



THE IMPACT OF THE DARYAN DAM ON THE KURDISTAN REGION OF IRAQ

SAVE THE TIGRIS AND IRAQI MARSHES CAMPAIGN



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THE IMPACT OF THE DARYAN DAM ON THE KURDISTAN REGION OF IRAQ



Figure 1. The Daryan Dam under construction on the Sirwan River in Iranian Kurdistan (Arash Bahrammirzaee, 2016)

INTRODUCTION

The Kurdistan Region of Iraq (KRI) is currently undergoing severe financial, economic, political and social crises. The region is struggling to pay its public servants and its debts have reached the level of 14 billion US dollars.¹ In addition, the KRI is currently on track to experience a water crisis, which may have catastrophic consequences. Most of the rivers which run through the KRI emanate from Turkey or Iran, and the potential water crisis will be instigated by large-scale dams outside of the KRI's borders coming on-stream, primarily the Daryan Dam in Iran, and to a lesser extent the Ilisu Dam in Turkey, both of which are nearing completion.²

In 2012, former Kurdish member of the Iraqi parliament Mahmud Othman urged the Iraqi Government and the Kurdistan Regional Government (KRG) to negotiate with Turkey and Iran

¹ 'Why Iraqi Kurdistan is struggling to pay its bills', <https://www.stratfor.com/analysis/why-iraqi-kurdistan-struggling-pay-its-bills>, January 2016.

² Ali Hama Salih, Levin Magazine, May 2016.

tunnel, water flows to the KRI would be completely cut, which, according to Halabjah government officials, could lead to a humanitarian catastrophe.⁸

The following qualitative research of the impacts of the Daryan Dam is largely based on interviews with KRG officials, local officials of dam-affected areas, NGOs and academics. So far, very little literature is available on the Daryan Dam. This paper aims to fill that gap, and will provide a social and political analysis of the impact of the Daryan Dam on the Kurdistan Region of Iraq.

IMPACT OF THE DARYAN DAM ON THE KURDISTAN REGION OF IRAQ

In 2008, the KRG allocated a crisis budget of \$120 million when drought threatened the KRI, in particular for the Sulaymaniyah and Halabjah Governorates. With the completion of the Daryan Dam in Iran, both the Sulaymaniyah and Halabjah Governorates will be heavily affected by decreased water flows.⁹ In the near future, seasonal flooding of the rivers in spring, a naturally occurring phenomena, will not continue because the Daryan Dam will divert waters that would otherwise flow to the KRI. According to statistics, more than 3,200 hectares of agricultural land in the areas of Halabjah, Sayyid Sadiq and Darbandikhan will be lost if water flows from Iran further decrease. Nariman Hassan, an expert in water resources management, has proposed that the KRG should construct dams for the purpose of electricity generation and irrigation. Hassan has called upon the KRG to negotiate with its neighboring countries to reassure that they will not build dams that might affect the Kurdistan region. These calls have remained unanswered by both the KRG and Iran.¹⁰

According to KRG Member of Parliament Abdul-Rahman Ali, other small dams have been built by Iran on rivers that flow into to the Darbandikhan Dam in the KRI.¹¹ With the completion of the Daryan Dam, the cities and villages of Halabjah, Sirwan, Said Sadiq and Darbandikhan will not only face water crises in the agricultural, hydroelectric power and fishing sectors, but also when it comes to drinking water. The KRG's Minister of Agriculture and Water Resources, Abdul-Satar Majid, has also emphasized the significant impact the completion of the Daryan Dam will have on the KRI, because the water of the Sirwan River is utilized within the KRI for many purposes including drinking, hydropower, agriculture and fishing.

⁸ Interview with Nukhsha Nasih, 29 May 2016.

⁹ PENUSAKAN, B. J., 'The water crisis in the Middle East' <http://archive.penusakan.com/gshy/babaty-halbzharda/31597-2015-10-28-21-10-33.html>, 21 March 2015.

¹⁰ Interview with Salam Hanadni, 13 April 2016.

¹¹ Interview with Hawraman Sajadi, May 2016.



