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A Participatory Approach on Saving Vernacular Timber Heritage: A Case Study on Relocating a Wooden Church in Romania

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Abstract. This paper presents a case study on participatory and collaborative traditional design-build architecture in Romania. The focus is set on dismantling, relocating, rebuilding and reusing a 19th century wooden church with the efforts of the adopting community. In Romania, wood is used as a traditional building material, largely for roof framing elements in urban areas and in most mountainous rural areas for the construction of houses and churches. Due to an ongoing demographic rural-urban migration and emigration many villages have, and are being depopulated, subsequently abandoned and many such structures left behind. Under these circumstances, the possibility of dismantling, relocating and reusing these types of structures has become economically viable in comparison to new-built structures. The design for disassembly, inherent to vernacular timber architecture and how the deconstruction and reuse of timber elements maintain their value through efficient reuse makes it a suitable work frame for a participatory based approach involving communities with basic construction skill levels. Thus strengthening communities, maintaining and developing local identity through heritage and crafts. This type of action shows an increasing potential for saving timber vernacular structures by activating local communities and responding to their needs, in a time where the concern for natural resource management and re-cycling or up-cycling is becoming ever more important. The aim of the project is to increase awareness regarding timber built heritage by formulating a successful example of a participatory design-build project. A desired goal is to shift the architectural discourse by coalescing it with wider views of democracy and alternative visions of a sustainable future.

1. Introduction

The focus of the paper is to highlight a community driven project of relocating a wooden church in the Hunedoara County, Romania. The area is located in the south-western part of the historic region of Transylvania, crossed by the Jiu and Mureș Rivers, enclosed by mountains.



This region was heavily industrialized during the Communist regime and thus amplifying the internal migration of rural communities. The constant depopulation led to the abandonment of a large number of these settlements and churches. There still is a high number of wooden churches in the region inscribed in the List of Historic Monuments (LHM), as showed in ‘figure 1’, out of which two are in a state of ruin state and partially collapsed. After conducting a field survey to determine the condition of the wooden churches in the Hunedoara County in 2011 [2] and comparing the data with the latest population census from the same year, we determined that there are three settlements with wooden churches but with no inhabitants, two of which are in the LHM. We have included in our study eight wooden churches, which are not in the above-mentioned list to cover all such structures present in the county. A forthcoming threat, due to the continuous depopulation of the region, is that the continuous dwindling number of inhabitants is making these settlements unsustainable. Ten settlements equipped with wooden churches are currently having a population of between 25-50 inhabitants and eight between 0-25 inhabitants. Without an active community, these structures lose their direct purpose and meaning as places of worship, turning into empty vessels, hollow testaments of the craft of their time that are inevitably prone to neglect and decay.

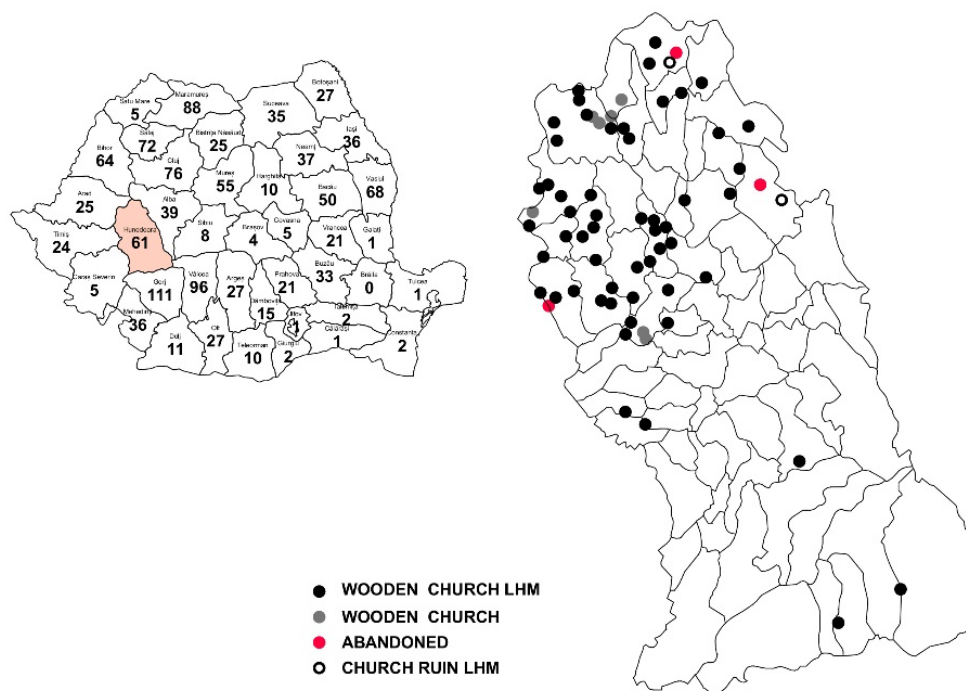


Figure 1. *left:* Map of Romania showing the distribution of timber churches inscribed in the List of Historical Monuments in Romania (2015) [1] *right:* Hunedoara County map showing the existing timber churches organized into categories from a value and state of conservation point of view.

