



Finale Emilia, Modena. Tenuta Campa. The collapse of the timber roofs mainly caused the damages suffered by the rural dwelling and its annexed oratory.

The aftermath of the Emilia 2012 earthquake damages and the safeguard of the rural anthropized landscape

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Abstract: In seismic-prone areas with spontaneous built heritage, extensive measures are needed to protect critical tangible features and intangible values made of vernacular construction techniques. Operating strategies should be continuously improved, starting with the damage survey and moving through the provisional safety measures to the final intervention. An example of the methodology used to preserve the distinctive values of the anthropized countryside landscape in the Emilia lowland is illustrated in this paper by identifying spontaneous evidence derived from the practical knowledge of rural cultures. Through an analysis of historic construction methods, it is possible to comprehend informal architecture by exploring brick masonry constructions, as well as their variances. Although their vulnerability is attributed to the lack of materials and modest construction methods, spontaneous architecture, far from being endangered as the result of seismic sequences, contributes to the distinctive nature of the anthropized rural landscape. In addition, preserving spontaneity increases collective memory and the image of a time.

Keywords: vernacular architecture, building type, traditional construction techniques, preservation.

1. The rural dimension in the earthquake aftermath

The images that, in the aftermath of the recent seismic events that struck Italy, most remain imprinted in the collective memory – e.g., the devastation of Amatrice and forms of Parmigiano-Reggiano damaged due to the collapse of scalere in Emilia-Romagna (Agenzia di informazione..., 2013) – perhaps more than any other thought give the idea of how every earthquake is a unique event in its kind, addressed by many variables: the energy released, the extension of the involved area, the natural, social and economic characteristics of the territories. All of this results in significant variability of damage that the seismic event produces, in the impact of the short and long period on the territory, in emergencies, and in the way, the return back to normality is faced (Fig. 1).

In this sense, the consequences on the economic framework vary differently: often accelerate trends of decline already in progress; other times, the activities generated by reconstruction interventions can be a critical incentive to the recovery of the declining economies or the start of development processes in the lagging areas. However, at least by looking at the main Italian experiences, a constant should be found. In that case, it is the negative impact each seismic event generates on the agricultural sector, representing real distress due to the beginning of the acceleration of its decline in the territories affected. In the last 50 years, there have been in Italy six earthquakes of intensity close to or higher than the sixth magnitude of the Richter scale, whose strength should be considered destructive: Friuli (1976), Irpinia (1980), Umbria and Marche (1997), Abruzzo (2009), the Pianura Padana Emiliana (2012), and the Central Italy seismic sequence (2016). These were catastrophic earthquakes involving nine Italian regions, more than a thousand municipalities, and more than ten million inhabitants. In addition to those events, there are other episodes of less remarkable magnitude but whose impact has left many wounds on the territories: Valnerina (1979), Lazio and Abruzzo (1984), Basilicata (1990), Molise (2002).

In many cases, the seismic event conveyed a fast population reduction, while in the medium-long term, this starts to grow again, albeit at much lower rates. On the contrary, different considerations apply to agriculture. For its nature, what intuitively seems to be the sector that is the safest from the effects of an earthquake in the long term is the most penalized sector, regardless of the extent and size of the agricultural economy involved in its characteristics. The earthquake accelerates processes already in place, pushing further the abandonment of agricultural activities in the territories concerned. Both

should be addressed as in the scale of the emergency, which determines the priorities of intervention in the aftermath of the event, agriculture is placed among the first places in sporadic cases. Moreover, this causes a delay in the reinstatement of the business conditions that, in some sectors – particularly the zootechnical and agri-food industries – can be crucial to the survival of such economic activities.

Therefore, emphasizing the attention toward a heritage as sensitive as the spontaneous built heritage in the countryside highlights the need to identify intervention instruments capable of acting as a flywheel for the recovery of the agricultural economy in the aftermath of any disaster. This attitude, linked to the testimonial value of the material document, is the most effective tool for promoting an aware action toward preserving the traditional characters of these vernacular architectures according to a territorial scale approach.

