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Heritage and Community: Rehabilitation of a Traditional Kabyle House in Achelouf, Béjaïa

Patrimonio y comunidad: La rehabilitación de una casa cabila tradicional en Achelouf, Bugía

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Abstract | Resumen | Resumo

This paper details the rehabilitation of a traditional Kabyle house in the village of Achelouf in Béjaïa, Algeria, emphasizing its importance as part of local heritage and identity. The intervention, initiated by local associations, has involved support from CAPTERRE (the Algerian Center for Earthen Cultural Heritage) and the participation of students and local volunteers. This collaborative effort reflects the community's commitment to preserving its cultural heritage.

Este artículo detalla la rehabilitación de una casa tradicional cabila en el pueblo de Achelouf, en Bugía, Argelia, a la vez que destaca su importancia como parte del patrimonio y la identidad locales. La intervención, iniciada por asociaciones locales, ha contado con el apoyo de CAPTERRE (Centro Argelino para el Patrimonio Cultural en Tierra) y la participación de estudiantes y voluntarios locales. Este esfuerzo colaborativo refleja el compromiso de la comunidad con la conservación de su patrimonio cultural.

Este artigo descreve a reabilitação de uma casa tradicional cabila na aldeia de Achelouf em Bugia, Argélia, realçando a sua importância como parte do património e identidade locais. A intervenção, iniciada por associações locais, envolveu o apoio do CAPTERRE (Centro Argelino para o Património Cultural de Terra) e a participação de estudantes e voluntários locais. Este esforço de colaboração reflete o empenho da comunidade na preservação do seu património cultural.

Introduction

Algeria's diverse urban and architectural heritage is characterized by multicultural and region-specific influences. The country possesses a largely underappreciated rural architectural heritage, with conservation efforts being rare or nonexistent. Unlike its Tunisian and Moroccan neighbors, Algeria remains a relatively unknown tourist destination and cultural tourism is underdeveloped. Hinterland tourism, in particular, receives little attention. By attaching value to built heritage, rural tourism can offer tangible opportunities and significant benefits for society and the economy, particularly through job creation. A deeper understanding of this heritage is the first step towards its recognition, enabling more informed interventions that respect its unique characteristics (Acheuk-Youcef et al. 2019). As part of cultural tradition, heritage contributes to the creation of a destination's image (Echtner 2003; Huete Alcocer and López Ruiz 2020), whether locally or countrywide, yielding numerous benefits for the tourism industry (Orbaşlı 2000; Yabancı 2022). Moreover, heritage is a factor of social stability, symbolizing recognition and belonging within a territory (Madani and Diafat 2014).

As in many other countries, vernacular heritage in Algeria is threatened by the rise of the more industrial architecture now popular, putting the rural architectural legacy at risk (Barsallo et al. 2020). This wave is disrupting the transmission of traditional knowledge and techniques to future generations (Barsallo et al. 2020), leaving vernacular structures endangered. Encouraging the

Participants show engagement during the "awareness day"
(Altavista Intelligent Life)



development of rural towns by leveraging their cultural, historical, and environmental potential may be achieved through proper management and restoration of architectural and cultural heritage (Scala, 2020; Quintana et al. 2022).

