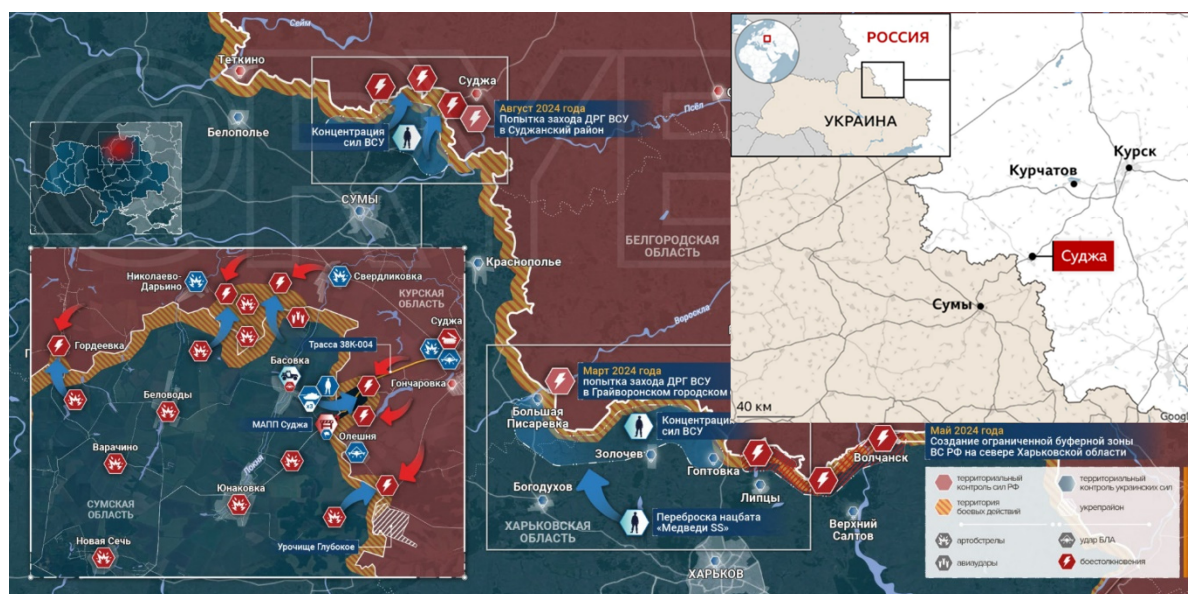


## Infrastructure and War: from Kursk NPP to Khudafarin HPP

Expert's comment, 16.08.2024<sup>1</sup>

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On the Tuesday night, August 6, 2024, two days before the “anniversary” of the Georgia–Ossetia “August 08.08.08 war”, regular units of the AFU crossed the border with Russia and invaded the Kursk region from three directions. The same night the district center of Sudzha, located 10 km from the Russian–Ukrainian border, was shelled. One should note that gas metering station (GMS) *Sudzha* is located there, the only one remaining currently in operation and pumping Russian gas to Europe. The second GMS, *Sokhranovka*, have been closed by Ukraine since May 2022, on the grounds of “*force majeure*” events<sup>3</sup>.



On August 7, Chief of the General Staff of the Russian Armed Forces, V. Gerasimov, stated that the advance of Ukrainian troops deep into Russian territory had been halted. On August 8, the Russian Defense Ministry reported that units of the “North” troop group, together with FSB border guards, were fighting the AFU in the Sudzha and Korenevo districts of the Kursk region. Reserves and reinforcement units have been deployed. Air and artillery strikes are being carried out against AFU reserves in the Sumy region (Ukraine). The advance of Ukrainian troops deep into the Kursk region was prevented.

On August 9, the fighting for the Sudzha continued. In addition, that day it was reported that the Russian forces prevented an attempt to land a special force group of the Ukrainian Navy's Special Operations Center on the Kinburn Spit in the Black Sea. On the same day, it was reported that the city of Energodar, where Europe's largest nuclear power plant (NPP) –

<sup>1</sup> The original (in Rus.) was submitted to the Editorial Board on 10.08.2024, and was posted on our website on 12.08.2024. There are some changes by the author in the translated version.

