

## Spanish traditional architecture abandonment and destruction: an initial analysis of social risks, phenomena, and effects in earthen architecture

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### Abstract

*Throughout the last century, Europe's traditional architecture has been affected by a severe and widespread trend of decline and abandonment. These are the result of worldwide cultural, social and technological modifications which have noticeably changed society, lifestyle and economy. These transformations are reflected directly in built heritage and places, often struggling to adapt to the new habits and needs and thus prone to disuse and destruction. The same processes and phenomena also affect intangible culture, such as traditional construction know-how, causing the loss of another essential part of the population's heritage and identity. Spain is no exception. Due to industrial advances and the rural crisis which brought about major changes in lifestyle, culture and population, the country is now facing various critical situations connected to this trend. These include depopulation, overpopulation, tourist exploitation, and social discredit, which are a stark warning to the conservation of its traditional architecture, now in jeopardy. The following paper focuses on identifying the most important social phenomena within Spain in relation to the transformation, abandonment, and destruction of traditional architecture. Through this analysis, the study aims to provide an initial evaluation of their effects on Spanish earthen traditional constructions and so highlight the crucial aspects to be considered for the formulation of proper and effective strategies for conservation, management and valorisation.*

**Keywords:** Spanish traditional architecture at risk; earthen architecture; social risks in earthen architecture; RISK-Terra research project

## 1. Introduction

### 1.1. The bond between places and human populations

Landscapes, territories, and architecture are closely connected to human culture as they are used and transformed to create their habitat. The technological and social evolution witnessed in the last century severely modified society and culture throughout Europe, with major repercussions on architecture and urbanism.

Among these, the system of traditional architecture, especially vernacular architecture, appears

to have suffered greatly. It is often considered outdated, inefficient, and inappropriate in aesthetic terms compared to contemporary standards.

This work aims to provide an initial assessment of the phenomena involved in this situation in order to evaluate the influence of social and anthropological components in the conservation of built heritage. The main goal is to understand which aspects most affect the survival of traditional earthen architectural heritage. This in turn allows proper actions and strategies for enhancing its preservation to be established.

## 1.2. Methodology

The work is based on bibliographical analysis and field research carried out between March and October 2021 and exploring several earthen settlements in the regions of Murcia, Andalucía, Valencia and Aragón. During these explorations, local earthen architecture was catalogued, compiling information from some of the stakeholders involved in its use and conservation through communication and interviews with administrations, inhabitants and technicians.

Initially, a general analysis was carried out of the phenomena detected, examining causes, effects and geographical localization, based on data from Spain's National Statistics Institute (INE) and National Geographic Institute (IGN). The results of this first evaluation were then applied to Spanish traditional earthen architecture, cross-referencing the data collected to detect critical factors which should be taken into consideration in promotion, valorisation, and conservation strategies.

The conclusion section provides a brief reflection on some of the actions which should be promoted to enhance the conservation of Spanish traditional earthen architecture.

## 2. Social phenomena in traditional architecture

### 2.1 General cultural and economic context

In the last century, Spain went through difficult and complex situations, including a civil war, two dictatorships and important major political, economic and technological changes. These modifications especially affected the production system, the population "topography" and the structure of society, with lingering results for the country. The most important repercussions for traditional urbanism and architecture are the phenomena of depopulation, overpopulation, tourist pressure and social discredit, which seriously jeopardize their existence. The following paragraphs provide individual analyses aiming to paint a general picture of their dynamics and effects. However, often

some of these circumstances coexist, mutually influencing each other.

### 2.2. Depopulation

Depopulation is defined as the loss of inhabitants which usually causes the complete or partial abandonment of a given area, region or town. It is mostly caused by the decreased capacity to attract and retain inhabitants, due to the loss of different services. This phenomenon usually concerns areas affected by lack of employment and education opportunities, and poor infrastructures and services. In some cases, depopulation is also observed in areas with harsh climates which make it challenging to live there.

Spain is one of the most depopulated European countries, with some areas with very low-density thresholds<sup>1</sup>. The lowest ones have been registered in:

- Castilla y León (25.34 people per Km<sup>2</sup>)
- Extremadura (25.41 people per Km<sup>2</sup>)
- Castilla La Mancha (25.79 people per Km<sup>2</sup>)
- Aragón (27.90 people per Km<sup>2</sup>) (INE, 2022)

Many of the most affected areas are inland or in communities heavily reliant on agriculture and seriously compromised during the agrarian system crisis (Fig.1). The reduction in services funding further hinders the capacity of these areas to attract people, especially young ones. It also entails the ageing of the few remaining inhabitants, subsequently leading to issues with lack of structures and resources for their care, falling into a dangerous vicious cycle. In terms of consequences for architecture, buildings in depopulated areas suffer the most from abandonment and lack of maintenance, gradually

