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Coupoles et habitats, an EU Culture 2000 project

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Corbelled dome architecture is a culture and construction technique common to both East and West. In particular, the corbelled domes or “tholos domes” are an ancient construction technique that produced remarkable urban and rural architectural habitats, from an aesthetic and anthropological point of view: thousands of examples of habitats are found all over the Mediterranean region, such as the *Trulli* of Puglia, the *Specchie* of Salento (Italy), the *Cabanes* of Vaucluse (France), the *Chozos* of Spain and Portugal, the *Bombos* of Castilla La Mancha, (Spain), the *Pinnettas* of Sardinia or the *Qubbas* of Syria.

The corbelled dome reflects the common roots of a heritage, both tangible and intangible, a way of life and expertise shown in a cultural diversity that is exemplary of the balance between knowledge, resources, needs and values, that was developed over literally thousands of years.

In the Mediterranean region, the architectural culture of corbelled domes is an expression of dry-stone building culture mostly connected to sheep-rearing and the related nomadism of shepherds, with only a few exceptions, most notably in Alberobello, Apulia.

In Syria, the culture of corbelled domes is an expression of earthen building culture and of semi-nomadic people living in this arid region.

While the corbelled domes of the Mediterranean have been documented, until now very few studies have investigated the earthen corbelled domes of Syria.

Valorise a cultural heritage shared between East and West

The first goal is to valorise an architectural heritage ultimately at risk, an architectural culture shared between East and West, providing real evidence of the culture of a people at the origins of the Mediterranean identity, and their cultural diversity.

The first action of valorisation is to identify the roots of this culture of construction to which archaeological evidence in Syria, the Aegean Islands and Etruria is testament. Through the documentation the core of the structural knowledge, which enabled people to use such simple resources like clay and limestone and to diffuse it over all the Mediterranean to solve the basic problems of architecture, can be found.

The second action is to analyze and characterize the material and immaterial dimensions of the architectural heritage of earthen corbelled dome habitats in Syria

The project has been based, therefore, on an interdisciplinary approach towards an in-depth study of local architecture and a representation of architectural knowledge, in other words, to increase specific scientific knowledge through an interdisciplinary scientific research.

The scientific research action developed by the project included:

- Geographical analysis of the arid region of Syria where the corbelled dome habitats are found
- Morphological analysis of the urban structure of villages
- Architectural analysis of houses and of domes
- High definition modelling 2D/3D in order to document and realize a

database supporting technical and mechanical analysis;

- Characterization of building culture identifying and codifying building elements and building knowledge, the diversity of dome types and construction processes
- Characterization of the phenomena of degradation of materials by an archaeometric analysis
- Characterization of mechanical behaviour by structural experiments "in situ" and in the laboratory
- Analysis of living culture through the interiors of corbelled dome houses.

Contribute to safeguard a cultural landscape and support an effective approach to sustainable conservation of architectural heritage

The third action is to support awareness to better understand the cultural value, conserve and protect this endangered world heritage through the promotion of training and awareness initiatives in conjunction with the public authorities, and an exchange of actions, experiences and knowledge between Syrian and European university specialists.

Safeguarding vernacular architecture cannot be separated from the grass roots, the lives of the people and their hope of assuring better lives for their children: all strategies and activities of conservation must be tailored to the needs of modern life in a sustainable frame of development. The fourth action is to communicate to Europeans, Syrians and to the whole world the value of this cultural heritage and to disseminate the specific knowledge and skills related to this shared heritage through an exhibition in Europe and Syria, a scientific seminar in Damascus and the publication of this scientific catalogue of the exhibition including the results of research activities.

Planned activities

The project has been developed through a close cooperation and partnership among researchers of 6 countries, Italy, Syria, France, Belgium, Spain and Greece. The profiles of researchers and technical experts have been complementary in terms of archaeology, architecture, building technology, geomatics and mechanics.

The index of the scientific catalogue reflects the structure of the project and the main axes of activities :

Axis 1: State of the art in archaeology and in vernacular architecture

A historical and scientific state of the art assessment in archaeology and in vernacular architecture. The archaeological studies have focused on the corbelled dome in the archaeology of the ancient Near East, on the Prehistoric dome architecture in the Aegean and on the tholos tombs of Etruria, to investigate the origins of corbelled dome culture and its diffusion in the Mediterranean region. The vernacular architecture studies have been oriented towards a general overview of corbelled dome architecture in modern times in the Mediterranean region and to a comparative analysis of corbelled domes in the architecture of Spain and Portugal, in France, in Italy and in Greece, and looking further afield to Azerbaijan, identifying the diffusion of a shared architectural culture and its diversity.

Axis 2: Original scientific research on architectural heritage

Both a field and laboratory research on the corbelled dome villages of the Aleppo region. After an initial mission to select the sites, two missions have been developed for field surveys where several integrated methods and tools have been used by the partners as geomatic methods for a detailed 2D and 3D modelling, also architectural methods for characterising the urban and architectural morphology, either construction techniques, archaeometric methods for characterising the materials and the degradation processes, and mechanical methods for characterising the structural behaviour of earthen domes.

Axis 3: Communication and dissemination of results

Production of documents devoted to communication and dissemination of the project and awareness promotion of the value of cultural heritage. The strategy of communication is articulated in several coordinated actions:

- a scientific and photographic exhibition to be held in Damascus and then in Aleppo (Syria) and in Florence, Thessaloniki, Valencia, and next year in Paris and other main cities (Europe);
- a scientific seminar to be held in Damascus as an opening to the exhibition ;
- a training seminar to be held in Aleppo at the Faculty of Architecture of the University of Aleppo to promote the documentation, analysis, preservation and enhancement of vernacular architectural heritage, the methods and practices of earthen dome habitat heritage conservation.



