IS ILI/IRTYSH RIVERS: A 'CASUALTY' OF KAZAKHSTAN-CHINA RELATIONS

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ABSTRACT

Most of international attention devoted to the challenge of managing Central Asia's Trans boundary rivers has focused on the Syr Darya and Amu Darya Rivers. Kazakhstan, though, is also heavily dependent upon water from the Irtysh and Ili rivers, which flow downstream to northern and eastern Kazakhstan from China. For Kazakhstan, the challenge of managing this relationship and insuring access to sufficient sources of clean water and mitigating environmental impact of increasing pollution through China's upstream agricultural and industrial development. This paper will focus on the Ili and Irtysh rivers and will explore the diplomatic efforts that Kazakhstan has taken to try and negotiate an agreement on the management of this shared river system, which is of critical importance to economic development plans for the Ili river delta region and will posit some explanations for why these efforts have as yet failed to be successful. Finally, it will seek to place Kazakh concerns over river management issues with China into the broader context of Kazakh-Chinese relations, with particular attention to the ways in which Kazakhstan has tried to secure or maintain some degree of advantage in a geopolitical relationship in which it is without doubt the weaker and more dependent partner.

Keywords: Water Management, Ili, Irtysh, Kazakhstan, China.

JEL Classification: F51, F52, O13

INTRODUCTION

The main purpose of the paper is to examine the challenges Kazakhstan faces in insuring reasonable access to water from the Ili and Irtysh rivers, whose headwaters are found in China. It looks at the difficult trade-offs Kazakhstan has been faced with in trying to balance access to adequate water with all the other aspects of its national interest that are connected to its relationships with China. The main tasks of the paper are: to consider the importance of the Ili Irtysh Water Basins for Kazakhstan and China, to study the negotiation process, to analyze the unevenness of the bilateral relations

There has been a great deal of attention paid to the challenge each of the five Central Asian countries face in securing adequate supplies of water. These challenges are complex, as they relate both to the patterns of water usage within each country and are critically dependent on how much water each country can access from the trans-boundary Rivers that flow across their lands. These problems are interconnected of course and all five countries face significant risks of desertification if water usage practices don't begin changing and changing quickly (Ageleuov,

2017). But even if best practices of water usage are introduced each country needs to secure long-term continued access to these trans-boundary rivers.

The most publicized struggles have been over access to the Syr Darya River whose head waters are in Kyrgyzstan and Amu Darya River, which flow from Afghanistan and Tajikistan and then into Kazakhstan, Uzbekistan and Turkmenistan [see attached Figure 1]. These rivers that were the mainstay of regional agriculture and especially the cotton industry were closely regulated a complex and interdependent water and energy system, which has never been fully reestablished after the demise of the U.S.S.R. There have been a series of agreements, including between the governments of Kazakhstan, Kyrgyzstan and Uzbekistan, on water and energy resources in the Syr Darya River basin, signed in 1998 and an agreement between the governments of Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan, on collective administration of water resources of transnational water sources, signed in 1992. These agreements, which have been partially effective, govern the use of the Syr Darya. Regulating flows from the Amu Darya have been more contentious, with periodic threats of conflict within and between countries.

Kazakhstan has played an active part in the development of the current management regimes for the Syr Darya river, which supports agriculture and part of the energy needs in southern Kazakhstan (Southern Kazakhstan, Jambyl and Kzyl Orda oblasts) (Kopishev & Uksykbai, 2016; Rystina et al., 2017). Water flows to western and north western Kazakhstan from the Ural River in Russia and from the smaller Emba and Oil rivers originating in Kazakhstan. Water resources in this part of the country are particularly limited and the region, where most of Kazakhstan's oil and gas reserves are found and the general lack of water limits and shapes these regions economic development.

This paper focuses on the Ili and Irtysh water systems [see Figure 1] whose headwaters lie in China and whose river system supports the cities and agricultural lands of central, north eastern and eastern Kazakhstan. Discussions between Soviet and Chinese officials on the management of these shared water systems have yet to produce a management regime, rather they have led to a series of vague agreements between Kazakhstan and China, which has allowed China to drawdown increasing volumes from these rivers to support its own agricultural and energy needs for the development of western China. China's emergence of a "hydro-hegemon" in these river basins coincides with China's economic boom, usurping what Moscow's traditional role during the Soviet-era, when it supervised economic planning for all the republics in the U.S.S.R. and also because the Irtysh river flows into Russia (Syroezhkin, 2010; Svensson, 2012).

