

# Hydropolitics and Human Security: Water Cooperation in Relations between Iran, Afghanistan and Turkmenistan

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## Abstract

Countries adjacent to the Harirud (Hari River) basin (Iran, Afghanistan and Turkmenistan) suffer from water shortages and simultaneous increasing populations and expanding needs in the agricultural and industrial sectors. These rising problems have illuminated the inefficiency of myopic attitudes and plans which have been implemented in the past years in order to overcome the troubles arising from drought in regional countries. Under such circumstances, expansion of regional cooperation on water questions necessitates the avoiding of realist attitudes to security and water and attention to these two issues within the framework of human security. This framework can lead to the expansion of water cooperation in the Harirud basin countries based on mutual interest of the regional people and meeting their reasonable needs within the region. On this basis, this article emphasizes the necessity of change in traditional attitudes to the question of water and security to prevent the transformation of water shortage to a source of dispute and conflict among regional nations. It also offers solutions for the expansion of water cooperation among Iran, Afghanistan and Turkmenistan in the Harirud basin and overcoming problems arising from water shortage in the region.

**Keywords:** Hydropolitics, Security, Human Security, Iran, Afghanistan, Turkmenistan.

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### **Introduction**

Being located in an arid and semi-arid area, Iran, Afghanistan and Turkmenistan suffer from water shortages and have similar water needs. To meet these rising needs, regarded as a source for concern and insecurity for the region, requires a range of regional collaborations on common drainage basins. However, in spite of historical, cultural and geographical affinities, this type of collaboration has not been implemented at a suitable and efficient level. Continued concerns about meeting water needs, despite the implementation of tens of plans in the past, demonstrate the inefficiency of such plans and possibility of serious shortage in securing basic human needs in this region. If such a situation occurs, the region will be exposed to threats from the micro to macro levels. To avoid such a situation firstly requires the adoption of a comprehensive attitude to the category of security; an approach that has the capacity of including apparently inconsistent but indeed different and related levels of security. Human security - a general concept including several levels of security – is an appropriate attitude to water cooperation in the Harirud basin, which concerns Iran, Afghanistan and Turkmenistan. Adoption of such an attitude will provide the regional nations with new diverse solutions to the problems arising from drought. Furthermore, as far as Iran is concerned, adopting this attitude will help rectify the existing threat perceptions and security policies at least at the regional level (Lotfian, 2011: 175-207).

Considering how drought and water tensions are among the



geographical and natural traits of West and Central Asia, the main question of the article is related to what solutions and measures should be considered in order to counter a drought crisis in the Harirud basin and resultant problems in relations between Afghanistan, Iran and Turkmenistan. To answer this question, the hypothesis of this research is that cooperation on common drainage basins, including the Harirud, requires attention to a human security attitude and seeking solutions for collaboration within the framework of this new attitude. Data presented in this article has been collected from paper documents and electronic sources. It has then been analyzed with the descriptive-analytical method. The theoretical framework of the article is the change in the concept of security, formation of human security concept and relationship between water and security in the realist and humanist approaches. Subsequently, the discussion moves on to hydropolitics, tension and drought in Afghanistan, Iran and Turkmenistan as well as geopolitics and exploitation arrangements for the Harirud River as a common river. In the conclusion, solutions are offered for the expansion of water collaboration in the Harirud basin within the framework of the human security approach.

### **I. Security and Water: A Theoretical Outlook**

Water is an irreplaceable commodity. Hence, wherever water resources are scarce, access to limited resources is a problem. Under such circumstances, water inevitably turns into a political and security issue. Consequently, politics, security and water are interrelated, though what matters is not this very linkage, but the attitude governing it. In the realist approach to politics and security, water also constitutes a source of power and a bargaining chip in the struggle for power. The dominance of such an approach leads to the implementation of unilateralist plans, particularly in the exploitation of shared resources. In the human security approach, however, water is a vital category for the survival of humankind and its shortage will double the necessity of cooperation for



equitable, reasonable exploitation of water without any prejudice to others, particularly when it comes to shared resources. The human security approach, though might seem new, has historical roots. Water exploitation and distribution systems in the arid areas of the world, such as the Greater Khorasan region and Harirud basin in the framework of artificial irrigation networks, wells, qanats and canals - whose construction was made possible only through people's collaboration - were built in such a context.