Figure 3. Map detailing the path of the Diyala River after entering the KRI

These impacts cannot be seen yet, as the water from the Sirwan River is still fully flowing to the KRI, but in the coming years, if and when the Daryan Dam comes into operation, the effects will become visible.¹² A preview of what is to come took place on 24 November 2015, when water flows to the KRI were cut by Iran for a couple of days in order to test the Daryan Dam. During that time, the General Directorate of Water Resources in Halabjah measured a flow rate of 0,5 cubic meters of water per second. This was mostly water flowing not from Iran but from Tawelah, Griana and Hawar, areas inside the KRI. Then on 30 November 2015, when the test was over and water flows from Iran resumed, the General Directorate measured a flow rate of 2.4 cubic meters of water per second. The Chair of the Environmentalists of Halabjah Organization, Hawraman Sajadi, asserts that hundreds of thousands of people will be affected by the Daryan Dam coming on-stream: "60 percent of water flows will be cut at a time when we are in need of water more than ever. For governorates in Central and Southern Iraq, the situation will be even more catastrophic."¹³

The Governorate of Halabjah has expressed in an official letter to the KRG that for drinking water they depend completely on resources from Tanjaro, Zalm and Rishen in the KRI, but that they are not sufficient.¹⁴ Deputy Governor of the Governorate of Halabjah, Kawa Ahmed Ali, listed the impacts of the Daryan Dam on the KRI as follows:¹⁵

1. It will endanger the \$173 million Halabjah-Sirwan drinking water project, implemented by Japanese company Jayka, which is in the final stage of completion.

¹² Interview with Abdul-Satar Majid, May 2016.

¹³ Interview with Hawraman Sajadi, May 2016.

¹⁴ Official letter of Halabjah Governorate to the KRG, May 2016.

¹⁵ Interview with Kawa Ahmed Ali, 30 May 2016.

2. The Darbandikhan Dam will no longer be of use for providing hydroelectric power and irrigation, since it draws 75 percent of its water from the Sirwan River.
3. Due to declines in water quantity and quality, fishing in the Sirwan River will no longer be possible.
4. A large number of farmers in Halabjah Governorate and Central Iraq will be affected.
5. It will have a negative impact on groundwater usage and fertile land in the Sharazur area.
6. It will affect the biodiversity of the region around the Darbandikhan Dam and the Sirwan River in Halabjah, Garmiyah and Central Iraq.
7. The humidity levels and weather of the region will be affected, in particular in the area of Sharazur during summer.
8. The tourism sector in the affected area will be negatively impacted.
9. It will have a negative impact on the peaceful coexistence between the sects of the region, especially since water in Iran, a Shia Muslim area, will be withheld from the KRI, a Sunni Muslim area.

According to data provided by the KRG Ministry of Agriculture, the KRI contains 30 billion cubic meters of surface water within its borders, and another five billion cubic meters of groundwater. Twelve billion cubic meters of water flow into the KRI from outside its borders, which equates to 40 percent of the KRI's water total. The dams currently under construction by Turkey and Iran are set to affect more than seven million Iraqis living on the banks of the Euphrates and Tigris Rivers and 1.9 million hectares of agricultural areas. To date, Turkey has built 22 dams, 14 of which have been constructed on the Euphrates River and the remaining eight on the Tigris River. Before the construction of these dams, the Euphrates River contained 30 billion cubic meters of water, which has now declined to 15 billion cubic meters.¹⁶ The decrease in the water flows of the Euphrates provides stark evidence of the devastating impact dams have on rivers.

Meanwhile, Iran has been constructing 14 dams, some of which have already been completed. These dams will present significant challenges to the KRI. Their impacts will be made visible in the coming years, as droughts caused by decreasing water levels in the Sirwan River could lead to social unrest. Agricultural areas will be destroyed, and a decrease in agricultural output will jeopardize food security in the KRI. Furthermore, the environment in these areas will be negatively affected. Should a water crisis emerge in these areas, then people will be obliged to

¹⁶ Interview with Abdul-Rahman Ali, 20 May 2016.

resort to groundwater, which is not safe to drink, and could in turn lead to health issues and an increase in diseases.¹⁷

OPPOSITION TO THE DARYAN DAM IN THE KURDISTAN REGION OF IRAQ

The KRG and all walks of society in Halabjah Governorate, including political parties, civil society and NGOs, object to the construction of the Daryan Dam in Iran. The city of Halabjah, which suffered a chemical attack in 1988 under the regime of Saddam Hussein, considers the diversion of the Sirwan River to be another humanitarian crisis inflicted upon its inhabitants. Assistant professor at the University of Halabjah and expert in international law Awara Hussein warns of the dangers of the desiccation of rivers flowing to the KRI from Iran due to dam construction in Iran as well as the withholding of waters from a Shia Muslim region to a Sunni Muslim region. According to Hussein, the Islamic Republic of Iran may have three political motives behind the construction of the Daryan Dam:¹⁸

1. To destroy certain villages in the Hawraman area of Iranian Kurdistan, some of which are ancient.
2. To provide water for a Shia area by diverting the water flows from a Sunni area.
3. To diminish the water resources of the KRI, in particular the Halabjah Governorate. Consequently, fishing activities and agriculture will disappear when the water flows to Iraq decrease.

