



THE ARAL SEA KEEPS DRYING OUT BUT IS CENTRAL ASIA SHORT OF WATER?

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The water-related challenges of the Central Asian republics including Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan, plus northern Afghanistan are indeed demanding. It is important to realize that, against the common perception, this region is not extremely water-scarce. The enormous environmental problems that have been created after 1960 are largely due to extremely uneconomic water use and due to policies that have not taken into consideration the sustainability of agricultural development, particularly in the basins of Syr Darya and Amu Darya Rivers. The per capita water use in the region is sky-high, being manifold in comparison to any other comparable part of the world. This waste of the valuable resource yields in very low economic gain, keeping the countries economically weak.

1 Introduction: water scarcity questioned

At the first glance it is easy to get an impression that the Central Asian countries are very short of water. All know the environmental disaster of the Aral Sea and the fact that the once-so-mighty Syr Darya and Amu Darya Rivers bring now only a fraction of the water to the Aral Sea in comparison to what the situation was only some decades ago.

But in fact the countries of the region are not so scarce on water. It has become almost paradigmatic

to consider the limit of 1000 m³ per capita of renewable freshwater per capita as a sort of rough indicator of water scarcity. Countries below that line are commonly considered of having shortage of water. Whereas such simple indicators have plenty of shortcomings, they are often useful in rough comparisons of different countries and regions.

For instance many of the countries in the Middle East and North Africa fall clearly below that line. Some of such countries include Algeria (457 m³/person/year), Tunisia (470), Israel (259), Jordan (135), Libya (110), Saudi Arabia (110), Yemen (220) and United Arab Emirates (62). Such examples can also be found from other parts of the world. Let us mention one; the economically booming North China which has very little water.

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Table 1. Water availability and use in the Central Asian countries (World Bank 2004).

	TOTAL RENEWABLE RESOURCES PER CAPITA M ³	% OF TOTAL RESOURCE	% FOR AGRICULTURE	% FOR INDUSTRY	% FOR DOMESTIC
Afganistan	2322	40.2	99	0	1
Kazakhstan	7368	30.7	81	17	2
Kyrgyz Republic	9293	21.7	94	3	3
Tajikistan	12706	14.9	92	4	3
Turkmenistan	12706	39.1	98	1	1
Uzbekistan	4527	50.8	94	2	4

The Hai and Luan River Basins, where for instance the economically booming Beijing and Tianjin are located, has only slightly over 200 m³ per capita of renewable freshwater to offer.

Now, the impression that the Central Asian countries have very little water is easily turned down by the figures in Table 1. In fact, some of the countries such as Tajikistan and Turkmenistan are relatively affluent with water, having more of this precious liquid than most European countries. None of the countries comes very close to the water scarcity limit of one thousand m³ per capita. Uzbekistan, for instance, has almost double the amount of water per capita in comparison to Spain, which is one of the major agricultural producers within Europe.

2 Focus on water demand and governance

So, why the Aral Sea has been drying out? Why Central Asia has become famous due to the environmental catastrophe of the shrinking Aral Sea? This large inland lake has lost a considerable part of its volume and has been split into two separate lakes. The smaller lake has sunk by 20 meters and the larger by 12 meters from the 1960 level (Glanz 1998, UNESCO 2000).

The reasons are generally attributed to the large-scale development of irrigated agriculture in the region in the Soviet era. Particularly cotton was seen as a strategic resource and in many years, the Syr Darya and Amu Darya rivers have not reached the Aral Sea. The region suffers from many other

serious environmental problems, many of which are related to the unsustainable agricultural development. Accumulation of salts and pesticides in soils is a particularly detrimental problem.

Rather than blaming the nature of not being generous enough in terms of water and other natural resources, we must approach the question from the other direction; from the water use which indeed is sky-high. The Central Asian countries are on the top of any global comparison of water use per capita (Figure 1). Their water use is many times higher than in countries such as Spain, Pakistan, Turkey, Mexico, North African countries and Middle Eastern countries.

This implies that the solutions to the environmental, social and economic disaster of the Aral Sea and, consecutively, for the whole region must be looked from the water demand direction.

We can continue along this line by looking how much wealth the economies of the Central Asian countries are able to generate from their production system. Figure 1 shows that the per capita Gross National Income (GNI) of those countries is very low in comparison to that of the other countries in the plot. Kazakhstan is an exception due to its notable oil earnings.