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<sup>3</sup> “Requests for Russian gas transit through Ukraine's GTS have dropped by 25%. However, Sokhranovka” (in Rus.). Neftegaz.RU, 11 May, 2022. <https://neftegaz.ru/news/transport-and-storage/736777-zayavki-na-tranzit-rossiyskogo-gaza-po-gts-ukrainy-snizilis-na-25-odnako-sokhranovka/> (download date: 08.08.2024).

the *Zaporozhskaya* Nuclear Power Plant (ZNPP) – is located, was partially cut off from electricity as a result of artillery shelling by the AFU. According to the ZNPP communications director, the plant is partially without power due to damaged power lines<sup>4</sup>. In the afternoon of August 9, it became known that at an extraordinary meeting of the Governmental commission for prevention and elimination of emergencies and fire safety on the territory of the Kursk region an emergency regime of federal character was introduced<sup>5</sup>. It is expected to introduce a regime of anti-terrorist measures in coming days as well.

On August 7, White House press secretary K. Jean-Pierre said that “*the US is contacting the Ukrainian military to learn more about the purpose of the operation in Russia's Kursk region*”. According to her, the US supports “*reasonable*” actions of Ukraine to stop attacks by Russian troops. In turn, the coordinator for strategic communications at the White House National Security Council, J. Kirby, noted that “*nothing has changed in the US policy on the use of US weapons by the Ukrainian armed forces, and Washington authorizes strikes on targets on Russian territory that pose a threat to Kiev*”. A US State Department representative M. Miller said that Ukraine had not warned the USA about plans to conduct a military operation in the Kursk region, but that this did not violate any agreements. In May, US President J. Biden authorized Kiev to use US-supplied weapons against targets on Russian territory along the Ukrainian border to repel an invasion of Russian troops to the Kharkov region.

At the time of writing of our comment, the events in the Kursk region are still in active development. The nature and scale of the invasion allow us to speak about a serious failure of the Military Intelligence of the Russian Armed Forces in the frontline zone of the special military operation (SMO), and a complete failure of the Russian information policy.

Based on the data from open sources and the analysis of the news flow, we can conclude that the direct military plan of the August invasion is 1. an attempt to strain the actions of the northern group of the troops of the Russian AF operating in the Kharkov direction, 2. to capture and hold a certain territory in the western wing of this group, 3. creating a threat in the eastern direction, towards the Belgorod region of the RF to counterbalance the “*buffer zone*” created earlier by the Russian Armed Forces and overhanging the city of Kharkov from the North. In a broader sense, the aim of invasion is in the withdrawal of forces and means involved in other theaters of the SMO, especially, near Kupyansk, Toretsk and in Chasov Yar.

This assumption is supported by the volume of directly involved forces and means from the Ukrainian side, designed for a breakthrough depth of 10-20 km along the front and depth on initial stage. As well as the nature of the subsequent actions (bringing in heavy weapons, pulling up communications, arrangement and strengthening of positions and rear, etc.). Thus, capturing of the *Sudzha* GMS<sup>6</sup>, and especially *Kursk* NPP, located 62 km from the

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<sup>4</sup> “As a result of shelling by the AFU, Energodar was partially de-energized”. EurAsia Daily, (09.08.2024). <https://eadaily.com/ru/news/2024/08/09/v-rezultate-obstrela-vs-u-chastichno-obestochen-energodar> (download date: 09.08.2024).

<sup>5</sup> “A federal state of emergency has been introduced in the Kursk region”. TASS, (09.08.2024). <https://tass.ru/proisshestiya/21566673> (download date: 09.08.2024).

<sup>6</sup> By the way, gas pumping through the *Sudzha* GMS on August 7, 2024, amounted to 42 million m<sup>3</sup>, on August 8 – 37 million, and on August 9 even more – 38 million m<sup>3</sup>. Gazprom regularly submits applications for

point of invasion, near the city of Kurchatov, could not be considered as **direct military aims** of the operation.

But the political (and media – today inseparable from the political) aims of the operation seem to be more important and multifaceted. Its main content is most likely an attempt to strengthen the negotiating positions in the peace talks, the expectation of which has been growing in recent months among all parties directly or indirectly involved in the conflict. In fact, this is how the adviser to the head of the Ukrainian presidential administration characterized the events 32 hours after the invasion in an interview to Ukrainian TV.

Moreover, it can be assumed that the strengthening of negotiating positions, in case of nominal success of the invasion, consists both in the creation of an “exchange fund” of territories, for example, Sudzha district of Kursk region, in exchange for a “buffer zone” north of Kharkov (Liptsy, Volchansk). Also, in symmetrization of the situation with *Zaporozhskaya* NPP, in case of unexpected, more than planned, success of the invasion, with reaching the limit of fire impact on the city of Kurchatov and *Kursk* NPP (the shelling of *Zaporozhskaya* NPP 62 hours after the invasion was mentioned above).