Such motivations would further exacerbate political and ethnic tensions, as the Iranian regime is Persian while the victims of the Daryan Dam will be Kurdish. Another problematic issue is that current law dictates only the Central Government in Baghdad can sign agreements with neighboring countries over water resources. The only agreement that exists with Iran is the 1975 Algiers Agreement.¹⁹ However, neighboring countries are not committed to international protocols on shared water resources. The KRG is not a party in the Middle East protocols signed between countries that share water resources. Nonetheless, when the UN holds its annual UNESCO water conference, both Iraq and the KRG are always invited, says Majid. The KRG takes part in international conferences and meetings whenever possible, but no agreements are reached at such gatherings. At the international level, the KRG has expressed its concerns about dams being constructed by Turkey and Iran.

¹⁷ Interview with Abdul-Rahman Ali, 20 May 2016.

¹⁸ Interview with Awara Hussein, 29 May 2016.

¹⁹ 'Algiers Accord', <http://www.mideastweb.org/algiersaccord.htm>, July 2016.

Sajadi explains:

Each country has the right to construct dams, but the concerns of neighboring countries should be considered, according to international protocols. Neither Turkey nor Iran gives consideration to Iraq's share of water. Iran is not just constructing a dam; it is diverting the direction of a river, hereby putting a complete region at risk of drought.²⁰

Speaking further about this matter, Hussein expresses:

Iran is violating international protocols on international waters. The Sirwan River is an international river between two countries, which are both member states of the United Nations. The construction of dams and diversion of water flows to the KRI could be considered a violation of international law. The KRG is obligated to file a lawsuit through the Iraqi Government against Iran in International Court. Iraq should refer to Article 188 of the Sea Laws Agreement in order to prevent violations from the Iranian side.²¹

In Halabjah, people have held demonstrations and campaigns against the construction of the Daryan Dam, but neither the KRG nor the Iraqi government nor the Iranian have responded to their concerns. The Mayor of Halabjah, Nukhsha Nasih, reiterated that Iran has not responded to their concerns, and that if Iranians continue to divert the water "a conflict may erupt between the two countries; Iraq and Iran." Nasih reported her concerns to the Governorate of Halabjah, the Governorate of Halabjah reported the concerns to the KRG, and the KRG reported the issue to the Iraqi Government. However, until now, these actions have proven to be futile and the issue remains unaddressed. The Deputy Governor of Halabjah, Kawa Ali Karim, said that he met with Iran's Consul General in the KRI twice, but the consul claimed the issue of the Daryan Dam was beyond his authority.²²

Senior political analyst at the Kurdish Policy Foundation Sarkawt Shamsaldin says that the KRG has no sovereignty to make claims against Turkey and Iran. "It seems the Iraqi government in Baghdad is not very willing either, for political reasons," Shamsaldin explains. However, the KRG plans to construct its own dams inside the KRI to store water during the winter (rainy) season, in order to reduce the impact of both Iranian and Turkish dams. Previously, the KRG had requested international organizations to mediate between Turkey, Iran and the KRG via Baghdad. Additionally, the KRG had earlier spoke directly to Iranian authorities regarding the impact of Iranian dams in the Khanaqin area of the KRI. This was an issue partially because the

²⁰ Interview with Abdul-Satar Majid, May 2016.

²¹ Interview with Awara Hussein, 29 May 2016.

²² Ibid.