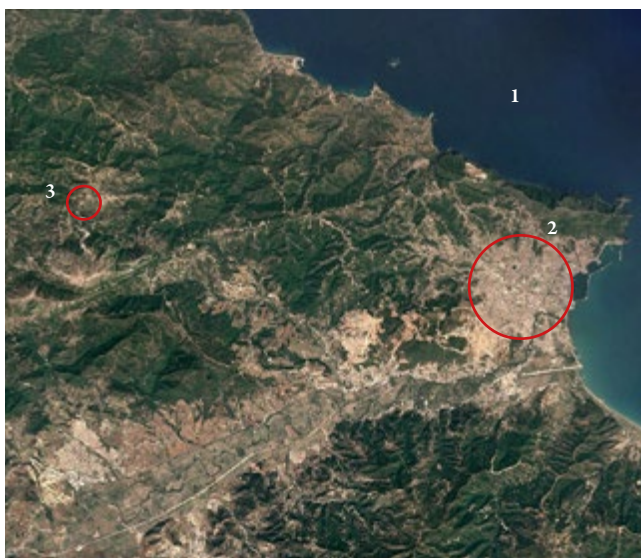
An Ecuadorian study on built heritage preservation by Cardoso Martínez, Barsallo Chávez, and Astudillo Cordero (2020) showed that one of the key reasons for the loss of heritage buildings in cities is a lack of appreciation by their owners. Many studies have shown also that civil-society participation is essential to preserving cultural heritage (Van Balen and Vandesande 2013; Ferretti and Gandino 2018; Ekici et al. 2022). Numerous participatory initiatives have been launched, including one called “Future of the Past” in Ecuador in 2014, led by researchers at the University of Cuenca within the “City Preservation Management” project (García et al. 2021). This collaborative effort between academia and the public sector has highlighted previously underexplored areas of heritage management, such as identifying needs and risks and the perspectives of policymakers and the public. The initiative has been instrumental in bridging the gap between theory and practice, fostering greater citizen engagement in heritage preservation (Amaya et al. 2019).

Over the past decade, the Algerian Ministry of Culture has recognized the challenges facing cultural heritage and the need to move beyond mere conservation, with not just legal protection but also proactive intervention through restoration and rehabilitation. Preserving heritage requires a participatory approach in which raising awareness in the local population—particularly those who own heritage properties—is crucial to safeguarding Algeria’s vast built legacy.

In response to these needs, the Ministry of Culture has established a Center for Earthen Cultural Heritage (CAPTERRE), responsible for improving the image of earthen architecture and promoting the preservation and enhancement of this heritage, as well as the associated craftsmanship. The goal is to sustainably preserve this significant portion of our built environment, involving awareness-raising activities targeting all heritage stakeholders.

Collaborative efforts are key to the effectiveness of these endeavors. While hierarchical control and management have traditionally been seen as essential for organizational success (Benkler et al., 2015), numerous studies (Wechsler 1971; Woolley et al. 2010; Nguyen et al. 2019; Sassi et al. 2022) have shown that the most successful organizations are structured around a mobilization of skills. Whether in formal or informal settings, individual cognition is shaped by collective efforts, with knowledge-sharing playing a critical role in the community (Mosia and Ngulube 2005).

Situation of the Mediterranean Sea (1), Béjaïa (2), Achelouf (3), and location of the project (Google Earth)



Context

The idea of rehabilitating a traditional Kabyle house in Béjaïa originated when a member of the association Altavista Intelligent Life participated in a training session at CAPTERRE. Interested by CAPTERRE's work as an institution promoting earthen architecture and advocating for the preservation of built heritage, the association initiated this participatory project with the local community, represented by the Achelouf Youth Association for Sociocultural Development. Its objectives have been to:

- Conduct a study with a view to documenting and refurbishing a traditional house in the village as a pilot project, serving as a model for the rehabilitation and adaptive reuse of other such houses.
- Advocate for earthen architecture and the preservation of local craftsmanship and traditional expertise.
- Promote local tourism through the enhancement of cultural and architectural heritage.

An awareness day was held on June 6th, 2022, targeting the general public and architecture students from the University of Jijel with the aim of introducing them to earthen construction techniques. In a workshop held at the village primary school, with hands-on instruction by a specialist from CAPTERRE, the participants learned how to build a rammed-earth wall.



Photogrammetric plans, sections, and elevations of the house (CAPTERRE)

Location and Description

The house is located on high ground in Achelouf, a village in the municipality of Toudja, Béjaïa, Algeria. The village has retained the structural integrity of a traditional Kabyle settlement, characterized by a cluster of about a dozen houses. The house adheres to the standard Kabyle dwelling type, with a three-part layout consisting of *Taqqaât*, *Addaynine*, and *Taâricht* (Genevois 1962).

