

THE RESEARCH WORK OF THE LANDSCAPE GROUP OF ISCEAH – IDENTIFYING AND DISCUSSING CASE STUDIES

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Abstract

This paper intends to present the ongoing research efforts that the earthen-architectural cultural-landscape group, one of the five scientific research groups within ISCEAH (International Scientific Committee on Earthen Architectural Heritage), is undertaking. After the last Terra Conference, in Mali, 2008, the group committed to identifying and defining the boundaries, various building technologies, configurations and typologies of earthen cultural landscapes. The methodology includes the selection of case studies by members and the creation of a graphic spreadsheet containing data based on research and fieldwork. Important aspects, such as archaeological, historical and contemporary uses of earth, present-day threats, changes in use, socio-cultural issues and efforts towards sustainable development are under discussion. The paper presents the themes discussed by the group, theoretical considerations and practical concerns identified by the case studies, and key issues of earthen-architecture cultural landscapes that provide a foundation for future work.

1. INTRODUCTION

Within the International Scientific Committee on Earthen Architectural Heritage (ISCEAH), there are five broad areas of scientific research. Earthen-architectural cultural landscape represents one of these, alongside archaeology, living cultures, techniques and seismic problems.

Over the past few decades, there has been growing professional and academic interest in earthen architecture, particularly related to building technology and sustainability. Of interest to a growing group of architects, engineers, materials scientists, and cultural historians are not only the historical and archaeological significance, but also contemporary use and reuse of earthen architecture. Growing appreciation for the use of earthen architecture is evident in modern notable attempts to privilege earthen vernacular and emphasize its ecological benefits and sustainability. For example, the experiments of New Gourna (1953), by Hassan Fathy, in Egypt and the Eco House (1991-1992), by Sverre Fehn, in Sweden, and the presence of earth-building networks throughout the world demonstrate the modern respect for and interest in this kind of architecture by distinguished architects. Furthermore, earthen architecture and its conservation today constitute a distinct field of education underscored by numerous specialized programs.

UNESCO defines cultural landscapes, as distinct geographical areas “represent[ing] the combined work of

nature and of man....” (Article 1, World Heritage Convention, 1992). The conservation of earthen-architectural sites has begun to integrate larger geographic and cultural contexts in response to the growing trend of cultural-landscape identification and protection (Fowler, 2003). Cultural landscapes incorporate overarching geographic and topographic features, regional cultural aesthetic and traditions, and human interaction with the built and natural environment to establish earthen-architectural cultural landscapes. Examples of World Heritage nominations mandated by UNESCO, within this category are the Cliff of Bandiagara (Land of the Dogon) in Mali, and Bam and its Cultural Landscape (1), in Iran.

During the Terra 2008 Conference in Mali, the earthen-architecture cultural-landscape group presented a paper entitled, “The Conservation of Earthen Architectural Landscapes – A Preliminary Reflection and Review of Concepts” (Kanan, Correia and Hurd, 2011). Since the conference, the group has been committed to identifying and considering the characteristics and significance of earthen cultural landscape, and more specifically, the role that this heritage could play in local sustainable development. This process has involved debate about what constitutes earthen cultural landscapes, such as the percentage of visible or buried landscape comprising earthen architecture, in addition to the nature of its physical or

administrative boundaries. These considerations are informed by previous academic and professional work concerned with approaches to cultural landscapes and earthen architecture.

The present paper aims to examine aforementioned characteristics and concerns of earthen-architecture cultural landscapes in view of the hands-on experience and ongoing discussion of the ISCEAH landscape group.

2. A METHODOLOGY TO DEFINE AND IDENTIFY EARTHEN-CULTURAL LANDSCAPES

2.1 The conceptual approaches to defining Earthen-Cultural Landscapes

The diverse forms of earthen-architectural heritage constitute unique typologies of cultural landscapes. In some instances, there is a clear visual boundary to the landscape; in others, it is more difficult to define clearly the extent of the earthen cultural heritage and the landscape in which it lies.

The concept of the cultural landscape embraces complexity and privileges the integration of heritage components into an interwoven backdrop imbued with social value (Kanan, 2010). The landscape is typically represented by the interaction of culture and nature, but also incorporates overlaid traditional living cultures and practices (e.g. religion-cultural ties of a community to its natural environment) (Cosgrove, 1998, pp. 64-66; Cosgrove and Jackson, 1987, p. 96; Sauer, 1941, p.10). Perhaps the best example of the intangible human relationship with the natural landscape is the Uluru-Kata Tjuta Cultural Landscape in Australia.