KRG itself had constructed a dam on the Alwan River in Khanaqin, but it was unable to provide sufficient water storage for the city during the summer (dry) season.²³

Within the KRG there are organizational problems when it comes to the management of water. When the KRG is requested to release additional water to other parts of Iraq, the KRG has to obey federal Iraqi laws, since it does not have its own laws related to water and dams, says KRG MP Ali.²⁴ Another issue is that the KRG has two ministries that deal with issues concerning water. The Ministry of Agriculture and Water Resources is responsible for dams and water resources, while the responsibility concerning drinking water belongs to the Ministry of Municipalities and Tourism. Furthermore, the KRG does not have a law for managing, regulating and storing water. MPs have tried to pass a bill, but due to the financial crisis and a paralyzed parliament it was not turned into law. Meanwhile, the KRG has only one member in the Iraqi Committee of Water Issues, which discusses water shares with neighboring countries.²⁵ At the international level, the KRG is in a weak political position due to the lack of any strategic planning as well as the lack of strong water management.

In 2014, a study conducted by NASA estimated that 144 billion cubic meters of water have disappeared from reserves in the KRI over the last five years. Such results highlight the uncertain future the KRI is heading towards. Should there be a shortage of water, this will significantly impact agricultural potential and instigate a food crisis. Currently the KRI only produces five percent of its agricultural goods locally, including tomatoes, eggplant, cucumbers, onions, watermelon, peppers and several other fruits and vegetables²⁶, leaving it highly dependent on food imports, which consequently increases its vulnerability to both food insecurity and shocks to the global food market. Most food products are imported to the KRI from Turkey and Iran, where they are reliably and affordably sourced. For example, Turkey provides most of the dairy products sold within the KRI. Such food processing occurs outside of the KRI, leaving the region with only a one-week reserve of food supplies. A supply crisis would result if the KRI's borders with Turkey and Iran were closed.²⁷

The KRG Ministry of Agriculture and Water Resources, which represents the KRI in international and local conferences and treaties, has opposed the construction of dams by Iran. Majid asserts that dams constructed by Turkey as part of the GAP project, which include the large-scale Ilisu Dam, will not have a big impact on the KRI, claiming that only a part of Zakho District will be affected by the Ilisu Dam, but that Iranian dam projects will affect large parts of the KRI.²⁸

²³ Interview with Sarkawt Shamsaldin, 26 May 2016.

²⁴ Interview with Abdul-Rahman Ali, 20 May 2016.

²⁵ Ibid.

²⁶ Invest in Group, *Restoring the Bread Basket: Agriculture*, October 2013, <http://investinggroup.org/review/240/restoring-the-bread-basket-agriculture-kurdistan/>

²⁷ SODERBERG, N. E., and PHILIPS, D. L., 'Task Force Report: State-Building in Iraqi Kurdistan', New York, October 2015.

²⁸ Interview with Abdul-Satar Majid, May 2016.

Majid says that the matter was officially discussed with Iran in 2015, during a visit, and that he relayed the KRG's concerns to the Vice President of Iran and the Iranian Minister of Agriculture, as well as the Iranian Consulate in the KRI. "We informed them that the KRG is concerned about the dams they are building. Iran is not committed to international agreements they have signed," Majid says, further stressing that Iranian water projects should not have a negative impact on the KRI:

During a visit to Erbil, I have also requested from the Iraqi government's Minister of Agriculture and Water Resources that the Iraqi government should put pressure on Iran, as the Sirwan (Diyala) River also flows through parts of Iraq outside of the KRI. Iraq has good ties with Iran, and therefore they should be able to exert pressure on the Iranian government. The Iraqi minister said he would address the issue with Iran.²⁹



Figure 4. Downstream view of the Sirwan River from the Daryan Dam (Arash Bahrammirzaee, 2016)

IMPACT OF THE DARYAN DAM ON IRANIAN KURDISTAN

The Daryan Dam is also the subject of protest in Iran, mostly due to the forced relocations and ecological and cultural impact its reservoir will have on the surrounding area. In 2011, dam

²⁹ Ibid.

workers in Iran protested against unpaid wages.³⁰ The construction of the dam affects the village of Daryan considerably. As a large rock wall located in the middle of the village above some of the houses will become unstable due to the building of the dam, a rock support system had to be designed to stabilize it.³¹



Figure 5. Daryan Village in Iranian Kurdistan (Meysam Karimi, 2016)

Also at risk of destruction by the dam is the natural spring of Kanî Bil in the Hawraman region of Iranian Kurdistan, which is the largest spring in the region. To the Hawrami people, Kanî Bil is also of important cultural value. As of May 2016, a team of experts involved with the Kanî Bil spring is researching a way to recover the spring once the impounding of the dam begins.³² Sajadi said that due to the Daryan Dam, 20 villages and hundreds of people have already been displaced in the Hawraman region of Iran. Sajadi cited the village of Rwar as an example. He also noted that Hajij-e Kuchek, an ancient village in Sirwan Rural District, Kermanshah Province, which contains a Muslim shrine of cultural significance, would be flooded by water because of the dam.³³ In recent years, the Iranian-Kurdish community has expressed their

³⁰ 'Daryan protest movement of workers', rojhelat.tv/farsi/Default.aspx?tabid=56&NewsDetails=169. 4 March 2011.

