

Geopolitical Challenges of Transboundary Ground Water Resources Governance; With Emphasis on Iran

Mohammad Fereshtehpour* - Ph.D Student of Water Resources Engineering, University of Tehran, Tehran, Iran

Bardia Roghani - Ph.D Student of Environmental Engineering, University of Tehran, Tehran, Iran

Hojjat Mianabadi- Ph.D Student of Hydropolitics and Water Diplomacy, Delft University, Delft, The Netherlands

Received: 22/04/2015

Accepted: 18/09/2015

Extended Abstract

Interodaction

From the past half-century, groundwater has become a vital source to supply water demand so that it accounts for 31 percent of the world's fresh water. The aquifers are ideal resources for local users, creating easy access and optimized storage. Due to increasing demand and competition over shared water resources, governance of these critical resources has changed from a local issue into a national and international challenge. Due to increasing dependency on groundwater, new challenges and problems about ownership, use, access, protection and development of these resources occurs, particularly when they cross political borders. In a continuous study, 592 international aquifers has identified that most of them belong to the continents of Europe and Asia. In some areas such as the Middle East, transboundary aquifers play a key role in providing irrigation and drinking water. So far, in comparison to surface water, there have been very little studies on international shared ground water governance in the world and especially in our country as well.

Methodology

In this study, the role of ground water in food and water security will be discussed. Then, given the importance of transboundary aquifers, legal challenges of governance of these resources are studied. Specifically, these challenges are investigated in the Middle East. Furthermore, the problems that Iran faces in utilization of northeastern and northwestern shared aquifers are explained. Finally, some guidelines are suggested for the management of transboundary aquifers. In this paper, the descriptive-analytic method is used for the analysis of the challenges facing transboundary aquifers beneficiaries, according to the quantity of resources and uses of groundwater. The data used in this study, is taken from the documentary, including books, magazines and domestic and foreign issues, statistical raw data, Internet search and documents related to the research.

Result and Discussion

Iran has 11 shared aquifers with the North Western and North Eastern neighbors. Due to the

* E-mail: Mfereshtehpour@ut.ac.ir

rapid development of water resources in the Afghanistan at the upstream position, drinking water supplies in north-eastern Iran would face a crisis. In addition, the lack of monitoring of shared and non-shared groundwater withdrawals have made most plains in Khorasan Razavi province. Therefore, with a comprehensive view, and using the experience of successful water cooperation between Iran and Turkmenistan, the more resilient governance and sustainable management are necessary over exploitation of shared groundwater in this area.

In the West and North West of Iran, the Tigris and Euphrates as strategically important rivers caused the riparian countries focuses more on surface water rather than groundwater resources. This led to no Transboundary aquifer system agreements and joint cooperation between riparian countries. Unilateral policies of Turkey which aims to develop water resources such as the "GAP" program and insecurity issues and mismanagement in Iraq as well as some Iranian plans over territorial waters have been drying wetlands and lakes in the Iraq. It has not only caused destructive dust storms, it has also resulted in the increasing groundwater withdrawal in Iraq, in which will cause serious crisis in the region in the near future. According to the fact that geopolitical significance of this area is tied to national security of neighbor countries, negotiation and cooperation over transboundary groundwater resources is essential. The interaction of surface water and groundwater in the Taurus/Zagros mountain belt requires that any cooperation should be based on the sustainable development and conjunctive use of these resources. Aquifers must be directly raised in all stages of negotiations.

Conclusion

Results of this study show that the current crisis will be turned into opportunities only through the establishment of appropriate management and governance structures. Applying strategic and realistic planning based on international cooperation with respect to region capacities is also necessary. Transboundary aquifer governance needs to create an integrated and consistent knowledge base as a prerequisite, based on detailed knowledge of the shared aquifer. This recognition will not be possible, without cooperation over establishment of institutional system and groundwater hydrogeological information, such as the extent of the aquifer, its relationship with other aquifers, aquifer recharges and discharge and pollution sources. The lack of agreements and international treaties over shared groundwater resources between Iran and its riparian countries indicates that their interests are based on their national security issues. The results show that these countries seriously need a cooperative approach based on human security in the context of shared groundwater.

Keywords: Groundwater, International Shared Aquifers, Hydropolitics, Water Crisis, Iran.