



# Politecnico di Torino

## Porto Institutional Repository

[Article] Sustainable Interventions for The Preservation of Earthen Heritage

*Original Citation:*

Manuela, Mattone (2016). *Sustainable Interventions for The Preservation of Earthen Heritage*. In: [PROCEDIA ENGINEERING](#), vol. 161, pp. 2155-2160. - ISSN 1877-7058

*Availability:*

This version is available at : <http://porto.polito.it/2665284/> since: February 2017

*Publisher:*

Elsevier Ltd

*Published version:*

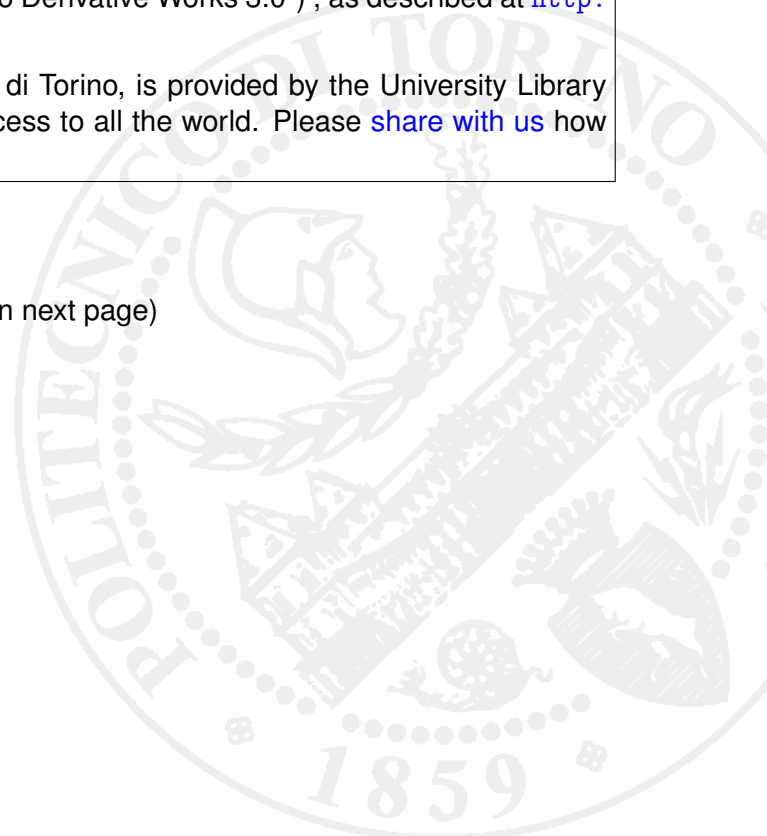
DOI:[10.1016/j.proeng.2016.08.808](https://doi.org/10.1016/j.proeng.2016.08.808)

*Terms of use:*

This article is made available under terms and conditions applicable to Open Access Policy Article ("Creative Commons: Attribution-Noncommercial-No Derivative Works 3.0") , as described at [http://porto.polito.it/terms\\_and\\_conditions.html](http://porto.polito.it/terms_and_conditions.html)

Porto, the institutional repository of the Politecnico di Torino, is provided by the University Library and the IT-Services. The aim is to enable open access to all the world. Please [share with us](#) how this access benefits you. Your story matters.

(Article begins on next page)





World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium 2016,  
WMCAUS 2016

## Sustainable Interventions for The Preservation of Earthen Heritage

Manuela Mattone<sup>a,\*</sup>

<sup>a</sup> Politecnico di Torino, DAD, viale Mattioli 39, 10125 Torino, Italy

---

### Abstract

Earth is one of the most common material used for the construction of historical villages, whose conservation ensures the transmission of a technological culture that represents the landscape, as well as historical and architectural values. The preservation of this rich, but very fragile, heritage requires the development of projects that should be promoters of sustainable interventions, not only able to guarantee a limit in the consumption of resources, but also the start-up of local development processes, generating externalities that could significantly contribute to the preservation of tangible and intangible assets. As it concerns Piedmont earthen vernacular architecture the development of thematic itineraries could give a significant contribution to the enhancement of this cultural heritage.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of WMCAUS 2016