³¹ 'Daryan village unstable rock block', <http://radiokoocheh.info/article/160126>, July 2016.

³² 'Daryan village unstable rock block', <http://radiokoocheh.info/article/160126>, July 2016.

³³ Interview with Hawraman Sajadi, May 2016.

concerns in various ways over the construction of the Daryan Dam, but Iranian officials have not responded to people's requests to halt its construction.³⁴



Figure 6. Daryan Village hinterlands and the Sirwan River (Alireza Solhi, 2011)

A social media campaign was created in December 2015 to save the spring of Kanî Bil.³⁵ The "Save Kanî Bil Campaign" conducted a social media movement across Iranian Kurdistan, with people holding signs asking the government to save the spring.³⁶ That same month, a group of Kurdish activists in Iranian Kurdistan went on hunger strike in December 2015 to halt the construction of the Daryan Dam and preserve the Kanî Bil spring. According to the group, this bold measure was taken after several years of failed efforts to stop the construction of the dam. In addition, the Save Kanî Bil Campaign released a statement from civil society demanding support for the strikers and actions to save the spring.³⁷ In December 2015, a letter was sent to Iranian President Hassan Rouhani, signed by more than 3,000 activists and public figures. The letter stated: "This symbolic site and valuable source of mineral water is in imminent danger due to the construction of a dam, a decision which was based on inaccurate data collected by the

³⁴ 'Kurdish environmental activists on hunger strike to protect spring water in Paveh', <http://kurdistanhumanrights.net/en/?p=535>, 29 December 2015.

³⁵ 'Save Kani Bil Campaign', <https://www.facebook.com/kanibil92>, July 2016.

³⁶ 'Campaign to Save Kani Bil: natural spring in East-Kurdistan', <http://thekurdishproject.org/latest-news/iran/campaign-to-save-kani-bil-natural-spring-in-eastern-kurdistan>, July 2016.

³⁷ 'Hunger strike has begun to stop Daryan Dam project', <http://rojhelat.info/en/?p=8655>, 8 December 2015.

Ministry of Energy.” The signees stressed that Kanî Bil can provide water for a population equal to two million people, hereby making it more important than an oil well.³⁸

IMPACT OF THE DARYAN DAM ON CENTRAL AND SOUTHERN IRAQ

The Sirwan River originates in Iran and flows through the KRI to Iraq, where it is known as the Diyala River. Combined with the Alwan River, a tributary that also originates in Iran and which joins the Diyala River northeast of Jalawla, between 20 to 30 percent of the Tigris River’s annual flow comes from Iran via these two rivers. The Diyala and Alwan rivers are the main water resources in Diyala province in Iraq, particularly for agriculture.³⁹ Currently there is no agreement between Iraq and Iran with regards to the use of the Sirwan/Diyala River. A series of Iranian dams exist on the river, which provide hydroelectric power in Iran, but restrict water flows to Iraq. In 2012, Iraqi Minister of Irrigation and Water Resources Mohannad al Saddi expressed that “Iran has been abusing [the] Alwan River of late, and this is detrimental to Iraqi agricultural lands. In the area around Khanaqin and Baqubah the situation is dire, which on several occasions has led to farmers blocking cross-border traffic between Iran and Iraq.”⁴⁰

In July 2014, University of Salford academics published a study that demonstrated that water flows in the Diyala River have been diminished due to regulation from Iran, mostly in the past 15 years. The reduction in water flows can be attributed to dams, irrigation schemes, fish farms and industrial and municipal use of water in Iran. The authors claim that water flows will be even further reduced in 2018 when the Daryan Dam is scheduled to come into operation. Such an occurrence may cause a water crisis in the KRI and Iraq, and academics are therefore calling for an international water treaty between Iraq and Iran. Professor Miklas Scholz, who conducted the study, explained that a political solution to the management and sharing of sustainable water resources between Iran and Iraq has been unfeasible in the past due to the legacy of the Iraq-Iran war and the different branches of Islam which governed the two countries. Scholz further explains:

The formation of a new Iran-friendly government in Iraq has made new talks possible, but the negotiations have been threatened by the outbreak of civil war [in Iraq]. Our research shows that Iraq’s fresh water supply has already been considerably depleted, so

³⁸ ‘Kurdish environmental activists on hunger strike to protect spring water in Paveh’, <http://kurdistanhumanrights.net/en/?p=535>, 29 December 2015.