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<sup>1</sup> Depopulation is usually expressed by the ratio of the number of inhabitants to the area of the inhabited surface. Europe sets different indexes, depending on the NUTS analysed, which are periodically upgraded. Values of 10 or 8 people per Km<sup>2</sup> are considered critical thresholds for municipal areas<sup>1</sup>, while 12.5 people per Km<sup>2</sup> is used for provincial extensions (Burillo-Cuadrado et al., 2019; Pinilla & Saéz, 2017).

leading to their destruction or major transformation. These consequences are felt even more in vernacular architecture, whose structure and use might be considered unsuitable within contemporary society. Furthermore, higher costs for maintenance and repair (compared to those of more modern techniques) could result in increasing destruction and substitution.

### **2.3. Overpopulation**

Overpopulation is the concentration of large numbers of inhabitants and users in the same area. Although this phenomenon shares many causes with depopulation, the effects and results are diametrically opposed. Regions and cities affected by overpopulation offer greater employment opportunities and better services (Bazant, 2010). In step with the development of the metropolitan model, the evolution of industries and the growth of tourism and real estate sectors (Barke, 2007), some Spanish areas and cities such as Madrid, Barcelona and Valencia grew exponentially in a very short period. This growth also attracted residents from surrounding areas. This led to a vertiginous increase in population, with inhabitants concentrating in small portions of land, giving rise to an increase in urban density and real estate speculation (Arellano & Roca, 2010) (Fig.1).

This phenomenon greatly affects architecture and urbanism: a large number of services and residences are concentrated in areas of high architectural density often sprawling over un-built land or destroying low-density settlements. Furthermore, since this growth occurs in very short lengths of time, the expansion is not always planned, especially in fringe areas, where buildings and services are added almost spontaneously. This frequently leads to the spread of low-quality urbanization, both in terms of building construction (poor standardized architecture with little relation to local landscapes and identity) and urban planning (poor quality in terms of infrastructures, spaces, service facilities and circulation), bringing about the creation of weak settlements. Tradi-

tional architecture especially struggles to adapt in this situation, since lifestyle and social structure have evolved considerably, giving rise to serious incompatibility. Furthermore, technological advances establish new standards that are difficult for traditional architecture to satisfy, so that it may be considered obsolete

As a result, traditional buildings usually undergo huge transformations which often lead to the partial or complete destruction of their original basic features.

### **2.4. Tourist pressure**

In the 1970s, Spain's tourism sector grew exponentially, causing a surge in demand for tourist facilities and accommodation, leading in turn to the phenomenon of residential tourism (Hof & Blázquez-Salom, 2013). As a result, most of the Mediterranean coastal areas underwent important economic growth and urban expansion. Many new architectures and services were rapidly established to meet the new demand, with major financial repercussions. This also affected historic cities and later, rural settlements when the rural tourism trend took off (Barke, 2007) (Fig. 2, Fig. 3).

In tourist areas, the population tended to grow, partly because of immigration from countries such as Germany, the Netherlands, and the UK (Hof & Blázquez-Salom, 2013). Often, these foreign nationals chose to establish their second or retirement residences in these locations, at times even building new neighbourhoods. However, tourist communities have an irregular impact on population and use, since their irregular presence is usually seasonal.

Due to these circumstances, traditional architecture in tourist areas tends to suffer from extreme exploitation, transformation (especially when adapted for tourist or aesthetic ends) and is frequently affected by changes in use. The architecture of historic cities and towns centres is also affected by this phenomenon, which can partially contribute to gentrification (Cócola-Gant, 2015).

## 2.5 Cultural changes (loss of cultural relevance, “social discredit”, cultural contempt)

“Social discredit” is used to describe the cultural discrimination that frequently affects traditional architecture. Construction and urban processes changed greatly due to globalization and technological advances. The new technological systems available, such as modern facilities, newer high-performance construction materials, structural improvements and other innovations, have gradually been incorporated into buildings.