*Keywords:* conservation, earthen architecture, sustainability;

---

### 1. Introduction

Earth is the most common material for the construction of historical villages all over the world, where climatic conditions and materials resources allow it. Italy boasts a huge and significant historical and architectural earthen heritage. Although in fact it is more commonly identified as «the country of stone town, refined marble and superfine terracotta buildings [1], next to this cultured Italy, there is another story of our building, certainly less noble, but no less interesting, worthy to be studied and therefore protected. It's the earthen Italy and, more precisely, that part of the country in which thousands of earthen buildings were built» [8].

\* Corresponding author. Tel.: +39 0110906441  
E-mail address: [manuela.mattone@polito.it](mailto:manuela.mattone@polito.it)

“Earth culture”, the expression of peasant's roots, can be found in many settlements scattered in different areas, where the availability and the characteristics of the earth have favoured its use for the construction of plain as well as articulated buildings (Fig. 1).

Unfortunately, the earthen buildings, abandoned because they were considered unhealthy and unstable, but, above all, because they were incompatible with the concept of modernity which people aspired to, for a long time have been placed in a situation of great vulnerability and are nowadays often severely compromised [10]. (Figs. 2).



Fig. 1. Cascina Ravazzi in Frugarolo (Alessandria, Italy).



Fig. 2. Urban building in Frugarolo (Alessandria, Italy).



Fig. 3. Application of an external coating on an earthen building in san Giuliano Nuovo, (Alessandria, Italy).

Earthen building techniques have become, since the second world war, a synonym for poverty, marginalization and, for that reason, no longer used for the construction of new architectures and progressively hidden and/or replaced in the older buildings [9] (Fig. 3).

Nowadays, the earthen architectural heritage is still considered, and thus treated, like a "deposit" to be exploited, proving, in most cases, lack of awareness about its value and its potentiality. The protection of such property requires the development of projects which don't consider only single assets, but address the issue on a larger scale by examining different aspects. It is necessary to promote actions involving the rich and varied resources characterizing the territory in which the buildings are located. These actions will be sustainable not only when they will be able to guarantee a limit in the consumption of resources available in a given context [2], but also when they will enable local development processes, by placing value on the resources, generating externalities that contribute significantly to the preservation of the many tangible and intangible assets in the area.

## 2. Earthen architecture in Piedmont

Piedmont, such as other Italian regions, have one of the richest collections of historical and architectural earthen heritage in the whole of Italy, whose characteristics change from one area to another. These are buildings that, located both in rural and urban contexts, are characterized by their architectural and cultural value and represent a significant source of knowledge and information useful not only to the preservation of the existing buildings, but also to the construction of the new ones [6]. These constructions represent not only rural culture, but significantly contribute to characterize the landscape where they stand and that has been shaped by the communities located there. They constituted and still constitute the expression of the identity of these places, but they are sadly destined to be lost when the population, and especially young people, leave them trying to forget and erase their memory. They are mainly rural buildings - although there are numerous examples of urban settlements (Fig. 4), as well as churches and chapels - that, unfortunately, have often undergone radical transformations in order to enable them to respond to the changing needs not only of the inhabitants' life but also of their taste, [11]. The interventions carried out on many earthen buildings have, in fact, often resulted in a substantial modification of the original conception of the constructions, with negative consequences not only on the architecture, but also on the landscape and the environment.



Fig. 4. Urban building in Fresonara (Alessandria, Italy).

The preservation of the surviving structures, which are evidence of a material culture, is closely related to the protection of the tangible or intangible cultural heritage, illustrated by these buildings and these places. The Piedmont Region moved in this direction enacting the Regional Law 2/2006 «Rules for the enhancement of the earthen constructions», through which it intended to officially confirm the importance and the value of these assets. It expressly manifests the will of the Region to engage itself in the «conservation and enhancement of earthen buildings through the promotion of knowledge of existing assets and the financial support for recovery actions which ensure the best use of the construction», trying to end their transformation and/or total removal.