Security and the search for it have been among the first needs and efforts of human beings. This fundamental need, which first emerged at the mental and individual level and then at the collective one, found a national character in the 17<sup>th</sup> century in the form of the Westphalia Congress and Treaty. Hence, national security became one of the main demands and goals of nation-states. With the creation of the nation-state, concepts such as national security, national interests and national power evolved. Yet, efforts made by states to attain them inevitably found an antagonistic and hostile nature since they were within a military framework where all the actors sought to maximize their interests. The reason is that national security, national interest and national power at the highest level are only secured when they provide the grounds for superiority and dominance of a country over other countries. In such an approach, international politics is a struggle for gaining and preserving power (Morgenthau, 1995: 3-26). In this way, efforts to secure national security resulted in insecurity at the regional and global levels.

Classic definitions of national security are replete with emphasis on military and political terms: absence of military threat, protection of the country against military attack, enhanced military strength, war and so on (Roshandel, 1994: 3-30). The spread of the concept of security to economic and cultural spheres in the framework of the Westphalian system and discourse has not negated the dominant state-centered and threat-centered approach to security. Soft approaches to the category of security, national interests and national power, as long as they seek dominance of self over others, indeed



seek to acquire different albeit softened means to attain the goals which used to be pursued with naked force. On this ground, economic, technological and scientific power can also follow the same goals pursued through military strength and arms expansion.

The dominance of military and political aspects over the concept of security has led national power to find a military and political nature, despite the fact that it has different aspects and types. In the realist approach, national power means the capabilities that grant a country the possibility to proceed with its goals in the international system and its relations with other countries (Ghavam, 2001: 59-60). These capabilities have different sources: military preparedness, natural resources, industrial capacity, human resources, national traits and so on (Morgenthau, 1995: 181-264; Roshandel, 1994; Ghavam, 2001: 75-99). These resources provide an opportunity for a state to exercise power and change the conduct of other states. In this approach, water – a key natural resource - constitutes a source of power and instrument that can be used to exercise power. With the collapse of the bipolar system and expanding trend of globalization, the concept of security has undergone a change as well. Multiplicity of international actors, shrinking sovereignty of states and attention to the phenomena which are ostensibly of a transnational and cross-border character have led to the reinforcement of new aspects of the security concept, including human security. In human security approach, the individual is important not as a national or citizen but as a human being per se (UNDP, 1995: 229-236). Human security shifts attention from the state to the individual, stripped of national, racial, cultural and gender characteristics. In other words, if security was for the nation-state in the Westphalian paradigm and there were threats emanating from other nation-states, in the human security paradigm, security is for the individual human and there are threats to which jeopardize his/her life and survival (Bajpai, 2000).

Human security is meant to protect core human needs vis-à-vis serious mainstream threats and paving the way for human fulfillment



(Qasemi, 1995: 818). Core human needs include the fulfillment of material needs and securing human liberties and rights. What jeopardizes human life and survival is diverse and numerous. Natural disasters and diseases like floods, earthquakes and storms as well as catastrophic political incidents such as war and terrorist attacks, rise of suppressive despotic regimes, economic hardships including famine, poverty and misery, shortage or lack of natural resources necessary for living like air, water and soil are all threats which seriously and clearly jeopardize human security. In the meantime, a number of threats seem to be able to give rise to other threats and create conditions that not only threaten security in one aspect of human life, but also make its different aspects face accumulated and permeable dangers. Environmental threats belong to this category (Qasemi, 2006: 266). Environmental threats can result in poverty, unemployment, population transfers and so on. For instance, threats arising from shortage or lack of water can show the accumulative and permeable nature of a threat from one sphere to another one. The most serious and clear level of such a threat is related to the lack of safe drinking water, which directly threatens human life and survival. Water shortage jeopardizes human subsistence activities in the agricultural and industrial spheres; consequently, threats such as poverty, unemployment, migration, environmental depletion, spread of hazardous diseases, bloody conflicts, insurgence and war will also break out.