Other alleged media or political aims of the invasion are also possible. For example, to “send a clear message” to NATO and the West that “it is possible to do so”, and that an invasion of Russian territory is not inconceivable. Or to “blame” the interruption of gas supplies to Slovakia, the Czech Republic and East Germany on the ongoing military operations on the territory of the RF and the occurrence of *force majeure*, as was done in the case of the *Sokhranovka* GMS in 2022.

Or, finally, the creation and maintenance of an enclave on the territory of Russia outside the Kremlin control, a kind of “Russian Taiwan”, where and around which a certain political process can be developed. Such attempts have been observed before, for example, during the March raid of formations of the Russian Volunteer Corps, the “Russian Freedom Legion”, and the “Siberian Battalion” into the Belgorod and Kursk regions of the RF on March 12-21. However, it should be emphasized that all these formations were not seen during the “August invasion”, which was carried out exclusively by the AFU alone.

All these alleged tasks characterize the “August” invasion of the AFU in 2024 as a media-psychological and political rather than a purely military operation, aimed at solving operational tasks – this is how some Russian military experts characterized the “August” invasion, reacting somewhat irritated to the official statements about “border provocation” on the part of the AFU.

As it were or not, here we are primarily interested in the use of nuclear power plants and other critical infrastructure in armed conflicts.

Not so long ago by historical standards, it was simply inconceivable that regional armed conflicts would at first be marked by official threats of terrorist attacks on nuclear power plants. Then, the high voltage power lines, ensuring normal operation of NPP, would be blown up – recall the series of sabotage attacks on power lines near several NPPs in Russia. Finally, the nuclear power plants themselves will be bombarded with heavy artillery and drones. And yet, during only several years, we witness them all happen.

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gas pumping through the Sokhranovka GMS, and just as regularly receives a refusal from the Ukrainian side.

By the way, we have had an occasion to note that, according to a 2005–2007 academic year manual of GAAT war game for the top command staff of the U.S. Army, the war in Karabakh and the South Caucasus will resume in 2016, after a terrorist attack on the Armenian NPP by “*Free Karabakh Movement*”. And will end two years later, in 2018, with the separation of Iran in three pieces.

In light of recent events, that sounds rather ominous, doesn't it?

Thanks God, in the real 2016, not in the fictious 2016 of the GAAT scenario, there were no acts of sabotage at the Armenian NPP. But there was a 4-day April War broke up in the NKR. Real and bloody war. A few years later, in 2020, and again on the eve of the presidential elections in the United States, in the midst of the July provocation on the Tavush part of the Armenian-Azerbaijani border, the official representative of the Azerbaijani Defense Ministry V. Dargahli stated that the Azerbaijani army missiles can hit the Armenian NPP in *Metsamor* “*with great degree of accuracy, which will lead to a major catastrophe for Armenia*”<sup>7</sup>.

On July 18, 2020, the Permanent Representative of Armenia to the International Organizations in Vienna at a meeting with the Director General of the International Atomic Energy Agency (IAEA) R. Grossi pointed out that “*the threat of the Azerbaijani Ministry of Defense to launch a missile attack on the Armenian NPP creates a serious problem not only for the security and stability of Armenia, but also for the entire region*”<sup>8</sup>. Armenia expressed its hope that the IAEA, within the framework of its mandate, will express its position on such irresponsible and dangerous statements of Azerbaijan. The Prime Minister of the Republic and the Ministry of Foreign Affairs of Armenia expressed their deep concern over the statements of Azerbaijani officials regarding the possibility of attacks on the Armenian NPP. However, there was no reaction from the IAEA, the UN and other international structures.

Two months later, the Azerbaijani-Turkish forces launched a large-scale offensive against the NKR, and the 44-day War of 2020 began. Devastating and bloody war.

A few years later, we witnessed how the military actions seized the largest in Europe *Zaporozhskaya* NPP, located near Energodar in Ukraine. Not only was the adjacent infrastructure of the ZNPP shelled and sabotaged, but the plant itself and the spent fuel storage facility were hit by artillery and drones. In his report to the organization's Board of Governors on June 3, IAEA head R. Grossi stated<sup>9</sup> that “*The nuclear safety and security situation at the ZNPP remains extremely vulnerable, with the nuclear fuel storage facility destroyed in whole or in part. In early April [2024], the ZNPP came under direct attack for the first time in almost a year and a half*”.

