ENVIRONMENTAL GEOPOLITICS
Kazakh – China Hydropolitics Over Lake Balkhash Basin

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Abstract

This study represents the hydropolitics between Kazakhstan and China over the Lake Balkhash basin. Transboundary watercourses present a challenge in terms of water management as they pass through different territories with different interests as per their national needs and different groups of people in the different states with different needs, which ultimately give way to water conflict among the riparian countries. During the last decade, socio economic activities and climate change have severely affected Balkhash hydrological regime. As industry expands to feed China's booming economy and as China pursues its "Go West Policy" to encourage immigration the Xinjiang area bordering Kazakhstan, demand of water is rising constantly. This paper gives an overview of changes that have been occurred in the Lake Balkhash basin so far, alongwith the focus on geopolitical changes took place in the area. This paper also highlights problems regarding management of water resources in the Lake Balkhash drainage basin with special reference to role of Kazakhstan and China. Both, a conflictive and cooperative behaviour of these two countries have been discussed in terms of their geo-climatic situations, geo-hydrological characteristics of the basin and level of politico-economic development regarding the planned use of available water resources. A critical review of river basin management has been added to the end of the study and recommendations have been given for a better future.

Keywords

Environmental Geopolitics, Hydropolitics, Balkhash, Transboundary Watercourses, Water Management, Hydrological Regime, Go West Policy, Conflict to Cooperation, Environmental Degradation.

Background of the Study

Environmental politics can be seen as relationships between global political forces and environmental change, with reference to the implications of local global interactions for environmental management and the implications for environmental change and environmental governance for world politics (Meadowcroft, 2002). The concept of threat posed by environmental degradation to human life was considered as contemporary environmental politics, whereas the modern environmental politics includes political and mass movements,

green parties and green ideas within its territory. The concept of global environmental politics has come up with some new issues in the past one and half century e.g. free trade, water resources, hydrocarbons, energy and sustainable development (Kotzé, 2012).

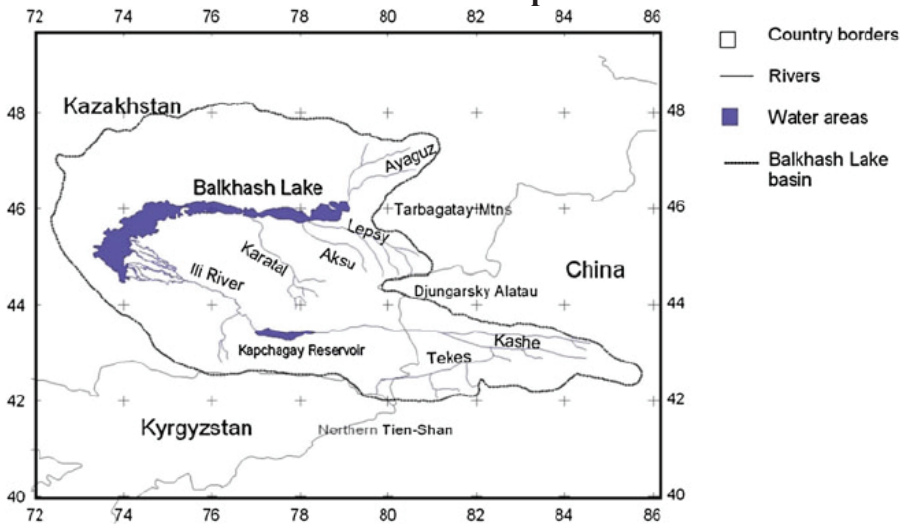
In the light of increasing global water demands, trans-boundary rivers are often portrayed both as a source of inter-state conflict (water conflict) and as a catalyst for international cooperation. Water conflict can be viewed as a type of environmental politics where, riparian states as unitary rational actors fight over water - a natural resource, to pursue specific national interests. In other words, it can be stated that, water is shaping the nature of politics not only within the country but also the international relation among or between the riparian countries. Water conflict takes place when volume of water decreases in the source region due to climate change followed by low amount of rainfall. This creates conflict between upstream and downstream rivers on the ground that upstream countries construct dam to do maximum utilization of available water, which deprive the downstream countries of water (Olmstead & Sigman, 2015, p.507). The conflictive or cooperative behaviour of riparian states in shared basins encompasses hydrological connectedness, the overall level of water scarcity, level of economic development, the geopolitical context, geographical position of riparian states and existing and planned domestic water uses regulations. Among the emerging issues of global environmental politics, hydro politics of water resource among Kazakhstan and China over of Lake Balkhash basin is worth mentioning.