³⁹ VENTURA, S, ‘Transnational rivers, regional conflict: water security implications in Diyala, Iraq’, <http://globalstudies.washington.edu/wp-content/uploads/2015/02/v5n1-Ventura.pdf>, spring 2014.

⁴⁰ VENTURA, S, ‘Transnational rivers, regional conflict: water security implications in Diyala, Iraq’, <http://globalstudies.washington.edu/wp-content/uploads/2015/02/v5n1-Ventura.pdf>, spring 2014.

it is important that these talks continue. The ultimate aim must be the negotiation and implementation of a water treaty, which will meet the needs of Iraq's people.⁴¹

In light of such evidence, it is therefore essential that the Central Government in Baghdad collaborates with the KRG and joins in opposition against the Daryan Dam in Iran.

DAM CONSTRUCTION IN THE KURDISTAN REGION OF IRAQ

According to KRG MP Ali, the KRG's Minister of Agriculture and Water Resources, Abdul-Satar Majid, stated on 5 May 2015 in a parliament briefing that the KRG is currently operating 12 dams, which could save up to 10 billion cubic meters of water, while 91 reservoirs have the capacity to save 17 million cubic meters of water. The KRG has been able to provide irrigation through such dams and reservoirs for 1,222,270 out of roughly six million acres of farmland.⁴² The head of the General Directorate of Dams in the KRG Akram Ahmed revealed that projects for the construction of 18 additional dams and reservoirs in the KRI have been suspended due to the financial crisis. Ahmed asserts that the dams being constructed by Iran and Turkey on rivers that flow into the KRI threaten the KRI's water sources and will have an impact on the amount of water resources available in the KRI, in particular the Daryan Dam on the Sirwan River.⁴³

If the KRG opposes the construction of dams in Iran, it raises the question of why it continues to build additional dams on its own territory?

According to the KRG, it constructs dams for the purpose of tourism, irrigation, hydropower, fishing and agriculture. In addition, on various occasions officials have expressed they may resort to using dams to withhold water in political conflicts with Baghdad. However, within the wider region, NGOs and civil society initiatives have been calling for the protection of water resources. For instance, in October 2014, several hundred villagers from the outskirts of the eastern Iraqi-Kurdish town of Darbandikhan protested with the slogan, "We don't trade water for oil." A generally held belief among Kurds in Iraq, Turkey, Syria and Iran is that all parts of Kurdistan are interconnected, and thus the use of water resources at the expense of each other is not accepted.⁴⁴ Rivers that flow into Iraq from neighboring countries are to be shared with all riparian parties, but the KRG asserts control over water resources within its own region, explains Ahmed.⁴⁵

⁴¹ AL-FARAJ, F. A. M., and SCHOLZ, M., 'Assessment of Temporal Hydrologic Anomalies Coupled with Drought Impact for a Transboundary River Flow Regime: The Diyala Watershed Case Study' in *Journal of Hydrology* (517), 19 September 2014, 64-73,

⁴² Interview with Abdul-Rahman Ali, 20 May 2016.

⁴³ Interview with Akram Ahmed, 20 May 2016.

⁴⁴ ARIF, S., 'The natural resources of the Kurds are used against the Kurds' in *Chawy Xelk*, 25 July 2014.

⁴⁵ Interview with Akram Ahmed, 20 May 2016.

Ahmed believes the KRG should not oppose dam construction in neighboring countries, but focus internally on the management of its own water resources. Even though the KRG opposes the construction of the Daryan Dam, Ahmed says he welcomes the construction of more dams within the KRI, including rivers that flow onwards to southern Iraq. Ahmed says the KRG has extensive plans to build more dams, some of which have already started being constructed but have been put on hold due to the ongoing financial crisis in the KRG.

