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# Di-Hydro

## Digital maintenance for sustainable and flexible operation of HYDROpower plant

# Enhancing Hydropower through Digitalisation

## OVERVIEW

Di-Hydro aims to digitise operation and maintenance of hydropower plants and clusters, by introducing innovative sensor technologies, Digital Twins, AI based models and a Decision-Making Platform to improve performance and sustainability of the hydropower sector.

### Digital Twin for hydropower plants

Di-Hydro will create a Digital Twin of a hydropower plant, integrating operational and historical data from sensors with DSS and AI-based weather models to improve operations, maintenance planning, and decision-making.

### Advanced Technology

Our approach uses federated architecture, decentralised storage, AI technologies, and Reinforcement Learning for resilience and robustness.

### Data Integration

We collect and analyse data from historical and sensor sources while integrating forecasted data to offer optimised decision-making for production and maintenance planning.

### Competitiveness

Our solution reduces maintenance costs, boosting competitiveness and sustainability, in line with the European Green Deal's goals.

## USE CASES



### GREECE

Involving 3 power plants (Ilarionas, Thisavros, Pournari), it will focus on:

- Development of sensors for monitoring and AI-based predictive maintenance
- Development of Di-Hydro Digital Twin and digital grid cluster
- Calibration of DH Decision Making platform



### ITALY

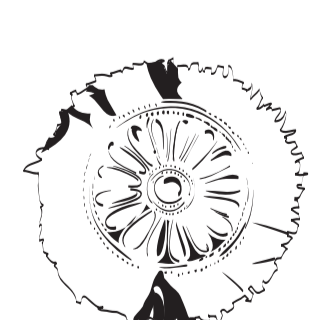
It involves the Somplago and Ampezzo plants hydropower plants, in northeastern Italy, and it will deal with inflow digitisation and forecasting of the water cycle in the catchment area. Specifically, this use case will focus on historical data collection, flow sensors installation and AI-based accurate forecasting for water flow.



### SERBIA

Based on the Meuvršje hydropower plant, this use case will focus on the development and implementation of a digital water quality monitoring system providing an early warning . This will support HPP staff in decision-making and provide a better overview on environmental and biodiversity monitoring.

## PARTNERS



**CERTH**  
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS



## CONTACTS

**Project Coordinator:**  
Alkiviadis Tromaras

**Dissemination Manager:**  
Alessandro Tedeschi Gallo

**info@dihydro-project.eu**  
**https://dihydro-project.eu/**



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