

DAM SAFETY EMERGENCY MANAGEMENT: PRE-EMPTIVE SAFETY TO PROTECT PEOPLE FROM FLOODING AND DAM FAILURE

CHALLENGE

There are more than 1,200 large dams in Spain, with a total approximate storage capacity of 56,000 hm³. Of these, more than half pre-date 1960 and over 100 were built before 1915.

Worldwide, there has been a drastic reduction in the probability of a dam breaking in recent years.

However, despite all the structural precautions taken during the different phases of a dam's life, there is always a residual and small but genuine risk of dam breakage or malfunction.

The Basic Guidelines for Civil Protection Planning and The Regulations on the Safety of Dams and Reservoirs in Spain establish the obligation to draw up and implement an Emergency Plan for each dam, relating to the potential risk of flooding arising from possible ruptures or incorrect operation.

ADASA'S SOLUTION

Adasa **has applied all the elements included in the approved emergency plans** for several dams located at different basins across Spain.

We've **established emergency rooms close to dams and integrated them** into the water agency's normal operations.

Each room is **fully fitted with the necessary technical equipment and serves** as a command post for the director of the Dam Emergency Plan.



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We utilised **redundant communications to receive** information from the dam's monitoring data acquisition system.

The system **features voice and data transmission technology and computer and electronic network equipment**, facilitating dialogue with public bodies involved in the management of an emergency.

Adasa **has also supplied, installed and commissioned electronic acoustic siren systems connected** to the emergency rooms. These warn nearby populations of flood risk within half an hour of a dam bursting.



Thanks to Adasa's solution, each dam has all the necessary infrastructure.

Supervisory Control and Data Acquisition (SCADA) servers **process and store all data for subsequent revision**, visualisation and exploitation.

Our Damer software **smoothes the management of any emergency and possible incidents**. The software provides communications control and decision-making tools which can simulate episodes, activate sirens and more.

RESULT

The adoption of an active safety approach **has resulted in each dam having all necessary infrastructure to comply with safety** regulations and increase the operator ability to follow their emergency plans.

The establishment of procedures and mechanisms and analysis of the dam's condition has **allowed for early detection of any associated risk, ultimately protecting populations and assets**.

In the event of total or partial dam failure, the **same practices help eliminate or reduce as far as possible** any effects on human life, services and the environment.

CLIENT

River Basin Authorities in Spain (Hydrographic Confederations) are autonomous bodies of the Spanish state, currently under the umbrella of the Ministry for Ecological Transition and the Demographic Challenge.

These Authorities manage and oversee the safety of state-owned dams, and are also responsible for the surveillance and inspection of privately-owned dams.