Guaranteed long-term access to water is critical for the economic diversification of Kazakhstan. Fortunately for Kazakhstan, some of this area is also served by water flows from the Chu and Talas rivers in Kyrgyzstan, which Kazakhstan has access to through payments made to the Kyrgyz government that have been guaranteed through intergovernmental agreements, signed in 2000. But there is little hope of Kazakhstan being able to use this as a precedent in its dealings with China, given the China's hegemonic power in relationship to Kazakhstan, given China's economic strength and the existing economic connections between the two countries (see Figure 1).

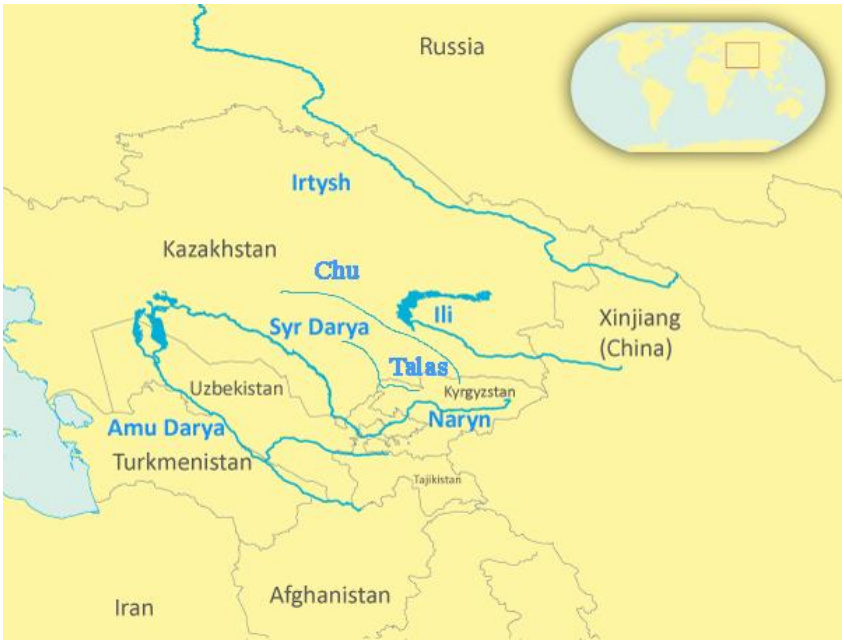

FIGURE 1
A MAP SHOWING THE RIVERS OF CENTRAL ASIA (RFA, 2013)

In Kazakhstani and international literature a general trend has emerged that characterizes China as a hydro-hegemon able to shape the agenda on the allotment of water resources from the trans-boundary Rivers, Ili and Irtysh (Chellaney, 2013). China's hydro-hegemony is based on factors such as its geographical location and economy opportunities that allow for the finance and construction of modern hydro installations which in turn help to satisfy the population's water needs. These and other factors are the basis behind China's highly effective use of water resources (Mirumachi, 2015). Due to the fact that the majority of Asia's fresh water flows from rivers starting in China, Beijing enjoys the role of hydro-hegemon in one of the main water-scarce regions of the world where there is potential for future water-related conflict (Bremmer, 2012).

The hydro-hegemon's water policies consequently affect the water politics of its neighbors. Like other up water countries, China is not interested in any form of regulations. Similar situations are seen in Turkey with the river Evfrat and in China with the rivers Mekong, Ili and Black Irtysh. It's important to keep in mind that a hegemon can be benign, exercising its leadership role in a positive way (Kindleberger, 1981) or it can be coercive, drafting policies based on its own needs. As such, if a powerful state would benefit from dialogue, then cooperation on river basin resources would deepen solely based on that states' conditions.

An analysis of documents on China's water politics has shown that Beijing rejects the idea of an agreement on collective water usage or collective management of common resources. For example, by refusing to ratify the 1997 United Nations Convention which laid out principles on shared water resources, Beijing declared that up water countries had absolute authority over the water from trans-boundary rivers located on their territory, as well as the right to use however much water needed regardless of the consequences for down-water countries.