2. Spontaneous settlements overcoming the emergency

In the second half of May 2012, a considerable seismic sequence affected Emilia's lowland. It caused severe damage in several municipalities of the Provinces of Modena, Ferrara, Bologna, and Reggio Emilia in Emilia-Romagna, and the Provinces of Mantua and Rovigo, respectively in Lombardy and Veneto. In Emilia-Romagna, the earthquake is unfortunately remembered, above all, for the deaths caused by the collapse of the industrial sheds and the enormous economic damage it caused. However, it cannot be ignored that the seismic sequence struck a territory with a strong agricultural vocation and a great tradition in the agro-food industry. While the damage to the housing assets was generally limited, the damage to spontaneous rural buildings was very significant due to their high vulnerability to seismic actions. In the "crater", the so-called area that includes 33 municipalities of the Emilia lowland between the Reggio Emilia and the Ferrara, agriculture has always played a vital role in terms of the extension of the utilized land and the economic level reached. The earthquake then severely hit the activities and scattered the rural building tissue of the Emilia countryside. The most considerable damage was recorded for those compounds or those buildings for which the maintenance was not continuous or even in an entire state of degradation and abandonment, and, unfortunately, this often occurred in the historic rural courts.

The spontaneous buildings suffered severe damage and collapse due to the high vulnerability of buildings of this kind that often have not received the necessary conservation measures and maintenance. However, the



Figure 1 | San Giacomo Roncole in the district of Mirandola, Modena. In the historic courtyard, the stable-barn and the dwelling collapsed due to wall-roof interaction.

actual use of construction techniques characteristic of the Emilia construction tradition (e.g., bearing structures consisting of masonries made from bricks or adobe mud blocks) helped to limit the harmful effects of the earthquake (Gambi, 1950; Gambi, 1964; Gambi, 1977). In fact, these spontaneous architectures (Rudofsky, 1964), even when only made to withstand the vertical loads but with a good connection between the orthogonal walls, proved to possess a reserve of resistance favoured by the box-like behaviour of the structural conception. The seismic sequence produced actions on the buildings comparable to or even higher than the expected actions at the Lifesaving Limit State, for which severe breaks of non-structural elements and significant damage to structural elements are accepted, according to the consolidated methodologies of seismic design adopted.

2.1. The regulatory framework for the effective post-disaster reconstruction

Due to the lack of a national regulatory framework on natural disasters, which are unfortunately very frequent, a regional normative and a structural framework for implementing post-emergency activities led to the reconstruction of the areas severely afflicted by the earthquake. On the occurrence of each new calamity, a fresh set of rules, criteria, and methods should be established to recover

what the force of nature has destroyed. Nevertheless, the State law can only grasp some of the needs for reconstruction in such a deeply wounded territory. In light of these considerations, it emerged the requirement to integrate the provisions that were gradually developing at the central level of the Italian State with a regional law that, without conflicting with the special intervention, adjusted to the specific reality of the struck territory. The call for repairing the housing assets and the agricultural annexes of the countryside was, therefore, one of the priorities (Montuori, 2012), without losing sight of the demand to preserve their identity value. For this reason, in December 2012, the Legislative Assembly of the Emilia Romagna Region approved Regional Law n.16, which gave conspicuous and proper attention to the spontaneous architecture that characterizes the rural building tissue struck by the earthquake.

The protection requisite cannot, however, crystallize the condition of a built heritage expanded, in the past decades, according to the functional requirements to the conduction of the agricultural lands and that, at first glance, appeared oversized as compared to current needs. Then, the first issue addressed by the Regional Law 16/2012 was the dimension of the rural buildings, both in terms of support for agricultural production and residence.

