

Transboundary Water Security in Central Asia: Addressing the Crisis

This paper is the output from a roundtable on transboundary water security in Central Asia, held on 29 June 2011 at the Royal Geographic Society in London. Hosted by His Excellency Ambassador Abusseitov of the Republic of Kazakhstan, the roundtable was attended by over 20 leading experts on Central Asian water management covering disciplines such as geography, hydrology, policy, legal and institutional frameworks. Based on these discussions as well as Cairneagle's own analysis and expertise, we have prepared a recommended approach for Kazakhstan to adopt. The emphasis in this paper is upon developing a "roadmap" towards a sustainable future for water resources in the region. We are aware that there is no silver bullet, but we believe that these recommendations offer a pragmatic step forward to prevent catastrophe. They set out to:

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- Improve security associated with transboundary water by identifying, measuring and reducing risk and building on opportunities
- Build awareness of the transboundary water security challenges and policy integration needs across the energy/water/food/environment nexus so that they become a cross-governmental priority, capitalising on existing initiatives
- Quantify water resources and uses urgently at national and river basin levels, correlating with existing timeframes and cycles for national budgets and plans
- Assess the water resources value-at-risk so that the implications of water security upon national and regional economic and social welfare are fully understood
- Avoid reinventing the wheel by raising the profile of the incumbent National Water Resources Committee (under the Ministry of Agriculture) and reviewing its mandate and competencies with the aim of implementing clear accountabilities
- Develop a national water resources plan, taking into account transboundary challenges
- Continue efforts as a leader in the process of restructuring regional legal and institutional frameworks under the auspices of the IFAS
- Build on the "Green Bridge" initiative to focus not only on "Green Growth" linking Europe, Asia and the Pacific but also on the more tangible links between the Central Asian Republics and their neighbouring countries.

I. The situation

“The challenge of securing safe and plentiful water for all is one of the most daunting challenges faced by the world today” – UN Secretary-General, Jan 2008

- Water is an essential resource for life as well as industrial production, energy generation and agriculture
- Demand for water is increasing on a global scale due to population growth, coupled with increasing demand for water intensive crops and products, as well as new sources of energy
- Global warming is accelerating glacier melt and altering the spatial and temporal allocation of water
- To ensure water security, water risks need to be identified, quantified and addressed

Kazakhstan does not have a physical water shortage, but deals with great local variations in supply. “The issue of food security and use of water has become a vital issue in the world. Food prices are growing, drinking water has always been valuable in the central part of Eurasia” – Nursultan Nazarbayev, President of Kazakhstan, June 2011

- River flow in Kazakhstan totals 100.5 km³/year, with an additional throughput of 64.27 km³/year in ground water;
 - however, river flow varies greatly per season and per year (mean annual flow in the Syr Darya varies from 21.4 to 54.1 km³ per annum), causing droughts as well as floods
 - also, ground water resources are unevenly distributed over the country and tend to be of heterogeneous quality
- Irrigation of agricultural land in Kazakhstan’s drier areas requires large amounts of water, which diminishes river flow and alters ecological systems
- Whilst significant attention and funds are directed to the Aral Sea regeneration programme, Lake Balkhash is currently facing a similar fate and its situation is complex. The Ily River feeding into the Lake originates in China (see: river basin map below), where part of the water is withdrawn or polluted. With the industrial and population expansion in Western China, Lake Balkhash and its ecosystem are likely to come under severe pressure
- Water pollution by pesticides, fertilizers and metals, as well as excessive salinization, further limits water availability in areas dependent on heavy industry or irrigated agriculture
- Ensuring water security in Kazakhstan means minimizing the risk of reduced clean water availability due to irrational use at the local and river basin level both within the country and transborder by its neighbours



Map of the Republic of Kazakhstan with the 8 river basins

The availability of water will decrease further within the short to medium term, whilst demand for it is growing

- The population will consume more water, and require more irrigation for food production
- Rising temperatures will increase evaporation of water from lakes, artificial reservoirs, and from agriculture fields
- Glacier melt is a major contributor to water supply in Kazakhstan, but glacier volume has decreased by almost 30% over the past 50 years and is expected to continue to decrease
- Projects planned in neighbouring countries such as dam construction and shale gas extraction in China may significantly reduce water flow to Kazakhstan. While China currently uses virtually no shale gas, the BP Statistical Review 2011 expects shale gas to account for up to 25% of Chinese gas supply in 2030. The shale gas lies in catchments for Kazakhstan and the impact of this is as yet unclear
- Water resource management initiatives are in place at different levels within the region but insufficiently aligned; eg., China's General Institute for Water Planning (GIWP) has developed staged long term objectives for protection of its water resources but its frame of reference is national

There exists an array of possible improvements to national water management, however all pose problems

- **Increasing irrigation efficiency:** The current 30% efficiency is low but material improvement would require significant capital investment and training. Re-use of water may be limited due to pollution
- **Reducing cotton production water intensity:** Cotton production is highly water intensive; the

crop accounts for the largest share of agricultural water use. Decreasing production in Kazakhstan's deserts would result in significant water savings, but many communities rely on the industry so this would be highly complex and expensive.