CONFLICTS IN METHODOLOGY, PRACTICE OR RESEARCH FINDINGS

The Kazakhstani expert society is of the opinion that Kazakhstan, as a down-water country, suffers from China's policies (Syroezhkin, 2010; Ryabtsev, 2011). Negotians between Kazakhstan and China concerning the trans-boundary Rivers of the Irtysh and Ili have been ongoing for more than a decade. The river Ili continues to be polluted by toxic substances due to the fact that up river it passes through one of China's industrial zones. The entire length of the Ili throughout the terrority of the Xinjiang-Uighur Autonomous Region is tightly controlled.

Chinese authors fall in to one of two groups-the first group questions the existence of the problem (Li & Wu, 2017). The second group acknowledges that the problem of unequal water distribution between Kazakhstan and China exists along with a general lack of water resources for Kazakhstan (Lei et al., 2012). At the same time, they do not see a direct link between China's increased water drawing from the trans-boundary Rivers on their own territory and severe water shortages in Kazakhstan, as well as the continued negative impact this has on the environment in surrounding areas (Deng et al., 2012).

Kazakhstani and Chinese authors have differing viewpoints on this matter mainly due to different approaches in studying the issues. Kazakhstani experts tend to securitize this problem citing environmental and social risks and threats that would have a direct impact on the security of Kazakhstan. Chinese experts, on the other hand, de-securitize the problem considering the issue from a policy perspective, not from a security perspective (Roe, 2004). The issue of trans-boundary Rivers has the potential to put serious strain on Kazakh-Chinese relations, especially when considering other factors whether they be interregional or external in nature (Khalabuzar, 2001).

However, within the wider context of bilateral cooperation this issue has been sidelined due to geopolitical and geo-economic reasons.

CONCERNING SHORTFALLS IN STUDIES OR THEORETICAL SCHOOLS

Analyzing the role of the trans-boundary Rivers Ili and Irtysh in bilateral relations between Kazakhstan and China, the authors of this article have found that foreign authors study China's hydro-hegemony mainly in relation to its Asian neighbors (Chellaney, 2013; Svensson, 2012). The Kazakhstani side of the issue is presented only through occasional articles and comments on ongoing events with no monographs or comprehensive scientific research to speak of.

Therefore, questions about the role and significance of the trans-boundary Rivers Ili and Irtysh remain open. Despite being a part of the global water dispute about China as a hydro-hegemon state and its neighbors, the aforementioned issue has received little attention in scientific literature which has prevented there from being a coherent forecast on development in relations between Kazakhstan and China (Chellaney, 2013; Svensson, 2012).

MOTIVATION

The answers to the questions posed in this article will allow for overall trends to be identified in the development of relations between the hydro-hegemon state and its weaker neighbors and will help in solving this problem. The conclusions reached in the article will also help to show how two or more states with varying levels of economic development would prioritize water usage issues.

METHODOLOGY

The problem of the rivers Ili and Irtysh in Kazakh-Chinese relations has been discussed through the hydro-hegemony concept developed by Mark Zeitoun and Jeroen Warner (Zeitoun & Warner, 2006) in 2006. At the core of this concept is the understanding of hegemony in terms of the scale of the river basin or by the consolidated power one actor has over trans-boundary Rivers.

Due to its geographical location China is considered a hydro-hegemon in relation to Kazakhstan since, apart from the Ili and Irtysh; more than 20 other trans-boundary rivers originate in China. This advantage, coupled with its own economic preeminence, allows for China to implement water use policies exclusively based on its own interests.

Hydro-hegemony can exist in positive or negative forms. Positive hydro-hegemony is characterized by solving water usage issues in such a way that is beneficial for both the hydro-hegemony as well as weaker states. Negative or dominant hyder-hegemony is targeted at maintaining and expanding the asymmetry of power and structural inequality.

Positive hydro-hegemony can lead to a fair exchange of water resources and management of the river's basin. Negative hydro-hegemony may include rules of the game, but also forms of oppression that is aimed at seizing natural resources (Zeitoun & Warner, 2006).

Based on this rationale, China's water politics in relation to Kazakhstan should be viewed mainly as a negative hegemony. Beijing's reluctance to participate in multilateral talks on the usage of not only the trans-boundary Rivers Ily and Irtysh, but also the Mekong and Salween, confirm these policies as those of a negative or dominant form of hegemony (Svensson, 2012).