Although economic indicators such as GNP, GDP and PPP are powerful development indicators, they miss many crucial issues what comes to livelihoods, and possibilities for improving them. The most popular alternative concept is human development. It combines economic performance with social issues such as life expectancy and education.

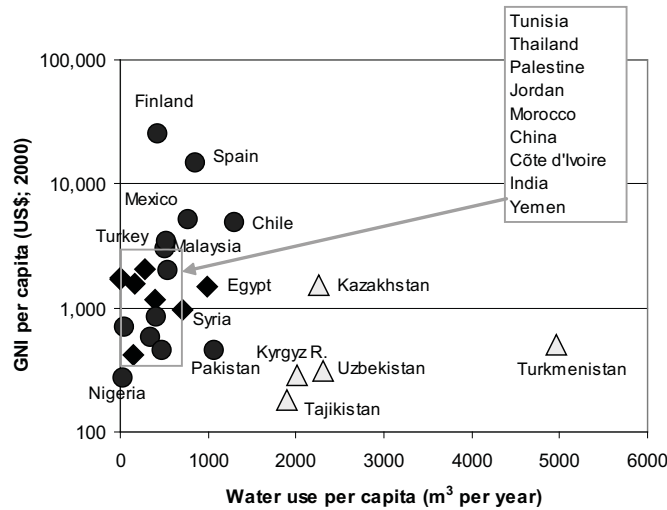


Figure 1. Water use does not grow with economic growth. GNP vs. water consumption in selected countries (World Bank 2004).

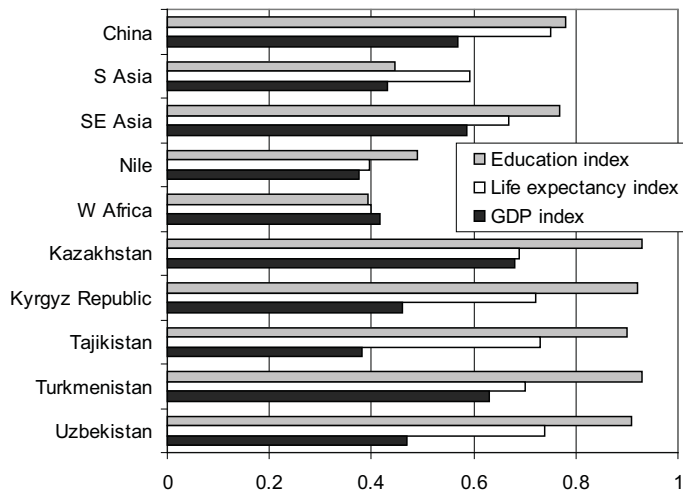


Figure 2. Components of the Human Development index (HDI) in selected regions and countries (source: World Bank 2004).

It is common to argue that people-centered development provides many solutions, which cannot be met with the contemporary resource-based approaches. Empowering the people to help themselves, raising public awareness and enhancing public participation are all important keys to overcome the limited financial capability vis-à-vis requirements.

The limits of the people-centered development are faced very rapidly if no systematic education of

the people is provided. Education has been shown many times to be the real booster to both economy and people-centered development.

According to official statistics, Central Asia has an exceptionally high education level (Figure 2). It is interesting to compare the region's countries to some other developing regions of the world. China and South Asia have witnessed a very rapid economic growth during the past decades. One obvious reason to their favorable development in

contrast to regions such as South Asia, West Africa or the Nile Basin countries is their high education level. Central Asia, however, has a still higher education level and therefore has a notable human potential for even rapid development once other conditions become favorable.

The Central Asian republics have witnessed very difficult times economically since the collapse of the USSR. The countries continue to have trouble in getting their economies on track, and notable poverty problems have followed (Figure 3). Despite of spending catastrophically high amounts of water for agricultural purposes, the level of malnourishment is high in Central Asia. It ranges from Tajikistan's and Uzbekistan's 31% to Kazakhstan's 10% as expressed in terms of malnourished children under the age of five years.

Central Asian republics show a very unfavorable grading in the global comparison on the level of corruption (Transparency International 2008). As for example, according to Transparency International Corruption Perception Index (CPI) rank, they all belong to the world's most corrupted 32 countries (Table 2).