## 3. Sustainability of the conservation and the enhancement of the earthen heritage

The Italian Code of Cultural and Landscape Heritage, enacted in May 2004, identifies the cultural heritage, «which consists of the cultural heritage and landscape assets» (art. 2, paragraph 1), as the object of protection. It furthermore notes that «inside of the genus "national cultural heritage" there are two types of cultural heritage, cultural heritage in the strict sense [3], coinciding with historical, artistic, archaeological things [10] and that sort of cultural heritage, in the broadest sense, which consists of the Italian landscapes», result of both human interventions and historical stratification. The «rural architectures [whose Piedmont's earthen buildings represent a significant example, ed.] of

historical or ethnographic interest as testimonies of traditional rural economy» (Code of Cultural Heritage and Landscape, 2004), and the uses, the costumes and the traditions of a civilization, forming a whole with the environment in which they arose, can be considered cultural heritage had must be safeguarded.

As pointed out in the Code of Cultural Heritage and Landscape, the protection of such expressions of material culture, however, cannot be limited to the study of existing assets and the development of appropriate intervention methods at an architectural/structural level, but it is also important that an adequate enhancement is promoted. It is in fact identified as a medium through which it is possible to achieve not only the increase of the fruition of the cultural heritage, but also to promote knowledge and, through it the improvement of its conservation.