The village of Baștea was declared uninhabited in 1999, with only three structures remaining, the wooden church and two brick houses. The church is not in the National List of Historic Monuments and was found in a near collapse state.

The goal set for this voluntary initiative was to find a community in need of a place of worship where this church could be relocated. The hardest obstacle that needed to be tackled was the collective mind-set of the local authorities and episcopate that tended to disregard wooden churches as being too small for present day communities, and thus unable to ensure contemporary liturgics needs.

However, in 2018 the community from the newly founded parish ‘St. John the Baptist’ from the Micro IV Neighbourhood in Hunedoara, a city 64km away, decided to undertake the risky project of ‘adopting’ such an abandoned historic structure as their place of worship. The project was funded solely by the community.

2. Relocating a wooden church – a case study

2.1. Design Considerations

Vernacular structures were ‘designed’ and built using local materials and knowledge in a direct relationship with their surroundings, where maintenance, repair, change and mobility were of need. In traditional Romanian culture, the presence of timber within the geo-climatic context, created a craft-intensive architecture. An intrinsic characteristic of this wood joinery based architecture is its proneness for dismantlement and reconstruction. In ‘figure 2’, a historic glimpse showing the dynamics of the relocation of several wooden churches in the vicinity of our site.

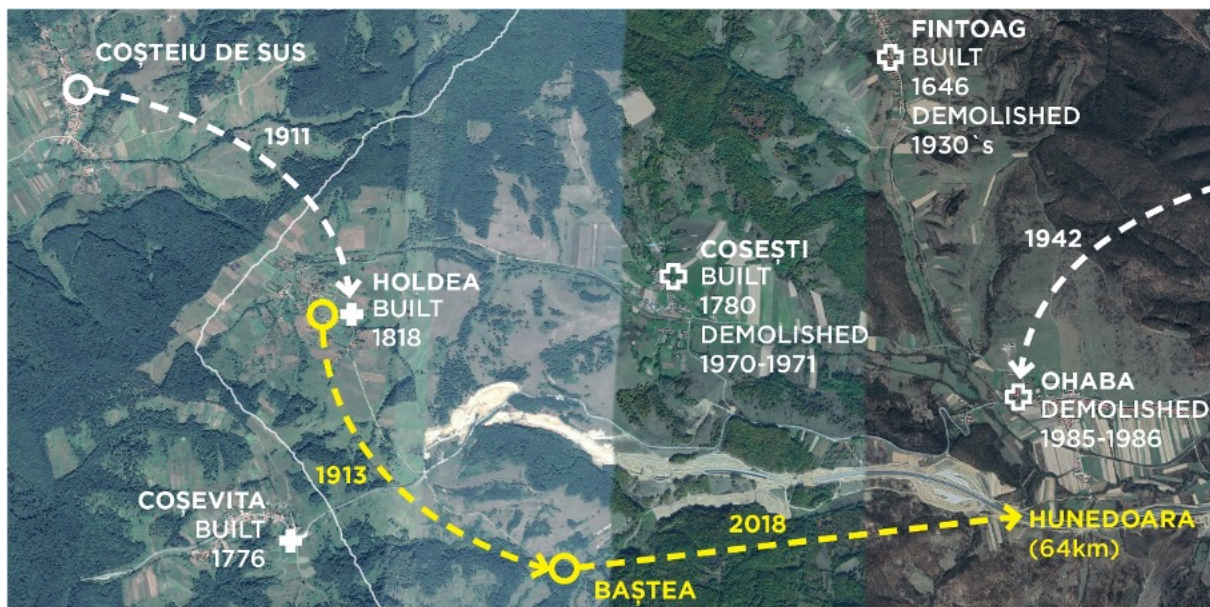


Figure 2. Map showing the historic re-locations of wooden churches near the village of Baștea

By re-using the structure, we sought to at maintain the local character, its social and economic aspirations. Architectural re-use processes include adaptive reuse, conservative disassembly, and reusing salvaged materials [3]. This definition is broad and open for interpretations; the main idea being that this type of architectural reuse is to be seen an evolutionary process, preserving important aspects of local heritage while amplifying this community’s sense of belonging to something greater that is transcending time and place.

