Analytical note

The author of the project: Orumbayev Nursultan
Supervisor: Elmira Joldybayeva, PhD, Associate Professor

Analytical note	Improving the effectiveness of water diplomacy in resolving the problems of transboundary rivers in Kazakhstan
Problem situation (case)	The main problem with transboundary rivers in Central Asia is the competition for water resources between the countries sharing the same river basins. The region is characterized by arid and semi-arid conditions, where water is a scarce commodity. The upstream countries like Kyrgyzstan and Tajikistan have the advantage of having the sources of the rivers, while the downstream countries like Uzbekistan, Turkmenistan, and Kazakhstan are heavily dependent on water for their economies, especially for agriculture.
Available solutions to this problem	Transboundary river Syr Darya has been a source of conflict for many years. While these rivers are shared by several countries in the region, each country has different needs and priorities for water use, such as for drinking, irrigation, and energy production. This has led to disagreements over water allocation, water quality, and the construction of dams and other water infrastructure. Some available solutions to this problem include: 1. International cooperation: The countries involved in the management of transboundary rivers should engage in international cooperation and dialogue to develop shared norms, principles, and agreements to guide water allocation, management, and infrastructure development. This can be facilitated by regional organizations such as the International Fund for Saving the Aral Sea and the United Nations Regional Centre for Preventive Diplomacy for Central Asia. 2. The Government of the Republic of Kazakhstan has implemented necessary measures to prevent potential emergencies in the lower reaches of the Syr Darya River. This includes allocating annual budgetary resources for the maintenance and repair of protective dams in the Kyzylorda area along the Syr Darya River. To minimize water usage, water was directed into deserts and unpopulated regions through irrigation canals and ancient channels, eliminating the need for repairs or restoration of these canals. However, increased winter expenses resulted in the flooding of extensive coastal areas, causing delays in spring field operations. 3. Integrated water management: An integrated water management approach that considers the social, economic, and environmental needs of all stakeholders should be adopted. This involves the development of a comprehensive water management plan that addresses issues such as water allocation, quality, conservation, and infrastructure development.
Suggested Solution to This Problem	Based on the analysis of the current problems and challenges that Kazakhstan faces in its policy towards the Syr Darya, as well as the study of the case of interethnic policy towards the Mekong River, we will offer specific recommendations for improving the situation: 1. Cooperative Governance: a. Establish a cooperative framework: Riparian countries should establish a joint institutional mechanism that facilitates regular communication,

	collaboration, and decision-making on Syr Darya River issues. This framework should promote transparency, inclusivity, and equal participation of all stakeholders. b. Develop a management plan: It is essential to develop a comprehensive river basin management plan that addresses water allocation, pollution control, environmental conservation, and disaster management. This plan should consider the needs and priorities of all riparian countries, ensuring sustainable and integrated management of the Syr Darya River system. 2. Equitable Water Allocation and Management: a. Fair water sharing: Promote fair and equitable allocation of water resources among riparian countries based on principles of reasonable and equitable utilization. Establish mechanisms for sharing information on water availability, demand, and usage to ensure efficient and effective water management. b. Environmental flow requirements: Allocate sufficient water to maintain healthy river ecosystems, especially during critical periods. Protect and restore wetlands, floodplains, and other vital habitats to preserve biodiversity and ecosystem services. c. Integrated management approach: Encourage riparian countries to adopt an integrated water resources management approach. This includes promoting water conservation, efficient irrigation practices, and exploring alternative water sources to reduce dependence on the Syr Darya River. 3. Environmental Protection and Restoration: a. Pollution prevention and control: Implement measures to minimize pollution from various sources, such as industrial discharges, agricultural runoff, and municipal waste. Establish water quality standards and monitoring programs to ensure compliance and take appropriate actions against polluters. b. Ecosystem restoration and conservation: Undertake collaborative efforts to restore and protect degraded ecosystems along the Syr Darya river. This includes reforestation, wetland conservation, and riparian zone management. Promote sustainable land management practices to reduce soil erosion and sedimentation. c. Climate change adaptation: Develop strategies to address the impacts of climate change on the Syr Darya river system. This involves assessing vulnerability, promoting climate-resilient infrastructure, and integrating climate considerations into water resources planning. 4. Data Sharing and Exchange: a. Establish a data sharing mechanism: A centralized data repository forms a key aspect of this model. It serves to store, manage, and disburse the collected data, akin to the Mekong River Commission's Data and Information Services Portal (DISP). Accessibility to all participating countries is crucial, alongside the implementation of robust security measures to safeguard sensitive data. c. The formulation of clear data-sharing protocols is necessary to ensure seamless data exchange. Aspects such as data submission formats, frequency, and methodologies, along with the roles and responsibilities of