Cultural landscapes also comprise diverse manifestations of these interactions between the physical and the socio-cultural, between humanity and its natural and built environment, and therefore present a significant range of forms, physical layouts, and use patterns. For example, for earthen cultural landscapes, there is a relationship with the ‘earth’ as a building material, both the practical reasons why materials are quarried and reused (such as ease of access) and more socio-cultural significances as the material is used and reused. These processes reflect a complex relationship to memory, place, traditional or historical practices, and evolving values (Hayden, 1997, pp. 15-17; Lowenthal, 1985, p. 377; Schama, 1995, p. 18).

Considerations of earthen cultural landscapes fit well within this evolving rhetoric, highlighting the essential aspect of integrated conservation approaches that safeguard the character and related significance of entire landscapes. These approaches expand on previous practices that decontextualized and isolated earthen sites. This is particularly important for earthen architecture as the concept of ‘site’ and its boundary is made all the more complex by the ever-changing nature of the material undergoing physical changes over time. For example, when an earthen structure begins to erode, undergoing the typical patterns of deformation, walls may slump eventually forming characteristic mounds or tells – and these can continue

to change over time, particularly in response to climate impacts (Cooke, 2010; Rosen, 1986). Therefore, the ‘boundaries’ and ‘limits’ of earthen-architecture sites are difficult to define, making the concept of earthen cultural landscape of particular importance.

The broader concept of earthen cultural landscape assists in the inclusion of environmental settings and related socio-cultural values in conservation and valorization efforts. These types of integrated conservation approaches that preserve identified sites and their contexts can also privilege planning for local sustainable development (Loulanski, 2006, pp. 54-57; Tweed and Sutherland, 2007, pp. 63-64).

Nonetheless, the question of how to define earthen-architectural sites as having distinct heritage value still remains. To this end, it is necessary to determine criteria and characterize earthen cultural landscapes in order to develop a methodology for their identification.

2.2 The methodology for identifying Earthen-Cultural Landscapes (ECL)

After Terra 2008, the principal research undertaken by the cultural-landscape group evolved around defining ECL and identifying key examples around the world. The long-term goal of the work is to develop clear criteria for these landscapes and compile an exhaustive list by geographic region.

Currently, group members continue to identify case studies from different countries and cultures based on their professional experience. ISCEAH members have already studied in depth some of the landscapes included, while others are less familiar to the group and rely on existing documentation and the data of collaborators. There are potential new cases already indicated by collaborators. In Latin America, for example, three are sites, such as Biribiri, in Diamantina, Brazil, and the pueblos of Susques and Rinconada, in Argentina. According to a recent discussion with the architect Jorge Tomasi, the two pueblos can be considered earthen cultural landscapes due the type of relationship with nature, such as ritual actions and construction/architectural production. The social-cultural significance of space is emphasized as the management of the space is based on very limited resources, scarce fields and water, and symbolic control of the space where the people had their ancestral roots.

Case studies are compiled on a spreadsheet that includes descriptions of each ECL, theoretical and practical approaches to understanding and protecting the sites, and necessary consideration for mitigating threats, such as changing land use, encroaching development, natural disasters, and climate change. As with all heritage assets, changes in use, composition, context, and climate of these landscapes threaten their physical fabric, layout, and their socioeconomic context and value. These can conflict with conservation efforts and the potential for sustainable development.

Moreover, the sites are considered in the light of professional

Members Case Studies	Cultural/ Geographical Territory	Significance/Criteria	NEW topic Risks/natural disasters/climate change/social problems?
This section includes the name of the member presenting the case study and sometimes the name of the collaborator, the identification of the case and country, as well as a general map of the location.	This section presents a brief overview of the geographic, socio-cultural, and physical context of the case.	This section highlights the principal criteria and often includes the historical development of the landscapes, architectural typologies included therein, and other aspects of cultural and significance.	This section was added after a meeting in 2010 to underscore the most urgent threats to the landscapes in the hope of identifying regional, categorical, or other patterns.