The collapse of the USSR is already 17 years back in history. But it seems that the profound changes

Table 2: Transparency International's CPI index rank for Central Asian countries (TI 2008)¹

COUNTRY	CPI SCORE	COUNTRY RANK
Denmark	9.3	1
Sweden	9.3	1
Singapore	9.2	4
Finland	9	5
Australia	8.7	8
Kazakhstan	2.2	145
Tajikistan	2.0	151
Kyrgyz Republic	1.8	166
Turkmenistan	1.8	166
Uzbekistan	1.8	166
Afghanistan	1.5	176

of the economic and social systems have not really taken off in the region. The water-consuming production systems seem to predominate and the raw cotton is dumped to the world market without much added value that could in principle be generated by production of garments, fabrics, etc., from cotton, or attracting other, merely urban industries and services to the region. Important would be to urgently find alternatives and complimentary sources of income to cotton

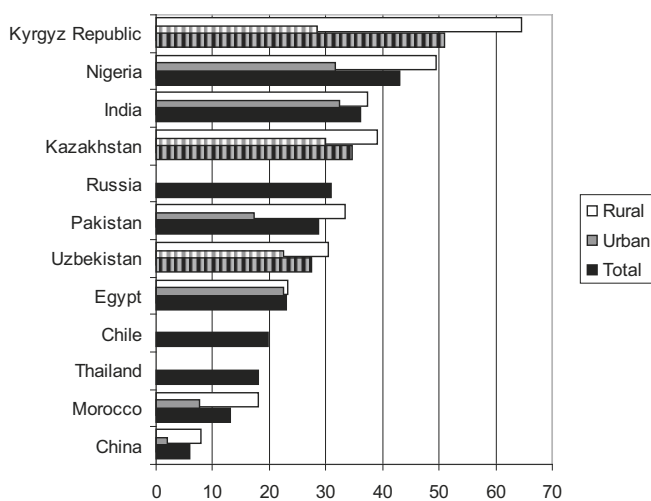


Figure 3. People in absolute poverty in selected countries (World Bank 2004).

farming. In fact, an indeed astonishing feature of the contemporary discourse on water problems of Central Asia exclude urban issues and industries almost entirely, although more than half of the region's population is living in urban areas. This relatively well educated urban population is now partly frustrating with limited possibilities to improve their living due to scarce economic opportunities.

3 Towards tapping the human resource

The biggest resource of the region is its human capital. The education level combined with culturally strong and tradition-rich population is a very valuable asset. The governance systems are challenged to tap this vast human resource to create wealth from the natural resources including water, instead of destroying ecosystems and causing massive problems to human health and well-being with wasteful resource use. Alternatives for economy, also urban ones, must be far more seriously considered than what seems to be done now.

The water sector should be more aware and conscious of the present state of and future expectations with regards to various development processes. The water sector could even on its own part make earnest attempts to foresee and reduce their gravity by rightly targeted policies. Seeing the water issues in the broad framework of other development issues such as the ones discussed here—and integrating the visions and policies of the sector—would be the way to go towards a better future through successful freshwater management. Management and development paradigms such as Integrated Water Resources Management may be very useful in drawing the attention to certain important aspects of water management. In the case of IWRM, this is the need to link social, environmental and economic aspects of water management with participation and good governance. The Central Asian Region definitely has plenty of challenges in all of these aspects and looking at those together, with the aim of balancing those aspects out is definitely important. However, for many of the challenges related to this puzzle, we must extend still our views and recognize that water is a subordinate to very many issues and

new paths should be detected and chosen at the entire macroeconomic level of the region and the politics—ignored in the IWRM concept—is a crucial part of the puzzle.

4 This book

This book includes 11 articles that scrutinize the economic, environmental, social and governance challenges of Central Asia; the region that is not limited to Aral Sea basin but encompasses Uzbekistan, Tajikistan, Kyrgyz Republic, Kazakhstan, Turkmenistan and northern Afghanistan. The book consists of two parts. The first one, consisting of three chapters, provides an introduction to the problemacy and institutions. Those chapters are being authored by the three partners of this book, Helsinki University of Technology, Global Water Partnership and The Interstate Commission for Water Coordination of Central Asia. Due to their role as setting up the context to the book, these chapters were not subjected to a peer-review process, unlike the ones that follow.

The second part of the book includes eight research articles. The first of them presents a regional institutional analysis of water management in Central Asia. Two subsequent chapters analyze the Central Asian Water challenges from the direction of Afghanistan. Then three articles centered on Uzbekistan follow. They are followed by two analyses of the Chu Talas Basin which is shared by Kyrgyz Republic and Kazakhstan.

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Endnote:

1. The 2008 CPI scores 180 countries on a scale from zero (highly corrupt) to ten (highly clean).

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