	each nation in data management, need to be delineated. d. Equally important is the development of human resource potential through capacity-building initiatives such as training programs and workshops. These ensure that the personnel involved in data management are equipped with the requisite skills to collect, process, and analyze data. e. Strengthen early warning systems: Collaborate on the development and implementation of early warning systems for floods, droughts, and other hydrological hazards. Timely exchange of information can help mitigate risks and minimize potential impacts on communities and infrastructure. 5. Capacity Building and Financial Cooperation: a. Enhance capacity: Strengthen technical and institutional capacities of riparian countries through knowledge sharing, training programs, and exchange of expertise. Support the development of skilled professionals and robust institutions responsible for water resources management. b. Financial cooperation: Encourage international financial institutions, donor agencies, and bilateral partners to provide financial and technical support for sustainable water management projects in the Syr Darya River basin. Promote fair and efficient financial mechanisms for sharing the costs and benefits associated with transboundary water management.
Expected Result	This recommendation policy highlights the importance of cooperation, sustainable management, and environmental protection in managing the transboundary river Syr Darya. By adopting these principles and implementing collaborative measures, riparian countries can ensure equitable water allocation, promote ecosystem conservation, and achieve long-term sustainability in the utilization By implementing these steps, countries sharing transboundary river basins can develop robust data-sharing mechanisms that enable informed decision-making, collaboration on joint projects, and effective management of shared water resources. In summary, the Mekong River Basin's experience in transboundary water management offers valuable lessons and best practices for the Syr Darya River Basin, including the importance of institutional mechanisms for cooperation, balancing competing demands, adapting to climate change, and promoting data sharing and joint monitoring.
Literature	List of used sources: 1. Akhter, M. (2015). The hydropolitical cold war: The Indus waters treaty and state formation in Pakistan. Political Geography, 46, 65-75. 2. ASCE Task Committee on Water Resources Education and Training. (1990). Perspectives on water resources education and training. Journal of Water Resources Planning and Management, 116(1), 99-133. 3. Asian Development Bank. (2023). Greater Mekong Subregion Economic Cooperation Program: Overview. Retrieved from https://www.adb.org/publications/greater-mekong-subregion-economic-cooperation-program-overview 4. Atkinson Barry (2016). The Characterisation of Arboviral Zoonoses in

Central Asia (Doctoral dissertation). Institution B. https://www.researchgate.net/publication/308522990_The_Characterisation_of_Arboviral_Zoonoses_in_Central_Asia_PhD_Thesis
5. Berndtsson, R., & Tussupova, K. (2020). The future of water management in Central Asia. Water, 12(8), 2241.
6. Bertheau, P., & Lindner, R. (2022). Financing sustainable development? The role of foreign aid in Southeast Asia's energy transition. Sustainable Development, 30(1), 96-109.
7. Burian, S. J., Ward, M., Banuri, T., Chaudhry, M. A., Ahmad, S., Lashari, B., ... & Qureshi, A. L. (2017). Higher education capacity building in water resources engineering and management to support achieving the sustainable development goal for water in Pakistan. American Society for Engineering Education.
8. Chen, X., Zheng, Y., Xu, B., Wang, L., Han, F., & Zhang, C. (2020). Balancing competing interests in the Mekong River Basin via the operation of cascade hydropower reservoirs in China: Insights from system modeling. Journal of Cleaner Production, 254, 119967.
9. Chiussi, L. (2017). United Nations Convention on the Law of the Non-navigational Uses of International Watercourses 1997. In Elgar Encyclopedia of Environmental Law (pp. 247-256). Edward Elgar Publishing.
10. Contartese, C. (2017). Convention on the Protection and Use of Transboundary Watercourses and International Lakes 1992 (The UNECE Helsinki Convention). In Elgar Encyclopedia of Environmental Law (pp. 257-268). Edward Elgar Publishing.
11. Cooley, H., & Gleick, P. H. (2011). Climate-proofing transboundary water agreements. Hydrological Sciences Journal, 56(4), 711-718.
12. De Bruyne, C., Fischhendler, I., & Haftel, Y. Z. (2020). Design and change in transboundary freshwater agreements. Climatic Change, 162, 321-341.
13. Dinar, S., Katz, D., De Stefano, L., & Blankespoor, B. (2019). Do treaties matter? Climate change, water variability, and cooperation along transboundary river basins. Political Geography, 69, 162-172.
14. Gerlak, A. K., & Schmeier, S. (2014). Climate change and transboundary waters: a study of discourse in the Mekong River Commission. The Journal of Environment & Development, 23(3), 358-386.
15. Gleick, P. H. (2015). On methods for assessing water-resource risks and vulnerabilities. Environmental Research Letters, 10(11), 111003.
16. Grafton, R. Q., Libecap, G. D., Edwards, E. C., O'Brien, R. J., & Landry, C. (2012). Comparative assessment of water markets: insights from the Murray–Darling Basin of Australia and the Western USA. Water Policy, 14(2), 175-193.
17. Grech-Madin, C., Döring, S., Kim, K., & Swain, A. (2018). Negotiating water across levels: A peace and conflict “Toolbox” for water diplomacy. Journal of Hydrology, 559, 100–109. doi:10.1016/j.jhydrol.2018.02.0
18. Hart, B. T. (2016). The Australian Murray–Darling basin plan: challenges in its implementation (part 1). International Journal of Water Resources Development, 32(6), 819-834.

