

**SAVE THE TIGRIS FOUNDATION**



# **Cizre Dam Watch**

December 2024

**THE SAFETY OF DOWNSTREAM  
COMMUNITIES IS THE MAIN  
REQUIREMENT OF ANY DAM**



# Brief #1 – As Türkiye’s DSI pursues the Cizre Dam project, lack of transparency raises concerns about risks

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## Summary

The planned Cizre Dam – rising 46 meters to form a reservoir of nearly 400 million cubic meters approximately four kilometers upstream of the city of Cizre – is a consequential project that poses significant risks to downstream communities.

The project has been developed secretly over the past ten years with little public disclosure or participation. Indeed, the agreement with the main contractor, CB Elektrik, was signed in October 2016, shortly after major security operations in Cizre caused many residents to flee. It is also important to note that no information has been provided about any discussions that may have occurred with Iraqi authorities about the potential impacts of this large dam project on Iraq, which depends heavily on the Tigris River for its water supply.



Horseshoe Bend (Newala Hespîstê in Kurdish), Tigris River near Cizre,  
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This brief, the first in a series, summarizes the stated objectives and potential risks of the planned Cizre Dam, hydropower and irrigation project on the Tigris River in the Şırnak Province of southeastern Türkiye. Subsequent briefs will take a closer look at potential contractors, implications for cultural heritage and the obligation of supply chain participants to conduct human rights due diligence.



## The project threatens the human rights of the affected people

The project's numerous risks include the potential for extensive loss of life and property damage in the event of a dam break, which could result, for example, from excessive flooding or a powerful earthquake. Despite this potential for extreme consequences, it appears that the May 2019 EIAR for the Cizre Dam project,[1] a copy of which has been viewed by Save the Tigris Foundation, neither acknowledges nor addresses the high risk of building and operating a large dam so close to a downstream population center.

Designed to operate jointly with the Ilisu Dam, the implementation of the planned Cizre Dam, hydropower and irrigation project could bring the flow of water at the border to a complete stop during drought conditions in summer months, according to an [analysis](#) by Philip Williams & Associates. Any water reaching Syria and Iraq at other times would be so polluted from agricultural runoff as to be toxic to humans and animals (Table 1).

### The planned Cizre Dam project poses potentially catastrophic risks

Project includes hydropower, irrigation and drinking water

#### Specifications

Location: Tigris River, Kurtuluş/Cizre

Dam height: ~46 m

Reservoir capacity

Total storage: 381 million m<sup>3</sup>

Active storage: 89 million m<sup>3</sup>

Elevation

Normal storage level: 404 m

Minimum operational level: 392 m

Crest level: 409 m

Hydroelectric installed capacity: 340 MW

Hydroelectric annual output: 1200 GWh

Irrigation: 70,000 hectares

Annual energy used to run irrigation pumps: 725 GWh

Annual drinking water: 35 million m<sup>3</sup> through 2045

#### Potential human rights impacts

##### Water

Significant reduction in flow of water at the border; flow could cease entirely during drought in summer months

##### Environmental health

Agricultural runoff would make water at the border toxic for humans and animals

##### Cultural heritage

The reservoir of ~21 km<sup>2</sup> and intensive agriculture supported by irrigation would have adverse impacts on biodiversity and cause irreparable damage to archaeological and architectural sites to the north and south of Cizre

##### Safety

Risk of dam break may be heightened due to climate-change induced flooding or seismic activity associated with an event with a very long return period, with potentially catastrophic consequences for Cizre (pop. 121,000, 4 km downstream) and other downstream communities

Sources: GAP Master Plan Report 1989-90, EPDK.org.tr, Enerse Energy Group, Cizre District Governorate, Philip Williams & Assoc. (2006), Universal Declaration of Human Rights, UN General Assembly Resolution 64/292, Human Rights Council Resolution 48/13, G. Algaze et al. (2012), G. Kozbe and A. Güngör (2018), news reports.