The second largest lake in Central Asia - Balkhash is a unique endorheic lake with freshwater western part and saline eastern part (Eosnap, 2008). Ili – Balkhash basin covers southeastern Kazakhstan and northwestern China and which raises transboundary water management issues in the region. The Ile River, flowing in from the south, pours water into the western part of Balkhash basin, and contributed 80 - 90 percent of the total water input into the lake until a hydroelectric project utilized and reduced the volume of the river's inflow in the 20th century (Encyclopaedia Britannica, 1999). Only few small rivers e.g. the Qaratal, Ayaguz, Lepsi and Aqsū feed the eastern part of Balkhash. The eastern part has been salty but the western part was fresh and suitable for consumption (Rafferty, 2011, p.117). The lake remains frozen from the end of November to the beginning of April (Rafferty, 2011, p.118). Carbonates forms the ground deposits of the Lake Balkhash

(Encyclopaedia Britannica, 1999). Earlier, around 20 species of fish used to inhabit the lake. However, its deteriorating water quality since 1970s has declined the fauna (Sourd & Rizzolio, 2004).

Fig. 1

Lake Balkhash Basin and Riparian Countries



Source: Image Courtesy: Propastin, 2012, p.451.

Since 1970s, Balkhash basin has been under stress due to Soviet-era industrial and agricultural expansion and the growth of population around the rivers which feed into that lake (Guillaume et.al., 2015, p.4203). Situations worsen critical since China began its program of developing Xinjiang in order to attract migrants. China has thus increasingly taken water from the Ili River there by restricting proper input of water into the lake. If the current situation persists, Kazakhstan's Lake Balkhash basin -the largest water body in the former USSR and the 15th largest lake in the world may follow the fate of Aral Sea into extinction-a series of small isolated lakes and dried out places within few years. If Lake Balkhash dies, its impact on the surrounding area is likely to exceed that has been in case of the Aral Sea. This background will help to investigate the driving forces behind conflicts and cooperation regarding issues of water allocation and utilization in the lake and their economic development vis a vis stress on water resourse. Also, it will lead to safer and area-specific recommendations regarding the improvement of the current situation along with protecting both of the countries' respective national interest.

Hydro-politics on Balkhash Water

Lake Balkhash - the third largest freshwater lake on the earth is located in the southeastern corner of Kazakhstan (Greenberg, 2007). More than 20 percent of the country's population draws on the lake for its drinking water. Transboundary rivers from Kyrgyzstan and China feed the basin area. After decades of water diversion to nearby factories and farms, Lake Balkhash is threatened with the same fate as the notorious Aral Sea, which is widely considered one of the worst anthropogenic ecological disasters in history. Rivers replenishing Aral Sea were diverted over decades to facilitate the water intensive cotton cultivation across Central Asia, which ultimately made the sea shrunk followed by splitting into two parts.

China has offered incentives to people to move to its resource rich Xinjiang territory as part of its "Go West" policy (UNECE, 2008). This region covers part of the basin area. Out of population pressures, water is fast draining into nearby sugar and rice farms (Greenberg, 2007). China is increasingly becoming an important factor in the governance of Central Asian waters (Water Politics, 2009). Beijing treats Central Asia as a supplier of cheap electricity to make up with the western Xinxiang's energy shortfall. Agriculture is the chief activity in this province and cotton occupies close to half of Xinxiang's arable land and Beijing considers the massive exportation of textiles to be of vital strategic interest. China is already using some of the Irtysh waters to provide water to the Karamay oil fields. Further development in the province is to be facilitated through diversion schemes for the Ili which supplies 80 percent of Balkhash's water (Water Politics, 2009). In October 2004, the China affirmed that it was counting on using as much as 40 percent of the Irtysh's effluence (Peyrouse, 2007).