19. Hefny, M. A. (2011). Water diplomacy: A tool for enhancing water peace and sustainability in the Arab region. Technical document, presented in preparation for the second Arab water forum. Theme 3: Sustainable and fair solutions for the transboundary rivers and groundwater aquifers Cairo, 20–23rd November 2011.
20. Hoare, R., van Woersem, B., Bruszt, G., Flint, D., & Pierce, J. (2003). External Review of Global Water Partnership. Performance Review Assessment Centre.
21. Interstate Coordinating Water Commission. (n.d.). Basin water management approach in the water management of the Syrdarya. Retrieved May 27, 2023, from http://www.icwc-aral.uz/bwosyr_ru.htm
22. Janjua, S., Hassan, I., Zarghami, M., & Islam, S. (2020). Addressing the supply-demand gap in shared rivers using water diplomacy framework: utility of game theory in the Indus River within Pakistan. Water Policy, 22(5), 789-810.
23. Junlin, R., Ziqian, P., & Xue, P. (2021). New transboundary water resources cooperation for Greater Mekong Subregion: the Lancang-Mekong Cooperation. Water Policy, 23(3), 684-699.
24. Kausikan, B. (2020). Why ASEAN should treat the Mekong like the South China Sea. South China Morning Post, 11.
25. Keskinen, M., Salminen, E., & Haapala, J. (2021). Water diplomacy paths–An approach to recognise water diplomacy actions in shared waters. Journal of Hydrology, 602, 126737. https://doi.org/10.1016/j.jhydrol.2021.126737
26. Klimes, M., Michel, D., Yaari, E., & Restiani, P. (2019). Water Diplomacy: The Intersect of Science, Policy and Practice. Journal of Hydrology.doi:10.1016/j.jhydrol.2019.02.049
27. Kuenzer, C., Campbell, I., Roch, M., Leinenkugel, P., Tuan, V. Q., & Dech, S. (2013). Understanding the impact of hydropower developments in the context of upstream–downstream relations in the Mekong River basin. Sustainability science, 8, 565-584.
28. Leng, T. (2020). Connectivity Initiatives in the Mekong Region: Too Many or Too Little?. Responding to the Geopolitics of Connectivity, 101.
29. MacQuarrie, P. R., Viriyasakultorn, V., & Wolf, A. T. (2008). Promoting cooperation in the Mekong region through water conflict management, regional collaboration, and capacity building. GMSARN International Journal, 2, 175-184.
30. Mallick, P. (2022). Transboundary River Cooperation in Mekong Basin: A Sub-regional Perspective. Journal of Asian Security and International Affairs, 9(1), 50-71.
31. Mekong River Commission. (2023). Mekong Integrated Water Resources Management Project. Retrieved from https://www.mrcmekong.org/our-work/mekong-integrated-water-resources-management-project/
32. Mekong River Commission. (2023). Mekong Integrated Water Resources Management Project. Retrieved from https://www.mrcmekong.org/our-work/mekong-integrated-water-resources-management-project/
33. Menga, F. (2017). Power and water in Central Asia. Routledge.

