Short Communication

Water Management and Development Assistance: Focused on Uzbekistan

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Abstract

This article deals with the management of water, its pollution, and with the consequences for development assistance in Central Asia. We argue that water is most affected by human activity in Uzbekistan out of all the countries of Central Asia, and we provide an overview of water management projects in this country. Data from international organizations that are concerned with development (FAO, OECD, World Bank etc.) show that the two main Uzbekistan's environmental problems still are a lack of water resources and the strong anthropogenic impact on water. The values of ODA+OOF received by Uzbekistan fluctuate around USD 200 million per year. A considerable proportion of this amount has been used for environmental development projects each year. The most significant projects are funded by the World Bank and the water project of the World Bank in Uzbekistan with highest funding was "Water Supply, Sanitation and Health Project" (1997 – 2008). Many other ODA donors work in Uzbekistan. Their project budgets are lower, however, the results of their activities are often of more importance for the affected localities.

Keywords: Water management; Central Asia; Uzbekistan; Official Development Assistance; seventh Millenium Development Goal.

INTRODUCTION

This article deals with water management and pollution, as well as the consequences for development assistance in Central Asia. Water is a component of the environment that in Central Asia is most affected by human activity. The article is especially aimed at Uzbekistan as the country in Central Asia whose water is in the most serious condition. Due to this fact, the study has become closely connected with several Millenium Development Goals (MDG, see below). It is connected with the seventh MDG named Ensure environmental sustainability, and with target 7.C: "To halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation" in particular. The main topic-relevant indicators of this target are:

- 7.5 Proportion of total water resources used¹
- 7.8 Proportion of population using an improved drinking water source²
- 7.9 Proportion of population using an improved sanitation facility

Subsequently, MDGs 1 (Eradicate extreme poverty

and hunger), 4 (Reduce child mortality) and 5 (Improve maternal health) and their indicators are (in the surroundings of Central Asia) also influenced by development activities aimed at the improvement of water.

In the first part of the article, we argue, on the basis of statistical data taken from the databases of international organizations, that water (one of the components of the environment) is the most affected by human activity in Uzbekistan of all the countries in Central Asia. In the second part, we provide an overview of water management projects in Uzbekistan and their significance for development.

Indication of water resources, management, and pollution

If we combine the values of available indicators from international organizations that are concerned with development (FAO, OECD, World Bank etc.) with measurement in particular localities, we find out that Uzbekistan is the country in Central Asia with the most intensive withdrawal of water and, simultaneously, with

¹ The total volume of groundwater and surface water withdrawn from their sources for human use (in the agricultural, municipal and industrial sectors), expressed as a percentage of the total actual renewable water resources (Millenium Development Goals Indicators, 2011)

² The percentage of the population who use any of the following types of water supply for drinking water: piped water into dwelling, plot or yard; public tap/standpipe; borehole/tube well; protected dug well; protected spring; rainwater collection and bottled water (if a secondary available source is also improved) (Millenium Development Goals Indicators, 2011).

Table 1: Indicators of the seventh Millenium Development Goal in Central Asia. Source: Millenium Development Goals Indicators (2011)

	Kyrgyzstan	Kazakhstan	Uzbekistan	Tajikistan	Turkmenistan
7.5 Proportion of total water resources used by population					
1995	43.7	29.5	115.2	74.3	96.2
2000	43.7	28.9	118.3	74.8	100.8
7.8 Proportion of population using an improved drinking water source					
1990		96	90		
1995	78	96	90	58	83
2000	82	96	89	60	83
2005	87	96	88	67	84
2008	90	95	87	70	
7.9 Proportion of population using an improved sanitation facility					
1990		96	84		98
1995	93	96	85	89	98
2000	93	97	91	90	98
2005	93	97	97	93	98
2008	93	97	100	94	98

Table 2: Ten main water indicators for Uzbekistan and Kyrgyzstan. Source: FAO (2011)

	Kyrgyzstan		Uzbekistan	
	Year	Latest value	Year	Latest value
Water resources: total internal renewable (10^9 m ³ /yr)	2009	48.95	2009	16.34
Water resources: total external renewable (natural) (10^9 m ³ /yr)	2009	0	2009	55.87
Water resources: total renewable per capita (actual) (m ³ /inhab/yr)	2009	4379.0	2009	1858.0
Total water withdrawal per capita (m ³ /inhab/yr)	2002	2015.0	2002	2358.0
Total freshwater withdrawal (primary and secondary) (10^9 m ³ /yr)	2000	10.08	2000	59.61
Irrigation potential (1000 ha)	2007	2247.0	2007	4915.0
Total agricultural water managed area (1000 ha)	1994	1077.0	1996	4223.0
Area equipped for irrigation drained (1000 ha)	1994	149.0	1994	2840.0
Percentage of total cultivated area drained (%)	1997	10.45	1997	58.68
Area salinized by irrigation (1000 ha)	1995	60.0	1994	2141.0