Water covers 66% of the earth's surface. The total amount of water on our planet exceeds 1456 million cubic kilometers, but only 2.6% of that amount is freshwater. 77.23% of the world's freshwater is located in the two poles in the form of ice, 12.35% underground and only 10% - that is 0.26% of all water found on Earth - is usable for humans (Carius, Dabelko, Wolf, 2004). Nonetheless, this amount exceeds human needs. Almost 216,000 billion cubic meters of rain precipitate annually. This amount covers the needs of a population twice that of the Earth's current human population. Nonetheless, most parts of the world suffer from a shortage of freshwater and drinking water. One-fourth of the world's population is deprived of



access to safe drinking water and more than 20 countries suffer from severe water shortages. Countries that have a per capita freshwater resource of 1000-1700 cubic meters suffer from water shortages. If this amount reaches 500-1000 cubic meters, they face tension, and if it goes below 500 cubic meters, they face crisis and severe water shortages (Hafeznia and Nikbakht, 2002: 49). In this case, their production of foodstuff, economic development and preservation of ecosystems will be constrained. In a nutshell, inappropriate distribution of water resources, uneven spread of precipitation, rapid population growth, rising consumption and inadequate management of water resources have all caused certain parts of the world - including the Middle East, Central and West Asia - to become exposed to water tension or crises. Water is a strategic resource for economy, environment and development, and its shortage affects all aspects of human life. Hence, water shortage is a concern and efforts at containing and transferring it can lead to protests, insurgencies and wars. Water tensions or crises link the question of water to security and politics. Water politics or hydropolitics deals with the influence of water in politics; including its role in the formation of states, their power, structure or their decline.

Water tensions and crises occur at a variety of levels. These tensions are occasionally of a local or national character. Limited disputes over the distribution of water or protests within a national entity over the transfer of water from a region to another region are included in this category of tensions. However, tensions arising from water shortage tend to find broader aspects sometimes, spreading to the regional and transnational levels. The most important question in the relationship between water and security at the transnational level relates to shared water and how it is divided, exploited and managed. When a country, in order to secure its needed water, is dependent on rivers whose origin is located outside its territorial space, or engages in containing shared water for its current or future need, water turns into a political and security issue at the regional and transnational



levels (Dolatyar, Groy, 2000: 24).

Today, there is a consensus on the fact that water shortage and the quality of exploitation of shared waters can be among the sources leading to war. Almost 40% of the world's population lives in countries possessing shared drainage basins, and 50-60% of the size of each of the continents is comprised of shared drainage basins (Kordovani, 1994: 12). Policies pursued by states towards how to exploit these shared resources can lead to cooperation and convergence, or dispute and divergence. Identifying the 12 tension-creating geographical factors among the countries in his presumed model (High Poutitka), Peter Hagget ascribes six tensions to issues related to water, and from among them, four cases to shared water resources (Hagget, 2007: 372). Thus, the quality and quantity of exploitation of rivers, lakes and shared underground resources which may be controlled by two or several states can result in disputes among the upper and lower riparian states of the shared water resources. Disputes between upper and lower riparian states of shared water resources occur when there is conflict over various uses of the shared water resources such as use of water for agriculture and irrigation or electricity production. Possessing the source of the waterway, the upper riparian states can reduce this source with major changes or change its quality due to pollution with chemicals. The lower riparian state can also drown part of the upper riparian state's territory by establishing a dam near the common border or block the river's access to the sea by closing its mouth.

Legal settlements of disputes between upper and lower riparian states have been entrusted to the law of international watercourses (Schrijver, 1997: 118-126). However, due to a lack of obligatory rules in the legal regime on non-navigation uses of common waterways and in order to fulfill their rights, states resort to the principle of fair and reasonable use - which usually benefits upper riparian states - and to the principle of a ban on important harm - which is usually assumed to be to the benefit of lower riparian states - taking advantage of different





theoretical bases for justifying their operations (Cech, 2004: 145-154).

The 1997 United Nations Convention on the Law of Non-Navigational Uses of International Watercourses, which is a product of collective work by prominent lawyers and state practices and their positions on the subject-matter, was ratified with three votes against and 27 abstaining – by states which tend to be upper riparian states in international waterways - out of 106 votes in favor of the resolution (A/51/869 May 21, 1997). Given the limited number of signatories and in the absence of the agreement of important countries possessing the upper riparian position in international watercourses, it can be suggested that there is no universal obligatory framework for offering rules governing state conduct in this regard. Under such conditions, bilateral or multilateral agreements and treaties among states and their attitude towards the question of national or human security concerning shared water resources gain importance.

