

Case Study

Dam Monitoring
Enguri Dam
Georgia

GeoSIG
swiss made to measure

Background

Enguri Dam (sometimes spelled Inguri Dam) is one of the highest arch dams in the world, and it is located in the Enguri River in Jvari, Georgia, at an altitude of 240 m above sea level. It is part of the Enguri hydroelectric power station (HES). The dam is 271.5 m tall and 750 m wide. Its crest at 510 m altitude has a developed length of 728 m, and is 10 m thick. It has 14.5 km of high pressure tunnel that is 9.5 m in diameter, and five Francis-type generator units in the underground power plant, 275 Mw each. Construction of the dam started in 1961; it became temporarily operational in 1978, and it was completed in 1987. Repairs and refurbishment at Enguri HES took place in 1999, and in 2011 work began to complete the rehabilitation and to ensure safe water evacuation towards the Black Sea. The Enguri Dam was inscribed in the list of cultural heritage of Georgia in 2015.

Challenge

Georgia has made a considerable investment in the dam and power station, and it plays an important role in the country. Georgia is situated in Caucasus, which is one of the most seismically active regions in the Alpine-Himalayan collision belt. Historical analysis shows that it is a region of moderate seismicity and that strong earthquakes have occurred here in the past, including a 7M earthquake in the region of Racha in 1991, which killed 270 people.

The scope of the Enguri project was of a dam monitoring system requiring instrumentation to record seismic motions and other ambient dynamic activity in order to continuously monitor dam structural safety within the context of a safe operating dam environment.

Solution

The solution was to install 10 AC-63 force balance accelerometers, 10 GSR-18 strong motion recorders, an interconnection cabling and modem system (GXR-ICC interconnection set), and a central processing system with processing and reporting software.

Once the data has been processed it is assessed and compared as dam behaviour against seismic design criteria applicable to dam operations. The project facilitated the development and improvement of dam emergency and safety measuring equipment within the context of increased awareness and contributed to the regional seismic data management systems.

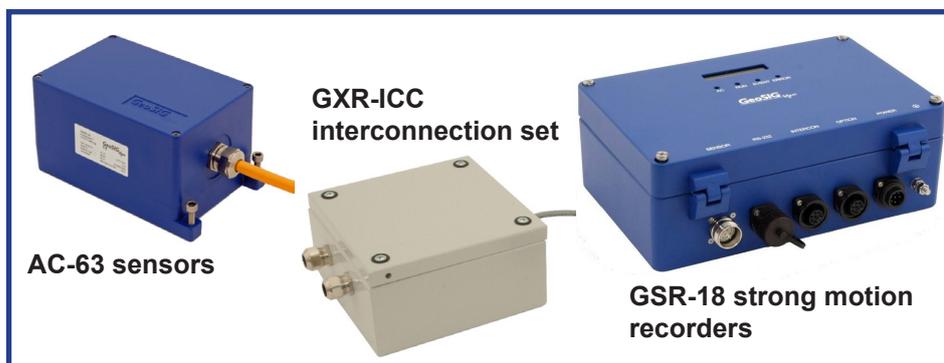
Another Solution using GeoSIG instruments showing that quality and reliability can also be cost-effective.

Product links

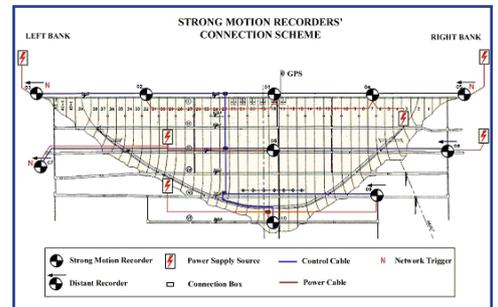
[AC-63 accelerometers](#)

[GSR-18 strong motion recorders](#)

[GXR-ICC interconnection set](#)



Enguri Dam is one of the highest arch dams in the world.



Solution: to install 10 strong motion recorders and 10 accelerometers.



Enguri Dam is located on the Enguri River in Jvari, Georgia.