The concept of hydro-hegemony dictates that the main actors are those governments who conduct the negotiation process and make decisions. The negotiation process between China and countries located along the Mekong river is a proven example of how Beijing ignores the needs and possible risks for countries downriver (Daoudy, 2009).

THE IMPORTANCE OF THE ILI IRTYSH WATER BASINS FOR KAZAKHSTAN

For Kazakhstan access to waters from the Ili and Irtysh rivers is more difficult to arrange than their access to the Kyrgyz Rivers. Much of the writing by Kazakh experts simply focuses on identifying this as a problem and describing it, without offering suggestions of solutions.

The Ili and the Irtysh are, with the Syr Darya, the only navigable rivers in Kazakhstan and the country's major source of fresh water. The Irtysh River supports three major hydroelectric generation stations, Bukhtarma, Shulbyi and Ust Kamenogorsk facilities, which are now experiencing problems in electricity generation because of the loss of flow. And provides the drinking water and water for agricultural needs in Karaganda, Semipalatinsk, Ekibastauz and Temirtau (CA Waters). The Irtysh-Karaganda canal (along with the Ishim river originating in Kazakhstan and flowing into the Irtysh) supply drinking water to the capital city Astana.

During last 20 years the volume of flow from the Ili river has dropped from 17.8 to 12.7 km^3/year and the declining levels of the Ili river could potentially have a strongly negative impact on the south-eastern region of the country, especially areas served by Lake Balkash, the world's 15th largest lake (CA Waters).

Lake Balkash is an important source for fisheries and along with other tributaries of the Ili provides much of the irrigation water for this agricultural region. The Ili and its tributaries support the Kapchagai reservoir, including its hydroelectric station and support the Great Almaty Canal and its irrigation offshoots.

There is a lot of discussion in Kazakh mass media about the negative impact of China's increasing draw down from the upstream sources of the Ili and Irtysh rivers and the further future damage that it will do to Kazakhstan's economy and to the quality of life in the regions of the country that depend upon this water supply. These range from damage on fisheries and agrarian sector and ecological disaster, including disappearance of forests of the "Ile Alatau" national park, Jungar Alatau and Tarbagatai. The direst predictions claim that Lake Balkhash that wills it could become a second Aral Sea.

More specific concerns include predictions that by 2020 shipping on the Ishim river will have to be terminated, that the channels and water reservoirs located on the Irtysh river (Bukhtarma and Shulbi) will be degraded and that the surface water and ground water will be polluted and degraded (CISnews.org, 2013).

It is hard to evaluate how much of the media coverage is founded on scientific materials and how much of it is the result of a broader fear of China on the part of Kazakhstan's population, including even some among the Kazakh elite).

There has also been constant concern expressed by local governments of the regions served by the Ili and Irtysh rivers, which express their fears and also, on occasion, have suggested their own remedies.

At the same time, though, Kazakh researchers are studying how Kazakhstan could mitigate China's increasing upstream demand, as well as the potential impact from potential climate change, to compensate for the declining water levels by adopting international best practices of water usage, a point made by various Kazakh specialists (Thevs et al., 2017).

While this is recognized to be the case by Kazakh government officials, it is only slowly being translated into the specific policies that fund widespread introduction of new technologies and improvements in agricultural practices (Zakon, 2012).

IMPORTANCE TO CHINA

For the last twenty years Beijing has been placing particular importance on the economic development of western China in general and the Xinjiang Uighur Autonomous region in particular, as much for reasons of reasons of internal security as the result of its global ambitions. New industries have been introduced and agricultural expanded (all of which bring associated energy and water needs) to help support settlement in this area of ethnic Han (Chinese) and to raise the standard of living of the local ethnic minorities (mostly Uighurs, Kazakhs, Kyrgyz) in an effort to both outnumber and to try to diffuse support for ethnic and religiously inspired opposition).

This has led to increased Chinese's draw down of waters from the Ili. According to Professor Sabir Nurtazin and colleagues, in 2000s the water consumption was 38% and 62% by Chinese and Kazakhs respectively. By 2014, water usage changed to 43% and 57% respectively. Mainly this was due to increasing water demands for agricultural needs, as the sown area on the Chinese side increased from 702,100 ha in 2004 to 1,322,700 ha in 2014 (Thevs et al., 2017). And again according to Nurtazin, et al, the greater upstream run-offs of the past decade has allowed both Kazakhstan and China to simultaneously meet their water needs. But this is not eliminate the need for comprehensive agreement, rather it speaks to further problems in future years as climate changes suggest future water shortages caused by glacial melt.