Fig.1 Spreadsheet to identify case studies (credits: Landscape group of ISCEAH)

interest in earth as a building material over time, highlighting the archaeological, historical and contemporary uses of earth. The components used to describe the case studies are:

- 1. **Identification** (name, location, administrative level of protection, etc.)
- 2. **Value/significance** (historical, architectural, archaeological, technological, ecological, religious, spiritual, sustainable, living, etc.)
- 3. **Authenticity/integrity** (preserved intact, altered, original, transformed)
- 4. **Geographic/topographic characteristics** (arid/desert, oasis, tropical, subtropical, mountainside/hillside, valley, riverine/lakeside, coastal, mesa/plains, etc., including notable natural components of the environment)
- 5. **Landscape use:** living (daily use, seasonal use, ceremonial use) v. non-living (archaeological); agricultural practice; sustainable use of local resources
- 6. **Landscape settlement:** urban (densely populated, integrated community) v. rural (low density/isolated structures, potential for stronger relationship with natural landscape and agricultural/livestock activities)
- 7. **Landscape visual aspects:** percentage of visual landscape or buried landscape comprising earth/physical or administrative boundaries of landscape
- 8. **Historical development of the settlement** (regions, socio-cultural territories, ethnic groups, etc.)
- 9. **Building tradition and components** (earthen and mixed techniques, typologies, morphology and layout, spatial organization, etc.)
- 10. **Associated intangible heritage:** continuing building traditions, sustainable-resource technology (wells, canals, agricultural practice, hunting), crafts and jewelry, religious festivals, gastronomy, rituals, traditional knowledge, etc
- 11. **State of conservation** (good, satisfactory, signs of deterioration, advanced deterioration, threatened, etc)
- 12. **Risks/threats** (weathering, inappropriate interventions, pollution, tourism, inadequate planning, neglect, etc.)
- 13. **Other observations/comments**

2.3 Classification and categories of the case studies

Categories of earthen-architectural heritage are also being defined, and general typologies described. The next

phase will be to refine these categories and organize the case studies accordingly. The landscape group further aims to identify representative case studies for major geographic and cultural regions, but the collection of studies is not yet sufficient for a representative sample of each region. Based on the descriptive methodology described above, ISCEAH landscape group is developing classification criteria and earthen landscape typologies.

3. THE ANALYZED CASE STUDIES

3.1 General criteria and significance of the case studies

Currently, twenty-one case studies have been compiled onto an informational spreadsheet. Analysis of the case studies compiled by the group highlighted some key regional characteristics and threats.

3.2 Specific issues/differences and criteria between the analyzed case studies

There are a number of specific issues raised by the case studies. In some cases, the historic socio-cultural significance of the landscape is integral to its modern sustainable development and identity. Such examples are important not only to earthen-architectural heritage, but more broadly as examples of sustainable living-cultural communities. For example, Dauphine in France and Liang Cun and Luxi Tulou in China are significant examples of traditional sustainable-living communities that represent an important ECL.

Another point is connected with the conceptual criteria. It is important to remember that by applying the concept of cultural landscape, by using methodological identification and analysis, significant fundamental values of cultural heritage, otherwise obscured, are revealed (demonstrating the inadequacies of the concept of ‘site’) for the preservation of the past and the future sustainability of earthen-cultural landscapes.

Identifying the physical boundaries and full extent of significance of some sites, for example, requires applied research and adherence to accepted criteria for ECLs. This is particularly true in the case of sites with little or no extant historic fabric apparent above ground. The Vale of Pickering

Members Case Studies	Cultural/ Geographical Territory	Significance/Criteria	Risks/ disasters/ climate changes / social problems?
Natalia Jorquera/ Chile	Rural Villages of the Central Valley of Chile. Regions of Valparaíso, O’Higgins, Maule e Bio-bio	The most typical example of the Spanish rural Colonial architecture, which is, at the same time, an example of vernacular architecture. The villages represented the way that Spanish used to colonize the territory, using the local buildings territory, using the local building techniques. This particular architecture characterized the agricultural landscape of the central Chile.	<ul style="list-style-type: none">• The great seismic activity. The last earthquake (February 2010) destroyed most of the factories and houses of the central Chile, all built with adobe.• Most of this architecture was already in a state of decay due to the loss of the local traditional knowledge.• Lack of legal protection.

Fig.2 Example of a case study (credits: Landscape group of ISCEAH)

site, for example, has required thorough mapping of the archaeological anomalies below ground through integrated excavation and remote sensing (over the largest contiguous landscape ever surveyed in Europe). This approach resulted in an informed understanding of the significance and cultural boundaries of the entire landscape despite the absence of extant fabric and visual markers of the site above ground.