Save the Tigris Foundation, 2024

[1] Ministry of Agriculture and Forests, DSİ General Directorate, 10th Region Directorate, Cizre Barajı ve HES (Enerji, İçme Suyu, Sulama) Malzeme Ocakları Kıрма Eleme Yıkama Tesisi ve Beton Santrali [Cizre Dam and HEPP (Energy, Drinking Water, Irrigation) Materials Quarries, Crushing Sifting Washing Facilities and Cement Plants], prepared by ENVA Çevre İş Sağlığı ve Güvenliği Enerji Müh. Müş. Dan. Taahut San. Tic. Ltd. Şti., Ankara, May 2019.

## Adverse impacts on cultural heritage

The Cizre Dam project also poses significant threats to cultural heritage, including biodiversity. For example, the reservoir would eliminate fish habitat vital to the critically endangered leopard barbel (*Luciobarbus subquincunciatus*), which was recently observed near the site of the proposed dam.

The Cizre Dam project, including the irrigation of 70,000 hectares, would also cause irreversible harm to the region's distinctive and universally significant cultural landscape, including more than 50 archaeological sites (south of Cizre) representing each major era from the Late-Neolithic to Islamic period and the ancient fortress complex at Finik-Hendekköy (13 km upstream of Cizre).



The critically endangered leopard barbel was caught in the Tigris River near Cizre, 2024, © Metin Yokus, used by permission

These extensive defensive installations, which include Phaenicha (Finik) on the left bank and Bezabde (or Beth Zabdai, modern-day Hendekköy) on the right bank of the Tigris River, were of obvious strategic importance for Parthians, Romans and Sassanians at the lower end of a treacherously narrow valley along a major transit route between Persia and Armenia.



Bezabde was only positively identified through scholarly field research conducted in 1988-1990. The failure of the 2019 EIAR to address the potential impacts on these invaluable cultural heritage properties north and south of Cizre is troubling not only because they will be at least partially submerged beneath the reservoir, but also because the use of heavy equipment in these areas could result in significant damage.

Save the Tigris Foundation calls for the official and systematic preservation of Phaenicha-Bezabde to ensure that the rare juxtaposition of Roman and Parthian architecture on display at this universally significant historic landscape is available for the enjoyment and edification of future generations.



Horseshoe Bend (Newala Hespîstê in Kurdish), Tigris River near Cizre, © Nizameddin Pirinçioğlu, used by permission

## **Climate change and seismic hazard may increase the risk of a dam break**

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The proposed Cizre Dam poses potentially catastrophic risks for the safety of downstream communities. In the event of a dam break – due, for example, to extreme flooding or to a strong earthquake – there would be little time to evacuate hundreds of thousands of residents living less than 100 km downstream of the proposed dam site.

It is troubling that the copy of the 2019 EIAR for the Cizre Dam project viewed by Save the Tigris does not provide evidence that rigorous measures have been taken to mitigate the risk of structural damage from heavy flooding or a strong earthquake.

It is important to note that, depending on the parameters observed in the design and construction of the dam complex, the statistical probability of structural failure involving uncontrolled flow may actually be quite low. However, improbable events do occur, and in contexts where the social consequences of a dam break would be extreme (e.g., in terms of deaths, damage to property and downtime), the authorities and their contractors are responsible for building and maintaining a dam capable of withstanding highly improbable, powerful events to mitigate the risk of devastating consequences for downstream communities.





Tigris River near Cizre, © Alex Kemman, used by permission

## Flood risk

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On the question of flood risk, the 2019 EIAR (Section II.6) states simply that site of the proposed dam is not located in one of the 15 Turkish provinces identified as being prone to flooding. The reliance solely on historical data as a predictor of future events is especially negligent, as the frequency of extreme weather events related to climate change is increasing. Recent heavy rains in southeastern Anatolia (in [March](#) and [November 2023](#) and [May 2024](#)) and across the Mediterranean region (in [September 2023](#), including the storms that led to the [collapse of two dams in Libya](#) and massive flooding of the city of Derna resulting in the death of more than 10,000 people) are examples of erratic rainfall that can occur with more frequency and greater intensity as temperatures rise.

