

## Methodology and tools for the evaluation and guidance of rehabilitation projects in vernacular constructions

### Summary

Rehabilitation practices have been used to maintain or improve the performance of constructions, having significant impact in their inhabitants' quality of life, along with the general development of the area in which they are located. These actions can be particularly relevant in rural territories, experiencing severe out-migration and desertification phenomena. Vernacular constructions, typical of rural areas, are a symbol of sustainability and popular wisdom that can be adapted to comply with qualified living standards. Thus, it is relevant to develop methodologies that support qualified rehabilitation actions entailing sustainability concerns in a broad sense.

The main objective of this research is to define of a methodology and the necessary tools to support sustainable rehabilitation projects in rural settlements with vernacular construction. The desired methodology intends to contribute to the quality of rehabilitation projects by providing its guidance and assessment. To attain this main goal, the following subsequent goals are defined: 1) Contribute to the detailed knowledge of rural territories of vernacular construction and define intervention strategies for the buildings that compose them; 2) Identify global strategies for the revitalization of the studied territories, as well as technical solutions for specific performance deficits in the buildings that compose them; 3) Create tools that support the use of a methodology that guides and verifies the rehabilitation project, evaluating technical solutions in an integrated, prompt, and flexible way; 4) Analyse, as cases studies, a group of rural villages in Portugal and Spain (Vila do Corvo, in Azores, Chiqueiro, in Serra da Lousã, and Rello, in Soria, Spain). The ongoing research methodology entails a set of tasks, namely: T1: Literature review; T2: Case study characterisation; T3: Definition of rehabilitation strategies and techniques; T4: Development of methodology for the evaluation of rehabilitation projects; T5: Application and test of the methodology to case studies; T6: Validation and future recommendations.

Work has been carried out within the scope of multiple tasks, such as "T1- Literature review" (namely at the level of research and national and international bibliographic collection, as well as the writing contents), "T2- Characterization of the case studies" (on-site surveys, global characterization of the case studies, definition of representative buildings through cluster analysis, writing of contents), or "T4. Development of methodology for the evaluation of rehabilitation projects" (analysis of evaluation methods for housing quality and sustainability, proposal of evaluation method that supports sustainable projects in vernacular constructions). The ongoing research has been published in different forums (national congress, international congress, and scientific journal), with new publications already submitted for peer-review.

### Keywords

Rehabilitation projects, vernacular constructions, sustainability, rural settlements, housing quality.



(a) Chiqueiro, Lousã, Portugal



(b) Rello, Soria, Spain

Case studies.



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