With regards to those buildings not subjected to the landscape and environmental constraints, therefore, on the occasion of the implementation of the construction site to repair and improve the anti-seismic behaviour, the law backs the reduction of the building volume, with the consequent modification of the shape, avoiding to perform expensive repairs to buildings no longer necessary for the families and the agricultural activities. Besides, the law allows maintaining the right to recover the lost volume for future expansion in the ten years following the refurbishment, on the condition that those new volumes are functional dwellings for agricultural use. Even in the case of rural buildings not for housing purposes, the volume can be recovered in the following ten years through the expansion or the reuse of buildings that were no longer in use and that are located within the farm or by providing new buildings for productive use adjoining to the existing ones. The modification of the shape and the volume reduction is possible in the case of unconstrained buildings that collapsed or have reached such a high degree of damage as classified with the so-called E3 operational level. In the case of scattered buildings owned by a single farm, the law leads to a twofold option: the reconstruction within the company boundaries through a process of functional merging with the new production requirements or the rebuilding in another suitable area provided by the urban planning instrument.

The conditions for the recovery of buildings constrained directly by the Ministry of Cultural Heritage or the Municipal urban planning instruments are very different. In the first case, the offices of the Superintendence, pursuant to the Legislative Decree n. 42/2004, must previously authorize each intervention while, in the second case, every municipal rule that imposes conservative requirements should be analysed on a case-by-case basis. However, what appears more relevant in this situation is the possibility that the law offers the Municipalities to review the protection measures to maximize the effort for repairing and restoring the safety conditions of the buildings subject to landscape or cultural constraints by assessing either the actual requirement for the permanence of the constraint or possibly re-categorizing the extent.

In this case, it is necessary to provide in the Reconstruction Plan that each Municipality can approve, based on Article 12 of the Regional Law, an amendment to the protection framework, precisely aiming to foster the repair of the damaged buildings and statically compromised by the earthquake. Moreover, to speed up the recovery process, the law provides that a resolution of the Municipal Council that follows this provision may be sufficient.

The Plan may also provide incentive measures, generally volumetric increases proportional to the costs involved, which may be granted to foster the practice for the redevelopment of the degraded built heritage, even in rural territory, thus encouraging recovery actions. In the case of constrained buildings that have collapsed or been demolished as the result of a Mayor ordinance, shape and volume modification is allowed, with the relative recovery modalities described above. However, the commitment to rebuild concerning the traditional building type remains by using construction techniques and materials of the tradition. To this end, the Plan addresses the process by suggesting the characteristics of the building type that the new buildings should have and the direct measures to lead the reconstruction. The demand to repair or rebuild many damaged buildings in the agricultural territory thus offered a one-off opportunity to improve the safety conditions while respecting the spontaneous character of these architectures. The Emilia-Romagna Region stood as a strategic tool for decision support to Municipalities and designers to safeguard the most relevant parts of the damaged built heritage, whose conservation can also be ensured through practical action to enhance the building type. This has favoured, above all, the recovery with seismic improvements up to 60% of the safety degree provided by the law, allowing the restitution of the necessary stability to so many buildings damaged in the Emilia countryside, making them accessible again and functional to the residential or the productive use.

2.2. The spontaneous architecture at the earthquake test

The territory struck by the May 2012 earthquake includes not only churches or historical palaces, witnesses of artistic culture to preserve (Zaffagnini, 1995). Due to their agricultural character, there are also several spontaneous buildings (May and Reid, 2010) that, scattered in the countryside, are of historical interest and are therefore subject to landscape constraint (Zerbi, 2007), despite the fact that they are buildings of limited artistic value, representing an essential value for the connotation of the landscape and the rural tradition of the place (Ortolani, 1953). These constructions reflect and synthesize the environmental framework of reference while renovating its dynamics in continuous sedimentation cycles of use and reuse (Mansbach, 2018). In fact, the distinctive presence of barns and barchesse (i.e., outhouses), even more than dwellings, marked the difference with other less interesting contexts in terms of characterization of the building type, characterizing the morphology of the settlement (Pianzi, 1995; Pianzi, 1997). The rural system has forms and structures led by a compositional and functional tradition which, mediated by stylistic and morphological

influences inspired by forms of courtly architecture, is linked to specific purposes of use. The necessities linked to the people's housing, the sheltering of animals, and the processing and safeguarding of products, in fact, determine a precise –although widely variable– structure of spaces and buildings. On the one hand, the structure and the production level influence the ways and the forms through which this relationship between necessity and space is realized in the territory. On the other hand, the physical and geomorphological characteristics are peculiar to each settlement system.

