



### **Investigations, Laboratory Tests, Geotechnical and Geomechanical Studies.**

- Programming of site and laboratory geognostic investigations & relevant technical specifications.
- Supervision of site and laboratory investigations.
- Data analysis and interpretation.
- Geotechnical studies, including definition of geotechnical design parameters, appraisal of local and overall stability of excavations, embankments and foundation works.
- Design and technical specifications of monitoring systems, including processing and interpretation of measurements.

### **Seismic Risk Evaluation and Dynamic Analysis of Structures**

- Seismic risk analysis of the project area.
- Modelling and analysis of the local seismic response, evaluation of the dynamic

## **Physical Analysis & Modelling**

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parameters of the Maximum Credible Earthquake and of the Design Earthquake.

- Finite element mathematical models for the study of dynamic interaction between a structure and its foundation.
- Appraisal of liquefaction phenomena.

### **Physical Hydraulic Models**

- Definition of the hydraulic design features worth to be analyzed through physical models.
- Preparation of technical specifications and planning of tests.
- Assistance during tests, analysis and interpretation of results.

### **Mathematical Models**

- Finite element models (FEM) to calculate distribution of stresses in the structures, in the corresponding foundations and in the rock masses.
- Finite element models for the static and dynamic analysis of loose material dams and underground works, adopting different behavior laws for soils and rocks.
- Finite difference and finite element models for the analysis of seepage and consolidation problems.
- Models for the study of free and pressure flow water discharge and transients in hydraulic systems.

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