Taking into account Stewart Brand’s book ‘How buildings learn’ we can record a buildings features and their tendency to change, adapt and evolve by understanding the layers lifespans it is constituted from. Brand’s ‘six S’s’ diagram describes the different layers a building is composed of: Site, structure, skin, service, space plan and stuff [4]. A way of assessing the recycling/ re-using potential of a building can be achieved by clearly differentiating the constituent layers of the construction. The core layer is certainly the structure, it is the most important, valuable and permanent of the layers. Log structures have all the design information embedded which also determines how the building is used, maintained, repaired and remodeled. As a design strategy we should not think of the buiding as a static object but a dynamic one which changes over time. [5]

Design for Dissassembly (DfD) is a design process which includes the developing of components, assemblies, construction techniques and information management meant to facilitate future change and eventual dismantlement and recovery of these elements. Recovering these materials maximize economic value and minimize environmental impacts.

Reusing these elements is generally preferable to recycling. As presented in the SEDA guidelines, reuse dictates that the components and materials can be removed intact and maintain service and

aesthetic qualities with minimal alterations while recycling can utilize destructive disassembly processes that much more degrade the materials. [6]

The adopted design method was one that continued the vernacular building tradition, engaging in an evolutive process, by incorporating aspects of craft and material knowledge, responding to current living/ use requirements and retaining an overall simplicity. Emphasis was laid on the planning and documentation of this process to facilitated future change and preparing the structure to re-enter this loop in a foreseeable future.

2.2. Historic Background and Condition assessment

The church is set in small acacia forest on a hill overlooking the valley where the hamlet once was. It was relocated on this position in 1913 [7] when it was bought from the the neighbouring village of Holdea.

Its plan is rectangular with a three sided polygonal altar apse in continuation of the nave. In the western part a porch is present, the tower is slender and has a baroque inspired spire which was added in the reconstruction [8]. The nave, narthex and porch are made out of oak in a mixt structural system, the corners in the western part are enclosed in dovetail joints while the rest of the structure is a post and beam system with oak wall planks inserted with tongue and groove joints. The altar apse is made out of fir logs connected in dovetail joints, and is believed that it belonged to the previous church.

The general state of conservation of the structure was in bad shape. The porch, part of the narthex roof were collapsed and an area of the roof ridge between the nave and altar was damaged mainly due to neglect, several trees falling over the structure and to previous interventions like changing the timber shakes to ceramic roof tiles, figure 3. The stone foundation was dislodged in several places on the northern part. Most of the roof trusses and the upper part of the tower structure was decayed beyond salvage due to water induced damage. No fungal or insect attack traces were spotted.

The outer dimensions are 17m x 5m x 10.35m, the interior dimensions of the narthex are 4x4.8m, of the nave are 5.4x4.7m and of the altar are 3.5x4.8m.



Figure 3. Pictures showing the exterior and interior in-situ condition of the wooden church of Baștea

2.3. Dismantlement and reconstruction

The overall design scheme was to adapt the existing structure to the contemporary needs of the users. The functional changes in the design took into consideration the overall character of the structure. The old structure is kept visible, applying a layer of thermal insulation on the inside within a timber frame

designed to stiffen the overall structure, figure 4. Continuous concrete foundations were design due to the nature of the terrain. The roof and tower structures were redesign using the traditional layout but strengthen with metal fasteners to comply with current standards. An electrical floor heating system was installed.

The oak elements that had to be changed or repaired, were done so using reclaimed oak wood from a demolished farmhouse. All the fir elements were built using C24 graded timber. The roof was designed using the traditional cover material, fir shakes, to lower the load on the structure.

