THE POLITICAL IMPACT OF WATER SECURITY AND CLIMATE CHANGE IN UZBEKISTAN

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Abstract. *Water security and climate change are two interrelated challenges that affect the political stability and development of Uzbekistan. This paper examines how water scarcity, transboundary water management, and climate impacts influence the relations between Uzbekistan and its neighbors, especially in the context of the Aral Sea crisis. It also analyzes the opportunities and challenges of green transition and climate resilience for Uzbekistan's economy, society, and environment. The paper uses a mixed-methods approach, combining literature review, data analysis, and case studies. The results show that water security and climate change pose significant risks and uncertainties for Uzbekistan, but also offer potential avenues for cooperation and innovation. The paper concludes with some recommendations for enhancing regional dialogue, promoting low-carbon development, and implementing adaptation measures.*

Keywords: *water security, climate change, Uzbekistan, regional cooperation, green transition, climate resilience.*

Introduction. Water is essential for life, but it is also a source of conflict, especially in regions where it is scarce and unevenly distributed. Uzbekistan, a double landlocked and semi-arid country in Central Asia, is one of the most vulnerable countries to climate change, facing water scarcity, land degradation, and extreme weather events. These challenges pose serious threats to the political stability, economic development, and social well-being of the country and its people. In this article, I will examine the political impact of water security and climate change in Uzbekistan, and explore the potential solutions and strategies to address these issues. I will argue that Uzbekistan needs to adopt a more sustainable and cooperative approach to water management, as well as to diversify its economy and reduce its dependence on water-intensive crops such as cotton. I will also discuss the role of regional and international actors in supporting Uzbekistan's efforts to cope with the effects of climate change and ensure water security for its population.

Water scarcity and transboundary water management are sources of both cooperation and conflict in Central Asia, especially in the context of the Aral Sea crisis.

Water scarcity and transboundary water management are sources of both cooperation and conflict in Central Asia, especially in the context of the Aral Sea crisis. The Aral Sea, once the fourth largest lake in the world, has shrunk by more than 90% since the 1960s due to the diversion of its main tributaries, the Amudarya and the Syrdarya, for irrigation and hydropower purposes. The Aral Sea crisis has had devastating impacts on the environment, economy, and health of the people living in the region, particularly in Uzbekistan, Kazakhstan, and Turkmenistan. The drying up of the sea has created a new salt desert, increased soil salinity and erosion, reduced biodiversity and fisheries, altered the regional climate, and exposed the population to toxic dust and pollutants. (Figure 1) These problems have exacerbated the competition and conflict over the scarce and unevenly distributed water resources in the region, as the upstream countries (Tajikistan and Kyrgyzstan) and the downstream countries (Uzbekistan, Kazakhstan, and Turkmenistan) have

different and often conflicting interests and needs. (Figure 2) For example, the construction of the Rogun dam in Tajikistan, the largest hydropower project in Central Asia, has been opposed by Uzbekistan, which fears that it will reduce its water supply and damage its agricultural sector. Similarly, the Syrdarya river basin has witnessed several disputes and tensions between Kyrgyzstan, Uzbekistan, and Kazakhstan over the allocation and regulation of water flows, especially during the winter and summer seasons. However, water scarcity and transboundary water management have also provided opportunities for cooperation and dialogue between the countries in the region, as they have realized the need to find mutually beneficial and sustainable solutions to the common challenges they face. For instance, the International Fund for Saving the Aral Sea (IFAS), established in 1993, is a regional organization that aims to coordinate and implement joint actions and projects to mitigate the effects of the Aral Sea crisis and improve the environmental and socio-economic situation in the region. Moreover, the countries have signed several bilateral and multilateral agreements and frameworks to facilitate the exchange of information, data, and expertise, as well as to promote the integrated and rational use of water resources in the region. Water security and climate change are interrelated challenges that require regional collaboration and innovation to address.