These plans would endanger access to water for inhabitants of northern Kazakhstan and Kazakhstan's development projects in this part of the territory, in particular its new capital city of Astana. It would also affect industry in the area, which is highly dependent upon Ili. Lastly, the project could have a serious environmental impact. China's use of water from the Ili River is already having significant consequences on Lake Balkhash. Many specialists argue that Lake Balkhash is in serious danger of following the sad fate of the Aral Sea. In accordance with the new project, two non-rigid dams will be built on the Tasmurun and Bakanass channels at the lower course of the Ili River that will provide drinking water to the Kapshagai city and increase the efficiency of the

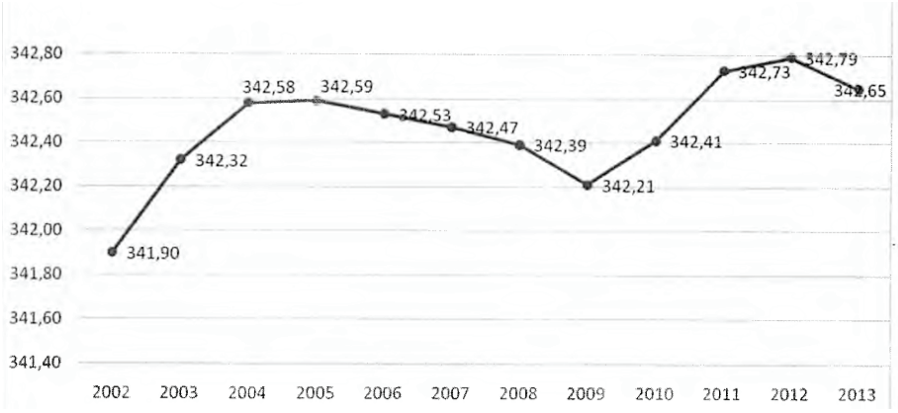
Kapshagai hydroelectric power station (Kamalova, 2014). The non-rigid dams will also improve the irrigation water supply and decrease the water discharge from the Kapshagai water reservoir during the vegetation season (Lavalin, n.d.). These measures will help to preserve natural water level of Balkhash.

However not everyone is optimistic about the project. The Head of the Environmental Society - Tabigat (Nature) Mr. Mels Yeleusizov insisted that the new dams would not help the water level in the lake (Kamalova, 2014). The Ili river that feeds the lake is a trans-border river (Schlager, 2011). It flows through China before entering Kazakhstan. The water in the Ili river decreases because China intakes more water than it should. China has constructed numerous dams, hydroelectric power stations. Expert calculated that by 2050 as a result of Chinese projects, the Ili River dwindle by 40 percent (Kamalova, 2014). This would turn into a catastrophe for Balkhash lake. As the population and degree of industrialization in western China is increasing along with traditionally poor political relations between Kazakhstan and the People's Republic of China, it is likely that conflict over the fate of the limited waters of the Ili will intensify. The water pollution of Balkhash is intensified as urbanization and industrialization in the area grow rapidly. Over the past two years the water level in Balkhash lake has dropped by 8 cm from 342.73 meters to 342.65 meters. However, water level in Balkhash lake has increased by 75 centimeters. Even though the recent water level drop looks like a temporary development now, Kazakhstan wants to address this problem before it is too late, especially since it can deal with many more water related issues along the way.

According to UN Environmental Program, the scenario of China's and Kazakhstan's accelerated development suggests that Balkhashh lake may lose up to 86 percent of its water reserves by 2045, which will mean a huge environmental disaster for Kazakhstan. The water inflow to Balkhashh is decreasing 2-3 fold every year and this trend will remain until 2030 (Tengri News, 2013). Currently China and Uzbekistan are major suppliers of trans-border river water to Kazakhstan. But their own demand for water is likely to sharply surge by 2030, which will create additional risks for Kazakhstan's water supply. According to the experts' forecasts the water demand in China would grow from the current 555 billion cubic meters to 818 billion cubic meters in 2030 (Visser, 2012). The trend may cause a radical decrease of the water level in the Ili River that supplies almost 80 percent of the water flow to

Lake Balkhash (Schlager, 2011). Significant fall of water supply would split the lake into two, with the western side eventually drying up.

Fig. 2
Water Levels in Lake Balkhash (2002 to 2013)



Source: The Committee on Water Resources of the Ministry of Agriculture, Kazakhstan.