Taqqaât, the first division, is known in some regions as *Aguns* and in others as *Tieryert*. This part, for humans only, accommodates the essential acts of life: birth, death, eating, sleep, and procreation. *Addaynine*, the second division, is for animals. *Taâricht*, the third division, is reserved for provisions (Zidelmal 2012), and may be loosely translated as “attic.”

The house's walls are of dry stone, with interior surfaces coated with a white clay known as *Toumlilt*. These coatings had decayed due to water seepage and a lack of maintenance and only traces remained. The roof is of traditional tiles and the gable wall supports three beams, at the ridge and the sides.

The rehabilitation process took place over two complementary phases:

Phase 01: Study and Diagnosis

The first phase of the project, conducted from March 20th to 22nd, 2022, focused on an in-depth study and diagnosis of the project site. Photogrammetry techniques were employed to generate

Stages of construction work
(CAPTERRE)



detailed plans, elevations, and sections, enabling the systematic documentation and analysis of the residential structures. According to the diagnosis, the house maintains a solid structure, with its overall integrity remaining intact. However, while the state of conservation is not catastrophic, it is still a matter of concern. The intervention prioritized revitalization, as the use of the space has evolved over time. The main challenge was to integrate solutions that would make the house suitable for modern conveniences and comfort, while respecting its traditional character.

Phase 02: Organization and Progress

The project was organized into three main teams: one for mortar preparation, one for interior work on the house, and another for the construction of the toilet and bathroom. Teams rotated daily, allowing participants to engage in different stages of the project while avoiding excessive fatigue from physically demanding tasks. Two masons specialized in stone construction worked continuously during the second and third shifts. The collaboration between CAPTERRE and participants from various fields was supported by proper supervision and technical guidance. Although many participants lacked formal construction qualifications, they brought with them ancestral knowledge passed down through generations. Involving students in participatory work camps not only enhances their training but also helps preserve traditional know-how in vernacular architecture.

Three types of mortars were primarily used throughout the project. The first was for constructing the stone walls, the roof screed, and the half-level of the *Addaynine*. The second type was used for bonding plaster, while the third was for the finishing coat. It is important to note that several tests were conducted to determine the appropriate composition and dosage for each mortar, considering the specific properties of the local clay.

Type of mortar	Composition	Dosage
Mortar for stone walls	Lime + 3 mm sand	1 volume of lime / 2 volumes of 3 mm sand
Mortar for bonding plaster	Lime + 3 mm sand + clay + straw	1 volume of clay / 1 volumes of lime / 3 volumes of 3 mm sand / 1 volume of straw
Mortar for the finishing coat	Lime + 3 mm sand + clay + fine sand	1 volume of clay / 1 volume of lime / 3 volumes of 1 mm sand / 1 volume of 3 mm sand

The interior of the Kabyle house was embellished with clay-plaster wall carvings, a traditional art form from the Gourara region. This blend of cultural influences in the house was contributed to by CAPTERRE's team, headquartered in Timimoune (southern Algeria).

The Kabyle House Adorned for *Yennayer* Festivities

To highlight the region's tangible and intangible heritage, the rehabilitated Kabyle house was traditionally furnished to receive visitors during the *Yennayer* festivities for the *Amazigh* New Year on January 12th.

This rehabilitation is moreover just the first of a series of projects aimed at promoting earthen architecture, and currently Altavista Intelligent Life, in collaboration with CAPTERRE, is preparing a participatory project for the construction of a house using the rammed-earth technique.



The house before and after rehabilitation (CAPTERRE)

References | Referencias | Referências

Genevois, Henri. 1962. *L'habitation Kabyle*. Fort National: FDB.

