Economy of Kazakhstan, such transformation would require investments of US$647.5 billion over the next 40 years.[57] Some proposed plans include issuing green bonds, providing "green loans" to small- and medium-sized enterprises, and de-risking investments.[58] Aidar Kazybayev, Chairman of Kazakhstan's National ESG Club and CEO of the AIFC's GFC, summarized Kazakhstan's green strategy in three objectives:

1. The Strategy should become a critical economic document for the long-term development of Kazakhstan. Industrial and household waste, for example, should become production resources, and forest plantations should become financial assets with an absorbing effect;
2. Strategic guidelines and a precise interdependent stage of implementation must be developed to address issues like a ban on plastics for household purposes and a complete ban on flaring;
3. The Strategy should promote low-carbon business operations. For example, subsidies to the agricultural sector should consider ESG factors to prevent the usage of harmful fertilizers. Moreover, the strategy should create opportunities for environmentally friendly industries.[59]

Lastly, one relevant EU-funded project is the "implementation of sustainable consumption and production (SCP) practices and sustainability schemes in the MSMEs [Micro, Small, and Medium Enterprises] of the tourism sector in Kazakhstan." The initiative aims to promote sustainable tourism in the Central Asian country.[60] It remains to be seen whether this project will succeed in helping Kazakhstan's tourism industry achieve sustainable growth.

Green Energy

Kazakhstan is a major energy producer and exporter, abundant in natural resources—particularly oil, natural gas, and coal. In 2018, about 63 percent of the energy produced in the country was exported, and exports of oil and petroleum products accounted for almost 70 percent of the country's total energy exports.[61] Kazakhstan holds around 12 percent of the world's uranium reserves and is the largest uranium producer. In 2021, Kazakhstan produced the most uranium ore (45 percent of the global supply) at 21,819 tonnes.[62]

As noted earlier, the Central Asian country is dependent on coal (69 percent) for its energy needs, followed by natural gas (21.5 percent). Renewable, non-polluting energy sources—like water, solar, and wind—account for much less.[63] Nuclear power has been discussed as a potential alternative to coal, but Astana has not disclosed plans to build nuclear power plants. Agencies like the EBRD are investing heavily in renewable energy projects across Central Asia.[64] Indeed, it will take years for Kazakhstan to reduce its dependency on coal; however, this objective is achievable.

Analysis: A Green Multivector Foreign Policy

This essay has discussed environmental threats in Kazakhstan and how the government addresses them. Moreover, it illustrated the connection between environmental protection and Kazakhstan's economy, namely Astana's green strategy, as the government seeks to diversify its economy by attracting green investments. This section discusses these challenges, strategies, and what can be expected in the foreseeable future.

First, international cooperation is vital to resolve threats to the marine environment. Kazakhstan's four central bodies of water are either shared with or dependent on neighboring states: the Aral Sea (Uzbekistan), Lake Balkhash (China), the Ural River (Russia), and the Caspian Sea (five coastal states, including Kazakhstan). A relevant factor is that Kazakhstan is known for its "multivector foreign policy," which means that Astana looks to develop friendly relations with all governments equally. This strategy has allowed Astana to befriend the three Global Powers (China, Russia, and the United States).

Astana needs to develop what I am labelling as a "green multivector foreign policy." This strategy would be a friendly foreign policy to establish

partnerships and alliances to combat climate change and protect the shared environment across interstate borders. At the time of writing, much work is still needed on this green multivector foreign policy. So far, the Chinese government appears uninterested in changing its Xinjiang development strategy regarding the Ili River. Beijing has routinely announced its willingness to work with Kazakhstan on environmental protection. Still, no publicly released information indicates the two sides have reached some agreement over the Ili River and Lake Balkhash. Moreover, Astana has limited tools to influence Beijing, especially given the Chinese government's track record of using the "domestic affairs" card to block dialogue attempts over what it perceives to be purely domestic affairs. The situation in Xinjiang is a good example, as the Kazakhstani government has attempted to help ethnic Kazakhs who have suffered from Beijing's widespread crackdown against the Uyghurs and other minority populations in the region.

The situation is more positive in the Aral Sea: Kazakhstan-Uzbekistan relations are generally cordial; however, the two countries are also competing to become leaders and powerhouses in Central Asia. Kazakhstan has enjoyed this role since independence, but Uzbek President Shavkat Mirziyoyev is keen to develop his country and elevate Uzbekistan's international standing.[65] Therefore, this essay argues that there exists competition between Astana and Tashkent. With that said, in April 2022, Congress members from both countries met in the Aral Sea district of Kazakhstan's Kyzylorda region as part of the second meeting of the Commission on Cooperation between the two countries. The meeting aimed to strengthen "cooperation between Kazakhstan and Uzbekistan in solving the problems of restoration of the Aral Sea and protection of its ecosystems."[66] It remains to be seen how successful this bilateral partnership will be in protecting and recovering the Aral Sea.