Notwithstanding, a resetting of targets around cotton's water intensity is overdue

- **Incentivising water use reduction:** Economic incentives could reduce water use in the main Kazakh cities, which use a large amount of water per capita compared to other countries. However, besides economic issues there also exist practical limitations. Cities have communal pumps as well as domestic meters, but access is not available to everyone at all times
- **Investing in management systems:** The systems in place for water management are old (some date back to Soviet times), and investing in them would improve their efficiency and effectiveness, however funds and expertise are needed

Water security in Kazakhstan is primarily a transboundary issue

- No effective national water policy can be designed or implemented without taking into account that 50% of Kazakhstan's river flow originates in other countries
- The main water inflow comes from Kyrgyzstan, China, the Russian Federation and Uzbekistan
- Of the 8 river basins in the country, 7 are transboundary shared with its neighbours (as depicted in the table below)
- The transboundary nature of a significant portion of Kazakhstan's water resources increases risk as water flow is affected by upstream use and pollution
- A number of international "water" agreements, involving Kazakhstan as a party, currently exist. They include:

Overview of the Republic of Kazakhstan's 8 river basins

River basin	Shared with	Average water reserve (km ³)
Balkhash-Ili- Alakol	China	149.4
Irtys	Russian Federation, China	43.8
Aral-Syr Darya	Uzbekistan, Kyrgyzstan, Tajikistan	37.9
Ural-Caspian	Russian Federation	28.0
Chu-Talas	Kyrgyzstan	6.1
Ishim	Russian Federation	5.3
Nura-Sarysu	-	4.6
Tobol-Tyrgai	Russian Federation	2.9

- 1992 bilateral Agreement with Russia on the joint use and protection of transboundary waters
- 1992 Agreement on cooperation in joint management, use and protection of water resources of inter-state sources (for the Aral Sea basin)
- 1998 Agreement on the use of water and energy resources in the Syr Darya basin involving the four riparian countries
- 2001 Agreement with China on cooperation in the use and protection of transboundary rivers
- numerous other regional, sub-regional and basin treaties, declarations and “soft-law” documents
- There are a number of bodies and mechanisms created to provide an institutional framework for bilateral and multilateral cooperation on transboundary waters – from the three bilateral commissions of Kazakhstan with its neighbours (Russia, China, Kyrgyzstan) to regional institutions (IFAS¹, ICWC² and so forth) in the Aral Sea basin
- However most of the existing legal frameworks are either too general or vague and their implementation is not always adequate. Whilst they provide some legal and institutional basis for cooperation, they are unable to resolve, especially at the regional level, increasingly acute water allocation problems. Neither are they designed to prevent or mitigate potential disputes related to transboundary water quality or quantity issues. There are also serious deficiencies in terms of compliance with agreed rules and decisions

II. The problem

The plethora of plans, programmes and initiatives addressing water issues are mostly high-level approaches without practical implementation

- The Economic Development Strategy to 2020 is based on the principles of Green Growth, focusing on resource saving and energy efficiency but without practically addressing water issues

- The “Concept of Transition of the Republic of Kazakhstan to Sustainable Development for the period 2007-2024” sets out a high-level approach to sustainable development
- Project “Green Bridge” is a major initiative that aims to bring together Europe, Asia and the Pacific in addressing water and environmental issues, however the most urgent need for water alliances lies more locally in Central Asia
- The World Bank has initiated a \$40m Central Asian Energy-Water Development program with a focus on data collection, gathering and sharing
- The Committee for Water Resources in charge of water management and international negotiations is part of the Ministry of Agriculture, which limits its overall reach and authority
- President Nazarbayev has recognised these issues, and proposed in June this year that the Shanghai Cooperation Organisation sets up a water and food committee
- The main challenge at the country level is for the appropriate national capabilities to be identified, developed and employed effectively

Comprehensive and beneficial transboundary cooperation is hindered by a range of issues

- Conflicting economic priorities limit the willingness of countries to international cooperation. In addition, national politics fail to take into account local interests. Local, national and international issues all need to be considered alongside each other; bilateral negotiations to the potential detriment of other neighbouring countries exacerbates divisions
- Political factors influence negotiations and management of water;
 - reluctance to share data
 - limited disclosure of transboundary impact of water projects, especially upstream
 - the energy/water/food/ environment nexus raises stakes and complicates discussions
- Despite the fact that all stakeholder countries have signed treaties, the economic reality of implementation has prevented actions from being taken

¹ International Fund for Saving the Aral Sea

² Interstate Commission for Water Coordination of Central Asia

III. Aim

This paper aims to provide the Government of Kazakhstan with a roadmap to address obstacles to reducing transboundary water risks