Fig. 1. Population distribution in Spain (2020). (Map based on GIS data from the IGN)

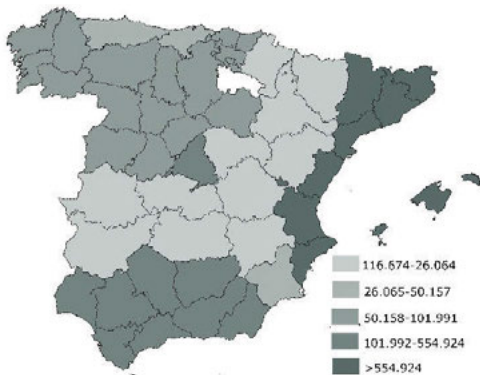


Fig. 2. International tourists by destination, July 2021. (Source: INE, 2022)

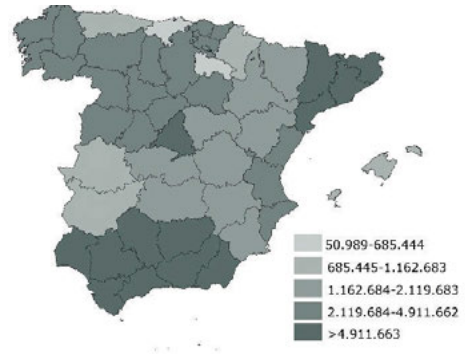


Fig. 3. Resident tourists by visits, 3<sup>rd</sup> trimester of 2021. (Source: INE, 2022)

People have adapted to these new and higher standards of comfort, which significantly enrich their way of life, and progressively incorporated them into new aesthetic trends, also contributing to major changes in the physical appearance and operation of towns and cities. Consequently, traditional architecture, especially vernacular architecture, is increasingly considered obsolete, since its values in terms of performance and aesthetics are no longer valid.

This kind of phenomenon is the main reason for actions such as demolitions or interventions which destroy the authentic character of traditional architecture, either fully or in part, in terms of structural operation as well as built material.

These actions also cause serious damage to local construction identities, as well as issues with landscapes and sustainability.

Furthermore, social and cultural discredit lead to the fall in numbers of expert craftsmen (a result of the reduced use of traditional techniques), directly harming and jeopardizing building know-how.

## 3. The situation of earthen architecture

Earthen architecture is one of the most important traditional architectural heritages of the Iberian Peninsula but it is also one of the most endangered (Maldonado & Vela-Cossío, 2011). Its widespread presence throughout Spain is

related to geographical and climatic conditions, the availability of materials and construction know-how

(Mileto et al., 2020, 2021). Spain has many earthen buildings, both monumental and vernacular. Although monumental architecture has gained greater recognition in recent decades, vernacular typologies are still more likely to suffer from abandonment and transformation, especially due to phenomena such as cultural and social discredit (Mileto et al., 2021) which, together with extreme demographic situations, jeopardize its conservation.

Earthen architecture is closely linked to geographical and geological features such as altitude, lithology, presence of stones, presence of timber and rainfall. Although found all over Spain it is especially prevalent in inland areas affected by depopulation (Mileto et al., 2021) (Fig. 4). Monolithic structures, built using the most widespread technique, are also largely present in south-east areas (Mileto et al., 2021), affected by overpopulation and tourist pressure (Fig. 4, 5 and 6). It can therefore be stated that the four phenomena previously analysed affect this heritage in different ways, leading to a range of effects and scenarios. Earthen architecture is frequently prone to abandonment, changes in use, significant transformations and destruction. Phenomena of this kind have been found both in situations of overpopulation and depopulation. In fringe areas connected to areas with high population densities, many small villages or rural contexts recorded a drastic reduction in the number of earthen buildings (Cazorla-Marín, 2015), sacrificed or transformed to make space for urban expansion (Fig. 7). Furthermore, many earthen structures connected with traditional agricultural and domestic activities fell into disuse due to the modernization of the agricultural system (Castilla-Pascual et al., 2020) and became obsolete. As a result of this, the remaining earthen structures in these contexts suffer mostly from lack of maintenance, which severely endangers their conservation (Fig. 8).

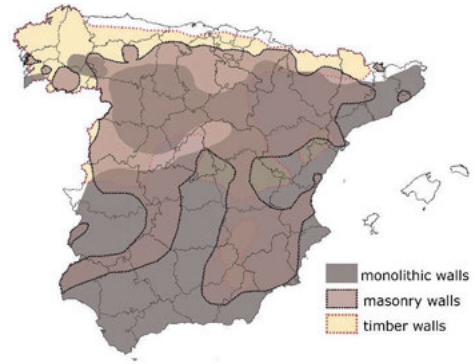


Fig. 4. Geographical distribution of earthen heritage techniques (Elaboration based on Mileto et al., 2018).



Fig. 5. Earthen architecture and population density.