4. OTHER KEY ISSUES AND HIGHLIGHTS EXTRACTED FROM THE CASE STUDIES

When analyzing the collection of case studies to extract essential data, key issues and highlights appeared that could help to define more precisely earthen-cultural landscapes, as well as describe main typologies and create categories. Some of the issues were already considered in the previous paper presented at Terra 2008 (Kanan et al., 2011).

4.1 Building tradition, technology, function, social/ community life

By reading all these cases, the following characteristics were identified:

- The cases present a number of diverse building traditions adapted to their specific environments.
- Earthen-building technology tends to be particularly responsive to its environment, even in very hostile conditions, and reflects an understanding of the local environment, topography, climate, geomorphology, etc.
- Certain earthen landscapes present sophisticated solutions and complex structures and typologies that perfectly respond

to challenging geomorphologic settings, like the Casas de Acatilado cliff dwellings of northern Mexico or hygrothermal requirements in a semi-arid climate, like the corbelled earthen-dome villages of northern Syria.

- In some cases, previously developed traditions are revived and recreated in new adaptations responding to local environmental conditions.

For example, in the Wadi Do’an, Hadhramaut region of Yemen case, there are “outstanding clustered mud-brick tower houses for defense and elevated for flash floods, dry-stone flood channels for irrigation”. In Ladakh, India the “building technology developed with a deep understanding of the climate/landscape and the availability of local materials”. In Dauphine, France, “earthen architecture [was] based on [a] revived building tradition”.

The range of historical earthen techniques associated with the landscape gives it a recognizable identity, for example, the cases of rammed earth in Dauphine, France, the adobe landscapes in the central valleys of Chile, the earthen towns in the southwest of Sardinia, Italy, etc.

The assortment and variety of building functions and architectural solutions reflect the diversity of the landscapes they occupy. The cases present different building functions that contribute to the diversity of forms and architectural solutions associated with the landscapes. There are communities of multiple buildings, single buildings, fortified villages, monastic complexes, multiple stories, etc.

Notable examples of diverse building function associated with the earthen architecture and the landscapes include Ladakh, in India, with a range of heritage typologies, such as Buddhist monastic complexes, fortified settlements; and the impressive



Fig.3 Left branch of Wadi Do'an, Hadhramaut, Yemen (credits: Pamela Jerome, 2009)

multiple buildings/communal living of Liang Cun Tulou, in China. The complexity of program and form is a function of the concept of cultural landscape, which, by definition, is multi-phase and free from chronological breaks. This identifies significance in the landscape through time, where areas within the cultural landscape may be used, abandoned and reused at different times. This is perhaps best demonstrated by the sequence of cities at Merv, Turkmenistan, where settlement shifted across the landscape over time.

4.2 Archaeological, historical, and technological relationship with the environment, type of settlement, configuration, morphology, etc.

The cases presented demonstrate connections between cultural significance and the natural environment (including the topography, the climate, geology, etc.) of the regions. The location of the settlements in terms of topography varies from flat plains, hilltops, slopes, and valleys. The cases reflect traditional knowledge to adapt to all of these types of setting, developed with sophisticated and careful solutions to building, preventing natural disasters, and responding to climate, winds, etc. Some are in remote areas, perhaps perceived today as potentially hostile environments, but in the past, given the history of climate and climate change, may have been optimum environments. Other case study sites retain their traditional way of developing agriculture, like Wadi Do'an in the Hadhramaut region of Yemen, Serro in Brazil, Sorraia Valley in Portugal, and Dauphine in France. For other case-study sites, cultural/spiritual connections and symbolism are integral, highlighting the connection between intangible heritage and physical landscape, for example, sites such as Ladakh and Liang Cun. The morphology and boundaries of ECLs are also variable. Whilst many conform to topography or environmental



Fig.4 Disket Monastery in the Nubra Valley, Ladakh, India (credits: Tara Sharma, 2010)

catchments, others are associated with cultural territories, or are economic and cultural centers along historical routes.

4.3 Threats/risks

The greatest threat to earthen-cultural landscapes is the complexity of identifying and protecting landscape-scale heritage assets. Most statutory heritage-protection systems remain influenced by the 'site' or 'artefact' bias of early heritage and conservation doctrines. Moreover, in most ECLs, there are a multitude of stakeholders, and across a large landscape area, this can amount to hundreds, thousands and many more 'voices' to be heard in planning for sustainable conservation and development. Within those cultural landscapes, large-scale social change affecting the use, abandonment and collapse of traditional lifestyles has a significant impact on the sustainability of earthen heritage. Even the slightest changes (such as in agricultural-cropping regimes and/or increased use of pesticides) can impact the use of earthen structures. Other urban changes, such as sanitation development or water use, can similarly impact these sites. Changes, as a result of climate and climate change impact the sustainability of ECLs. Though the impact of many of these changes, it is still relatively speculative. We can see the effects of cumulative change in climate, and the devastating consequences of extreme climate events. Case-study sites are still being collected to demonstrate these threats, with obvious examples likely to demonstrate desertification, and flooding (amongst others).

