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### Challenges resulting from non-compliance with Hirmand's right to water

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Article Info	Abstract
<b>Article type:</b> Research Article	With the ongoing decline in available water resources, the number and intensity of water disputes between countries sharing common watersheds have increased. In the arid and semi-arid regions of eastern and southeastern Iran, the primary challenge in these disputes is the allocation of water. Environmental crises in these areas are characterized by rapid and largely irreversible changes in environmental quality. Based on this context, the aim of the current research is to investigate and analyze the consequences of not respecting the right to water in the Hirmand River Basin. This research was conducted using a descriptive-analytical approach and is based on data gathered from library sources. By disregarding Iran's legal right to water as established by the 1972 Hirmand Treaty and reducing the flow from 70 m <sup>3</sup> /s to less than 5 m <sup>3</sup> /s, Afghanistan has not only heightened tensions but also triggered several crises. These include the drying up of wetlands, an increase in fine dust, and a decline in food security for residents in the southern regions. The water scarcity has caused significant job losses for farmers, leading to the migration of more than 50,000 Sistani people, while the unemployment rate in the region has surged to 43%.
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#### Introduction

The source of most environmental crises can be seen in the maximum exploitation of resources, without considering the needs of nature and its capacities (Heydari, 2017). Today, such crises have become a serious challenge, which can generally be considered as a result of unreasonable human intervention in nature (Amini et al, 2021), which, in addition to the dangers to humans, has had unfortunate consequences for earth. Iran has an arid and semi-arid climate, and its environmental crises often occur due to lack of water, transboundary

waters and the related security challenges causing environmental issues. Resolving disputes and reaching agreements on transboundary waters have always been challenging, making it difficult to achieve mutually agreed solutions (Atatat et al., 2017). The growing shortage of water and shared governmental interests in international waters, such as transboundary rivers, have elevated water to a crucial role in international politics (Grgich & Khazaei, 2018). To date, over 300 treaties have been concluded between various countries to address water-related issues, and water

clauses are present in more than 2,000 international treaties (Kaviani Rad, 2022; Kaviani-Rad et al., 2019). As a result, water has become a vital resource and is increasingly regarded as a substitute for oil in global security and legal frameworks (Mousizadeh & Abbaszadeh, 2015). Governance and decision-making related to water use have significantly influenced political relations between countries, particularly in terms of how upstream nations behave toward downstream nations in exploiting this essential resource (Mousavi et al., 2019).

One of the key sources of tension and conflict in hydropolitical relations between Iran and Afghanistan is the non-compliance with Iran's right to water from the Hirmand River. This issue has had significant political, economic, and environmental repercussions. Various talks, negotiations, and treaties have been held regarding the legal status of the Hirmand River (Simbar, 2008). The most recent treaty, signed in 1972, remains a focal point, with both parties emphasizing the need for its implementation (Taylor, 2009). However, with the establishment of the new Taliban government, divergent views have emerged regarding Hirmand's water rights, and reduced water flow toward the Hamoon wetlands has contributed to the near-complete drying of Iran's largest freshwater lake. This has triggered severe environmental consequences in southeastern Iran (Sarour, 2019). The crisis has had a profound impact on the livelihoods and well-being of the region's residents in recent years. This research, therefore, aims to investigate the consequences and crises stemming from Afghanistan's non-compliance with Iran's rights to the Hirmand River.

### Area of study

Hirmand River is considered as the most important and longest river in the east of Iran, which flows in Afghanistan and has a length of 1100 km, and its estuary is located in Sistan. This river originates from Sulaiman and Baba Yaghma mountains, in the Hindu Kush mountain range, in the northwest of Kabul, and reaches Sistan in