Kazakh-China Water Politics and Balkhash Fate

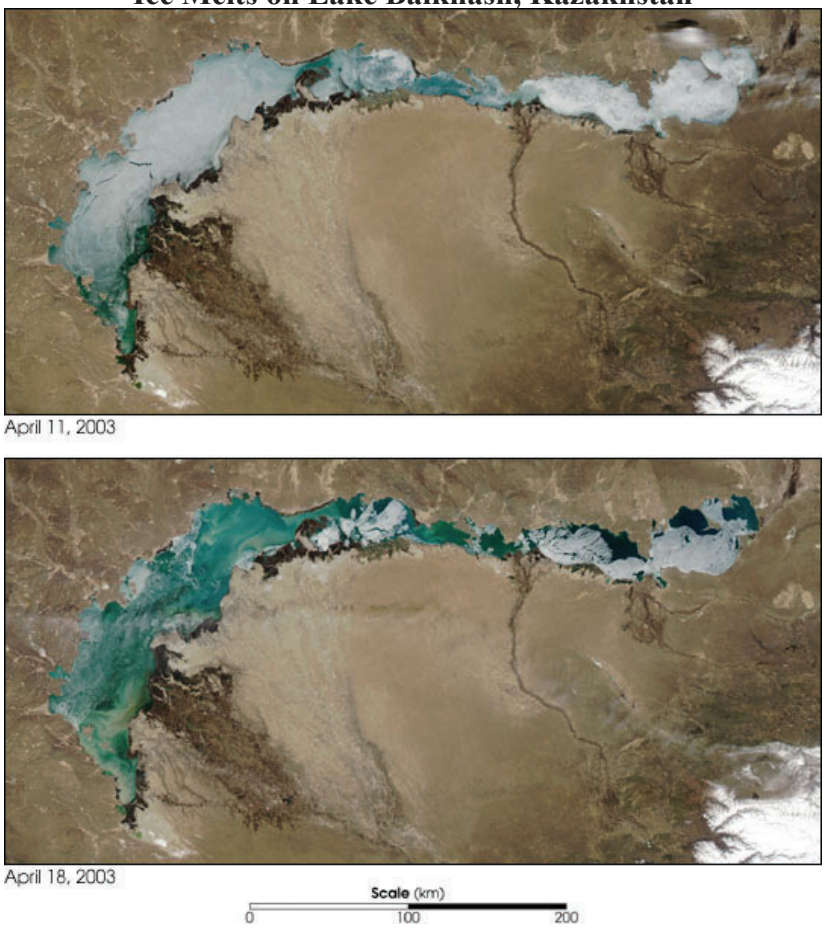
Lake Balkhash was already ecologically damaged in the 1960s and 1970s with the construction of the Kapchagai reservoir. This lake is the chief controller of climatic balance in the central and south-east Kazakhstan (Peyrouse, 2007). Dozens of dams are being built on Xinxiang's 12 rivers, including the Ili. Once they are completed, only a third of the water that currently ows from China will reach Kazakhstan. For Lake Balkhash, such a course of events would be a death sentence. The lake is shallow – not more than 10 meters at its deepest point. So even now, the lake is divided into two parts: the fresh and the salty. And since water quickly evaporates in a dry climate, the lake is extremely sensitive to any reduction in the inflow of water. The shallower the lake becomes, the faster its water evaporates. Gradual increase in the salinity level is adversely affecting its fresh water. The less water flows into Lake Balkhash, the faster the surface area of the lake shrinks. That in turn would threaten the extensive wetlands surrounding the lake, a refuge for many fish and bird species. Nearly 3 million people, who are settled around the lake and depending upon fishing and agriculture, would see their livelihoods destroyed (Schlager, 2011). So far, Kazakhstan and China have not reached any agreement. However, Kazakh politicians tend to avoid criticizing China because of its immense importance as a trade partner. Kazakhstan also straining the Balkhas water resources by

growing rice. Rice cultivation requires lots of water. In addition, more than 50 percent of the water drains unused into the soil due to lack of proper irrigational management system.