There is an urgent need, therefore, to reassess the potential for extreme flooding in light of recent scientific analysis – including a [report](#) by the Intergovernmental Panel on Climate Change (IPCC) – predicting that the frequency and intensity of heavy storms may increase in coming years, even as average annual precipitation in the region declines.

## Earthquake risk

As for earthquake risk, the brief, disjointed comments (in Sections II.7 and III.3 of the 2019 EIAR for the Cizre Dam project) regarding the maximum expected intensity of ground motion at the proposed dam site appear to be based largely on seismic hazard analyses conducted in the 1980s and perhaps adjusted later to align with the [AFAD 2018 Türkiye Deprem Tehlike Haritası](#) [AFAD 2018 Türkiye Earthquake Hazard Map].

An initial analysis by Save the Tigris indicates that the recommended design parameters are likely based on optimistically low estimates of the peak ground acceleration (PGA) expected at the dam site over the lifetime of the dam. Given that the location of Cizre Dam complex indicates the potential for extreme social consequences in the event of a dam break, international industry guidelines, such as those published by the International Commission on Large Dams (ICOLD 2016) and [The World Bank](#), recommend pegging the seismic hazard parameters of a high-risk dam, such as the Cizre Dam, to the peak ground motion expected at the dam site during an earthquake in the region of maximum credible force – which might correspond, for example, to the magnitude of an earthquake expected to recur on average once in 10,000 years (a 10,000-year event). By contrast, the comments on earthquake risk in the 2019 EIAR highlight parameters associated with, for example, 475-year and 2500-year events.

It is also of note that recent [analysis](#) by Turkish seismologists suggests that “traditional seismic hazard analyses underestimate hazard levels when compared to observations from the 2023 Kahramanmaraş earthquakes.” The dam owner and builders/operators should disclose to the public the evaluations and studies they have conducted following the strong earthquakes experienced in southeastern Türkiye (Turkey) in February 2023 and October 2011.

Taken together, the concerns raised here point to the need for a dedicated study of the region’s earthquake risk to support the selection of seismic hazard parameters to mitigate in a credible and satisfactory manner the potential for extreme social consequences associated with the Cizre Dam and HEPP.



## Work toward implementing the Cizre Dam project is shrouded in secrecy

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The Cizre Dam project is shrouded in secrecy. During the past ten years, material steps to advance the project have been taken with very little public disclosure, much less opportunity for public review of or participation in the design, development and approval of the project. The contract with the lead contractor (CB Elektrik) was reportedly signed in October 2016, just months after destructive and deadly security operations in Cizre of 2015-16, which are understood to have prompted the exodus of a significant proportion of the city's residents.

The lead contractor, CB Elektrik, is an affiliate of Enerse Energy Group, which appears to have limited experience building and operating small hydropower dam projects. The junior partner in the project appears to be Ceykar Elektrik, a subsidiary of Ceylan Group, which has decades of experience building dams, HEPPs, security installations and military facilities for the DSİ and Ministry of Defense, including several projects in Şırnak and Hakkari provinces.

The Energy Market Regulatory Authority (Enerji Piyasası Düzenleme Kurumu, EPDK, epdk.org.tr.) issued a license for the Cizre Dam and HEPP to CB Elektrik on 16 February 2023. According to epdk.gov.tr (accessed 20 May 2024), CB Elektrik's operating license (EÜ/11649-12/05370) for the Cizre Dam and HEPP has a term of 4.5 years, 16.02.2023 – 16.08.2027. The news of this operating license – which was granted less than two weeks after major earthquakes in southeastern Türkiye – was reported by energy-sector site Enerji Günlüğü nearly a month later.

Mezopotamya Ajansı reported on 20 April 2024 that the DSİ General Directorate announced the urgent expropriation of 255 lots for the first stage of work for the Cizre Dam and HEPP.

## Conclusion

Due to the gravity of the potential impacts of the Cizre Dam project on the safety, access to clean water, environmental health and cultural heritage of the affected people, it is incumbent upon the government of Türkiye, the DSI and participating companies to observe the highest standards of transparency and accountability. This means, among other things, taking systematic steps to establish a rigorous process for meaningful, ongoing consultation with the public as required by Turkish law, such as Law No. 3534 approving the Convention for the Protection of the Architectural Heritage of Europe, and international standards of transparency and accountability.