the Kohak area (Motaghi and Sadeghi, 2013). After Arghandab River joins Hirmand, the river enters the Margo Plain and after crossing it near Iran border, it changes direction to the north and enters into the Hamoon Lake. Hirmand watershed covers 14 provinces of Afghanistan and a part of two provinces of Sistan and Baluchistan and South Khorasan (Ahmadian-Shalchi, 2010). Hirmand River, as the vital vein of Hamoon Lake, has caused many border disputes since the separation of Herat (Afghanistan) from Iran in the form of the Treaty of Paris (1857) (Pahlavan and Karimi Menesh, 2021). After entering the river in Iran, this river divides into two branches, the Sistan River and the common Parian River, in "Jarikeh" in the general area of Kohak, within a distance of one kilometer (Jaafari Voldani, 2018). The Sistan River enters the territory of Iran and flows into Hamoon Hirmand and Hamoon Sabri. On this river, two diversion dams have been built: Kohak at the top and Zahak at the bottom, and part of the remaining Sistan river after the Zahak dam enters Hamoon Hirmand and the other part enters the Hamoon Sabri. The 55 km long Parian River forms the border between Iran and Afghanistan, which flows from south to north and ends in Hamoon Pozak in Afghanistan (Hizbavi Khaled et al, 2022). The catchment area of the Hirmand River causes its water flow to be high at the beginning of entering the plain in Afghanistan, and half of it is used and controlled by the Arghandab and Kajaki dams in Afghanistan before reaching the common border of the two countries (Rashidi, 2021). From the geohydrological point of view, the water of the Hirmand River is mostly supplied by the melting of the snows in the Hindu Kush highlands, whose regime is snowy-rainy and permanent. The water flow of this river is irregular, and a large part of its water reaches Sistan between the months of March to June, which usually increases from December, and decreases from April to June, and reaches the minimum in September (Qureshi et al, 2021 & Awrideh et al, 2015). The average annual rainfall in

the Hirmand watershed varies from 50 mm in the south and west to 300 mm in the north and east of the basin. According to meteorological statistics of Zabol; From 1966 to 2015, the average annual precipitation of this station has been was mm, the average annual evaporation was 2056 mm, and the summer temperature of

the region reached more than 50 degrees (Atatat et al, 2017). That is, in terms of climate, this river originates from a region with a semi-humid climate in the northwest of Afghanistan and ends in a hot and dry climate region in the eastern half of Iran.

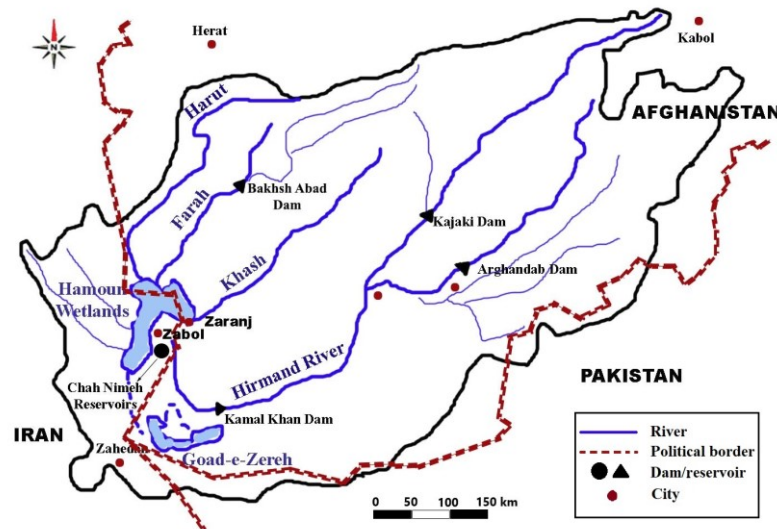


Figure 1. The Helmand River Basin (Grgich and Khazaei, 2018)

### Research method

In terms of purpose and quality, the current research is an applied research, and with a descriptive-analytical method, it examines the environmental crises of the Hirmand watershed caused by Afghanistan's non-compliance with the right to water. The method of collecting data and information is in the form of slip writing and using library resources, including scientific articles and books.

### Results and discussion

Every environment faces disturbances and risks from a series of adverse events known as crises. These crises, which occur at various scales, have widespread and profound effects. On one hand, they create challenges and disruptions in people's lives, and on the other hand, they drive change and transformation (Kaviani Rad, 2022). Environmental crises do not adhere to political boundaries and often require cross-border solutions. While some crises may have local or regional origins, addressing

them frequently requires local initiatives and international cooperation based on shared global responsibility.

### Hydropolitical situation of Hirmand Basin

According to the principle of absolute territorial sovereignty, parts of international rivers that pass through the territory of both countries are considered internal waters, and the said governments can change the flow of water (Kaviani-Rad and Sadrnia, 2019). According to this doctrine, countries have unlimited sovereignty over that part of a river that flows in their territory (Pahlavan and Karimi Menesh, 2021). This principle creates differences and tension in relations between governments; as it is against the fair and just principles and rights, and some jurists criticize and reject it (Jaafari Voldani, 2018). The principles and regulations of international law deny the right of a country to change the natural state of its territory to the detriment of another country. According to the principles of international law, no country should stop or