Separate components that identify a court define the most widespread agricultural building type, and the service buildings usually are separated from the farmhouse (Pecora, 1970). Occasional is the presence of the farmhouse with joint sections, as observed in the area of Reggio Emilia, for example (Gaiani, 1955). At the same time, among the oldest buildings –up to the 18th century– there are variations of the type that, although presenting the established division between the house and the stable-barn, introduce different solutions concerning the access (from the portico, directly from the outside), the plan of the building (square or rectangular), the roof (e.g., a two pitches roof, a pavilion rooftop, with recessed edges) (Manaresi, 1977).

The most outstanding and representative buildings in the agricultural domain are, actually, the typical rural constructions of service which can be traced back to the model outlined by the Bolognese architect Carlo Francesco Dotti, who in the 1700s introduced the building type stable-barn/barchessa, with a portico on two or three sides, particularly familiar in the rural territory from Modena to Bologna (Salvini, 1999). Pillars or pilasters represent the architectural and compositional features of these barns, often paired, with large arched or squared openings, in addition to impressive walls arranged with the construction technique of *gelosie* (i.e., grid masonry wall), initially introduced for hygienic reasons (Zaffagnini, 1997).

In San Felice sul Panaro, on the other hand, the presence of apparently more ancient barns shows a combination of supporting columns on the front, but in this case, the columns in white stone with capitals and bases shaped to support large arches of the main front. All of this advises the barns of San Felice sul Panaro as a key element in the connotation of the landscape of that area, belonging to a history that deserves further study. The link with the territory on which this heritage insists is the characterizing element. So in Concordia sulla Secchia, the bond with the water courses is vital, whether it is the Secchia river or the artificial canals built in the 20th century to sustain agricultural activity. In this area, for example, there are episodes mostly related to

single-family dwellings consisting of a single building composed of two distinct but closely related parts; one behaved as a dwelling, the other as a stable-barn or a barchessa. Sometimes even a small building that used to house the bread oven is part of the same site, below which there was the pigsty for the domestic breeding of pigs, and often above, there was room for a small chicken coop. Hence, the orientation of the main constructions –i.e., stable-barns and dwellings– is almost always respected: the house faces South, while the stable, which usually is the closest building to the dwelling or the owner's house for monitoring reasons, has windows on the long sides, facing East and West for countering the North winds, while the position of the pigsty is usually outside the court and close to the dunghill.

2.3. Assessment of the earthquake damage scenario

The examples of the typical damage suffered by the spontaneous architecture of the Emilia countryside during the earthquake of May 2012 are briefly discussed below, with particular attention to rural buildings, those constructions commonly used for residential functions and in support of agricultural activities, which constitute the building tissue of the Emilia countryside landscape (Figs. 2, 3). The analysis of the damages suffered by these buildings, although in some way made specific by local construction techniques (Sorrentino, Liberatore, Liberatore, and Masiani, 2014), is clearly helpful for interpreting the seismic behaviour of these building types in an ever much better way. The damage has been reported due to the out-of-plane failure mechanisms and in-plane damage to the masonry walls as a representation of the different structural behaviour of many case studies surveyed.

The spontaneous Emilia architecture uses clay-bricks, but in some cases also sun-baked clay bricks, to raise walls that, in general, identify a bearing structure (i.e., vertical walls and pillars) arranged in both the main directions of the plant to determine a global box-like behaviour. Although characterized by a geometrical arrangement generally unchanged over time, it has instead undergone considerable changes that have particularly affected the horizontal structures, whose structural role is crucial for the overall behaviour of the building towards both vertical loads and seismic actions. This structural element is assumed as the distinctive factor for this brief survey which investigates the damage scenario of those rural buildings characterized by the use of wood in the construction of floors and roofs, whose primary members, bending resistance (i.e., horizontal timber beams, common rafters, and purlins) are merely resting on the masonry. The walls, which are not subject to thrusts other than those coming from the roofs, define a single structure that seems capable of withstanding