The region called West Asia, which includes Iran, Afghanistan and Turkmenistan, has been historically suffering from water shortage. The difference is that in the past, regional peoples - free from the strict otherness-making frameworks of modern states - met their basic vital needs, relying upon a vast and efficient system of water distribution and consumption and a network of qanats and canals. However, today under the banner of nation-states, political boundaries have made them alienated and their problems and solutions unrelated to each other. Nonetheless, for some reasons, water shortage in West Asia has not gained much attention. The presence of a degree of rationality and cooperation, certain political conditions that have actually delayed further exploitation of water or insistence on water rights, and the presence of several intervals to reach the stage of water tension are all intra-regional factors. Attention to water tensions in Central Asia and the Aral catastrophe and serious water shortages in the core of the Middle East crisis, i.e. Jordan, Israel and Palestine, can be added to this. However, these events and factors have only postponed the rise of imminent water tension and crisis in this region.



## II. Hydropolitics and Water Shortage in the Harirud Basin

Countries located in West Asia - including Iran, Afghanistan and Turkmenistan - are located in arid and semiarid regions and parts of their territories are mountainous as well. Much of the water in this region tends to stem from the thawing of snow and ice found on tall mountains. In this region, water shortages have been exacerbated by inappropriate distribution of water and shared water resources, wrong agricultural policies, lack of adequate uniform management of water resources, absence of agreements on exploitation, and population growth (Table No. 1).

**Table No. 1: Population Growth in Afghanistan, Iran and Turkmenistan**

Country	Population 2005 (Thousand)	Population 2010 (Thousand)	Population 2025 (Thousand)	Population Growth (%) 2005-2010
Afghanistan	24507	29117	44970	3.45
Iran	70756	75078	87134	1.18
Turkmenistan	4843	5177	6072	1.33

Source: <http://esa.un.org/unpp>

Although Afghanistan possesses the largest water resources in the region, most parts of this landlocked country are mountainous. The average annual precipitation in the country is approximately 300 millimeters, which is close to that of Iran. The main source of water in Afghanistan is the thawing of snow and ice found on the heights and the downward flow with an unbridled speed. This situation does not help agriculture and destroys farmers' efforts (Clifford, 2007: 15; Shourmaj, 1971: 73-74). All the large rivers in Afghanistan, Amu Darya, Kabul Rud, Helmand and Harirud, flow into the neighboring countries. Afghanistan has a population growth rate of 3.45%; one of the highest in the world. It is predicted that the country's population, which was almost 26 million in 2000, will exceed 45 million in 2025. Significant population growth along with the urgency of economic reconstruction and development has elevated further exploitation of existing resources and containment of shared border waters on the



Afghan government's agenda. Afghan plans for constructing dams over the Amu Darya, Helmand and Harirud, which flow towards Central Asian countries and Iran, is among such measures.

Turkmenistan also faces a limitation of water resources. This country has an arid continental ecosystem where the Karakum (Black Sand) desert comprises four-fifths of its size (roughly 350,000 square kilometers). Except for the very short and small strip of Kupet Dag Range and Parapmiz mountains, no rivers are found in its surface area of 488,100 square kilometers. Shortage of precipitation with an annual average of 80 millimeters, excessive evaporation that reaches 2700 millimeters, and distinct differences between the averages as well as absolute degrees of annual and even daily temperatures demonstrate the dominance of desert conditions in Turkmenistan (Karimpour, 2000: 127). These climate conditions create serious obstacles to the continued production of cotton as the main exported agricultural product, which needs regular irrigation.

Turkmenistan is fully dependent on incoming waters. The Amu Darya and Murghab rivers from Afghanistan and Atrak from Iran enter this country. Turkmenistan also faces the problem of a rising population. The current population of the country, which is around five millions, is expected to exceed six million in 2025. Dependence on the incoming waters, population growth and development programs has recently led Turkmen authorities to contemplate water management and prevention of waste of water.

According to statistics, of the 28 billion cubic meters of water consumed annually for agriculture in Turkmenistan, around 14 billion cubic meters or 50% is squandered. Former Turkmen President Niyazov had suggested appointing two people for every 120 hectares of farmlands to supervise water consumption in a bid to prevent the squandering of water. Although he speculated that those who squandered water would be punished, the method used to irrigate farms in the country has remained traditional ([www.irna.ir/view/fullstory](http://www.irna.ir/view/fullstory) (NewsID--125446)).