divert the natural flow of river water that flows naturally from its territory to the territory of another country, and it should not use them in a way that harms or hinders the neighboring country (Hizbavi Khaled et al, 2022). According to the principle of absolute sovereignty of land or absolute sovereignty of rivers, coastal countries must allow the natural flow of river water to continue and have no right to change the river water in any way (Rashidi, 2021). According to the principle of common ownership and sharing of the waters of an international river by the respective countries, neighboring countries of an international river have joint sovereignty over that river. In other words, all the mentioned countries can use the river water equally. According to the above principle, the international river is considered as an economic unit, the borders between countries and its waters belong to all coastal countries (Qureshi, 2021) and based on the principle of limited territorial sovereignty or limited territorial integrity or the principle of fair exploitation, the sovereignty of each riparian country is limited to not causing damage to the other riparian country [31]. For example, Oppenheim believes that "changing the flow of common waters under the authority of one of the neighboring countries is not allowed, and no government can change the natural state of its territory in a way that it causes damage to the beneficiary countries" (Pahlavan and Karimi Menesh, 2021). Hyde believes that "the diversion of an international stream for any purpose, including sanitation, irrigation, hydroelectricity, etc., which is considered to interfere with the bed and affairs of the river and causes harm to the downstream country, is not acceptable (Jaafari Voldani, 2018). Foshill states that "no riparian country can change the entrance of a river to the territory of another riparian country without the consent of that country." This is equivalent to changing the land of that country" (Hizbavi Khaled et al, 2022). We can also refer to Lattorpacht's opinion where he agrees with the previous opinion, although he emphasizes the sovereignty rights of any country in the river basin

within its territory, but any action taken by these countries that causes losses to the government is forbidden. In other words, he forbids countries to build another beach (Rashidi, 2021). In upstream countries of transboundary river basins, water is often viewed as a tool of power, with actors competing to advance their goals and interests. Afghanistan, as the upstream country in the Hirmand River basin, has leveraged its hydropolitical advantage against Iran to enhance its development and territorial integrity. This hydro-hegemonic position has allowed Afghanistan to use the river's water for economic, political, and social purposes. Meanwhile, Iran, which depends on Afghanistan for 96% of the water in the downstream portion of the basin for drinking, agriculture, and environmental needs, faces significant challenges due to this dependency (Qureshi, 2021). The reduction in Iran's share of water from the Hirmand has exacerbated these problems, leading to heightened tensions between the two countries and causing severe economic and social damage. This conflict has even impacted regional security, as Afghanistan's disregard for bilateral agreements, reduced water flow, and the construction of large dams, such as Kamal Khan and Kajaki, have worsened drought conditions (Pahlavan & Karimi Menesh, 2021).

The completion of the Kamal Khan Dam on the Hirmand River and its operation beginning in April 2021, coupled with statements from Afghanistan's president about exchanging Hirmand water for Iranian oil, have further raised concerns. The water needs of Iran's South Khorasan and Sistan and Baluchestan provinces, as well as the survival of Lake Hamoon, are heavily dependent on the river's flow (Jaafari Voldani, 2018). With a storage capacity of 52 million cubic meters, the Kamal Khan Dam can irrigate up to 174,000 hectares of agricultural land, generate 9 megawatts of electricity, and divert water to the Gud Zare wetland in southwest Afghanistan. This project represents one of Afghanistan's most significant water management efforts. However, the dam's water withdrawals,

beginning in 2021, threaten to endanger 85% of the water needs in Iran's Sistan region, reducing the flow of water to wetlands and jeopardizing water and food

security (Hizbavi Khaled et al., 2022). The sharp decline in Hirmand River discharge is illustrated in Chart 1.

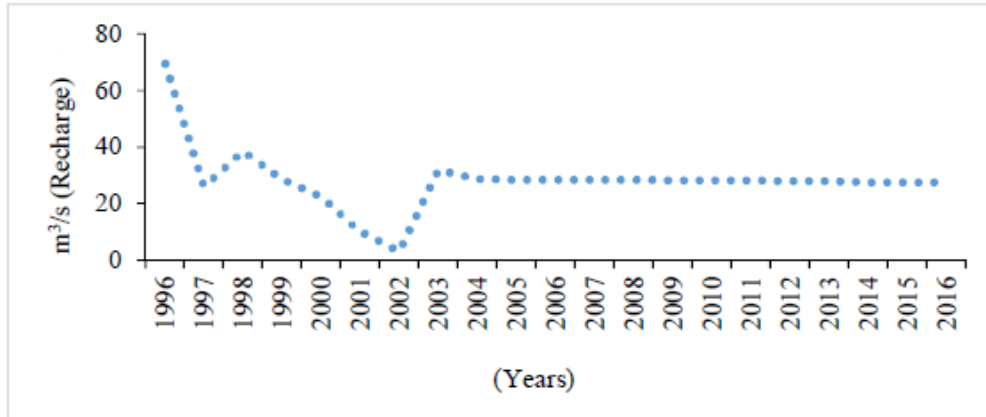


Figure 1. Recharge temporal changes(m3/s) over the years 1996-2016[40]