According to Ahmed:

Once the crisis is over, construction can continue. The KRI should manage its own water resources better so that it does not have to depend on external water resources. Iran is experiencing water scarcity and they have developed their own plans to face their water crisis, while Turkey has constructed dams and hydroelectric power plants as part of the GAP project. Annually, rainwater amounts to 11 billion cubic meters in the KRI, which is sufficient for local use. The KRI has its own rivers and should use its own internal water resources to secure water for the future. This investment requires a large budget and takes time.⁴⁶

Ahmed further adds:

Baghdad does not agree with the construction of additional dams in the KRI, but the KRG has been forced to build new dams, as it wants to have complete control over its own water resources. The KRI has been ignored in past decades by Baghdad and should be compensated, as KRG officials and locals have repeatedly suggested. We cannot be at the mercy of Baghdad. Former Iraqi governments have erected large development projects in the whole of Iraq, except in the KRI.⁴⁷

Ahmed claims that the KRG constructs dams in order to provide its citizens with drinking water and to provide irrigation for agricultural purposes, and that such dams do not have any negative impact on the rest of Iraq. However, additional dams in the KRI provide the KRG with further control over water flows to the rest of Iraq and local officials are in support of the construction of dams in the KRG. The head of the Water Reservation Association Rashid Jarjis Muhammed believes the KRG should construct more dams. He backs the idea of using dams as a weapon against Baghdad. Muhammed stresses, "We are a small region and cannot challenge Baghdad politically, but we do have water."⁴⁸

⁴⁶ Interview with Akram Ahmed, 20 May 2016.

⁴⁷ Interview with Akram Ahmed, 20 May 2016.

⁴⁸ Interview with Rashid Jarjis Muhammed, 15 May 2016.

Such remarks raise the question of whether it is possible to take the KRG's opposition to the Daryan Dam in Iran seriously when dam construction, and support for it, within the KRI continues in blatant disregard to the negative impacts such construction will have downstream, primarily in Southern Iraq?

Certain rare voices are critical of the KRG's dam construction policies, albeit it not for political reasons. Professor Abdulla H.A. Bilbas of the University of Salahaddin, who holds a PhD in the Ecosystem Health Assessment of Dukan Lake, finds the (ongoing) construction of dams "catastrophic" and believes such construction may cause a humanitarian crisis. Maintenance management, especially of dams, is non-existent in the region. Bilbas foresees that in five years, the KRI will run out of drinking water. Moreover, waste from cities and villages in the KRI flows into the region's rivers, lakes and dams, and different kinds of diseases and high mortality rates among fish have emerged as the water resources have become polluted. Bilbas has urged the KRG to install strong measures in order to protect its drinking water resources.

WATER DISPUTES BETWEEN ERBIL AND BAGHDAD

On a number of occasions, KRG officials have announced that they might resort to using water as a political weapon against Baghdad. Politicians from across the political spectrum have suggested cutting water flows to other parts of Iraq in times of conflict. Should the KRI's water resources decrease due to dams in Iran, and to a lesser extent because of dams in Turkey, the chance of conflict with Baghdad over water becomes increasingly real. When, in 2014, former Prime Minister Nouri Al-Maliki decreased the KRG's share of the Central Government's budget, several Kurdish politicians suggested to reduce the water flows coming from the Sirwan River and Lesser Zab in the KRI to the rest of Iraq.⁴⁹

Should the KRI or other Kurdish regions become independent, all previous international agreements would effectively be void since they can refuse to be bound by existing treaties to which they were not a party. This implies treaty renegotiations, as resident scholar at the American Enterprise Institute Michael Rubin notes.⁵⁰ "It is easy to suggest that an independent Kurdish entity can renegotiate water-sharing agreements, but it might be too optimistic to assume that the resolution of these disputes will be entirely peaceful," says Rubin.⁵¹ The current status of Erbil-Baghdad relations is problematic. There are unresolved disputes between the KRG and Baghdad, ranging from the Peshmerga, sovereignty over oil and gas resources and

⁴⁹ 'Kurdistan government blasts Baghdad over budget freeze', <http://rudaw.net/english/kurdistan/030320141>, 3 March 2014.

⁵⁰ RUBIN, M., 'Kurdistan Rising? Considerations for Kurds, their neighbors and the region', <http://rudaw.net/english/kurdistan/030320141>, Washington, June 2016.

⁵¹ Ibid.

budget shares. Some have called for a referendum in the KRG with the aim of establishing a sovereign state, which would in effect formalize a breakaway from Baghdad.⁵² Within the framework of this political scenario, there are people in the KRG who advocate building more dams in order to establish control of water flows.