Ironically, thanks to increased glacial melt caused by global warming, Lake Balkhash has not shown loss of water in the last several years, rather there have been minor gains. This has created a false sense among many people regarding the existing and future environmental security of Balkhash. Recently there has been a record amount of outflow from the Ili (due to melting of snow and glaciers in China), that has increased the water extraction. Satellite images on 11th and 18th April, 2003 show large cracks found in the ice on the western part of the lake and most of the ice melted with remnants primarily in the western half.

Fig. 3

Ice Melts on Lake Balkhash, Kazakhstan



Source: Jacques Descloitres, MODIS Land Rapid Response Team, NASA GSFC. URL: http://earthobservatory.nasa.gov/IOTD/view.php?id=3416.

Negotiating the Lake Balkhash: Successes and Failures

China (unlike Kazakhstan) is not a signatory to the 1992 International Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes, whose member-states aims to take due, account of trans-boundary impacts in their domestic water management practices (Zhian, n.d.). In 2001, China and Kazakhstan signed an agreement to facilitate cooperation on transboundary water management including the Ili. A Joint Commission was set up to oversee this agreement, and has convened annually over the last decade (Biba, 2014). Information on its work is scare, beyond official confirmations of the fact of its meetings**.** Despite annual meetings no specific yearly water allocation has been agreed on. The original 2001 document is ambiguously worded and insufficiently stringent, from the Kazakh standpoint, in obliging China to respect Kazakhstan's water security needs when implementing its plans for the future economic development of Xinjiang (Burman, n.d.). China and Kazakhstan held talks on the problem quite recently, but China spurned Kazakhstan's proposal to send China large stocks of free or heavily subsidized food for 10 years in exchange for a commitment from China to allow an unimpeded flow of river water into the lake.

In 2007, Kazakhstan offered negotiation of a new accord, but Beijing has refused to do so, thus exacerbating the situation of Lake Balkhash. Now, the Committee on Water Resources of the Ministry of Agriculture of Kazakhstan is planning to construct non-rigid dams on the Ili River to maintain the water level of Balkhashh lake (Kamalova, 2014) and also hoping that the international community will put pressure on Beijing to agree to talks. If that doesn't happen, Lake Balkhash will follow the Aral Sea into extinction and far faster than anyone imagines. Infact A draft agreement on the use of Ili-Balkhashh water was prepared by United Nations Development Programme (UNDP) at a conference in 2007 and sent to China, but there has been no response so far (Nuttall, 2010). China is believed to be focusing on domestic environmental issues, and therefore has less interest in issues affecting its neighbours. Some indications exist that limited progress has been made, especially water quality issues, on which a special bilateral agreement was signed in February 2011.

The issue of trans-boundary water management was raised in April 2013 during Kazakh President Nazarbayev's visit to Beijing (Burman, n.d.). Prior to this, he has himself occasionally referred in public, albeit

obliquely, to Kazakhstan's concerns in this area. However, the Kazakh authorities have little negotiating leverage to deploy over this issue, given China's greater size and power, and also its already significant and still-emerging role as a trade & investment partner for Kazakhstan. This has made Kazakh civic activists and oppositionists criticizing Astana's perceived inactivity over bilateral water issues. China's approach to management of the Ili and Irtysh was criticized as 'genuine water blackmail 'by Murat Auezov, Kazakhstan's first Ambassador to Beijing (Burman, n.d.). In September 2013, China and Kazakhstan signed a declaration on strengthening the relations in the strategic partnership of the two states (FMPRC, 2013). Both Sides set a task to research and coordinate agreements on the use of cross-border rivers. As of today, all research work on cross-border rivers has been concluded. Two countries discussed on the work of the China-Kazakhstan Joint Committee on Cross Border River Utilization and Protection During President Nazarbayev's visit to China from 30 August to 03 September in 2015 (CIWL, n.d.). In 2015, they initiated scheduled consultations on the draft of the "Agreement between the Government of the People's Republic of China and the Government of the Republic of Kazakhstan on Water Distribution of Cross Border Rivers (FMPRC, 2015). Both of the countries agreed to continue to hold discussions on the draft to elevate bilateral cooperation in the field of utilization and protection of cross border water resources to a new level.