34. Morris, M., & de Loë, R. C. (2016). Cooperative and adaptive transboundary water governance in Canada's Mackenzie River Basin: status and prospects. Ecology and Society, 21(1).
35. Mosello, B. (2008). Water in CA: a prospect of conflict or cooperation?. Journal of Public & International Affairs, 19.
36. Offerdal, E. (2019). China's Hydropower Development in the Mekong Region: an assessment of energy security and the water-food-energy nexus (Master's thesis). University of Oslo. https://www.duo.uio.no/bitstream/handle/10852/69720/1/Offerdal_Master_DUO.pdf
37. Offerdal, K. C. (2019). The effectiveness of the Mekong River commission: Information sharing and cooperation mechanisms in a regional riparian regime (Master's thesis).
38. Paisley, R. K., & Henshaw, T. W. (2013). Transboundary governance of the Nile River Basin: Past, present and future. Environmental Development, 7, 59-71.
39. Phoumin, H., Thu, T. M., & Ly, T. (2022). Sustainable Water Resource Development in the Lower Mekong Basin: synergies and trade-offs across borders and sectors. Financial Crises, Poverty and Environmental Sustainability: Challenges in the Context of the SDGs and Covid-19 Recovery, 59-80.
40. Sok, S., Meas, S., Chea, S., & Chhinh, N. (2019). Regional cooperation and benefit sharing for sustainable water resources management in the Lower Mekong Basin. Lakes & Reservoirs: Research & Management, 24(3), 215-227.
41. Sorg, A., Mosello, B., Shalpykova, G., Allan, A., Clarvis, M. H., & Stoffel, M. (2014). Coping with changing water resources: The case of the Syr Darya river basin in Central Asia. Environmental science & policy, 43, 68-77.
42. Sripa, B., Suwannatrai, A. T., Sayasone, S., Do, D. T., Khieu, V., & Yang, Y. (2021). Current status of human liver fluke infections in the Greater Mekong Subregion. Acta tropica, 224, 106133.
43. Tran, T. A., & Suhardiman, D. (2020). Laos' hydropower development and cross-border power trade in the Lower Mekong Basin: A discourse analysis. Asia Pacific Viewpoint, 61(2), 219-235.
44. Trottier, J., & Brooks, D. B. (2013). Academic tribes and transboundary water management: Water in the Israeli-Palestinian peace process. Science and Diplomacy, 2(2), 60-80.
45. United Nations (2019). World Population Prospects. Retrieved from https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf. Accessed on 20.04.2023.
46. United Nations Economic Commission for Europe (UNECE). (n.d.). Nexus assessment Syr Darya. Retrieved from https://unece.org/DAM/env/water/publications/WAT_46_Nexus/Nexus_assessment_Syr%20Darya_RU_web_final.pdf
47. United Nations General Assembly. (1997). Annex to the resolution 51/229. Official Records of the General Assembly, Fifty-first Session, Supplement No. 49 (A/51/49). Retrieved from https://legal.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf

	48. United Nations Report “World Population Prospects 2022” URL: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf (date of access 10 April 2023) 49. Vieira, E. D. O. (2020). Integrated water resources management: theoretical concepts, basis, responsibilities, and challenges of IWRM. Integrated Water Resource Management: Cases from Africa, Asia, Australia, Latin America and USA, 1-12. 50. Waslekar S. Water is more than a strategic resource. We need to acknowledge that. 2017. URL: https://www.weforum.org/ agenda/2017/01/water-water-everywhere-so- why-dont-we-pay-it-more-attention/ (date of access: 30.04.2023) 51. Weissbrodt, D. G., Winkler, M. K., & Wells, G. F. (2020). Responsible science, engineering and education for water resource recovery and circularity. Environmental Science: Water Research & Technology, 6(8), 1952-1966. 52. Werners, S. E., van de Sandt, K. H., & Jaspers, A. M. J. (2009). Mainstreaming climate adaptation into water management in the Netherlands: The governance of the Dutch Delta Program. 53. Williams, J. M. (2021). Is three a crowd? River basin institutions and the governance of the Mekong River. International Journal of Water Resources Development, 37(4), 720-740. 54. Yu, H., & Chen, S. (2022). PNPCA Consultation and Improvement for Hydro-power Development on Mekong River. In E3S Web of Conferences (Vol. 346, p. 02014). EDP Sciences. 55. Yun, G., Williams, S., & Wenbin, D. (2017). Water management of the Mekong River. Malays. J. Sustain. Agric, 1(2), 15-17. 56. Zareie, S., Bozorg-Haddad, O., & Loáiciga, H. A. (2020). A state-of-the-art review of water diplomacy. Environment, Development and Sustainability. doi:10.1007/s10668-020-00677-2 57. Zhupankhan, A., Tussupova, K., & Berndtsson, R. (2018). Water in Kazakhstan, a key in Central Asian water management. Hydrological Sciences Journal, 63(5), 752-762. 58. Борисова, Е. А. Река Меконг: узел проблем / Е. А. Борисова // Азия и Африка сегодня. – 2014. – № 10(687). – С. 36-43. – EDN SUBWML. 59. Колосова И. В. «Водная одиссея» Центральной Азии //Вестник Дипломатической академии МИД России. Россия и Мир. – 2019. – №. 2. – С. 188-196.