It is clear that the IAEA's mandate does not imply an assessment of who is firing at the NPP, from where, what forces and means are being used for this purpose, and so on.

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<sup>7</sup> “Aliyev is also a nuclear terrorist” (in Rus.). “Aravot”, (24.07.2020), <https://ru.aravot.am/2020/07/24/332732/> (download date: 08.08.2024).

<sup>8</sup> “Azerbaijan's threat to NPP” (in Rus.). «SPUTNIK Армения», (18.07.2020), <https://am.sputniknews.ru/20200718/Ugroza-Azerbaydzhana-po-AES--ugroza-dlya-vsego-regiona-Papikyan-predstavil-situatsiyu-Grossi-23796663.html> (download date: 08.08.2024).

<sup>9</sup> “IAEA: All safety principles violated at Zaporizhskaya NPP” (in Rus.). DW, 3 June 2024 г., <https://www.dw.com/ru/magate-na-zaporozskoj-aes-naruseny-vse-principy-bezopasnosti/a-69258082> (download date: 09.08.2024).



However, it is also clear that such “neutral” statements do not help to clarify the picture and identify the party whose actions threaten to disrupt the safe operation of the ZNPP and create the risk of a large-scale radiation accident. In this case, it took a Nobel prize winner to explain<sup>10</sup> the situation at the ZNPP to a Western audience: “*The Russians are inside and controlling the nuclear power station. So, who do you think is shelling it?*”

Returning to the “August” invasion of the AFU and the *Kursk* NPP, we would like to emphasize that on the evening of August 9, 2024, it became known that the town of Kurchatov and parts of the Oktyabrsky, Bolshesoldatsky, Oboyansky and Belovsky districts of the Kursk region were cut off from electricity after a combined attack on a power substation. R. Grossi urged the parties to exercise maximum restraint in order to avoid a nuclear accident at the *Kursk* NPP: “*At this stage, I would like to urge all parties to exercise maximum restraint in order to avoid a nuclear accident with serious radiological consequences. I am personally in contact with the relevant authorities in both countries and will remain seized of the matter. I will continue to keep the international community informed as necessary*”, Grossi said in a statement<sup>11</sup>.

We would like to highlight an important fact for us.

To this day, the *Kursk* NPP is one of the few places where high-tech cooperation between Russia and the “West” still exists. More precisely, cooperation between the state corporation *Rosatom* and the French nuclear company *Framatome*. In 2020, *Framatome* won<sup>12</sup> an international tender for the supply of an automatic protection system for the Russian water-cooled nuclear reactors (VVER-TOI) of the second stage of the *Kursk-II* NPP. Previously, similar Franco-Russian projects were successfully implemented at the *Novovoronezh* and *Leningrad* NPPs. *Rosatom* and *Framatome* also cooperate outside Russia, for example, in Hungary, at the *Paks* NPP. To the great displeasure of Germany and the United States, and to the fury of Ukraine and the Baltic states, it should be added.

In this regard, the “August invasion” of Ukraine with a general direction to the *Kursk* NPP can also be seen as an attempt, if not to disrupt, then to significantly complicate such a cooperation. So rare in our era of confrontation, but also so promising – in terms of building a more harmonious and peaceful world.

We indicate this fact for another reason as well. Recently it was announced that *Framatome* has expressed interest in the devotement of nuclear power in Armenia. Even a special delegation of *Framatome* arrived in Armenia, which was received by A. Grigoryan, the Secretary of the Security Council of RA<sup>13</sup>. This meeting caused some strange reactions in

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<sup>10</sup> Jeffrey Sachs: The Untold History of the Cold War, CIA Coups Around the World. June, 2024. [https://tuckercarlson.com/tucker-show-jeffrey-sachs?utm\\_source=google&utm\\_medium=paid&gad\\_source=1&gclid=EAIaIQobChMIInvf056blhwMVQkhBAh3tmhnWEAAYASAAEgL9B\\_D\\_BwE](https://tuckercarlson.com/tucker-show-jeffrey-sachs?utm_source=google&utm_medium=paid&gad_source=1&gclid=EAIaIQobChMIInvf056blhwMVQkhBAh3tmhnWEAAYASAAEgL9B_D_BwE) (download date: 01.08.2024).