Figure 2 | Medolla, Modena. The roof, resting on long span walls, collapsed and directly contributed with its thrust to the out-of-plane overturning of the walls.

significant horizontal actions. Actually, this overall positive behaviour failed due to various factors, not surprising for a spontaneous construction, directly linked to the construction techniques (e.g., lack of connection between orthogonal walls, concentrated action of the beams either on the floors or the roofs, different load amount on orthogonal walls, the lintel thrusts above the openings) that lead to the overturning mechanism of the facade wall detached from the orthogonal ones and the separation of the same walls in autonomous vertical bands. Thus, the so-formed separate portions of the masonry rotated outwards due to the eccentricity of the thrusting as a consequence of the perimeter walls shape, whose offsets are all arranged from the inner side. The stables and the barns showed the most considerable damage, in many cases triggering the collapse, due to the critical relationship between the height and the thickness of the walls, accentuated by the length/thickness ratio of the long walls, especially in the barns and the *barchesse* that, in addition, have highly irregular configurations, both in plan and elevation. The very slender infill walls are frequently out-of-plane collapsed, mainly when laid in a stretching bond, and if pillars are present, the connection between the pillars and the infill wall proved to be ineffective. The out-of-plane failure mechanisms also involved thicker perimeter walls, especially in the absence of transverse walls. In these cases, the roof, resting on long-span walls, collapsed and directly contributed with its thrust to the out-of-plane overturning of the walls.

3. Environmental design and the strategies of the reconstruction

The damage of seismic events to the rural territory, on its economic resources but also the identity values linked to the landscape, requires consideration of the objectives of reconstruction. In the post-earthquake phase, it was necessary to respond to new requirements and requests from the territory while contributing to shaping a contemporary rural landscape, firmly rooted in the structures and signs of the historical landscape but renewed in functionality and safety (Montuori, 2013).

The reconstruction of the lower central Emilia plain can be assessed as the implementation of a collective project involving citizens, professionals, and local government agencies. This process could not ignore a unitary vision, a project that, going beyond the emergency, knew how to seize the opportunities to renew the existing spontaneous context, investing in safety and functionality but also in quality features (i.e., quality of rural settlements, in their relationship with the landscape, and quality construction of rebuilt buildings). In order to manage the phases of this dynamic transformation, the definition of guidelines has been strategic to support operations without establishing a strict set of constraints and rules. The regulatory framework prepared by the Emilia-Romagna Region, also through the work of the Agency for the Reconstruction, established a series of criteria that, orienting the transformation interventions, addressed the design options about the context in which the intervention is going to be placed.



Figure 3 | Spontaneous built heritage at the earthquake test: Crevalcore, Bologna (top, centre, and bottom-right); San Felice sul Panaro, Modena (bottom-left).

3.1. Spatiality and relationships with the landscape in the composition of new buildings

The first question that every intervention is called upon to answer is the ex-ante assessment of the effects that each intervention would have on the landscape, whether positive or negative since the integration and the prevention of the negative impacts represent significant factors in design in the same way as the functional requirements of the farm, the economic-financial aspects, and the seismic safety.

The level of transformation is backed, on the one hand, by the damage extent and the building construction techniques, and, on the other, by the value that the built compound plays in itself due to the construction type of the buildings, its representativeness, its function, or the significance that the local community attributes to it. Knowing the local context, the models of aggregation and the territory are of fundamental importance for understanding the settlement rules in the landscape and thus guide the new constructions to integrate into a context of continuous transformation effectively. Thus, the investigation took into account the physical elements structuring the landscape, the morphological, functional, and formal relationships between the settlement and the road network, between the open spaces and built places, and between all these elements and the features of the landscape. Not only that but also the vegetable formations and essences typical of the territory, especially when this vegetation is thought to be in contact with the plantation or close connection with the building. For clarity, the exemplification of Figure 4 makes a series of guidelines aimed at achieving quality in new buildings and the appropriate inclusion in the rural landscape. These exemplary solutions are functional solutions to display the objective pursued in the reconstruction. Given the level of abstraction of representation, which synthesizes a great variety of realizations, it is possible to reflect on the criteria pursued in enhancing the countryside landscape. In particular, in the areas of landscape emphasis and some micro-areas of exceptional landscape value, the historic arrangements and the landscape characters represented those values to recognize and safeguard, going well beyond the mere preservation of a single building. In these cases, the reconstruction of a collapsed building assumed a different relief concerning other contexts without built cultural heritage and environmental significance.