Arguably, there is reason to be optimistic about the future of the Ural River. Similar to the Astana-Tashkent meetings, Astana and Moscow have established the Russian-Kazakh Intergovernmental Commission on Joint Use and Protection of Transboundary Water Courses. In 2016, the two governments signed the "Agreement between the Government of the Russian Federation and the Government of the Republic of Kazakhstan on the Conservation of the Ecosystem of the Basin of the Transboundary River Ural."[67] There are also regular meetings, such as the International roundtable "Transboundary of the Ural River: Problems of Sustainable Development and Ecosystem Preservation," held in Orenburg, Russia, on January 19, 2022.[68] Proposals put forth by specialists include the construction and reconstruction of treatment facilities within five years, "which should improve the quality of the Ural water by 40 percent."[69] Another positive development is the improvement in the Ural's water quality "in recent years from class 3b (very polluted) to class 3a (polluted)."[70]

There is one caveat to potential optimism regarding the Ural River. Astana and Moscow have had historically close and cordial, but sometimes tense, relations. At the time of this writing, Astana has not announced its support for Moscow's war in Ukraine. Astana has not directly criticized Moscow's decision to attack Ukraine, but Kazakhstan has also not voted on resolutions condemning Russia in the United Nations General Assembly.[71] Furthermore,

the government has not deployed troops to fight in Ukraine and has prohibited its citizens from fighting in the war.[72] In 2022, massive anti-war protests raged across Almaty.[73] Some Russian politicians and celebrities have openly criticized and threatened Kazakhstan for its lack of support for Moscow's objectives towards Ukraine.[74] So far, these tensions do not appear to affect bilateral meetings regarding the Ural River; however, this issue must be monitored.

The Caspian Sea continues to suffer from pollution and overfishing. The 2018 convention resolved the territorial dispute between the five bordering states; however, the 2003 Tehran Convention has proven ineffective in solving the sea's environmental challenges. As a component of this hypothetical green multivector foreign policy, Astana should (and must) take a leading role in the environmental protection of the sea. Perhaps a revised version of the Tehran Convention can be drafted and signed in Aktau to bring new attention to the Caspian Sea and solidify Astana's role as a "green paladin."

Promoting solar power can be a stopgap until gas production increases to meet domestic demand, and Kazakhstani households turn away from coal. However, energy infrastructure has to be updated, and more gas pipelines must be built to connect Kazakhstani homes to the gas grid and thus curb their use of coal.

As discussed earlier, air pollution in Kazakhstan is tied to the country's economy, green strategy, and energy industry. There are some promising signs, as Kazakhstan is turning to solar power.[75] Promoting solar power can be a stopgap until gas production increases to meet domestic demand, and Kazakhstani households turn away from coal. However, energy infrastructure has to be updated, and more gas pipelines must be built to connect Kazakhstani homes to the gas grid and thus curb their use of coal.[76] The International Energy Agency notes that Kazakhstani regions with "a gas pipeline network (mainly in western Kazakhstan) have substantially lower solid fuel use in rural detached houses."[77] Thus, connecting more homes to a gas pipeline will help create more environmentally friendly local neighborhoods.

Air pollution will be significantly reduced if green investment projects and companies move forward. Astana deserves credit for actively trying to convince green companies to open businesses and develop green projects in the Central Asian nation. The creation of the AIFC Green Finance Centre is an excellent example of this green initiative. The lack of green investors is part of a broader problem in Kazakhstan: the cornerstone of the country's economy is its energy industry, given its extensive oil and gas resources. In other words, international investors that come to Kazakhstan focus on its energy resources and have demonstrated less interest in investing in other industries, including green technologies. Astana wants to diversify its economy and move away from the country's reliance on the energy sector, but progress remains limited.[78] If Astana can secure green investors, this would benefit the country's environmentally friendly goals, as well as help diversify the country's economy.