Beijing has specific plans for the use of water resources from the more than 30 rivers flowing from China to Kazakhstan, including the construction of numerous hydro technical objects on trans-boundary Rivers to enlarge sown areas. For example, it is planned to increase

water withdrawal from Irtysh (see Figure 1) up to 4 km^3 per year (Kopishev & Uksykbai, 2016). And, in 2011 the Chinese government approved $62 billion (US) for the accelerated development of water management and irrigation (CISnews.org, 2013).

For China, increased access to water is critical for its internal security and economic needs, rather than as a club to use in bargaining with weaker neighbors, making its behavior unlike that of traditional water-hegemons, as described in the literature (Kindleberger, 1981). But this doesn't minimize China's advantages in negotiations with Kazakhstan. This is in striking contrast to the Mekong Delta water basin where China must play out its role in the context of its membership in ASEAN (Association of Southeast Asian Nations), a group which includes much stronger economies, than Kazakhstan or the SCO (Shanghai Cooperation Organization) all of whose members, even Russia, have much weaker economies than does China.

NEGOTIATIONS

China's leadership is eager to have good relationships with neighboring Kazakhstan and to foster close economic, political and social ties between the two countries. One part of this is to reach agreement on the management of the trans-boundary Rivers that it shares with Kazakhstan. But Beijing has proved a tough negotiator and is clearly negotiating from a position of strength.

For the first several years, most discussions were held at lower levels, more fact-finding than decision making and only then did the discussion of these problems make it to higher levels. For example, Kazakhstan presented the draft of intergovernmental agreement on trans-boundary Rivers to China in 1994 and the Chinese then studied the issue for the next five years, even in the face of continued Kazakhstan pressure to begin negotiations on this problem.

Finally, after President Nursultan Nazarbayev raised the issue during a visit to Beijing at which the Kazakh leader again expressed concern about the problem of trans-boundary Rivers (particularly the reduction of water in the flow of Black Irtysh), negotiations began. In May 1999 the Joint Kazakh-Chinese work group of experts on Trans-boundary Rivers was established.

Two years later, in 2001, an agreement between the two countries on co-operation of the usage and protection of trans-boundary rivers" was signed, creating a legal foundation for regulation water usage between the two countries, but which simultaneously ignored many of the key issues of water management, as it was intended to simply be a framework agreement. The agreement did not respond to the responsibility question. Importantly, article 4 is ambiguous, merely stipulating that "Any of the parties doesn't limit other party in rationally use and protect water resources of the trans-boundary rivers taking into account mutual interests", whereas only Article 3 offers any specific guidance limiting, efforts of the parties and acceptance of the appropriate measures only "as a result of flood disasters and artificial accidents" (Legal collection, 2015).

In 2003 the Joint Kazakh-Chinese commission on use and protection of trans-boundary Rivers was created to implement the general agreement. The results of which was signing several specific documents, focusing primarily on emergency notifications, natural disaster monitoring and technical cooperation. Five years later, in 2011, these agreements were supplemented with agreements on environmental protection and water quality.

And for the tougher issues the governments couldn't really go beyond declarative documents. Such as Declarations on strategic cooperation between China and Kazakhstan, which include subsection on rational use of trans-boundary Rivers?

None of these agreements deal has set up a mechanism for setting quotas or addressing criteria for allocation of water. There has beena bit more success in setting up management

regimes for smaller shared water resources. For example is agreement representatives of the Raiymbek district (райымбекский район) of the Almaty region (Kazakhstan) and the Zhau Su county (уезд) of Ili-Kazakh autonomous region (China) have set up a cooperative mechanism for regulating water usage on the Sumbe and Kaishybulak rivers, based on a 50/50 division (Legal collection, 2015).

The one real negotiating success was the 2013 intergovernmental agreement between Kazakhstan and China on the status of the Khorgos river which runs through the border region identified by both countries as a major international transit hub and which divided the waters of the Khorgos River on a parity (50/50) basis (Legal collection, 2015).