the most intensive input of anthropogenic substances into the hydrosphere. An indicator standing for pollution is Total dissolved solids³ in water. Generally, the countries of Central Asia are at the world's forefront: Uzbekistan is 1st, Turkmenistan is 8th and Kazakhstan is 15th (NationMaster.com, 2008)⁴. Nevertheless, it is remarkable that Uzbekistan's value of ecological footprint is lower than that of Kazakhstan and that of Turkeminstan (Kment and Krepl, 2010). This is because their ecological footprint values have increased due to the extraction of fossil fuels. Generally, the strategic resources are the reason why Central Asia has become even more important for the main global players. Besides the "traditional" players such as Russia and USA, China is still rising in importance (Horák, 2009).

Uzbekistan has been using, for a long time, the highest percentage of the Total actual renewable water resources⁵, the value having exceeded 100% since the beginning of measurement (Table 1). On the contrary, the lowest values of this indicator are shown by Kazakhstan and Kyrgyzstan. However, Kazakhstan uses the lowest percentage of its water resources due to having the largest territory of all the countries of Central Asia: its area is 2 724 900 km², of which land is 2 699 700 km², and surface water 25 200 km² (World Factbook, 2011). That is why Kyrgyzstan is more suitable for a comparison with Uzbekistan (Table 2). Compared to Uzbekistan, smaller Kyrgyzstan has more total internal renewable water resources (absolute as well as per capita), and a much smaller salinized area by irrigation.

³ Total dissolved solids (often abbreviated TDS) is an expression for the combined content of all inorganic and organic substances contained in a liquid which are present in a molecular, ionized or micro-granular (colloidal sol) suspended form. Generally the operational definition is that the solids must be small enough to survive filtration through a sieve size of two micrometres (NationMaster.com, 2008).

⁴ However, other pollution indicators can be found: e.g. Kyrgyzstan is at the forefront in water pollution caused by industry, especially food-processing - 7th rank out of 114 countries (NationMaster.com, 2008).

⁵ The sum of the internal renewable water resources and natural incoming flow originating outside the country, taking into account the quantity of flow reserved to upstream and downstream countries through formal or informal agreements (OECD, 2012).

This fact made Uzbekistan's two main environmental problems evident – lack of water resources and the strong anthropogenic impact on water.

Water management and its role in development

Table 3 contains data on the amounts of Official Development Assistance (ODA) and Other Official Flows⁶ (OOF) received by this study's country of interest – Uzbekistan. The amounts mentioned are official only, the private flows, such as remittances are not included (DeHaas, 2008; Stojanov and Novosák, 2008). The table shows data for all the available years monitored by the OECD. The values ODA+OOF received by Uzbekistan fluctuate around USD 200 million per year. A considerable percentage of this amount has been used for environmental development projects each year.

Table 3: Uzbekistan as a recipient of official development assistance. Data in USD million (current prices). The table contains disbursements only. Source: OECD (2011)

Year	ODA	OOF	ODA + OOF
2002	164,2054	30,6047	194,8101
2003	169,769	17,0297	186,7987
2004	209,8579	24,9949	234,8528
2005	155,2409	24,7964	180,0373
2006	149,8521	32,3241	182,1762
2007	111,8054	42,0998	153,9052
2008	182,2749	41,3023	223,5772
2009	171,0191	70,2854	241,3045

Generally, the origin of environmental problems in Central Asia can be found in the Soviet as well as post-Soviet era. Encroachments in the landscape have taken place since the interwar period (Kokaisl a Pargač, 2007). In the ideal case, a development project aimed at pollution removal should be carried out in a country that causes high environmental impacts (according to particular indicators) and whose society and culture simultaneously contain pro-environmental elements (Kment and Krepl, 2010). Such a project would be of high feasibility as well as necessity. However, the development practice teaches us that it is always necessary to find a compromise attitude to project's feasibility and necessity. The environmental projects in Uzbekistan as well as in other countries of Central Asia are generally characterized by high necessity and low feasibility.

Special projects are those that are carried out in regions that struggle with psychosocial impacts. Their necessity is high as well as the willingness of the population to

co-operate. However, their feasibility is lowered by technological demandingness of pollution removal, and, therefore, by high budgets. The Uzbekistan region affected by psychosocial impacts on the population is in the vicinity of the former Aral Sea (mainly the autonomous republic of Karakalpakstan and Khorezm Oblast). The primary cause of the pollution, dated from the 1960s, is water contamination with pesticides from agriculture.