Because two-thirds of its territory is located in arid and semiarid areas, Iran is among the countries with a water shortage. The average precipitation in Iran is around 250 and 300 cubic millimeters and it is included among the 100 countries that have been identified as countries whose annual per capita fresh water is limited. Iran's per capita water in 1978 was 2160 cubic meters and 1750 cubic meters in 2006. This amount will reach 1300 cubic meters in 2021 (Mosayebi, 1999: 73). Like many other parts of Iran, the province of Khorasan, which borders Turkmenistan, is located in arid and semiarid areas. This province, which has long been dependent on ground water, has proceeded to dig deep wells in recent years due to population growth and drought. This has led authorities to declare that 33 out of the 36 plains in the province are forbidden. (Papeli Yazdi & Vosoughi, 2004: 85) Table No. 2 shows the general situation of water resources in this province.

**Table No. 2: General Situation of Water Resources in Khorasan Province**

Number of essential drainage basins	3
Average precipitation	227 millimeters
Average volume of annual precipitation	26572 million cubic meters
Degree of annual evaporation	18733 million cubic meters
Degree of potential renewable water resources (The incoming water to the borders of the province stands at 500 million cubic meters)	8339 million cubic meters
Share of underground waters in renewable resources	6000 million cubic meters
Share of surface waters in renewable resources:	2339 million cubic meters
Number of major rivers:	42
Number of border rivers:	10
Volume of water outgoing from rivers to adjacent provinces:	26 million cubic meters
Volume of water outgoing to international borders (Iran's share):	127 million cubic meters
Volume of water going to the deserts of the province:	40 million cubic meters
Number of plains:	36
Number of prohibited and critical prohibited plains:	33
Number of open plains:	3
Degree of exploitation of ground water resources	7060 million cubic meters
Deficit of the reservoir of plains:	1060 million cubic meters

Source: [www.khrw.ir/portals/o/Ab1Meher87.doc](http://www.khrw.ir/portals/o/Ab1Meher87.doc)

In addition to agricultural water, Khorasan province and particularly



the city of Mashhad face serious constraints on the securing drinking water, given the significant rise in population, both resident and visiting. These very constraints have made further exploitation and containment of shared waters, including Harirud, inevitable in this province.

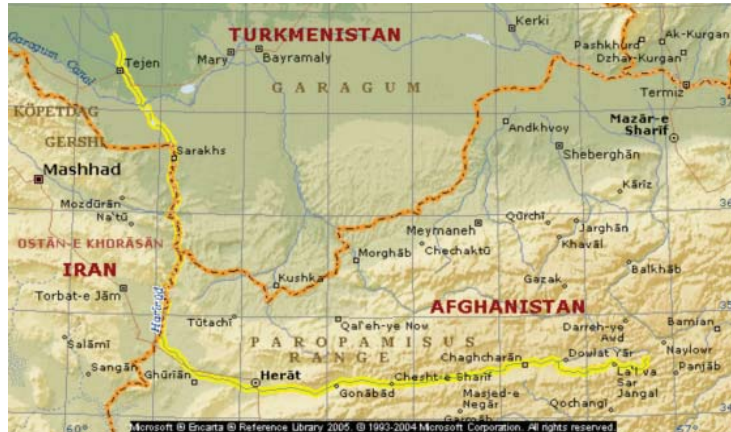
### III. Geopolitics and Exploitation System of Harirud

Harirud originates in the Baba Mountains and Sefidkouh (Ghour) in the HinduKush, reaching the Iran-Afghanistan border around Kushan and Kariz villages near the town of Taybad. The length of Harirud from its source through this place in western Afghanistan is 650 kilometers. From this point, seasonal rivers like Dal Ghal'a, Kaldraband, Bohloray and Rus join the Harirud. The Harirud constitutes the Iran-Afghanistan borderline, ranging 107 kilometers until the Zolfaghar strait where the borders of Iran, Afghanistan and Turkmenistan converge. This place is, in geopolitical terms, highly important and has always been subject to disputes over the demarcation of the Iran-Afghanistan border. (Fadaei and Chekangi, 2005: 44-45).

After it converges at the borders of the three countries, Harirud joins Kashfrud in Khatoun Bridge, called Tejen from this point. Tejen constitutes 117 kilometers of the Iran-Turkmenistan border. After it departs from the border, Harirud is dispersed in the Karakum plain and almost disappears around the city of Tejen's surroundings (Map No. 1) This river is 1120 kilometers long from the source to the mouth (Jafari, 2000: 478).