- A comprehensive risk assessment as well as on-going data collection is a crucial basis for negotiations and management
- Negotiation teams should be strengthened with negotiation and international water law experts
- A river basin approach will ensure effective management and allow for specific negotiations
- Policy integration and strong leadership in addressing the issue is essential

IV. Recommended approaches

A specialised multi-agency team should be set up in order to engage in productive multilateral or bilateral negotiations

- It is of crucial importance that Kazakhstan should continue its efforts as a leader in the process of restructuring regional and institutional frameworks under the auspices of the IFAS
- Politicians in charge of negotiation should be backed by a team which includes experts in international law, negotiation and water management
- This team needs to have access to comprehensive data and research in order to base negotiations on scientific facts and sound legal expertise
- The involvement of international, independent experts would lead to new insights and objective results
- Assembling this team should be a priority, as they will then lead the comprehensive risk assessment and data collection

The energy/water/food/environment nexus needs to be integrated into negotiations

- The body in charge of management and negotiation should not fall uniquely under the Ministry of Agriculture, but rather be independent, to ensure the entire breadth of the problem is addressed
- As water, energy, food and environment are

inherently linked, water-related negotiations should include or address these topics and the negotiation team should consist of relevant ministry representatives authorised to make decisions in all areas

- Moreover, combining negotiations creates new opportunities through trade-offs by exploiting comparative advantages in other areas (eg., oil & gas exploration and off-take) in order to achieve the desired results in the water sector. However, to be able to compare water to other resources, it is crucial to know the value-at-risk

A comprehensive risk assessment is essential to guide negotiations and set targets

- In order to negotiate effectively on sustainable water access, knowledge of future water demand and supply both in Kazakhstan and in neighbouring countries is crucial
- The risk assessment would reinforce the negotiations with a scientific basis, rather than a political one, and can be used to justify demands
- Based on the risk assessment and forecast, targets can be set to guide projects and policies aiming to improve water management
- Indicators should be developed based on the main risks identified and monitored in order to track progress and effectiveness

The Government's sustainable development plan and economic strategies should form a starting point of the risk assessment

- The Government has produced the “Concept of Transition of the Republic of Kazakhstan to Sustainable Development for the period 2007-2024” and a range of economic strategic plans; Kazakhstan 2010-2014, Kazakhstan Strategic Plan 2020 and Kazakhstan 2030
- However, these plans are reference points, and are not sufficient as a tool for action
- Nonetheless, the forecasts from these plans should be taken into account when predicting future water use

Strong water management on a basin-level is needed to reduce demand and ease negotiations

- In the Sustainable Development Plan the

Government has shifted its water management approach from administrative units to ecosystem units based on river basins

- Capacity building is a crucial first step to ensure good governance at a basin level, and to lead the research and negotiations
- Analysis of basin-level demographic, industrial and agricultural potential is important to determine local water strategies

Negotiations on transboundary water should be prioritised at a basin-level

- Negotiations should be moved to basin-level where the implementation and execution lies
- General treaties may fail to address the different characteristics of each basin
- Negotiations on a basin-level, supported by data on local availability and demand for water, taking into account other local factors, will produce appropriate, pragmatic resolutions

Kazakhstan's influence on the "Green Bridge" Partnership Programme should include a Central Asia and China focus

- The "Green Bridge" initiative agreed at the 6th Ministerial Conference on the Environment and Development in Asia and the Pacific conducted in Astana 27 September to 2 October 2010 is evidence of the strong leading position Kazakhstan has established, which can be channelled to deliver practical programmes in the water and food sectors
- This has been included in the agenda of the 7th Ministerial Conference to be held in Astana over 21-23 September 2011 under the title "Environment for Europe" and organisers should be encouraged to integrate with other initiatives working in the same space
- Applying the programme and resources to Central Asia would give Kazakhstan the opportunity to take a leading role in regional water negotiations
- Ensuring competence through capacity building is

vital and should be prioritised

- A follow up Roundtable should be planned for a year's time to chart progress and refine targets

V. Conclusion

- Kazakhstan should continue its efforts as a leader in transboundary water security initiatives
- Transboundary water problems will escalate in the near term if not addressed
- The socio-economic as well as environmental implications of existing and potential transboundary water disputes are immense and could severely hinder Kazakhstan's aim to improve its competitiveness on the world's economic stage
- Climate change, demographic and agricultural developments are shifting the pressures in the eight river basins
- One of the solutions is to be found in local efficiency programmes if adequately funded. This support needs to be on-going and there needs to be a clear effort to prioritise water resource management proactively
- To prevent escalation of transboundary conflict over water resources, a national water resource plan is needed as a basis for local, national and international negotiations
- It is important not to reinvent the wheel so appropriate expertise should be identified and allocated. In addition, international good practice should be applied where applicable; eg., initiatives like the long-standing General Institute of Water Planning in China
- This roundtable links up with other initiatives such as "Green Bridge" and a common set of goals should be developed which should be charted at a similar roundtable in 12 months time

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About Cairneagle

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