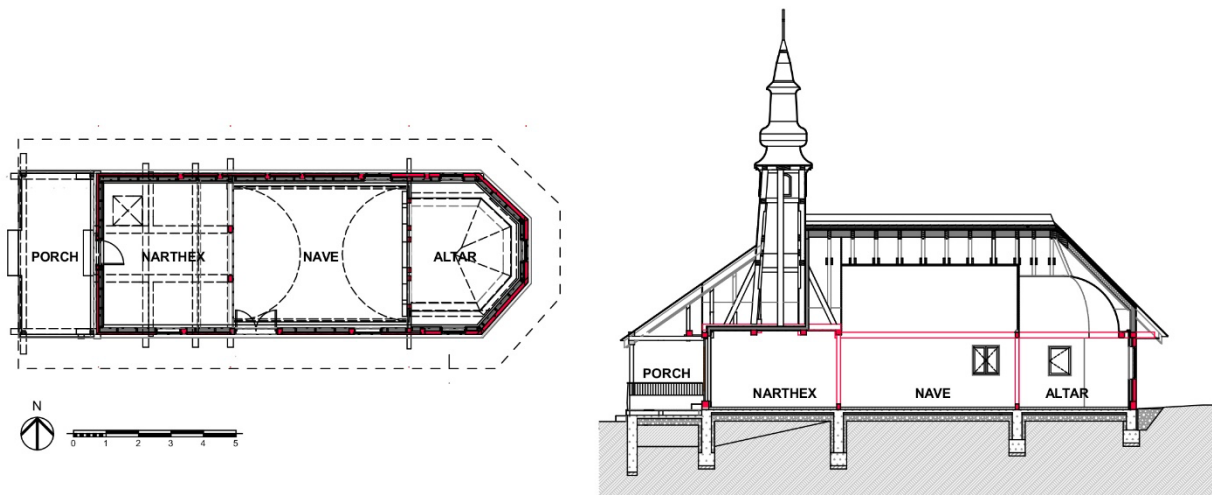


Figure 4. Architectural drawing highlighting re-used in red and new elements in black

In order to prepare the building for dismantlement it is necessary to make a detailed inventory of the structural elements. The markings of the wooden elements can be done either by applying paint or by nailing in small numbered metal plates, axe markings are not recommended due to their permanent character and difficulty to realize in site-specific cases. Axe markings were also visible on the majority of elements from its previous relocation. Exterior paint markings are also not desirable if the log facade will remain visible and the wood weathering patina is to be maintained. The used and preferred method is that of marking the wall ensembles on the exterior using a bottom-up system with embossed numbered plates.

During the dismantlement of the structure, figure 5, each element was investigated and the damage extent inventoried. Due to the fact the site was inaccessible to machinery, the work was done using a lot of manpower provided by the adopting community. All large elements were pulled down the hill using horses, to a spot where from where they could be picked up by a truck. All the elements were cleaned, picked up and stored. The damaged elements were used as templates for the new ones, so as to maintain the dimensions and appearance of the church. The dismantled church was stored in a warehouse for a year.

The reassembly work was devised into clear phases, and call for participants for each stage, figure 6, were launched in the local community. Iov Tolomeiu, a master craftsman working for the Astra Museum in Sibiu, supervised the construction and reconstruction process which took the form of a continuous and long workshop. The design team composed of the architect, structural engineer, service engineer and the engineer assigned from the city planning department, ensured project oversight. For each necessary phase, crowd funding campaigns were held to ensure the necessary means to carry out the work, from materials, money and even food for the volunteers etc. The local community solely funded the reconstruction work.



Figure 5. Photomontage showing different stages of deconstruction



Figure 6. Wall mock-up phase, before final assembly



Figure 7. Photomontage showing different stages of reconstruction

Most of the materials used were salvaged or received as donations. The iconostasis was donated from the Afteia Monastery, the floor tiles were salvaged as broken tiles and cut into size, the clay for the interior plaster was dug from a nearby pit, timber for the doors and windows were donated by a community member etc.

3. Results and discussions

As the problem of environmental degradation increases alongside the weakening of local cultural identities, architects, engineers, designers and all the actors involved in this field will be put under pressure to come with solutions to reduce energy and material consumption, consequently reducing pollution, maintaining local identities through heritage and craft. This technology has existed for a long time but few look back, learn and apply that knowledge in design in combination with new and more advanced technology. The project presented is a variation, not a model, regarding this type of approach, which should be encouraged so that it can become more of a customary practice and not an exception.

This endeavour rested on a simple principle. We believe that these almost lost and forgotten elements of built heritage can be still salvaged through careful steering of local communities into participatory projects of self-discovery and empowerment. Heritage structures should be used as live objects and live projects. It is only so that they are kept from losing their symbolic and functional meaning and purpose given to them by their communities, old or new.

It is astounding to see how a community driven project unfolds, how it comes together, how unforeseen problems get solved, how knowledge is naturally disseminated through genuine networks of trust and mutualism, all seamlessly driving the different stages of construction, figure 7.

It would be naïve to think that this successful intervention is a universal panacea, solving the numerous similar case of abandoned timber structures in current need of restoration. It can however offer an example, a finite, visible a contribution to the idea that these structures are worth saving.



Figure 8. Pictures showing the exterior and interior of the finalized work

4. Conclusions

What seemed like a typical salvage project focused on an architectural object gradually turned in to a potent anthropological and social project. Without even realising our building endeavour strengthen the ties within our community, reevaluating not only its attachment towards built object, by its deeper meaning one embodying the common learning process. A learning process that unceremoniously continued a local tradition, its craft and low brow wisdom. The almost finished project, figure 8, remains proof of our three-year journey.

Acknowledgment(s)

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