Türkiye also has a responsibility to disclose detailed information about the Cizre Dam project to Iraq and Syria and engage in discussions about appropriate mechanisms to ensure equitable sharing of common water resources among riparian states. Government authorities in Syria and Iraq also have a responsibility to engage with local stakeholders who will potentially be affected by the implementation of the Cizre Dam project and involve them in each stage of the process to determine and implement a plan for responding to the challenges posed by this risky project.

On the domestic front, as a first step toward the required level of public disclosure and stakeholder engagement, the DSI should distribute the full EIAR for the Cizre Dam, HEPP and irrigation project through easily accessible channels. The authorities should also publish

details of the dam break analysis, the evaluation of the potential impacts of extreme precipitation linked to climate change and the potential impact of strong earthquakes on dam safety, and measures to conserve the cultural heritage of areas affected by the Cizre Dam Project.

It is the joint responsibility of the DSI and its contractors to ensure the highest levels of safety in the design, construction and operation of the dam and hydroelectric power plant. The lead contractors – unofficially reported to be CB Elektrik Üretim Sanayi ve Ticaret A.Ş. and Ceykar Elektrik Üretim A.Ş. – must demonstrate to the satisfaction of the public that they possess the capabilities and capacity to respect and protect the human rights of the affected people throughout their involvement in the Cizre Dam project.

Finally, the affected people and relevant stakeholders must have adequate opportunities to influence in a substantive way the design, implementation and management of the Cizre Dam project, including full consideration of the “no project” option.



# QUESTIONS FOR THE GOVERNMENT OF TÜRKIYE

**1** When will the DSİ disclose to the public its evaluation of potential social consequences for downstream communities, including death, damage to property and downtime (i.e., loss of operations required to deliver goods/services) in the event of a dam break?

**2** When will the 2019 EIAR be updated to incorporate recent findings on the impact of climate change on the probability of extreme flooding exceeding the capacity of the Ilisu and Cizre dams?

**3** Will periodic rainfall analyses and flood risk assessments be conducted in light of the increased volatility in rainfall patterns observed in recent years?

**4** Regarding seismic hazard, what is the expected intensity of ground motion at the proposed dam site associated with the maximum credible earthquake or 10,000-year seismic event within the designated area of interest (36.86 – 39.02 North and 40.03 – 43.97 East)?

**5** What maintenance protocols have been developed for the Cizre Dam project to ensure that it can withstand this level of ground motion?

**6** Which companies participated in tenders for the Cizre Dam and HEPP project?

**7** How did the DSİ come to select CB Elektrik Üretim Sanayi ve Ticaret A.Ş. and Ceykar Elektrik Üretim A.Ş.?

**8** Who are the owners and principals of CB Elektrik/Enerse Enerji Grup and Ceykar Elektrik/Ceylan Group? What are their qualifications (including technical expertise, project experience and financial strength) to take on the construction and operation of the Cizre Dam and HEPP project? Who are the financial backers of CB Elektrik and Ceykar Elektrik? Which institutions are financing construction of the project?

**9** It is crucial that experienced staff monitor seismic hazard during the construction and operation of a dam (See M. Wieland, 2014, "[Seismic Hazard and Seismic Design and Safety Aspects of Large Dam Projects](#).") How does the DSİ evaluate and assess its private-sector contractors to ensure the operational safety of the Cizre Dam and reservoir, including the operators' capacity and capabilities in 1) developing operational guidelines for the reservoir, 2) training personnel, 3) retaining both experienced and technically qualified dam maintenance staff, 4) implementing dam maintenance procedures and 5) maintaining engineering backup to cope with unusual behavior of the dam?

**10** The results of archaeological surveys published over the past decade underscore the urgent need to reconsider the potential adverse impacts of the Cizre Dam project on the right of the local people to access their cultural heritage. In what ways have these new findings been addressed in evaluating the environmental impacts of the irrigation component of the Cizre Dam project?