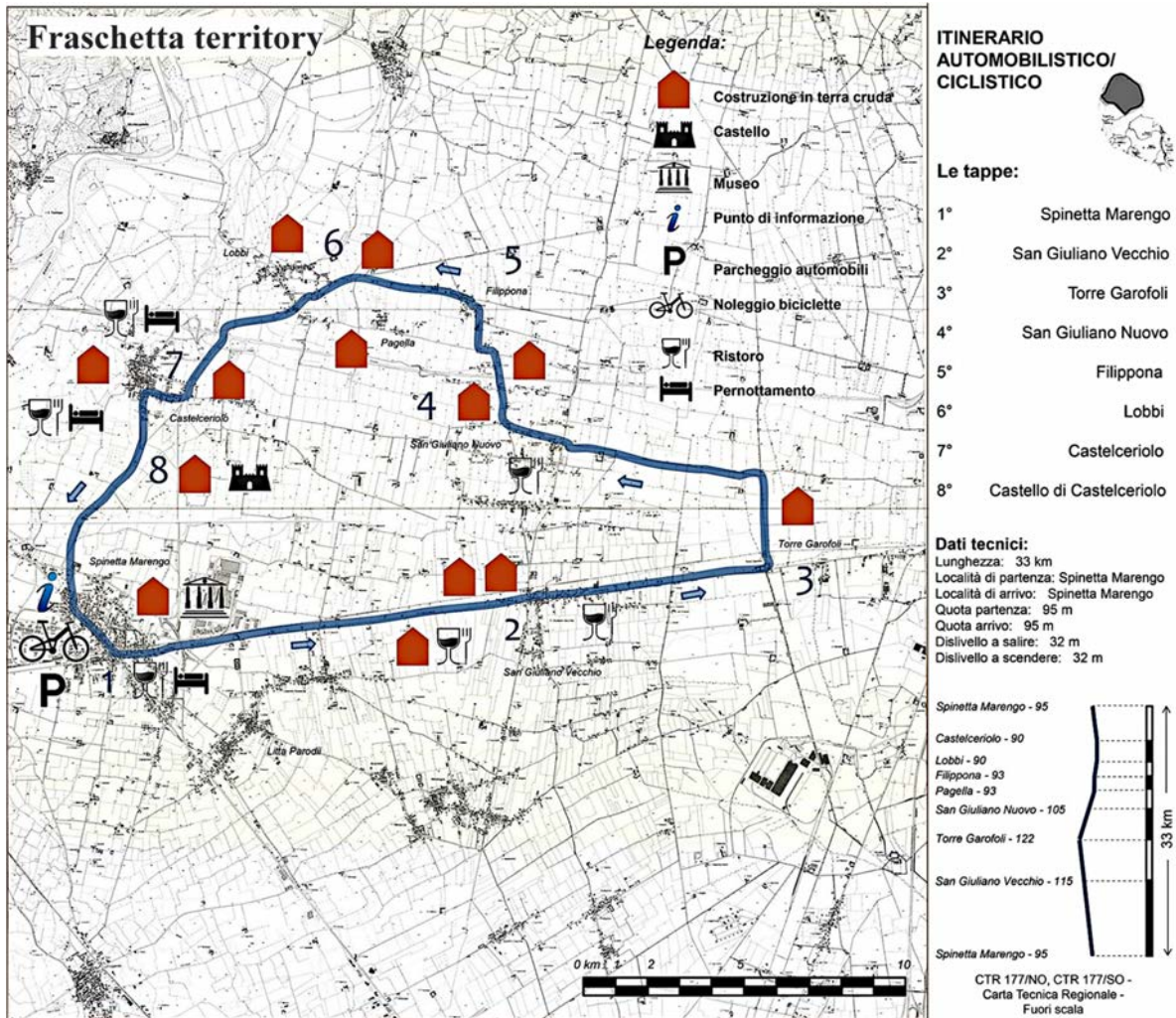


Fig. 5 Thematic itinerary for the enhancement of the earthen heritage of Fraschetta territory [12].

In order to be able to achieve this result, it is necessary to develop strategies that should change people’s mind-set, since the recognition of the value of both the physical territorial elements and the intangible assets constitute a form of protection. In fact, the acquisition of awareness of the potential of their properties and their ability to meet the needs expressed by the community significantly contributes to change the way they are perceived, making possible the transition from the status of "deposit" to that of "resource" [11].

Regarding in particular earthen constructions, it would be necessary to promote their appropriate reuse by providing, among other things, the launch of a preventive-maintenance process (the latter failed in recent decades) to accompany the buildings in their evolution, and to make them more and more suitable to meet the changing needs of users. The actions proposed, however, should not only be compatible with regard to the assets, but they should also be sustainable, that is capable of giving rise to the preservation and enhancement of the local resources, making them able to «produce per capita income, to raise the life quality and be accessible to future generations» [11].

### 3.1. *Thematic itineraries*

An articulated enhancement process could include both the development of activities and training courses, aimed at promoting knowledge and appreciation of the earthen constructions and the related cultural heritage, and the identification of tools (such as the thematic itineraries) that, by networking the various local resources, could promote an unconventional use of the different resources that, mutually interrelated, connote a certain context.

Thematic itineraries could be useful to support cultural and social development processes and, at the same time, the preservation of the heritage providing the establishment of effective interrelationship between cultural institutions, infrastructure and economic and productive realities.

The growing «demand for culture, nature, art, has placed tourism, and the enjoyment of cultural and environmental heritage, at the centre of the debate on the development, on the intrinsic teaching / educational potentialities expressed by visits, on the capacity of the cultural and environmental heritage to propose itself as an economic resource when placed in tourists' circuits, and on the possibility of these resources to act as developing detonators» [11]. It was therefore decided to undertake a preliminary study aimed at the development of thematic itineraries for the development of the earthen heritage of Piedmont (in particular in some areas of the provinces of Alessandria, Asti and Cuneo), focusing, at first, on the Frascetta (AL) area (Fig. 5). The routes are viable by bicycle or by car; they highlight a set of cultural and architectural resources, along with the food, wine and landscape that characterize the territory of Frascetta.

They are thus intended to contribute actively to spread awareness and knowledge of the heritage that characterize these places and, as regards in particular the earthen construction, to promote their compatible re-use that assures their better conservation and, at the same time, puts emphasis on their cultural.