Findings and Recommendations

Political issues surrounding Lake Balkhash (water management, dams, and irrigation) are complicating relationship between Kazakhstan with its neighbour China. Along with the Soviet legacy, Kazakhstan also diverts water from the Ili, for the purpose of irrigation in paddy fields. Settlements along the river are dependent on the crop, with people employed in the fields and rice processing plants. Republic of China is building even more dams along the rivers feeding Lake Balkhash. China's oil industry is booming. The oil industry requires water-flooding and therefore extracts huge amount of water from the upper reaches of the Ili River basin. Most important issue is the decreased water available when upstream developments call for more water, impinging on downstream consumers. Every year, China is including more land under irrigation facility. The current economy is developing

under conditions of increasing water deficiency in Kazakhstan - it needs Chinese oil more than China needs Kazakhstan's oil. In short, China's population and economic pressures are serious issues for Kazakhstan. China's plans in the Xinjiang Uyghur Autonomous Region, earmarked for rapid agricultural and industrial development over the upcoming decades, is likely to intensify the water issue with Kazakhstan over Lake Balkhash basin.

Groundwater and precipitation supply some of the Balkhashh basin, whereas snowmelt and glacial waters are the chief source of water, removal of which would bring unprecedented economic and ecological consequences. The dying condition of Lake Balkhash would initiate longer and hotter summers with increasing crop water demand and thereby would heighten irrigation requirements. This could reduce aggregate water savings even after improvements in irrigation systems. A drying Balkhash would expose thousands of square miles of salty and sandy land that would cause environmental pollution. The disappearance of Balkhash would widely effect the local population also. The UNDP and EU are promoting integrated trans-boundary water management in Central Asia. Kazakh NGOs and government agencies are also aware of the problem. However, Kazakh politicians generally maintain silence regarding criticizing China as, this country is Kazakhstan's most important foreign partner. Thus the Chinese stay away from talks, while continuing to develop their western regions without regard to the fate of Lake Balkhash. If Balkhash dies then China would suffer from it too, because salt (lifted by winds from the dry bottom) would end up in their glaciers. They should think of the way to save the glaciers, sources of pollution should be mapped and possibilities of their remediation should be discussed among local citizens, experts and state authorities of both Kazakhstan and China foe a progressive solution. It is better to start planting agricultural products that require less water. Adoption of new more effective mechanisms, decision-making in water security at the interstate level, effective water use in economic activity, reduction of water losses due to evaporation, transportation and filtration, repair of irrigation on irrigated territories, rejection of ineffective irrigational methods, introduction of water-saving technologies, introduction of rainwater harvesting, water recycling and setting up a Basin Management Body could prove fruitful to save the dying Balkhash while maintaining both of Kazakhstan and China's respective interest.

China needs to lead by managing the Irtysh and Ili rivers with Kazakhstan. Encouragingly, compared with its water policies on other major transboundary rivers, China has a relatively high level of institutionalized association with Kazakhstan. China can take the lead in mediating water disputes among Central Asian countries by facilitating the adoption of the 'nexus approach' to managing water conflicts in Central Asia which recognises that water, food and energy systems are inseparable. Efforts in the food and energy production systems could therefore help to alleviate water stress in Central Asia. Agricultural modernization will help to keep regional water conflicts under control. China has much to offer on this front. China could invest in Central Asia's backward agricultural infrastructure, particularly in modernizing its irrigation systems. Water saving technologies and drought resistant seeds from China could further reduce water demand in Central Asia's agricultural sector. By promoting interregional and intraregional agricultural trade across Central Asia, China could approach to facilitate a better cropping structure.