Zidelmal, Nadia. 2012. *Les ambiances de la maison kabyle traditionnelle, Les révélations des textes et des formes*. Master's thesis. Université Mohamed Khider - Biskra. <http://thesis.univ-biskra.dz/id/eprint/1618>

Acheuk-Youcef, Maïsa; Gauthiez, Bernard; and Sahraoui, Badia Belabed. 2019. *L'héritage architectural et urbain de Constantine pendant la période coloniale française (1837-1962): un enjeu de connaissance, de conservation et d'identité*. Géocarrefour, vol. 93, 4: no number. <https://doi.org/10.4000/geocarrefour.12479>

Amaya, Jorge; García, Gabriela; and Jara, David. 2019. Academy, Cultural Heritage and Innovation in the Province of Azuay, Ecuador. In Aguilar, Rafael; Torrevalva, Daniel; Moreira, Susana; Pando, Miguel (eds.), *Structural Analysis of Historical Constructions, 2062-2070*. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-99441-3_221

Barsallo, Gabriela; Cardoso, Fausto; and Vazquez, Lorena. 2020. An experience aimed at promoting vernacular building culture in Susudel (Ecuador). *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. XLIV-M-1-2020: 623-628. <https://doi.org/10.5194/isprs-archives-XLIV-M-1-2020-623-2020>

Benkler, Yochai; Shaw, Aaron, and Hill, Benjamin Mako. 2015. Peer Production: A Form of Collective Intelligence. In Malone, Thomas; and Bernstein, Michael (eds.), *Handbook of Collective Intelligence*, 175-204. Cambridge: MIT Press

Cardoso Martinez, Fausto; Barsallo Chávez, Gabriela; and Astudillo Cordero, Sebastián. 2020. Don Victor and the maintenance booklets : a strategy to stimulate the resilience of the vernacular heritage of Southern Ecuador. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLIV-M-1-2020: 629-636. <https://doi.org/10.5194/isprs-archives-XLIV-M-1-2020-629-2020>