The joint hydro-electric station builds on Soviet-era agreements from 1965 and 1975 that were further legitimated by a 2002 agreement between China and Kazakhstan (Legal collection, 2015).

And the particular importance China places on Khorgos and Beijing becoming the dominant nation in transcontinental trade and transit across Europe and Asia creates an incentive for achieving agreement on Khorgos River management that does not exist for either the Ili or the Irtysh rivers.

AN UNEVEN RELATIONSHIP

Kazakhstan has only a limited set of "tools" or "weapons" to use in trying to preserve their national interests with regard to securing water from the Ili Irtysh water basins, when Beijing fails to recognize this as in China's own national interest.

There is a substantial international relations literature that focuses on the conflictual potential of competition for control of and access to trans-boundary water flows (Homer-Dixon). But the literature also recognizes the challenges for downstream users, particularly when they have an asymmetrical relationship with the upstream nation.

Theoretically Kazakhstan could threaten China, through linking Chinese decreased or steady water use to reducing China's freedom of action in other economic sectors within Kazakhstan, but the costs of doing this would place greater hardship on Kazakhstan than it would on China.

Total amount of Chinese investments in Kazakhstan has exceeded 33.4 billion USD. Chinese presence in Kazakhstan has very steady position. In 2016 there were 668 Chinese companies working in Kazakhstan, which is 35% more than in 2013 (Ageleuov, 2017). In recent years the mass media repeatedly reported about acquisition of Kazakh oil companies by Chinese (Zakon, 2012; Ekei, 2013).

For example, Geo-Jade Petroleum Corp bought KoJan for $350 million from the Eurasian group with a 100% right to develop deposits. In June 2014, China acquired 95 percent stake in the Kazakh Company Maten Petroleum, which controls the coast of the Caspian Sea in Atyrau. China National Machinery IMP & EXP.CORP. Has signed an agreement on entering into the capital and intending to purchase 51 percent of common shares of the Kazakhstan carmaker AllurGroup in the Kustanai region (Ageleuov, 2017).

In the field of production capacity Kazakhstan and China are implementing 52 projects worth 24 billion USD (Elyubayeva, 2016), the main part of which is focused on infrastructure and subsoil facilities.

China has and implementing plans regarding "Silk road economic belt" and huge "One belt one road" initiative, which calls for more active involvement of Kazakhstan in economic and infrastructural projects. The central components for Chinese "One belt one road" initiative and

Kazakhstani "Nurly zhol" program is Khorgos Free Economic Zone, which was launched in 2012 and made contribution not only to bilateral economic and commercial relations, but also between all Eurasian countries.

According to Khorgos statistics, in 2016, China-Kazakhstan Khorgos International Border Cooperation Center, exported 26 million tons of cargo and the total value of foreign trade reached 800 million US dollars, which is 10 percent higher compared to the same period last year. And more than 5 million people passed the center, which is 36 percent more year-on-year (Eastday, 2017).

But the imbalance is a critical one. Trade with China accounts for 14 percent (OEC-Kazakhstan) of Kazakhstan's exports, while trade with Kazakhstan accounts for only 0.24 percent of China's imports (OEC-China).

Similarly, while Chinese firms control approximately 40 percent of Kazakhstan's on shore oil and gas reserves and production (Gordeyeva, 2013), making them the largest foreign partner for these on-shore reserves, oil and gas from Kazakhstan only account for 1 percent of Beijing's oil and gas imports (Trading Economics).

In the face of unequal relations, Kazakhstan is forced to look for a compromise option to meet its water needs, in order not to aggravate the water issue in relations with the Chinese side. The proposals of Kazakhstani scientists should be considered as one of such options.

These include suggestions, such as that by biophysics professor Viktor Ivanushin that the Irtysh's water can be preserved by reducing the proportion of evaporation from the Bukhtarma reservoir's mirror, especially in its Zaisan part. On the right bank of the Irtysh, at its exit from Lake Zaisan, huge shallow water with a narrow neck is flooded with water. This dry river bed of the Kolguta River, which can be blocked by a dam 4-5 meters height. In his opinion, this will significantly reduce the evaporation, reeds that appear here and flood meadows will feed livestock in any drought.