Before intervening, it is therefore essential to know the rules that shaped the territory and, in most cases, satisfy multiple needs: from safety concerning hydrogeological risks to accessibility and visibility in the landscape. The knowledge of these rules is the logical precondition for intervening on a part, with the awareness of being able to contribute to a broader 'project' of landscape

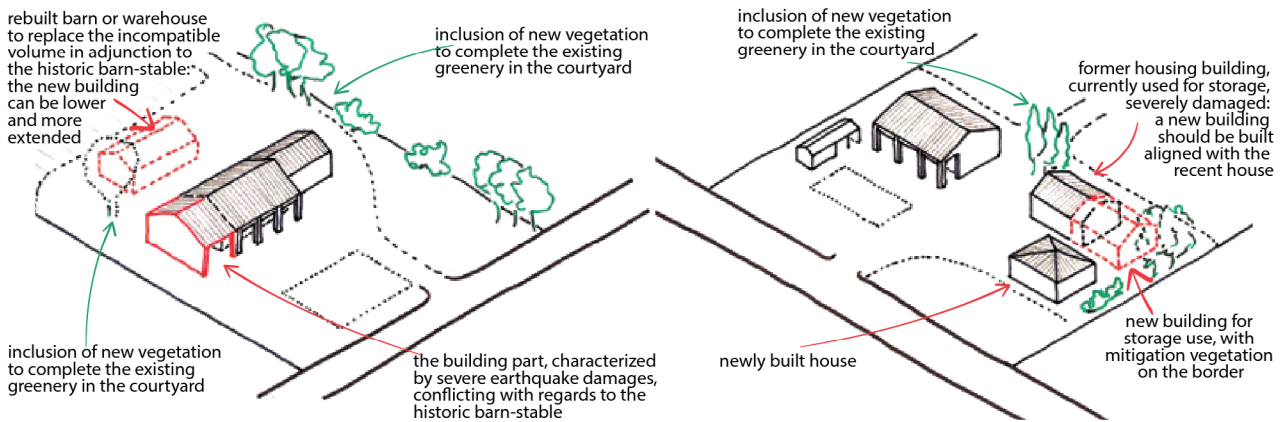
enhancement. To limit the formation of new isolated buildings, the location of the new constructions serving the farm production is carried out in contiguity to the existing building compound, where it was possible to identify an adjacent lot area, or an area functional to the performance of the company activities, the new buildings were located within these areas. Instead, if it was impossible to locate buildings in places adjacent to other already-built complexes, as in the case of buildings subject to sanitary regulations, the criteria of visibility were respected.

This informs the intervention, firstly, in order not to hide the unrestricted views of agricultural space and, secondly, not to alter the visibility of the buildings of particular historic-testimonial interest from the main road. A similar case is represented by the delocalization of constructions from the road buffer zones, and to prevent the new buildings from standing isolated from the rest of the context, the insertion of new greenery is fostered. In this case, the layout of the new buildings took into account the ventilation conditions, the natural lighting, and the sunshine. Hence, the layout of the buildings, according to correct natural ventilation concerning the prevailing winds and, at the same time, shaping the buildings to the sun exposure, is meant to adhere to the rule that governs the landscape formation.