5. CONCLUSION

Up to this point, the work is progressing through the involvement/commitment of the members. The group is producing valuable research that undoubtedly represents an essential methodological step forward and further conceptual

development since the work began in 2008. The research has immense potential to be developed and disseminated, to increase the identification of new cases of ECLs, to rediscover new significance and perspectives, and to optimize the roles of the landscape group in the evolution of the greater concept of cultural landscapes. For the results, the landscape group thanks the effort of ISCEAH members who gave their time and attention to this collective work. However, further progress needs to be achieved to accomplish the established objectives of producing additional research, practical results, and to find ways to be more active. It is vital to increase research and to identify additional collaborators, institutions, and educational programs interested in participating. For that, ICOMOS-ISCEAH needs to define strategies and aims.

The group aims to expand the research work and engage professionals, along with encouraging young professionals, to join the landscape group. As the work gains substance and progresses, more case studies will be identified and additional reflection required. The identification of potential case studies through reading new papers and contact with researchers and professionals is making it possible to see further possibilities for the work and survey via heritage professionals networks. Other questions that the group must begin to address are in regards to the measures of protection for the conservation and safeguarding of this specific type of heritage, while raising community awareness and integrating local involvement.

Notes

- (1) The site was almost entirely destroyed by a large earthquake in December 2003.
- (2) Flash floods, such as the 100-year flood that occurred in October 2008, are a major risk.
- (3) Since the year of 2000, a new conscious and action plan for the valorization of local resources in the region of Dauphine are changing the situation.
- (4) The last earthquake (February 2010) destroyed most of the factories and houses of central Chile built with earth.

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References

Cosgrove, D.E. (1998). *Social Formation and Symbolic Landscape*. Madison, WI, USA: University of Wisconsin Press.

Cosgrove, D. & Jackson, P. (1987). *New Directions in Cultural Geography* Area. Vol. 19: 95-01.

Cooke, L. (2010). Conservation Approaches to Earthen Architecture in Archaeological Contexts. *British Archaeological Reports International Series S2116*. Oxford, UK: Archaeopress.

Fowler, P.J. (2003). *World Heritage Cultural Landscapes 1992-2002*. Paris, France: UNESCO World Heritage Centre, World Heritage Papers 6.

Hayden, D. (1997). *The Power of Place: Urban Landscapes as Public History*. Cambridge, MA, USA: MIT Press.

Kanan, I. (2010). Subsídios metodológicos para identificar áreas de arquitetura de terra. In *Terra em Seminário 2010*. Fernandes, M., Jorge, F., & Correia, M. (eds). 6^oATP-9^oSIACOT, Coimbra, Portugal: ARGUMENTUM, pp. 36-39.

Kanan, I., Correia, M., & Hurd, J., (2011). The Conservation of earthen architectural landscapes – a preliminary reflection and review of concepts. In *Terra 2008: 10th International Conference on the Study and Conservation of Earthen Architectural Heritage*. Rainer, L., Rivera, A.B., & Grandeau, D. (eds.), Los Angeles, USA: Getty Conservation Institute, pp. 74-79.

Loulanski, T. (2006). Cultural Heritage in Socio-Economic Development: Local and Global Perspectives. *Environments* Vol. 24: 51-69.

Lowenthal, D. (1985). *The Past Is a Foreign Country*. New York, USA: Cambridge University Press.

Rosen, A. (1986). Cities of Clay: The Geoarchaeology of Tells. *Prehistoric Archaeology and Ecology*. Chicago, USA: University of Chicago Press.

Sauer, C.O. (1941). Foreword to Historical Geography. *Annals of the Association of American Geographers*. Vol. 31: 1-24.

Schama, S. (1995). *Landscape and Memory*. London, UK: Harper Perennial.

Tweed, C. & Sutherland, M. (2007). Built cultural heritage and sustainable urban development. *Landscape and Urban Planning*. Vol. 83: 62-69.