There are opportunities to eliminate the same shallow water in the western and eastern part of Lake Zaisan. In addition, the surface of numerous bays could be covered by floating plant fields. Their soil consists of natural absorbents-schungite and zeolite. This will reduce the evaporation 4-5 times and purify the water of the reservoir. Ivanushin believes that covering 300 square kilometers of the water surface of the Bukhtarma reservoir with these artificial fields, it is possible to save significant amounts of water, dramatically improving its biological value (Khalabuzar, 2001).

There is another suggestion to transfer water from the Katun River to the Irtysh, up to 5 cubic meters per year. In exchange, Kazakhstan could supply electric power generated at HEPs (hydroelectric power) to Russia. According to the director of Kazakhstan's Institute of Geography, Professor Akhmetkal Medeu, the water from the Katun river flowing into the Irtysh river would produce energy at HEP and Russia also would have a share from it and then the water would flow through Kazakhstan into Ob (Tengrinews, 2013).

CONCLUSION

Now Chinese-Kazakhstan relations could be characterized as a comprehensively strategic partnership. But there is an apparent gap between two countries' economies. China has a strong presence in Kazakhstani market, which makes it much more complicated to make any categorical offers or have a win-win dialogue with powerful upstream country.

Long-term access to water resources of the Ili and Irtysh rivers is critically important for both countries: for economic diversification in Kazakhstan and for facing the goals of western parts development in China.

Analysis of the article's problems revealed that Kazakhstan has to find other means of meeting its water needs that are caused by increased Chinese present and future use of the Irtysh and Ili rivers.

In connection with this Kazakhstani researcher a number of specific proposals have been made by Kazakh researchers, calling for the diversion of other resources to the Irtysh river systems, to compensate for their diminishing flow.

One important way that Kazakhstan can cope with China's increased water usage is by transforming many of the agricultural practices that characterize agriculture that is dependent upon water supplies from these rivers. For example, the main water consumers of Ili water in Kazakhstan are agriculture and Kapchagai HEP. There two large irrigation massive (Akdala, Bakbakty) consuming water from the Ili river. According to professor Nurtazin cultivated crops such as rice, corn and cotton ideally should be changed to less water-demanding crops or at least reduced in area. Also he assumes that to restore irrigation system and shift to drip or sprinkler irrigation.

Obviously, even with the attention being given to agricultural reform by Kazakhstan's authorities, the history of the past quarter century suggests that change will only occur slowly. But hopefully it will occur and quickly enough to prevent increased usage on the Chinese side from having a devastating effect upon Kazakhstan's plans for increasing agricultural diversity and food security.

Water management of the Ili/Irtysh river systems represents what has become a fairly typical dilemma for Kazakhstan's leadership, managing two powerful neighbors, while asserting an independent role in decision-making for itself. For now, Kazakhstan's leadership has not been able to attain many of their goals with regard to water management with China, but they have also neither capitulated, nor endangered cooperation with China in the many sectors of mutual economic advantage.

ENDNOTE

1. Agreement between KZ, KG, TJ, UZ on Use of Water and Energy Resources in the Syr Darya River Basin (Signed March 17, 1998) http://www.cawater-info.net/library/rus/gov1.pdf
2. Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan and the Republic of Uzbekistan on Cooperation in the Field of Joint Management on Utilization and Protection of Water Resources from Interstate Sources (Signed February 18, 1992) http://www.icwc-aral.uz/statute1.htm
3. Agreement between the Government of the Republic of Kazakhstan and the Government of Kyrgyz Republic on the Use of Water Management Facilities of Intergovernmental Status on the Rivers Chu and Talas (Signed January 21, 2000) www.unece.org/fileadmin/DAM/env/water/Chu-Talas/ChuTalas_Agreement_RU.pdf
4. China is not a member of the two international conventions on international watercourses: Convention on the Law of the Non-navigational Uses of International Watercourses (New York) and Convention on the Protection and Use of Trans boundary Watercourses and International Lakes.
5. Agreement between the Ministry of Agriculture of the Republic of Kazakhstan and the Ministry of Water Resources of the People's Republic of China on emergency notification of the parties on natural disasters on trans boundary rivers " (signed July 4, 2005) (Legal collection, 2015) Agreement between the Ministry of Agriculture of the Republic of Kazakhstan and the Ministry of Water Resources of the People's Republic of China on the development of research cooperation on trans boundary rivers" (signed December 20, 2006) (Legal collection, 2015), Agreement between the Ministry of Environmental Protection of the

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