<sup>11</sup> «Гросси призвал стороны избегать ядерной аварии в Курской области». РИА Новости, 9 August, 2024, <https://ria.ru/amp/20240809/grossja-1965298872.html> (download date: 09.08.2024).

<sup>12</sup> «Framatome to deliver reactor protection system for Kursk II». NEI, April 9, 2020. <https://www.neimagazine.com/news/framatome-to-deliver-reactor-protection-system-for-kursk-ii-7865990/> (download date: 08.08.2024). 80.5% of the shares of *Framatome* company belong to the French state company EDF, 19.5% – Japanese Mitsubishi Heavy industries.

<sup>13</sup> Armen Grigorian received the delegation «Framatome» (in Rus.). News.am, (23.07.2024).



some Russian and even Armenian media. However, I see no reason why the Armenian NPP, together with the *Kursk* or *Leningrad* NPPs in Russia, or the *Paks* NPP in Hungary, should not become a platform for cooperation between France and the Russian Federation, promoting cooperation and collaboration, instead of confrontation and war.

Overall, it is hard to escape the feeling that the Ukrainian-Russian confrontation of 2014-22, the SMO itself, and the conflicts in the Middle East are in many ways repeating the logic of the Karabakh wars, their dynamics from the early 1990s to the biblical exodus of Armenians from Nagorno-Karabakh in 2023. But on a bloodier, or, if you like, more barbaric level.

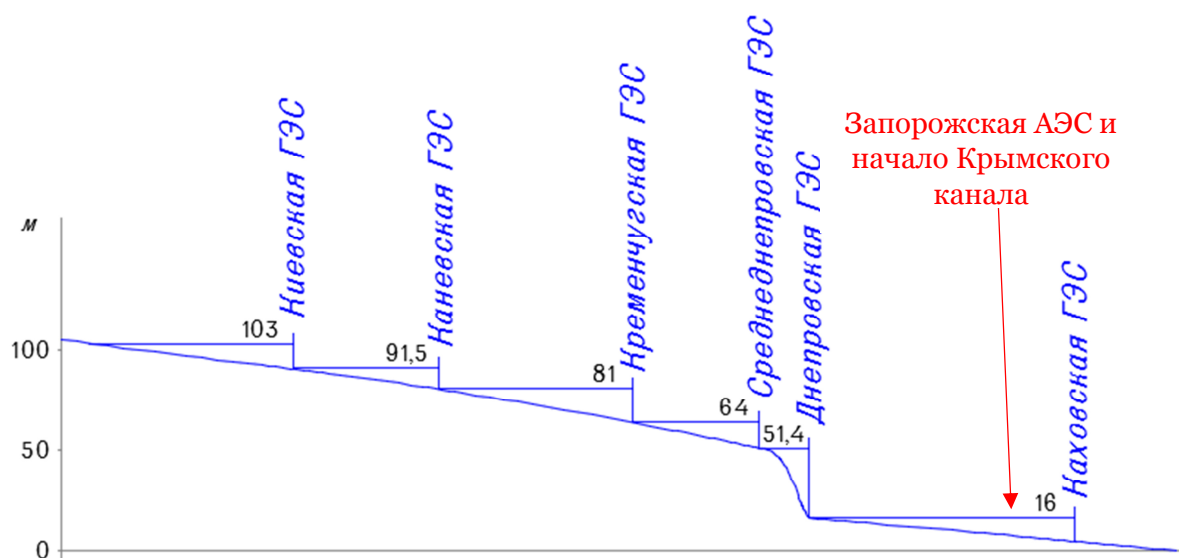
In the madness of the news flow of the past months and years, we somehow forgot about the undermining of the *Kakhovskaya* hydroelectric dam by American *HIMARS* (“fools” – in Armenian) attacks on the dam gates, and the flooding of a vast area all the way to the Black Sea by the waters of the *Kakhovskaya* Reservoir. This was the largest sabotage of power and water infrastructure in the history of mankind, unprecedented in its scale and barbarity.

I am, of course, not a Nobel prize winner, but it is clear to me that attack of *HIMARS*, combined with well-coordinated outflow of large amount of water from *Dneprovskaya* HPP, located upstream from *Kakhovskaya* HPP, together with well-known to all old school power engineers the *Babinet-Baer effect* (in Northern Hemisphere right bank of the rivers, regarding the direction of flow, are usually higher than the left one), make it clear who and why blow up the *Kakhovskaya Dam*.

