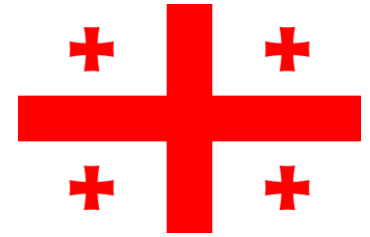


## Monitoring and early warning system for Jinali Dam in Georgia



In May 2018, under the mandate of "**Georgian Water and Power**" (**GWP**), the Joint Venture CAE S.p.A. & Field S.r.l. was assigned a project to establish the **Monitoring and Early Warning System** (EWS) for **Jinali dam** in Georgia.

The aim of this system is to protect the population of over 1 million people in the areas under risk, which were identified along the 15 kilometres downstream of the dam, under the responsibility of Georgian Water and Power Ltd. Thanks to several field inspections conducted by CAE-FIELD, the Early Warning System for Jinali Dam was successfully configured.

### *Summary*

**Location:** Jinali dam, GEORGIA

**Work completion:** 2019

**Focus:** Hydraulic and Hydrological Risk

**Challenges:**

- To establish the Early Warning System for the Jinali dam
- To protect the population in the areas under risk
- To early diagnose of the dam conditions and activate the evacuation notification system

**CAE solutions:**

- Communication device ACTI-Link
- Alerting methods: Acoustic devices (5 stations with sirens) connected via ACTI-Link radio, messaging service to operators and populations
- Specific training program

# CHARACTERISTICS

The system allows to:

- **Perform an early diagnosis of the conditions that can affect the proper dam operation, leading to its breaking.**



The system continuously monitors the parameters that best describe the safety level of the dam and, if necessary, it allows corrective actions to be taken in advance.



The boundary conditions that most contribute to the occurrence of such extreme events are:

- the condition of the dam body
  - the water level of the lake
  - the flood downstream of the dam
  - the turbidity in drainage measures
- **Activate the evacuation notification system.**



In case of emergency, when one or more thresholds are exceeded, the system either activates its acoustic devices (a total of 5 stations with sirens) which are connected via **ACTI-Link radio**, or sends messages (voice or text) to the monitoring operators and to the potentially threatened population. Moreover, the network has a mobile instant messaging service that can send text messages even in a pre-warning stage.



This project is an example of complementarity between structural works and early warning systems, which was designed in order to make any "dam emergency plan" more concrete and effective.



# COMPOSITION

For the radio connection, among the alerting devices the ACTI-Link module was selected. ACTI-Link is a communication device developed by the CAE designed for to the remote activation of monitoring and alerting system.

Regarding alerting methods, the system activates its acoustic devices (5 stations with sirens) connected via ACTI-Link radio, or sends messaging service to operators and populations.

However, an adequate installation of the EWS system is not enough: it is essential to perform **regular maintenance** to ensure the system reliability over time.

Additionally, a **specific training program** is also provided, both on-site and at CAE headquarters in Italy, to ensure that the clients acquire the necessary skills for the management and maintenance of the system.