- Echtner, Charlotte M.; and Ritchie, J. R. Brent. 1991. The meaning and measurement of destination image. *Journal of Tourism Studies*, vol. 2, 2: 2-12.
- Ekici, Simay Cansu; Özçakır, Özgün; and Bilgin Altinöz, Ayşe Güliz. 2022. Sustainability of historic rural settlements based on participatory conservation approach: Kemer Village in Turkey. *Journal of Cultural Heritage Management and Sustainable Development*, vol. 14, 4: 497-520. <https://doi.org/10.1108/JCHMSD-05-2021-0087>.
- Ferretti, Valentina; and Gandino, Edoardo. 2018. Co-designing the solution space for rural regeneration in a new World Heritage site: A Choice Experiments approach. *European Journal of Operational Research*, vol. 268, 3: 1077-1091.
- García, Gabriela; Vandesande, Aziliz; Cardoso, Fausto; and Balen, Koen van Balen. 2021. *The Future of the Past: Paths towards Participatory Governance for Cultural Heritage*. Boca Raton: CRC Press.
- Huete Alcocer, Nuria; and López Ruiz, Víctor Raúl. (2020). The role of destination image in tourist satisfaction : The case of a heritage site. *Economic research - Ekonomska istraživanja*, vol. 33, 1: 2444-2461. <https://doi.org/10.1080/1331677X.2019.1654399>.
- Madani, Said; and Diafat, Abderrahmane. 2014. A Project to Safeguard an Abandoned Heritage : The Revitalization of Golea (Algeria). In GBCe (ed.) *World Sustainable Building 2014 Barcelona Conference*, 250-56. Madrid: Green Building Council España.
- Mosia, Lucky N.; and Ngulube, Patrick. 2005. Managing the collective intelligence of local communities for the sustainable utilization of estuaries in the Eastern Cape, South Africa. *South African Journal of Libraries and Information Science*, vol. 71, 2: 175-186. <https://doi.org/10.7553/71-2-624>.
- Nguyen, Van Thu; Benchoufi, Mehdi; Young, Bridget; Ghosn, Lina; Ravaut, Philippe; and Boutron, Isabelle 2019. A scoping review provided a framework for new ways of doing research through mobilizing collective intelligence. *J Clin Epidemiol*, 110: 1-11. <https://doi.org/10.1016/j.jclinepi.2019.02.007>.
- Orbaşlı, Aylin. 2000. Is Tourism Governing Conservation in Historic Towns? *Journal of Architectural Conservation*, vol. 6, 3: 7-19. <https://doi.org/10.1080/13556207.2000.10785276>.
- Quintana, Diana Carolina; Díaz-Puente, José María; and Gallego-Moreno, Francisco. 2022. Architectural and cultural heritage as a driver of social change in rural areas: 10 years (2009–2019) of management and recovery in Huete, a town of Cuenca, Spain. *Land Use Policy*, 115: 106017. <https://doi.org/10.1016/j.landusepol.2022.106017>
- Sassi, Salma; Ivanovic, Mirjana; Chbeir, Richard; Prasath, Rajendra; and Manolopoulos, Yannis. 2022. Collective intelligence and knowledge exploration: An introduction. *International Journal of Data Science and Analytics*, vol. 14: 99-111. <https://doi.org/10.1007/s41060-022-00338-9>.
- Scala, Barbara. 2020. Re-activate the internal areas : classification, restoration, participation planning and guidelines as tools for the regeneration of the vernacular heritage. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLIV-M-1-2020: 595-602. <https://doi.org/10.5194/isprs-archives-XLIV-M-1-2020-595-2020>
- Van Balen, Koenraad; and Vandesande, Aziliz. 2013. *Reflections on preventive conservation, maintenance and monitoring of monuments and sites by the PRECOM3OS UNESCO Chair*. Leuven: ACCO.
- Woolley, Anita Williams; Chabris, Christopher F.; Pentland, Alex; Hashmi, Nada; and Malone, Thomas W. 2010. Evidence for a collective intelligence factor in the performance of human groups. *Science*, vol. 330, 6004: 686-688.
- Yabancı, Orhan. 2022. Historic architecture in tourism consumption. *Tourism Critiques: Practice and Theory*, vol. 3, 1:2-15. <https://doi.org/10.1108/TRC-04-2021-0008>.

Biographies | Biografías | Biografias

Alaeddine Belouaar

Alaeddine is an architect specializing in monuments and heritage sites, officially recognized by the Algerian Ministry of Culture. He works at the Algerian Center for Earthen Cultural Heritage. For over nine years he has been a trainer in earthen construction techniques and currently he leads the Earthen Architecture Inventory and the Assessment Department. In 2020 he was appointed Deputy Director of the Center and in September 2023 he became its Director.

Sara Boumezoued

After graduating in Architecture at the University of Béjaia, she continued her studies at the University of Biskra, where she earned a PhD in Architecture. Currently she teaches in the Architecture Department of the University of Béjaia. She is also active in the scientific association Altavista Intelligent Life, in which she is president of the Art and Architecture Commission. Her research focuses primarily on three areas: Algeria's socialist villages, earthen architecture, and sensory and emotional experiences in cities.

Kahina Ikni

Born and raised in Béjaïa, Kahina graduated in Architecture at the University of Béjaïa and completed doctoral studies at the University of Oum El Bouaghi. She is currently a contract researcher at Passages Laboratory UMR 5319 CNRS - Universities of Bordeaux/Bordeaux Montaigne, Anthropological Research Institute, Higher National School of Architecture of Bordeaux. Her research focuses on urban soundscapes. In addition to her research, she collaborates with Sara Boumezoued at Altavista Intelligent Life in promoting and popularizing participatory construction sites in Béjaïa.