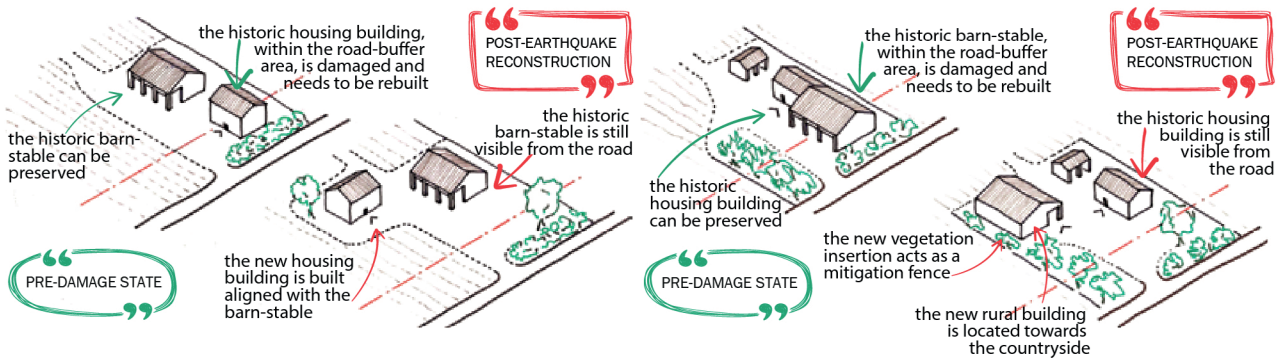
3.2. Reconstruction in historic courts preserving the traditional building type

The building type of the rural settlements is of great interest as it is an expression of the identity of a place (i.e., *genius loci*) and the constitutive element of a specific landscape (Berque, 2000). Therefore only through the study of the local built heritage is it possible to acquire the appropriate information necessary to understand the rules with which the settlements were built, particularly regarding the buildings' composition and orientation. For these reasons, in the case of interventions on the historic built heritage, it was necessary to assess the possibility of recovering the function of the buildings, compatible with the building type, respecting the structural and decorative characteristics, and, as far as possible, improving the seismic behaviour. Finally, if it is necessary to intervene in connection with the existing structures, the objective is to harmonize dimensions, shapes, and materials to the pre-existence. The newly built interventions were inserted into already existing compounds, and the new extensions were composed of the original buildings. In particular, if the new buildings were arranged around a courtyard space, those locations were favoured that reinforce the centrality of this space by closing or extending one side if this did not alter the visibility of the rural complex from the street. Alternatively, if the new building or the extensions

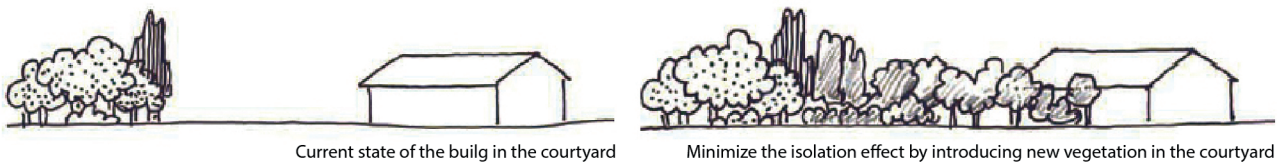
1. OPERATIONAL ISSUES TO RELOCATE NEW BUILDINGS WITHIN A DAMAGED HISTORIC RURAL COURTYARD