Carrying on the study is meant not only to identify and analyse the resources of this territory in more detail, but also to explore more deeply the issue of the re-use of the earthen buildings becoming the promoters of the recovery of this heritage, encouraging the implementation of measures that provide the reuse of the currently abandoned and/or neglected buildings, exploiting the different local resources. «This organizational model allows [in fact] the tourists to get the knowledge of the places visited in their authenticity, to discover cultures and traditions, while fully respecting the cultural environment» [4]. It also offers the opportunity to bring together «all the resources of the territory, guaranteeing variety and richness not only from the cultural point of view but also from the artistic, natural, alimentary, folkloristic ones» [4]. Furthermore, it can significantly help to make sustainable interventions by attracting capital that allows both the further enhancement of the resources and their maintenance over time.

## 4. Conclusion

The preservation of earthen buildings, historical documents and cultural resources otherwise destined to disappear, requires the development of a methodology for appropriate actions, which should consider not only the actions to be conducted on the materiality of the construction, but also their exploitation by promoting their use by lots of people. Aimed at the enhancement of the different resources available in an area, they could enable local development processes, creating positive externalities that would allow, last but not least, the acquisition of the resources needed to ensure the preservation and the accessibility of a fragile and “under threat” heritage, such as the earthen buildings. The development of thematic itineraries, which highlight the different nature of the assets in the territory, may be a significant contribution to the enhancement and enjoyment of a rich cultural heritage represented not only by the earthen buildings, but also by the combination of tangible and intangible assets. Furthermore, it would promote the

conservation of this heritage and the recovery of the sense of belonging that local communities seem to have lost and that would create an incentive to the conservation of earthen buildings re-triggering processes of maintenance disregarded a long time ago.

## References

- [1] G. Bollini, I. Parodi, Earth Lands and Colour Project programs: a strategy for the conservation and the enhancement of the earthen heritage, in: M. Achenza, M. Correia, H. Guillaud (Eds.), *MEDITERRA 2009, I Mediterranean Conference on earth architecture*, EdicomEdizioni, Manzano, 2009, pp. 233-248.
- [2] Brundtland Report, Report of the World Commission on Environment and Development: Our Common Future, 1997.
- [3] Italian Code of Cultural Heritage and Landscape, D. Lg. 22 January 2004, n. 42, e s.m.i.
- [4] A. Di Tullio, The Albergo Diffuso project in Abruzzo, in: G. Conti (Ed.). *Anthology of earth land*, Tinari, Villamagna, 2004, pp. 83-91.
- [5] J. M. Fuentes, Methodological bases for documenting and reusing vernacular farm architecture, *Journal of Cultural Heritage*. 11 (2010) 119-129.
- [6] M. L. Germanà, Earth in the Sicilian architectural heritage: knowledge and conservation, in: M. Achenza, M. Correia, H. Guillaud (Eds.), *MEDITERRA 2009, I Mediterranean Conference on earth architecture*, EdicomEdizioni, Manzano, 2009, pp. 151-158.
- [7] Regional Law n. 2/2006, Rules for the enhancement of earthen buildings.
- [8] R. Masiani, The earthen houses: evidences that should not disappear, *Abitare*. 215 (1983) 12-14.
- [9] R. Mattone, The earth between tradition and innovation, in G. Bollini, M. Lion (Eds.), *Earthen Buildings in Italy: towards a national regulation*, Editoriale Eco, Roma, 2005, pp. 153-157.
- [10] R. Mattone, The earthen architectures' landscape, L'Artistica editrice, Savigliano, 2010.
- [11] E. Mollica, M. Malaspina, Planning, enhancing and supporting the local development. search paths for a practical guide to the protection and enhancement of the area, Laruffa Editore, Reggio Calabria, 2012.
- [12] M. Piccinini, Enhancement of the Fraschetta's earthen heritage: thematic itineraries, Politecnico di Torino, Bachelor degree, AA 2012-2013, Tutor M. Mattone.
- [13] P. Salvati, An itinerary for the protection (itinerary: the way to follow to go to a distant place), *Il Progetto Sostenibile*. 12 (2006) 82-83.