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WATER TRANSFER PROJECT FROM TAJIKISTAN TO IRAN AND IRANIAN OIL AND GAS FROM IRAN TO TAJIKISTAN

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1 Project Overview

The effect of the global climate change in the Middle East requires innovative approaches to integrated water management that can add value to international trade of water, oil, and gas. However, hydro-political issues may impede international trade in this business and even stop much needed projects for the economic development of the region.

This case study discusses a water transfer project from Tajikistan to Iran in exchange for a transfer project of Iranian oil and gas from Iran to Tajikistan. The initial cost of the project is estimated at about 6 Billion US dollar to build a 600 km pipeline to supply water, oil, and gas. The construction of the project is estimated to take four years. Although Tajikistan and Iran have agreed to initiate the project, other countries in the Aral Sea basin did not support this project. The two main problems are the political aspects around geographical conditions of the countries around the Aral Sea basin and the business model of the international water trading. Geographically, the Aral Sea basin covers an extensive area of Central Asia, Tajikistan, Turkmenistan, Uzbekistan, Kyrgyzstan, Kazakhstan, Afghanistan, and Iran. Perlman, Veilleux, Zentner, and Wolf (2012) argue that there is a substantial risk to water security and a conflict between all basin users, since the countries have been developing initiatives for agriculture and industry. However, Iran prepared a business model for water trading as well as oil and gas trading. The main idea put forward in this case study is that in addition to assessing hydro-political vulnerability and resilience in the basin we also need to analyze the mutual benefits of trading water in exchange of oil and gas.

The Aral Sea basin is 1.76 million Km², the river basin covers portions of seven countries (Figure 1). The river emanates in Tajikistan and forms the borders of Tajikistan and Afghanistan, Uzbekistan and Afghanistan, Turkmenistan and Uzbekistan (FAO, 2013). According to a report by the Food and Agriculture Organization of the United Nation's (FAO), the total mean annual flow of all rivers in the Aral Sea basin is estimated at 118.43 km³. Water-related developments in the basin includes:

- Out of 600,000 Km² (50 percent of area in basin) are considered cultivable, excluding areas in Afghanistan and Iran (FAO, 2013).
- More than 80 water reservoirs were constructed in the Aral Sea basin, each with a capacity of more than 10 million m³. In order to modify natural river flow patterns to those needed for water supply, two reservoir types were constructed either on rivers (off-stream and river-channel reservoirs) or on main canals (compensation reservoirs) (CAWaterInfo, 2011).

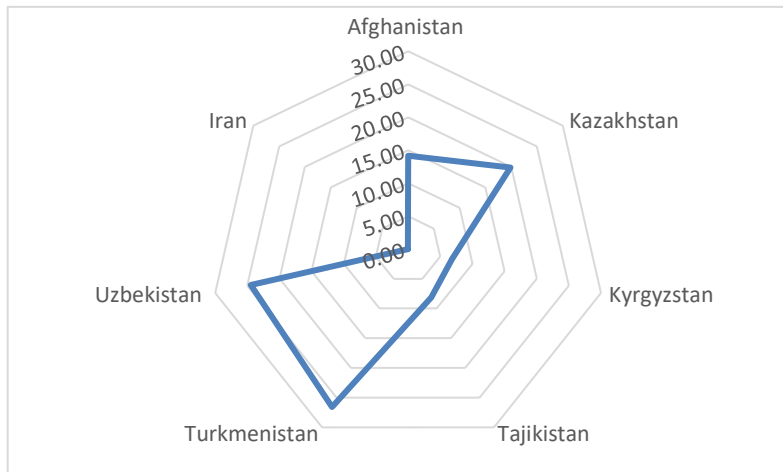


Figure 1: The Percentage of the Countries' Areas in the Aral Sea Basin (Source: FAO Water Report 39, 2013)