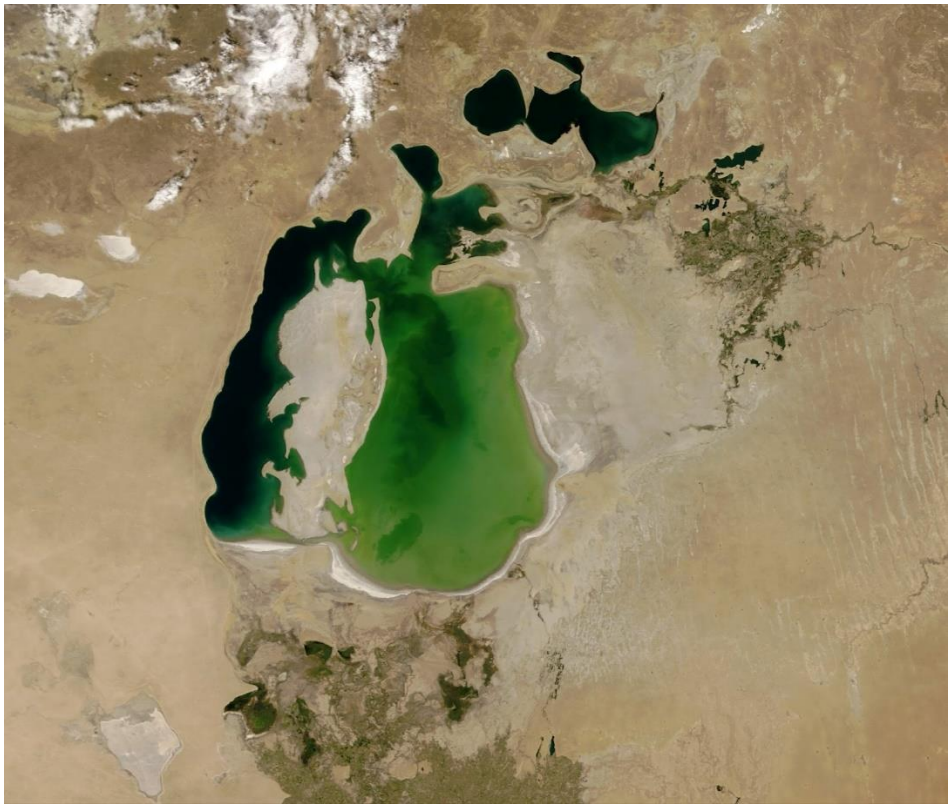

Figure 1. Shrinking of the Aral Sea (1973 to 2009) timeline

Uzbekistan has set ambitious goals to decarbonize its economy and increase its renewable energy share, but it faces several challenges and trade-offs in its green transition.

Currently, Uzbekistan’s energy sector is heavily reliant on fossil fuels, especially natural gas, which accounts for about 85% of its primary energy supply. The country’s energy intensity, or the amount of energy used per unit of GDP, is about three times higher than the average for the Europe and Central Asia region and two times that of neighboring Kazakhstan. However, Uzbekistan also has a significant potential for renewable energy sources, such as solar, wind, hydro, and biomass, which could meet up to 50% of its electricity demand by 2030. The green

transition offers many opportunities and benefits for Uzbekistan, such as enhancing its economic competitiveness, diversifying its energy mix, reducing greenhouse gas emissions, and improving public health and environmental quality. For example, the government has announced plans to build the largest solar power plant in Central Asia, with a capacity of 1,500 megawatts, which will create jobs, attract investments, and provide clean and affordable electricity to millions of people. Moreover, the green transition can help Uzbekistan to achieve its commitments under the Paris Agreement, which aim to limit the global temperature rise to well below 2°C above pre-industrial levels. However, the green transition also poses several challenges and trade-offs for Uzbekistan, such as ensuring social protection and private sector development, balancing the interests of different stakeholders, overcoming the barriers of financing and technology, and managing the risks of climate change and natural disasters. For instance, the green transition may have negative impacts on some sectors and groups, such as the workers and communities dependent on the fossil fuel industry, who may face job losses, income reductions, and social exclusion.

