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Central Asia's waters: a wicked problem

The place and the past[1]

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SUMMARY

The region of Central Asia has a long history with various empires and civilizations, some of the more well-known being the Scythians, Huns, Jenghiz Khan and the Mongols (2). The region is also known for being part of the historical silk road and its geopolitical significance as it shares its borders with China, Russia, Afghanistan, and Iran (4,6). Central Asia's large reservoirs of natural resources shapes its socio-economic and political fabric, particularly its water resources (1,6). This article focuses on the region's water management under the former Soviet Union.

Keywords : Central Asia,Water shortage,

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Introduction

Location and physical characteristics

The five Central Asian countries, namely, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan, were the southern part of the former Soviet Union and made up 7.3% of it. There are areas in the region that are arid: lowland deserts. Almost 90% of Central Asia's water resources are concentrated in the mountains of Tajikistan and Kyrgyzstan (4,7). The region's two main rivers, the Syr Darya and the Amu Darya originate from the Pamir (Tajikistan) and Tien Shan (Kyrgyzstan) mountain ranges due to the permanent snowfields and glaciers. The Syr Darya flows from Kyrgyzstan downstream to Uzbekistan, Tajikistan, and Kazakhstan draining into the Aral Sea. The Amu Darya River Basin includes Tajikistan, Afghanistan, Uzbekistan, Kyrgyzstan and Turkmenistan. However, Afghanistan is currently not considered in the water disputes of Central Asia as it does not use the entirety of its allotted quota (based on an agreement with the former Soviet Union) and because, politically, it is often considered as an Asian country rather than a Eurasian country (Eastern and Central Asia) (5; 3).

The Central Asian region is not only rich in water resources, but has large reservoirs of natural gas, oil, coal, arable land, gold, copper, tungsten, lead, and antimony. About 40% of the region's water resources are concentrated in Kyrgyzstan (Karaev, 2005). However, the downstream countries of Kazakhstan, Uzbekistan and Turkmenistan are agricultural economies growing water intensive crops like cotton, rice, and wheat while upstream Kyrgyzstan and Tajikistan focus on hydropower generation and farming. This leads to a conflict regarding the control of the water resources in the post-Soviet era (3). So how did the water management system work during the Soviet Era?

Soviet Era Water Management

The Central Asian region was annexed by USSR in the early 1920s which led to restructuring of the social and economic structures of the region as well as the environment (4). Prior to the Soviet Era, the main activity was herding livestock with agriculture confined to small areas around water bodies such as oases and water courses. The Soviet Union brought large scale agriculture to Central Asia (1).

The southern region of the former Soviet Union has the most favourable temperatures and soil type for agriculture, however, it ranges from semi-arid to arid. Therefore, irrigation was used to develop the region. Irrigation was the largest consumer of water. Irrigated agriculture, particularly cotton was extremely important for the regional and national economy during this period as the USSR was the third largest producer of cotton with 90% of it coming from the Central Asia region. All of the Soviet Union's cotton was irrigated. Irrigated land was also used to produce fruits, vegetables, and rice (7).

The push towards increasing irrigated land and being one of the biggest cotton producers in the world led Moscow to spend billions of roubles on building an irrigation network of canals and reservoirs. Water was managed centrally in Moscow with

quotas set by the Ministry of Land Reclamation and Water Management in collaboration with the Ministry of Energy. These quotas favoured the downstream cotton producing countries, namely, Uzbekistan, Turkmenistan and Kazakhstan while restrictions were imposed on irrigated agriculture in the mountainous countries, Tajikistan and Kyrgyzstan to help maximise the cotton output of the downstream countries (3).

Since Kyrgyzstan and Tajikistan have limited coal and gas reserves, they were looking to develop their hydropower potential. However, this would have conflicted with the requirement for water downstream for irrigation. Thus, USSR established a barter system where Kyrgyzstan and Tajikistan received gas, coal and mazut from the downstream countries to satisfy domestic energy consumption during the winter months. In return, the downstream countries received water during spring and summer as well as energy to power irrigation pumps in the summer. The operation and maintenance costs of the irrigation network was covered by Moscow (ICG, 2002). Large reservoirs were built upstream purely for cotton production downstream while a number of hydropower plants were also built. The power grid in the region was untied into a single network (Karaev, 2005). Water conflicts during this period were also handled centrally by Moscow (3).

Passing down of the Soviet legacy

The extensive and centrally managed Soviet water system has passed down a number of legacies to the post-Soviet era states of Central Asia. This includes the irrigation network and the Aral Sea disaster. The post-Soviet era water management and related impacts will be further discussed in the next article.

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