Iran is a Middle Eastern country that is particularly vulnerable to climate-induced impacts on water resources. In 2009, FAO reported that the average rainfall over Iran amounts to 376 km³/year, of which 66% evaporates back to atmosphere. The total long-term total renewable water resources of Iran are estimated at 137.5 km³, of which about 9 km³/year are from external sources. Iran receives 6.7 km³/year of surface water from Afghanistan through the Helmand River. The flow of the Araks River, at the border with Azerbaijan, is estimated at 4.63 km³/year. The surface runoff to the sea and to other countries is estimated at 55.9 km³/year, of which 7.5 km³/year flows to Azerbaijan (Araks River), and 10 km³/year from effluents of the Tigris to Iraq. About 24.7 km³/year flows from the Karun River into Iraq, but since this is just before it discharges into the sea, it does not count as inflow into Iraq. (FAO Water Report 34,2009). For this reason, Iranian government decided to consider new sources of water supply (transfer of water from Tajikistan to Iran) for the Kara-Kum basin in northeast Iran (Sarakhs River), which is part of the Aral Sea basin.

The Aral Sea basin has high potential for tensions around water and can be classified under two categories: "Hydropolitical resilience" and "hydropolitical vulnerability." When the presidents of Iran and Tajikistan decided to build water/oil/gas pipeline projects, other countries with shared water resources in Aral Sea Basin challenged the projects. Indeed, several hydropolitic factors were analyzed using dynamic models which include the impact of water security on the project. Perlman (2012) states that "Hydropolitical resilience, then, is defined as the complex human-environmental system's ability to adapt to permutations and change within these systems, while "hydropolitical vulnerability" is defined by the risk of political dispute over shared water systems" (p.5). Figure 2 shows the relationships between the characteristics of resilience (international agreement and higher levels of economic development) and vulnerability (major bilateral development projects, the potential for "internationalization" of a basin, and generally hostile relations). The water pipeline project demonstrates the high-risk of water security in Aral Sea basin. Therefore, the collaboration and cooperation between countries are essential to ensure future water security stability.

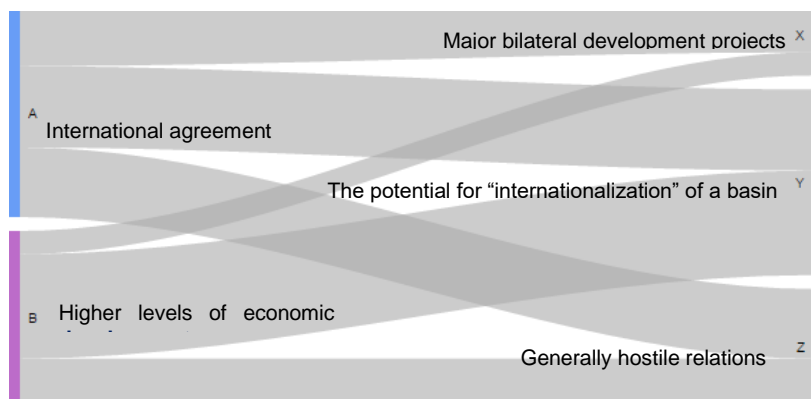


Figure 2: The Relationships Between the Characteristics resilience and vulnerability

Innovation

The agreement between Iran and Tajikistan contains a trade of water, oil, and natural gas, whereas they have a significant problem with regard to the prices of these traded goods. In the last decade, the majority of the international water trading are based on a contract with limited times and prices. In this project, the countries initiated a new type of trade which is mutually beneficial by trading water for oil and gas.

1.1 Lessons Learned

The agreement between Iran and Tajikistan is a sample of mutually beneficial trade. On the one hand, Iran needs water; on the other hand, Tajikistan needs oil and natural gas. As a result, the aim of the project is around collaboration and cooperation not only between Iran and Tajikistan but also all countries in Aral Sea basin with priority given to water security. The perspective put forward by this case study emphasizes a dynamic business model with priority to reduce the potential conflict and violence through hydropolitics. The point lies in that there is a value for water as well as oil and gas.

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