Many of my colleagues have forgotten, and younger generations do not even know that *Kakhovskaya* HPP - the sixth and last stage of the *Dnieper* HPP cascade, ZNPP and water intake of the Crimean Canal, all together comprise a single hydropower, nuclear, water, transport and irrigation complex, which was the pride of the USSR, its “crown jewelry”, and the foundation for the functioning of the Ukr. SSR and independent Ukraine. *Kakhovskaya*

<https://news.am/rus/print/news/835334.html> (download date: 08.08.2024).

HPP was not only a source of clean, today we would say – “green” electricity. The water of the Kakhovskaya Reservoir created by the HPP dam was used to cool the nuclear reactors of the ZNPP, located upstream from the *Kakhovskaya* HPP. Finally, the water intake facilities of the Crimean Canal, which for decades supplied the entire arid Crimean Peninsula, were also located here.



The most striking thing here is the contrast between the enormous role of critical power, transportation, and water infrastructure in determining the nature of operations, and entire dynamics of military conflicts. And “the turning of blind eye” to it by the general “public”, and even many experts of the parties involved.

From this point of view, for the course and dynamics of the Karabakh conflict, the role of hydropower and irrigation infrastructure on the Arax (Aras) River along the border with Iran could not be overestimated. And yet it remained hidden to many of us. Without going into a detailed analysis, we note that from the infrastructural point of view, the Armenian side essentially lost the Karabakh conflict to the Azerbaijan at the very moment in 1993 when it ceded control over the Horadiz and the Mil-Mugan irrigation complex on Arax. This loss was only set in stone by signing of the Bishkek protocol on ceasefire of 1994. Armenian side lost any effective and long-term leverage over Azerbaijan (and Iran) regarding the status of the NKR. This situation only worsened since then.

For decades Armenia conducted fruitless negotiations with Iran on the construction of Meghri and Uzhtubin diversion type HPPs, on the Armenian and Iranian banks on the Arax River respectively. In the area which is now known as the “Zangezur Corridor”, - that “obscure object of desire” for Turkey and Azerbaijan, and entire turkic world. But at that time, the “northern direction” and the border with Armenia were not of particularly importance for Iran, nor was it the focus of its strategy, remaining a peripheral area of Iranian geopolitics.

In parallel with these useless negotiations and without publicizing its actions Iran started and completed the construction of the *Khudaferin* Dam and HPP, located downstream to the proposed location of the *Meghri* and *Uzhtubinsk* HPPs on the Arax, and upstream to the Mil-

Mugan irrigation complex. Later, Iran also began construction of the *Kiz Kalasi* hydro-irrigation complex on the Arax, now between the *Khudaferin* HPP and the Mil-Mugan.

All the major military actions that have taken place “around the NKR” and the left bank of the Arax River from 1993 to the present, including the April 2016 war and the 44-day war in 2020, have been largely related to this infrastructure. There is a bitter irony in the fact that Iranian President I. Raisi, Foreign Minister H. Abdollahian and other officials tragically die in air crash on May 19, 2024, after meeting with the President of Azerbaijan, attending the opening ceremony of the *Khudaferin* HPP and the *Kiz Kalasi* hydro-irrigation complex on the Arax River.

Today, the “northern direction” and the border with Armenia have gained strategic importance for Iran, especially from the point of view of the India-Iran-Russia communication corridor. And the issue of control over the left bank of the Arax has gained significant importance for Iran. This is what the Supreme Leader of the Islamic Republic of Iran said on July 30, 2024, at the meeting with the Prime Minister of Armenia, before the inauguration ceremony of the newly elected President of Iran M. Pezeshkian<sup>14</sup>.

Hours later, head of *Hamas* politburo I. Haniyeh<sup>15</sup>, who was in Iran for the same occasion, was killed in a terrorist attack.

As former UN Secretary General Kofi Annan used to say at the opening of another scientific conference, “*At the end of the day, it will turn out that we all live downstream, behind the valves*”.

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<sup>14</sup> “Ayatollah Khamenei held meetings with leaders of Armenia and Tajikistan”. INTERFAX.RU, 30 July, 2024, <https://www.interfax.ru/world/973153> (download date: 08.08.2024).

<sup>15</sup> “ Hamas political leader Ismail Haniyeh killed in Tehran”. BBC, 31 July, 2024, <https://www.bbc.com/russian/articles/ce58logvk1ro> (download date: 08.08.2024).