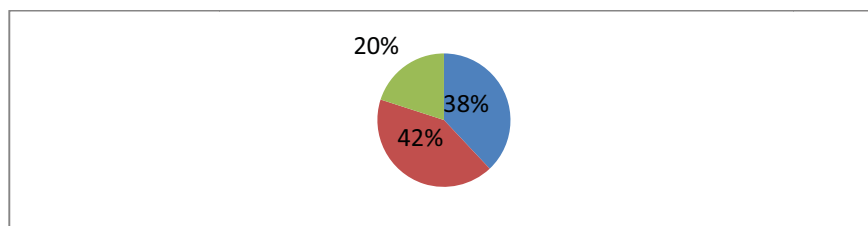


Map No. 1: Location of Harirud and the Friendship Dam



Karakum is a desert in Turkmenistan into which water from parts of Iran, Afghanistan and Turkmenistan flow. Part of the southwestern drainage of Karakum is located in northeast Iran, adjacent to Iran's borders with Afghanistan and Turkmenistan. Generally, the size of the drainage basin of Karakum is estimated at 117,297 square kilometers, from which 49,264 square kilometers, i.e. 42%, is located in Afghanistan, 44,573 square kilometers, i.e. 38%, in Iran, and 23,460 square kilometers, i.e. 20%, in Turkmenistan. Figure No. 1 shows the shares of each of these three countries in the Harirud drainage basin.

Figure No. 1: Shares of Each Country in the Harirud Drainage Basin



Iran 38%

Afghanistan 42%

Turkmenistan 20%

Source: Fadaei and Chekangi, 2005: 13)



The average annual volumetric flow rate of Harirud at the Khatoun Bridge is estimated at 38 cubic meters per second and the total volume of water transported downstream is estimated at approximately 1.2 billion cubic meters. The stream of the Harirud is limited to late winter and early spring. This river swells its banks in the spring and the bulk of its annual water stream takes place in the two first months of the spring, which constitutes around 70% of its annual stream. The period of water decline in the river starts from late spring and it is either dry or of a very low stream in summer and fall (Jamab Consulting Engineering Company, 1993: 4-8).

The exploitation arrangement governing the Harirud was based on water rights and well-established regular practices from past times until the late 19<sup>th</sup> century, implemented by people and local authorities. It became subject to change after the Tsarist Russian military forces advanced to the Central Asian territories and Turkistan. Russian penetration in Central Asia coincided with the weakness of Iran's central government and its abandoning of its claims to the territories on the northern bank of the Atrak river and its hope to preserve the lands on the southern bank.

With Tsarist Russia becoming Iran's northeastern neighbor, demarcation of the two countries border became necessary. Hence, on December 21, 1881, the Akhal border pact was signed by the governments of the two states. According to section 1 of the pact, the common border was demarcated from Hosseingholi bay in the Caspian Sea to the surroundings of Babadurmaz village. However, no decision was made about this region to Harirud in Serakhs, covering 160 kilometers, because the Russians sought to capture further eastern territories and neighborhood with Afghanistan. With the enlargement of Russian acquisitions in the east, demarcation of Iran-Russia borderlines from Babadurmaz village to the border point of Zolfaghar, where the borders of Iran, Russia and Afghanistan converge, was put on the agenda (Kazemzadeh, 1992: 77-78). This part of the border was also demarcated according to section five of an



agreement which was signed in Tehran on May 27, 1893 (Mokhber, 1945: 15). Thus, according to the Akhal pact (1881), the 1893 agreement and the commissions that were created to deal with the demarcation of borderlines and installment of border signs, Iran-Russia borders were demarcated from the Caspian Sea to Zolfaghar. Although borderlines in the southeast of modern Turkmenistan were demarcated between the two countries, the determination of Iranian and Russian water rights in border rivers, including Harirud, were only put forward in the agreement of February 26, 1921. The third section of the agreement states: The high two states shall exploit the Atrak river and other border rivers and waters equally (Zoghi, 1989: 542).

Even though the equal exploitation of border waters was emphasized in the 1921 agreement, in a protocol signed between the two states in September 1921 in Artek (near Ashgabat), two-thirds of Tejen water was allocated to Turkistan and one-third to Iran (Foreign Ministry Documents as quoted by: Velayati, 1991: 124). The provisions of this protocol demonstrate that instead of equal division of water, the Russians based their argument "on needs and made divisions accordingly, which was to Iran's detriment; because due to the harmful constraints long imposed on Iranian border areas, the Iranian side had remained under-populated and underdeveloped, but the Russian side was developed and overpopulated. Therefore, the Russians did not want to leave their developed place without water and destroyed and forced the residents to emigrate" (Organization of Documentation and National Library of Iran, 102007-1217, Report of the Khorasan Agency No. 5333 to the Foreign Ministry on March 24, 1926, quoted by: Taher Ahmadi, 2005: 263).