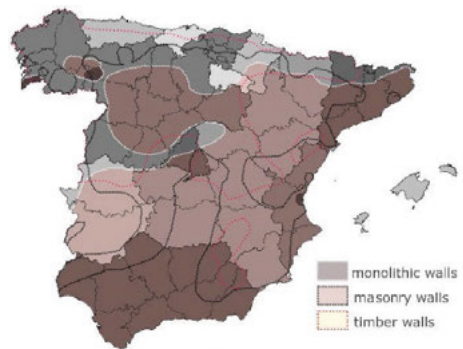


Fig. 6. Earthen architecture and tourist areas.





Fig. 7. Isolated Valencian *barraca*, in a district of Valencia. This traditional local architecture is made of adobes, and it was once primarily spread around the city's territory. Today only a few examples have endured, and most of them are surrounded by the presence of modern buildings which have no connection with the traditional architecture and urban morphology (Source: Caruso, 2018).



Fig. 8. Rammed earth abandoned building in Chodes, Aragón Community (Source: Caruso, 2021).

Previous research projects demonstrated that continuous and programmed maintenance is essential for their survival, although most of the time unsuitable systems are employed (Mileto et al., 2020), further damaging the architecture. Consequently, the lack of proper know-how should be considered another crucial aspect given the potential ravages it can cause. It can also lead the costs of appropriate repairs to increase, due to the need to provide masons with extra training before starting the work (Jímenez- Delgado & Cañas-Guerrero, 2006). The use of earthen techniques both in pre-existing and new constructions is additionally hindered by the lack of regulations, which makes it difficult to fulfil legal and insurance requirements, as well as regulations (energy, structural, etc.) (Jímenez- Delgado & Cañas-Guerrero, 2006). This last aspect, which is related to technical issues, is proof of an alarming lack of interest in earthen architecture shown by the administration and different professions, possibly as a result of social and cultural discredit.

## 4. Conclusions

### 4.1. Overview of social risks for earthen architecture

The widespread presence of earthen architecture throughout Spain means that it has been subjected to different effects of the social phenomena analysed.

In settings of rural depopulation, earthen architecture is more likely to be affected by abandonment and lack of maintenance, while in settings of overpopulation and tourist exploitation it is particularly affected by alterations, transformations, and destruction. Furthermore, prejudices connected with social and cultural discredit frequently lead to the assumption that earthen architecture is structurally and aesthetically unsuitable and obsolete.

All these situations have caused a reduction in use of earthen techniques, leading in turn to a fall in the number of trained masons and professionals. This puts construction know-how and its transmission at risk of disappearing altogether. Furthermore, the lack of interest from administrations also has severe repercussions, affecting technical-constructive regulations and urban and architectural planning.

In recent decades numerous studies, projects and cultural actions have focused on earthen architecture, particularly in academic, cultural and some professional contexts (Mileto et al., 2020). However, the knowledge acquired has not yet reached the social spheres and categories which are most vital to its survival.

Residents play a major role in this regard, as they have the choice of whether or not to inhabit earthen buildings, ultimately determining their disuse or use. Furthermore, they also play an important role in actions of transformation and maintenance. In addition, administrations hold special powers as they are in charge of establish-

ing the laws and regulations which can determine to a great extent the promotion and conservation of earthen architecture. Administrative technicians, planning and regulations also heavily influence costs, feasibility and, consequently, the complexity of projects. All these aspects actively shape people's choices.

#### 4.2. Possible strategies

The above paragraph highlights the desirability for a good balance of the needs, social context and cultural values of the population.

Inhabitants and users should be properly trained and educated to promote regular maintenance which in turn will yield benefits in terms of economy and comfort. Practical workshops directed by suitably trained professionals could help greatly. However, cultural education is still vital to guaranteeing the survival of earthen architecture. Bottom-up actions could be key to involving more people from a very young age. This way, users become familiar with earthen heritage by directly interacting with it. When cultural educational activities are aimed at children, heritage values are more likely to be absorbed and retained and easier to acknowledge and appreciate (Caruso & García-Soriano, 2020).

Some activities which could serve this purpose are workshops, practical demonstrations on maintenance practices, open days and guided visits to heritage sites, all of which can be organized by universities, private specialist centres and associations. In addition, activities with children, including summer schools or extracurricular courses and activities at all education levels could have a good impact, especially on early awareness.

Nevertheless, it is also important to foster maintenance and earthen architecture through the implementation of the appropriate legal safeguard measures, which should guarantee and promote appropriate interventions. Financial support is also desirable, especially in the

most economically deprived areas, with incentives and subsidies playing an important role.

Finally, it is important to stress that use is fundamental for the conservation of architecture, especially earthen architecture, whose maintenance is vital to its survival. Therefore, while strategies and incentives for repopulating rural contexts could be vital, they also require proper regulation and supervision, establishing limits and conditions which promote and demand correct use and actions.

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