The exposure of humans to a heavily polluted environment (water, land and atmosphere) may have an impact not only on physiological health (diseases) but also on the psychosocial health of individuals (Crighton et al., 2003). The basis of psychosocial impacts on the society gives rise to the theory of environmental stress. This stress has been defined (Baum et al., 1982) as "a process by which environmental events or forces, called stressors, threaten an organism's existence and well-being and by which the organism responds to this threat." The reaction to this stress comprises symptoms such as fear, emotional distress, anger and others. These symptoms subsequently cause new social phenomena, migration in particular. Those migrants are called environmental refugees (Small et al., 2001). This process was described in Karakalpakstan by Crighton et al. (2003). Projects aimed at the improvement of water in Karakalpakstan thus subsequently aim to eradicate poverty and hunger, to reduce child mortality and to improve maternal health (MDGs 1, 4, and 5) as well.

Development projects aimed at environmental protection or pollution removal in Central Asia are generally preferred by various ODA donors, and this is in accordance with the main development problem of this region. Kment et al. (2011) showed with the example of the Czech Republic as the donor country that projects which deal with the improvement of the environment account for a considerable part of the Czech Republic's ODA in Central Asia. Central Asia is a region where water-related projects play a significant role in the environmental sector. The development projects that deal with the water management⁷ are carried out by particular ODA donors and by international organizations. The most significant projects are funded by the World Bank. Table 4 contains details of the World Bank's projects in Uzbekistan.

The most expensive World Bank water project in Uzbekistan was "*Water Supply, Sanitation and Health Project*." The approval date of the project was August 21, 1997 and closing date JUN 30, 2008. Total Project Cost was USD 117 million, while the commitment amount was USD 75 million. The total project cost included funding from the World Bank and non-bank sources. The project objectives was to provide safe drinking water along with improved

⁶ The OOF are transactions by the official sector which do not meet the conditions for eligibility as ODA.

⁷ For the purposes of this article, all the projects named in official nomenclature such as Water Resource management, Water Supply, Irrigation and drainage, Pollution removal, etc. belong here.

Table 4: Uzbekistan's water projects approved by the World Bank. Source: World Bank (2011)

Project Title	Commitment Amount (USD million)	Status (Dec 2011)	Approval Date
Ferghana Valley Water Resources Management Phase-I Project	65.54	Active	Sep 24, 2009
Rural Enterprise Support Project Phase II	67.96	Active	Jun 12, 2008
Drainage, Irrigation & Wetlands Improvement Project - Phase I	60.0	Active	Jun 19, 2003
Bukhara & Samarkand Water Supply Project	40.0	Closed	Mar19, 2002
Rural Enterprise Support Project	36.14	Closed	Dec 20, 2001
Water Supply, Sanitation and Health Project	75.0	Closed	Aug 21, 1997
Pilot Water Supply Project	5.0	Closed	Sep 12, 1996
Cotton Sub-Sector Improvement Project	66.0	Closed	May 25, 1995

hygiene education and sanitation facilities for the Republic of Karakalpakstan and Khorezm Oblast in Uzbekistan, reducing water-borne diseases, particularly diarrheal diseases among children; and to strengthen the institutional capacity of the regional water supply and sanitation utilities, and the regional health centres and sanitary epidemiology stations (World Bank, 2011).

However, many ODA donors (OECD members) work in Uzbekistan. Their project budgets are lower, although the results of their activities are often of high importance for affected localities. The Czech Republic's environmental development project that dealt with water and its pollution in Uzbekistan was "Improvement of the quality of drinking and irrigation water in the Aral Sea region with cleaning equipment and sorbents produced in the Czech Republic" (2004 – 2009, undertaken by the Czech University of Life Sciences Prague - Institute of Tropics and Subtropics).

CONCLUSIONS

This article deals with water management, and with its significance for development assistance in Central Asia. The study is especially aimed at Uzbekistan whose water is in the most serious condition. Statistical data from several international organizations as well as individual environmental development projects in particular localities show that Uzbekistan is the country (compared to the other countries in Central Asia) with the most intensive withdrawal of water and, simultaneously, with the most intensive input of anthropogenic substances into the hydrosphere. The structure of the mentioned data reveals Uzbekistan's two main water-related environmental problems – the lack of water resources and the strong anthropogenic impact on water.

Development projects that deal with the water management are, in Central Asia, realized by particular ODA donors and by international organizations. The most significant projects are funded by the World Bank. The World Bank's water project

in Uzbekistan with the highest funding was "Water Supply, Sanitation and Health Project (1997–2008). However, many ODA donors (OECD members) work in Uzbekistan. Their project budgets are lower, although the results of their activities are often of high importance for the affected localities.

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