2. RECONSTRUCTION OF THE BUILDINGS THAT INTERFERE WITH THE ROAD-BUFFER AREA



3. BENEFITS FROM THE VEGETATION INSERTION TO IMPROVE THE QUALITY OF THE COURTYARDS SETTLEMENT



4. GREENERY TYPE FORMATIONS AND RECOMMENDATIONS OF USE

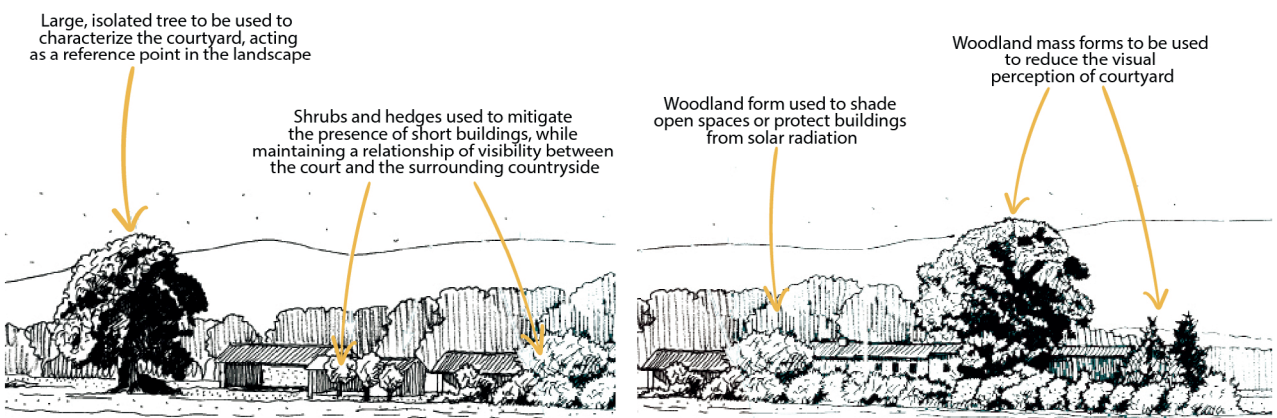


Figure 4 | [top-down] 1) Operational issues to relocate new buildings within a damaged historic rural courtyard: on the left, the exemplification of the building part to demolished with the reconstruction of the same volume in the backward; on the right, reconstruction of the new building part aligned with the recent housing building. 2) Reconstruction of the buildings that interfere with the road-buffer area: on the left, delocalization of the housing building in separate elements; on the right, delocalization of the production building in single-body complexes. 3) The benefits from the vegetation insertion to improve the quality of the courtyards settlement. 4) Greenery type formations and recommendations of employment.

have originated another smaller courtyard area, this was set to face the farms at the back of the main building. The objective that guided the intervention concept is backed by the principle that any new construction should not alter the unitary vision and should be arranged by enhancing the presence of the historic parts. If new buildings are already present in the courtyard area, altering the original configuration, then the opportunity was taken to reconfigure the area in its entirety. The new construction resolved the incorrect insertion of recently built addition, redeveloping and reconfiguring the courtyard as a whole while enhancing the character of any historic building.

Moreover, the location of the new building was the occasion for shading, from the main view, those service spaces intended to accumulate materials or agricultural equipment. In the case of small historic rural aggregates, when the collapsed components are limited, the objective is not to alter the subdivision of the spaces and the nature of agglomerates, accompanying the constructed volumes with the insertion of new greenery. The vegetation in linear or scrubland form proved to be a handy tool for mitigating existing large buildings or those buildings of new construction for functional needs.

4. Discussion

Those who had the opportunity to research an archive or have experienced an archaeological excavation know

that the documents preserved there have their order that not only should not be altered but is also part of the information that the single document can provide. Even those voids left by objects, not in the location where they should have been, represent research data. Once the order is changed, the documents are moved, and some information is lost. This is what happens to the landscape, and to the agricultural landscape in particular, where things often change, for reasons linked to cultivation, to the technologies used, due to the inadequacy of buildings to the needs of work and daily life. In the case of a dramatic event such as an earthquake, an archive of historic heritage is inevitably put at risk by the choices of reconstruction. In this case, it is the single building (i.e., the single document) to occupy the center of interest, for reasons linked to the single property and the specific plan of reconstruction, for the procedures and the methods with which interventions are managed.

Hence, dealing with the effects produced by a natural disaster forces to imagine and supervise a complex process involving numerous actors. This study is intended to represent the path to reconstruction that the Delegated Deputy Commissioner for the reconstruction and the Agency for the Reconstruction adequately addressed. Accordingly to the process defined, an interdisciplinary approach is required to recognize the logic of the rural settlement and the characteristics to be preserved and enhanced in the reconstruction phase.

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