#### Crises caused by non-compliance with Hirmand's rights

Afghanistan's dam construction projects in the transboundary Hirmand river basin and its non-compliance with environmental rights have caused many environmental challenges and crises in the southeast of Iran. Therefore, management weaknesses and incorrect policies in the upstream of the basin, which is associated with Afghanistan's self-centered view of water management, has caused various environmental crises, including the particulate matters crisis, which is a product of water shortage in the southeast of the country. This issue has not been controlled and managed from a technical and environmental point of view. Based on this, the unilateralist actions of Afghanistan's government and following the principle of absolute territorial sovereignty in the field of management and governance of water resources in the common transboundary river basin of Hirmand, despite the many environmental threats and damages in the southeast of Iran, have led to many negative consequences in the field of the particulate dust phenomenon, aggravated by the declining trend in food supply and the migration of the residents of southeast Iran. With the decrease in the water flow of the Hirmand River, today we are facing economic and social challenges in this

region (Rashidi, 2021). By not respecting the legal rights of Iran according to the Hirmand Treaty of 1972, Afghanistan has not only increased the scope of international tensions, but due to the occurrence of such crises, it has reduced the food security factor of the residents of southeast Iran, as currently many farmers have lost their production due to lack of water with many other migrating to the central regions of the country (Qureshi, 2021). Here's the edited version of your text:

Over the last 10 years, drought in the region has led to the drying up of our lake and the loss of its reeds. This lake, which once supported over 90,000 head of cattle, was crucial to the livelihood of 80 villages surrounding it, where more than 24,000 head of cattle relied on the lake for 50% of their fodder. Additionally, over 1,350 families, including fishermen, hunters, and mat weavers, were directly dependent on the lake. These families hunted more than 470,000 birds, caught 15,000 tons of fish, and produced over 30 million square meters of mats made from the lake's reeds. Now, with the drying up of Hamoon Lake, all these functions have effectively disappeared from the region's economic cycle (Ebrahimzadeh, 2008; Piri & Ansari, 2012).

The failure to meet the environmental needs of the Hamoon International Wetlands has caused respiratory diseases,

posed threats to human security in the region, and brought significant harm to the basin's residents. It is essential to redefine how environmental water rights for the Hamoon International Wetlands are allocated from the Hirmand River and other rivers flowing into the wetlands, including the Khash and Farahroud rivers. Therefore, if the political, economic, social, and security conditions in Iran and Afghanistan permit, it is recommended that special attention be given to the allocation of environmental water needs for the international Hamoon wetlands. This should be addressed in a treaty independent of the 1972 Hirmand Treaty, which only covers water use for drinking and agricultural purposes.

### Conclusion

In the Hirmand transboundary river basin, the management and exploitation of water during the Taliban era has followed the same processes as those used by Ashraf Ghani's government. This continuity has intensified disputes and competition, exacerbating environmental crises due to non-compliance with Iran's water rights. Weaknesses in the management system have led to a competitive model that fosters

environmental threats in southeastern Iran. Despite numerous contracts and agreements, the Afghan government has treated the Hirmand River's water as part of its absolute territorial sovereignty, resulting in the violation of Iran's legal water rights. This has reduced the flow of water toward Hamoon Lake, negatively impacting the livelihoods of thousands in the Sistan region. Consequences include the spread of the microdust crisis and socio-economic challenges such as increased unemployment, migration, and other related issues. Afghanistan views water as a strategic tool, and it is expected that over time, the complexity of the basin's issues will grow, leading to heightened tension and conflict. Although Iran and Afghanistan have cooperated on water-sharing agreements, protocols, and treaties in the Hirmand basin, it is likely that future hydropolitical relations between the two countries will face increased tensions due to these unresolved complications. To prevent this, greater emphasis on water diplomacy is necessary. Strengthening diplomatic efforts in the basin can reduce tensions and foster cooperation and partnerships, helping to address and resolve the region's challenges.

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