Division of border waters was one of the disputed issues between Iran and Russia (the Soviet Union) before and after the conclusion of the 1921 Agreement. Russians diverted the water of border rivers to their own soil in certain points, depriving Iranians of the chance to irrigate their farms. Hence, every year there were





clashes between Iranian and Soviet border-dwellers over the division of water, leading to the death and injury of several persons. Imposition of specific regulations for Iranians inhabiting border areas such as restricting agricultural farms and banning or restricting the growth of certain plants like cotton and sesame were among the other Russian actions in those areas (Taher Ahmadi, 2005: 262-263).

Disputes and the necessity to determine the shares of both parties of the waters of common border rivers led them to sign a 24-article agreement on February 20, 1926 concerning "Exploitation of Border Rivers and Waters along the Harirud to the Caspian Sea." The first article of the Agreement stipulated: The entire water of the Harirud (Tejen) from the bridge called Khatoun Bridge along the border shall be divided between the two High Concluding Parties in ten equal parts from which three parts shall belong to Iran and seven other parts shall belong to the Soviet Union (Mokhber, 1945: 17). Therefore, contrary to the provisions of the third section of the 1921 Agreement and even the September 1921 Protocol, the Soviet and Iranian shares were determined respectively at 70 and 30 percent. This conspicuously unjust and unfair division was to Iran's disadvantage. Nonetheless, in the report by the Iranian delegation to the Foreign Ministry, the agreement was described as "desirable and advantageous for Iran" (Taher Ahmadi, 2005: 264).

In addition to the division of Harirud, the reservation of water and construction of a dam on it were also agreed in the third article of the February 20, 1926 agreement (Mokhber, 1945: 18). This agreement was repeated in the March 1958 and September 1974 negotiations, leading to certain pilot studies. However, the advent of the Islamic Revolution in Iran and subsequent developments in the Soviet Union and its fall delayed further action. Ultimately, in September 1991, during a visit to Tehran by then Turkmen President Saparmurat Niyazov, an agreement was reached on the construction of a dam on the Harirud. According to this agreement, the share of each of the two parties in construction, exploitation and use of water and energy from the dam was determined to be equal (Fadaei and Chekangi, 2005: 189). This agreement means the



revival of Iran's rights according to the 1921 agreement concerning equal exploitation of border waters. The construction of the dam began in early 2000 after the completion of the diversion system. The construction of the dam was scheduled to be completed in 2005, but at the discretion of the two countries' officials, it was completed a year earlier and the share of each country of the overall 820 million cubic meters of adjustable water was fixed at 410 million cubic meters. In addition to the reservation and adjustment of the Harirud river's water and securing part of the drinking water for Mashhad, the other goals of the Friendship Dam included the consolidation of the Iran-Turkmenistan border, securing agricultural water for the Serakhs plain in Iran and Turkmenistan, and containing damage arising from floods (Fadaei and Chekangi: 2005: 190-200).

While the agreement between Iran and Turkmenistan stipulates the quality and quantity of exploitation of the Harirud's water, there is no agreement with the Afghan government on this matter. According to available data, Afghanistan is constructing at least two dams on this river. One of them is called Salma and is under construction 170 kilometers outside the city of Herat. This dam is intended to help store water for irrigation and power generation. The construction of another dam called Jedvad is also reported to be underway. The construction of these two dams can adversely affect the stream of water in the Friendship Dam as well as its quality. In this case, some of the goals pursued by Iran and Turkmenistan through the construction of the Friendship Dam will be faced with serious constraints. With a reduction of the water flow into the Friendship Dam, storage, adjustment and provision of agricultural water for the Serakhs plain will be faced with certain limitations. In the meantime, with the decrease in the volume and quality of water of the Friendship Dam, a serious shortage of drinking water in Mashhad - expected to have been removed with the exploitation of the Friendship Dam - will turn critical once again. These problems, crises, consequences and possible reactions can threaten human security in the region.