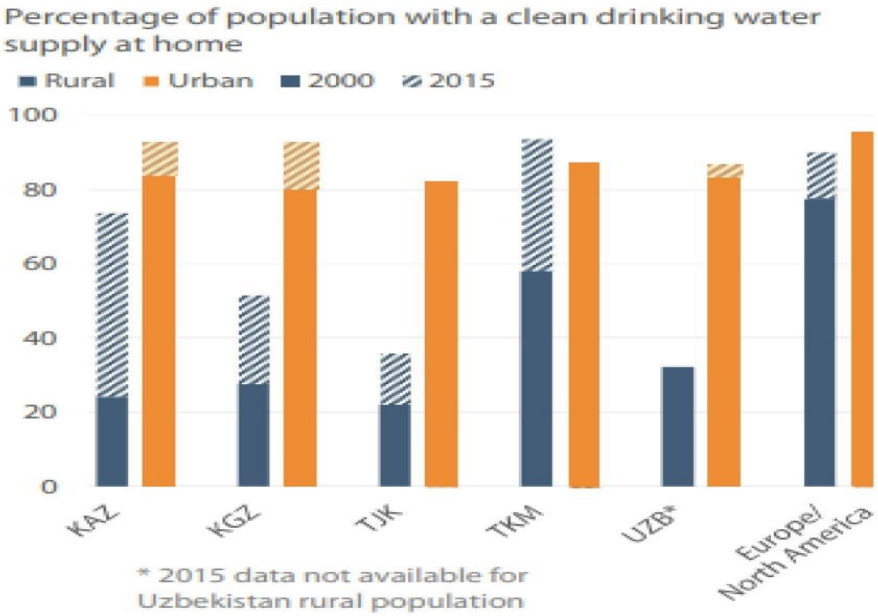

Figure 2. Percentage of people with a clean drinking water supply at home

Therefore, the green transition needs to be accompanied by adequate measures to support the affected sectors and groups, such as providing retraining, reskilling, and social safety nets. Furthermore, the green transition requires the coordination and cooperation of various actors, such as the government, the private sector, the civil society, and the international community, who may have different and sometimes conflicting interests and preferences regarding the pace, scale, and direction of the green transition. Hence, the green transition needs to be based on a participatory and transparent process that engages and consults all the relevant stakeholders and ensures their representation and accountability. Additionally, the green transition faces the constraints and uncertainties of financing and technology, as the development and deployment of renewable energy sources and energy efficiency measures require substantial investments and innovations, which may not be readily available or accessible for Uzbekistan. Therefore, the green transition depends on the availability and affordability of financing and technology, which may be influenced by various factors, such as the market conditions, the policy frameworks, and the international cooperation. Finally, the green transition is influenced by the risks and impacts of climate change and natural disasters, which may affect the availability and reliability of renewable energy sources and energy infrastructure, as well as the demand and consumption of energy services. For example,

the variability and unpredictability of solar and wind resources, the vulnerability and exposure of hydro and biomass resources, and the frequency and intensity of extreme weather events, such as droughts, floods, heat waves, and dust storms, may pose challenges and uncertainties for the green transition. Therefore, the green transition needs to incorporate the principles and practices of climate resilience and adaptation, which aim to reduce the vulnerability and enhance the capacity of the energy sector and the society to cope with the adverse effects of climate change and natural disasters. Uzbekistan's green transition requires a comprehensive and inclusive approach that addresses the economic, social, and environmental dimensions of sustainable development.

Climate resilience and adaptation are essential for Uzbekistan to cope with the adverse effects of climate change, such as droughts, floods, heat waves, and dust storms, and protect its vulnerable communities and ecosystems.

Climate resilience and adaptation are essential for Uzbekistan to cope with the adverse effects of climate change, such as droughts, floods, heat waves, and dust storms, and protect its vulnerable communities and ecosystems. Uzbekistan is one of the most vulnerable countries to climate change in Central Asia, as it faces water scarcity, land degradation, and extreme weather events, which are expected to worsen in the future. The country's climate is arid continental, with seasonal and day-to-night fluctuations in air temperatures, and minimal precipitation in the plains and foothills. The Aral Sea crisis, caused by the diversion of its main tributaries for irrigation and hydropower purposes, has had devastating impacts on the environment, economy, and health of the people living in the region, particularly in the three Aral Sea regions that are the most vulnerable to climate change. Climate change poses serious challenges and risks for Uzbekistan, such as the loss of lives, livelihoods, and assets, the reduction of agricultural productivity and food security, the deterioration of public health and environmental quality, and the increase of social and political instability. For example, the country's agriculture sector, which constitutes 24.1 percent of the country's GDP and employs about 27 percent of the labor force, is highly dependent on irrigation and water-intensive crops, such as cotton, and is threatened by the variability and unpredictability of water availability, soil salinity and erosion, and pest and disease outbreaks. Moreover, the country's population, especially the rural and poor segments, is exposed to the hazards and impacts of climate change, such as droughts, floods, heat waves, and dust storms, which can affect their health, income, and well-being. However, Uzbekistan is also taking significant strides to enhance its climate resilience and adaptation, and to reduce its vulnerability and enhance its capacity to cope with the adverse effects of climate change. Some of the actions and measures that the country is taking or planning to take include the implementation of an integrated water resources management system, the introduction of drought-resistant plant species, the improvement of irrigation and drainage systems, the development of early warning and disaster risk management systems, the promotion of climate-smart agriculture and green economy, and the participation in regional and international cooperation and frameworks. For instance, the country has launched a National Adaptation Plan (NAP) programme, with support from the United Nations Development Programme and the Green Climate Fund, to target the most climate-affected sectors and regions, and to enable informed decision-making in climate change adaptation. Climate resilience and adaptation are key components of Uzbekistan's sustainable development and human security agenda, and require the involvement and support of all stakeholders and partners.