Majid agrees that further construction of dams might lead to conflict. However Majid claims that the KRG has to receive the approval of the Central Government in Baghdad for any dam construction. The Iraqi Government has formed a high committee to manage the water issue in Iraq, including the construction of dams. "We have had our concerns regarding this committee since out of eight committee members only one is from the KRG. The KRG has told the government it does not agree with the composition of the committee," Majid explains.

The construction of dams and water shares are thus a question of sovereignty.⁵³ Water is an essential resource in Iraq, and the KRG may face a standoff with Baghdad over water in the future. However various ministers claim to always avoid any conflicts. The Iraqi Minister of Agriculture has visited the KRI on several occasions with the aim of convincing the KRG to increase water flows to southern Iraqi governorates. Nonetheless, it is estimated that around 12 million people in Iraq may face water scarcity in the future. Meanwhile, Majid claims there is no water scarcity in Iraq. "If we can complete our water projects, there will be more water provided than is needed. We can double the amount water the country has," he asserts.⁵⁴ It is not clear, however, whether such a claim is realistic.

Up until now, there have been no issues between the KRG and Baghdad over shares of water that flow from the KRI to Central and Southern Iraqi governorates. Majid claims the KRG's dams are for the purposes of irrigation and hydropower, and adds that:

The recently constructed dams are mostly for irrigation only, due to the fact that small dams cannot produce large amounts of electricity. We are currently working on building reservoirs and are looking forward to continue construction once the current financial crisis is overcome.⁵⁵

KRG officials argue that when the KRG constructs dams and reservoirs, it has approval to do so from the government in Baghdad. However, KRG officials have also stressed that they are willing to resort to halting water flows to the rest of Iraq in the event of a political or financial conflict with Baghdad. Conflicts between Erbil and Baghdad that remain unresolved, including the severe financial and economic crises in the KRI, combined with reduced water flows from

⁵² BARZANI, M., 'Kurdistan deserves an amicable divorce from Baghdad' in *The Washington Post*, 5 May 2016.

⁵³ Interview with Abdul-Satar Majid, May 2016.

⁵⁴ Ibid.

⁵⁵ Ibid.

Iran and Turkey, may indeed force KRG leadership to in turn cut water flows to other governorates of Iraq, suggests Majid.⁵⁶ The long-term impact of the Daryan Dam may therefore result in intensified conflict within Iraq - between the KRG and the Central Government - over water resources.

CONCLUSION

Due to a sharp rise in foreign investment and oil revenues, income from the agricultural and tourism sectors declined in the KRI and Iraq alike. Following the emergence of Da'esh and the global fall in oil prices, the region has been grappling with both a political and financial crisis. In the meantime, the population growth rate is steadily increasing. This implies that to maintain food security, the KRI and Iraq will have to depend to a larger extent on their own agriculture and water resources. In order to revitalize the agricultural sector and diversify the economy, larger amounts of water are necessary than those currently utilized.

Such a scenario gives potential for conflicts between the KRG, Iraq, Turkey and Iran to arise. If Iran continues to construct dams without considering the needs of downstream populations in the KRI and Iraq, those on the Iraqi side of the border will be heavily affected. When Iran finishes the construction of the Daryan Dam and begins diverting the water of the Sirwan River, the KRI will face a serious water crisis in Halabjah Governorate. Consequently, this will force the KRG to reconsider the amount of water flows it releases to other parts of Iraq.

In addition to ongoing disputes over oil revenues, budget shares, territory disputes and sovereignty issues between the Iraqi Government and the KRG, water has the potential to become a flashpoint and a source of conflict between the KRG and Baghdad in the very near future, as suggested by many KRG officials. In turn, Baghdad could further decrease Iraqi budget shares to the KRG. To prevent a larger crisis from taking place, the KRG and the Iraqi Government should work together to establish a crisis-response plan for the humanitarian crisis that may occur once the Daryan Dam is completed, given that Iran is committed to diverting the waters of the Sirwan River without addressing KRG or Iraqi concerns. Furthermore, the KRG and the Iraqi Government should regard water resources as an opportunity to collaborate and further develop both of their agriculture and tourism sectors.

Water is a resource that does not belong to any particular nation or sect. Instead of being used as a tool in a nationalist conflict, water could - and should - be utilized as a means of cooperation and a tool for coexistence.

⁵⁶ Interview with Abdul-Satar Majid, May 2016.