

## PERSISTAH – Projects of Earthquake Resilient Schools in Algarve (Portugal) and Huelva (Spain)

### Summary

PERSISTAH (Projetos de Escolas Resilientes aos SISMos no Território do Algarve e de Huelva) project aimed to study the seismic risk of primary schools located in the regions of Algarve (Portugal) and Huelva (Spain), fulfilling the goals of the National Platforms for Disaster Risk Reduction and Civil Protection National Commissions of Portugal and Spain.

Portugal and Spain are countries prone to earthquake hazard. An earthquake that occurs in the sea may trigger a tsunami threat, so in this case they are also prone to tsunami. After a disaster, the size and severity of the event, undermines the availability of systems and services to function properly, resulting in losses and impacts in human, social, environmental and economic spheres. One of the potential negative effects for children's education is caused by damaged school buildings and lack of road access to schools.

The PERSISTAH project aims to study the seismic risk of primary schools located in the regions of Algarve (Portugal) and Huelva (Spain).

The project has specific objectives:

- To create a hierarchy system for the vulnerability of primary schools (school-score).

- To improve school seismic safety, developing recommendations for rehabilitation with practical implementation in two pilot schools.
- To protect learners and education workers from death, injury and harm in schools.
- To safeguard education investments.
- To strengthen risk reduction and resilience through education.

In this project, an empirical and an analytical/mechanical approach have been selected to obtain a probable damage for each school. Figure 1 shows the flowchart of the developed methodology.

Two manuals (available in Portuguese, English and Spanish, Figure 2) were developed for increasing the resilience of the educational community:

- "Why does the ground shake?" - integrates a set of activities about seismic risk in the first cycle of basic education in order to enhance the awareness of the population.
- "Practical guide for earthquake resilient schools"- a tool that allows the school community to identify, assess, mitigate and monitor the risks.

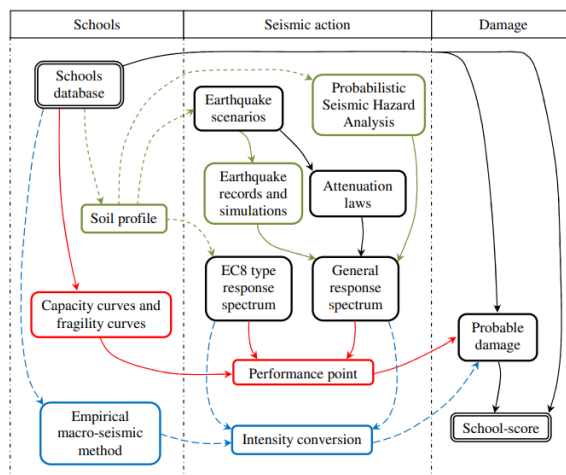


Figure 1. Flowchart for the assessment of the school-score.



Figure 2. Educational resources.



### Project Reference

0313\_PERSISTAH\_5\_P

### Leading Institution

UALg – University of Algarve (Portugal)

### Partners

US – University of Sevilha (Spain), AMAL – Comunidade Intermunicipal do Algarve (Portugal), ANPC – Autoridade Nacional de Proteção Civil (Portugal), Pablo de Olavide University (Spain), DGPCE – Directorate-General for Civil Protection and Emergencies (Spain), IST – Instituto Superior Técnico (Portugal)

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### CERIS Research Team

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### Funding

EU Interreg VA España-Portugal (POCTEP)

### Period

2018-2020

### Total

402 209.19€

### CERIS

### Project Website

[www.pnrc.pt/index.php/persistah](http://www.pnrc.pt/index.php/persistah)