Afghanistan engages in such an action while not showing much interest in participating in common trilateral meetings for coordination of exploitation of the water resources of the Harirud. If Iran and Turkmenistan implement unilateral plans in response to Afghanistan's uncoordinated actions, complex problems will unfold in the region from which no party will benefit. Afghanistan is the upper riparian state in the Harirud basin, but when it comes to this basin at least, it has not shown any willingness to take part in negotiations to reach constructive agreements. The Afghan government seems to show a tendency for unilateral policies in order to compensate for the lost opportunities during the Soviet occupation and civil war. In contrast, Iran and Turkmenistan - the middle and lower riparian states of the Harirud - have had cooperation agreements and common construction efforts in this basin, and are inclined to engage Afghanistan in such collaboration. Iran and Turkmenistan are aware of that only in light of regional cooperation is the way paved for continued desirable exploitation of shared waters and mutual aid for the reconstruction and development of Afghanistan.

### **Conclusion**

The behavior of regional states reveals that realism is their dominant paradigm in identifying the problem of water shortage. From this perspective, to possess water resources provides the basis for acquiring and preserving power and exercising it against neighbors. However, it has not helped perpetuate provision of water resources for these countries and meeting their water needs. Simply put, the human security paradigm seems to be the most inclusive and adequate framework for understanding the problem of water shortage and finding solutions for it. This framework is capable of understanding and dealing with threats related to the vitality and survival of humans residing in this region, national security considerations, requirements concerning the protection of the environment, development and cooperation of countries for meeting their mutual needs. Iran,



Afghanistan and Turkmenistan have not witnessed any tension in their relations on the question of water, except for the division of the Helmand River's water, which has caused controversy in Iran-Afghanistan relations. Nonetheless, their collaborations have also been limited in spite of their historical, cultural and geographical ties. What these countries have already done with respect to the management of water resources has tended to center on their national security and interests within the framework of such plans as the construction of storage dams. However, these plans represent transitional and short-term solutions to permanent problems at best.

Water shortage is a natural trait of the region and it requires permanent, all-inclusive solutions to confront it. The question of shared and border waters is not one susceptible to being resolved within national plans and unilateral outlooks. In this case, due to inattention to all-inclusive outlooks and solutions, it is feared that existing problems may turn into tension or a crisis, jeopardizing the national and human security of regional countries.

In order to avoid the rise of such a condition within the paradigm of human security, the following recommendations and measures can be considered. The Harirud and Karakum drainage basin link significant numbers of people and territories of Afghanistan, Iran and Turkmenistan. These countries can contemplate the uniform coordinated management of this shared basin to meet their own existing and developmental needs. The creation of a common commission for cooperation, exchange of information and coordination on water and construction projects can become the focus of state activities. Continuous consultation with local residents and non-governmental organizations and their engagement in decision-making concerning the management of the water resources of the basin should be deemed indispensable.

Development projects have to be designed in proportion with the water capacities of the basin and water rights of each of these countries so that pressure on water resources and over-consumption



are avoided. Avoidance of the costly and counterproductive patterns of self-sufficiency which lead to adverse effects on renewable water resources, optimization of water consumption particularly in the agricultural sector, reconstruction of traditional exhausted canals and adoption of suitable irrigation methods have to be put on the regional governments' agendas.

Control of population growth and containment of unbridled immigration are among other recommendations that can be discussed and decided on in negotiations concerning the management of water resources. At the political level, the successful implementation of water cooperation requires the determining of the real value of water and defining a basket of interests for carrying out shared collaboration. In this basket, possibilities and needs should be presented and regional states become obliged to meet needs in return for use of each other's possibilities. For instance, Iran and Turkmenistan should proceed to meet Afghanistan's needs in the energy, transit, reconstruction and development sectors. In pursuit of water, political and economic collaboration, it is indispensable to adopt a legal regime for exploitation of shared waters in a just, reasonable and sustainable manner. Making appropriate laws and regulations in the domestic systems of each of the three countries will provide the grounds for the creation of transparent arrangements for the management of water resources. It will also lead to accountability of decision-makers and executives in order to safeguard the health of provided mechanisms, while establishing legal basis for common cooperation. The design and implementation of a successful pattern of water management can serve as the basis for the three countries' collaboration on removing serious security threats arising from drug smuggling, activities of terrorist groups and human trafficking. All of these measures will be plausible and attainable if priority is given to protecting human security, mutual interests and expedience of regional populations.

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