Conclusion. The political impact of water security and climate change in Uzbekistan is a complex and multifaceted issue that requires a sustainable and cooperative approach to address.

This article examined the role of water in regional cooperation and conflict, the opportunities and challenges of green transition, and the importance of climate resilience and adaptation in Uzbekistan. It argued that Uzbekistan needs to adopt a more sustainable and cooperative approach to water management, as well as to diversify its economy and reduce its dependence on water-intensive crops such as cotton. It also discussed the role of regional and international actors in supporting Uzbekistan's efforts to cope with the effects of climate change and ensure water security for its population. The article suggests some of the measures that Uzbekistan and its partners can take to enhance water security and climate change mitigation and adaptation, such as strengthening regional cooperation and dialogue on water issues, and supporting the implementation of the Aral Sea Basin Program; accelerating the reforms and investments needed to promote energy efficiency, renewable energy, and low-carbon technologies, and creating a conducive environment for private sector participation and innovation; and implementing adaptation projects and programs that address the specific needs and priorities of different sectors and regions, and enhancing the participation and empowerment of local communities and stakeholders. The article concludes that water security and climate change are critical challenges for Uzbekistan's political stability, economic development, and social well-being, and calls for a holistic and inclusive approach that involves and supports all stakeholders and partners.

REFERENCES

1. Uzbekistan Country Climate and Development Report//https://www.worldbank.org/e n/co untry/uzbekistan/publication/ccdr
2. Transforming Crises into Opportunities in the Aral Sea Region//https://www.undp.org/ uzbekistan/blog/transforming-crises-opportunities-aral-sea-region
3. Problems of the Aral Sea and water resources of Central Asia//https://www.un.int/ uzbekistan/news/problems-aral-sea-and-water-resources-central-asia
4. Kazakhstan, Uzbekistan: Differing Approaches on Aral Sea//https://eurasianet.org/ kazakhstan-uzbekistan-differing-approaches-on-aral-sea
5. Water, Conflict, and Cooperation in Central Asia: The Role of International Law and Diplomacy//https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3147903
6. Water Conflicts in Central Asia: Some Recommendations on the Non-Conflictual Use of Water//https://www.mdpicom/2071-1050/13/6/3479
7. WATER CONFLICT AND COOPERATION IN CENTRAL ASIA//https://hdr.undp. org/content/water-conflict-and-cooperation-central-asia
8. Uzbekistan's Transition to a Green Economy: Challenges and Opportunities//https:// thediplomat.com/2023/02/uzbekistans-transition-to-a-green-economy-challenges-and-opportunities/
9. The Future of Green Transition in Uzbekistan//https://www.undp.org /uzbekistan/publications/future-green-transition-uzbekistan
10. Publication: Towards a Greener Economy in Uzbekistan//https://openknowledge. worldbank.org/entities/publication/7046a76c-f533-5846-83e4-7dde22f2ad03
11. In Uzbekistan, policy dialogue builds momentum for transition to a green economy// https://blogs.worldbank.org/climatechange/uzbekistan-policy-dialogue-builds-momentum-transition-green-economy
12. Uzbekistan//https://www.adaptation-undp.org/explore/central-asia/uzbekistan

13. Uzbekistan advances its climate change adaptation planning//https://www.adaptation-undp.org/press-release-Uzbekistan-advances-its-climate-change-adaptation-planning
14. How to help farmers adapt to climate change in Uzbekistan?//https://www.undp.org/uzbekistan/press-releases/how-help-farmers-adapt-climate-change-uzbekistan
15. People and Government of Uzbekistan take action to confront the climate crisis collectively//https://uzbekistan.un.org/en/156343-people-and-government-uzbekistan-take-action-confront-climate-crisis-collectively