References & Notes

1. Biba, S. (2014, February 24). China cooperates with Central Asia over shared rivers. The Third Pole.
2. Burman, S. (n.d.). Kazakhstan-China: Bilateral Water Issues. Retrieved February 15, 2017, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/317665/Kazakhstan-China_Bilateral_water_issues.doc
3. CIWL. (n.d.). Sino-Kazakhstan Joint Declaration on Further Deepening Comprehensive Strategic Partnership, China International Water Law programme.
4. Encyclopaedia Britannica. (1999). Lake Balkhash-Lake, Kazakhstan. Retrieved December 12, 2016, from https://www.britannica.com/place/Lake-Balkhash#ref189931
5. Eosnap. (2008). Lake Balqash, Kazakhstan and Lake Issyk Kul, Kyrgyzstan, Earth Snapshot. Retrieved December 24th, 2016, from http://www.eosnap.com/tag/endorheic-lake/
6. FMPRC. (2013). Xi Jinping Holds Talks with President Nursultan Nazarbayev of Kazakhstan Promote Good-neighbourly Friendship, Mutual Benefit and Win-win Outcomes to Deepen China-Kazakhstan Comprehensive Strategic Partnership, Ministry of Foreign Affairs, the People's Republic of China.
7. FMPRC. (2015). Joint Declaration on New Stage of Comprehensive Strategic Partnership between the People's Republic of China and the Republic of Kazakhstan. Ministry of Foreign Affairs, the People's Republic of China, Beijing.
8. Greenberg, I. (2007, March 8). Kazakhstan and China Deadlock Over Depletion of a Major Lake; New York Times.
9. Guillaume, J. H., Kummu, M., Eisner, S., & Varis, O. (2015). Transferable principles for managing the nexus: Lessons from historical global water modelling of central Asia. Water, 7(8), 4200-4231.

10. Kamalova, G. (2014, December 26). New dams on Ili River to preserve water level of Balkhash: Kazakh Ministry of Agriculture. Tengri News.
11. Kotzé, L. J. (2012). Global environmental governance: Law and regulation for the 21st century. Cheltenham: Edward Elgar Publishing.
12. Meadowcroft, J. (2002). Politics and scale: some implications for environmental governance. Landscape and Urban Planning, 61(2), 169-179.
13. Nuttall, C. (2010). Drying of Lake Balkhash threatens southeast Kazakhstan Clare. Retrieved January 5, 2017, from Uyghur American Association Web site: https://uyghuramerican.org/article/drying-lake-balkhash-threatens-southeast-kazakhstan.html
14. Olmstead, S. M., & Sigman, H. (2015). Damming the commons: an empirical analysis of international cooperation and conflict in dam location. Journal of the Association of Environmental and Resource Economists, 2(4), 497-526.
15. Peyrouse, S. (2007). Flowing Downstream: The Sino-Kazakh Water Dispute. China Brief, 7(10).
16. Rafferty, J.P. (2011). Lakes and Wetlands, New York: Britannica Educational Publishing.
17. Schlager, E. (2011, October 19). Shrinking lake in Kazakhstan portends hard, dry times ahead. KazWorld.
18. Schlager, E. (2011, October 9). Dying Lake Balkhash raises livelihood, diplomacy issues. The Washington Times.
19. SNC, Lavalin. (n.d.). East West Highway Project: Almaty – Khorgos: Draft Environmental Impact Assessment. Committee for Roads, Ministry of Transport, Astana, Kazakhstan. Retrieved January 30, 2017, from http://documents.worldbank.org/curated/en/314041468039006727/pdf/E29110EA0P12800actAssessment0ESIA0.pdf
20. Sourd, G.L. & Rizzolio, D. (2004). Lake Balkhash, UNDP, UNECE, Regional Environment Centre for Central Asia. Retrieved January 24, 2017, from http://www.grid.unep.ch/activities/sustainable/balkhash/
21. Tengri News. (2013, February 2013). Balkhash lake might shrink to 10% of its size. Tengri News.
22. UNECE. (2008). Second Environmental Performance Review: Kazakhstan. Committee on Environmental Policy, United Nations. Economic Commission for Europe. New York: United Nations Publications.
23. Visser, W. (2012). Big Business, Little Splash – Tackling the World Water Crisis, Wayne Visser Blog Briefing, Retrieved January 17, 2017, from http://www.waynevisser.com/blog/big-business-little-splash
24. Water Politics. (2009). Central Asian Water: The Thirsty Dragon, The Aral Sea, and Ongoing Dilemmas. Retrieved November 20, 2016, from http://www.waterpolitics.com/2009/01/23/central-asian-water-the-thirsty-dragon-the-aral-sea-and-ongoing-dilemmas/
25. Zhian, L. (n.d.). China's Transboundary Water Agreement. Retrieved January 5, 2017, from Fudan University School of Law Web site: https://www2.uef.fi/documents/1508025/1949373/LU_China's+Transboundary+Water+Agreements.pdf/cc6ca1dd-dff5-4e41-9701-76931c42d573.