Conclusion

Kazakhstan announced an ambitious goal of becoming carbon neutral by 2060, but the country has other environmental challenges that carbon neutrality will not fix, as discussed earlier in this analysis. Water-related problems are significant, and the future of Kazakhstan's relationship with China, Russia, Uzbekistan, and the Caspian states (Azerbaijan, Iran, Russia, and Turkmenistan) will largely determine the fate of the country's main water bodies. The Aral Sea may never return to the water level it enjoyed before the Soviet-era irrigation projects, but Kazakhstan is carrying out projects to protect its part of the sea. Recent announcements that the sea's water level has risen by almost half a meter and that fishing is improving are two reasons for hope. Dialogue with neighboring Uzbekistan does exist, but there does not appear to be a concrete joint strategy to recover the sea. The situation in the Ural River, which Kazakhstan and Russia share, is equally problematic. The good news is that both governments are aware of the problem; the joint commission and the 2016 agreement have created a legal and governmental framework to promote cooperation. The recent announcement that the Ural has improved from "very polluted" to "polluted" is another reason for cautious optimism. That said, changes in Astana-Moscow relations due to the war in Ukraine could affect bilateral cooperation on the Ural River.

On the other hand, Lake Balkhash, Kazakhstan's vital water body in the eastern part of the country, is more problematic. The Ili River feeds the Lake, and from what is known publicly, Beijing has not, announced changes to water-related projects in Xinjiang to protect the lake. Thus, the future of Lake Balkhash is grim. A similar assessment of the Caspian Sea can be made as overfishing and pollution continue.

Therefore, Kazakhstan's marine environmental protection strategy is deeply rooted in working with neighboring states. Kazakhstan must transform its famous multivector foreign policy into a green multivector strategy to achieve this objective. Dialogues with Tashkent and Moscow are ongoing, and the aforementioned announcements of pollution decreasing in the Ural and water levels improving in the Aral Sea are reasons for Astana to continue promoting green dialogues and cooperation with these two neighbors. Unfortunately, Beijing appears unlikely to change its policies regarding the Ili River, which will negatively affect Lake Balkhash. Similarly, the 2018 convention (that ended the Caspian Sea border dispute) and the 2003 Tehran convention (to protect the marine environment of the sea and coastal states) are essential documents that, tragically, have not led to new initiatives to prevent the discharge of industrial waste and untreated sewage into the sea. Leadership is needed to mobilize the five Caspian states to work towards environmental protection goals. Moreover, binational cooperation over the Ural could be affected by Astana's position vis-à-vis the war in Ukraine (and how Moscow reacts to it).

This essay argues that Astana should take a leading role in Central Asian environmental affairs as the Central Asian government has done in other areas, like the creation of the Trans-Caspian International Transport Route (also

known as the Middle Corridor) as an alternative for Central Asian goods to reach the European market by bypassing Russia and as support for Central Asian integration.[79] At the 6th Caspian Summit in June 2022, Kazakhstan's President Kassym-Jomart Tokayev called for cooperation in developing a joint action plan to address the situation in the Ural River and its impact on the Caspian Sea. These types of statements and calls for action are necessary and will, hopefully, convince other regional leaders to follow Astana's green objectives.

Pollution, including air pollution, is tied to Kazakhstan's coal dependency and the future of the country's green economy, and green energy industries. Astana is looking to develop its natural gas industry to minimize local demand for coal, but new energy infrastructure projects are required to achieve this goal. Astana is also interested in green finance and investments, which presents a promising prospect given that there are dedicated agencies tasked with bringing these types of investments, namely AIFC's Green Finance Centre. However, concrete results—agreements, contracts, and green-related infrastructure—are currently lacking.

Kazakhstan faces several environmental challenges that require leadership, foresight, and strategies at domestic and foreign policy levels. The good news is that President Tokayev shares an environment-friendly and green-oriented perspective. In other words, support for environmental protection and its components started at the top in Kazakhstan. However, as is typical of environmental protection strategies worldwide, Kazakhstan cannot solve its environmental issues, particularly water-related ones, on its own. In the future, the 2016 agreement on the Ural River with Russia and the 2018 convention on the Caspian Sea—coincidentally signed in Aktau, Kazakhstan—can be viewed as the founding pillars of a more ambitious and proactive green strategy with a foreign policy component. Kazakhstan's environmental challenges are a combination of domestic, international, and legacy issues; successfully addressing them is complicated but not impossible. Just as Kazakhstan developed its famous multivector foreign policy after achieving independence following the collapse of the Soviet Union, Astana must now construct a green multivector foreign policy, in addition to environmentally friendly domestic policies, to keep Kazakhstan's steppe green and water blue.

Kazakhstan faces several environmental challenges that require leadership, foresight, and strategies at domestic and foreign policy levels.

Notes

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