

# GEOGRAPHY AND HYDRAULIC MEDITERRANEAN HERITAGE. WITH REGARDS TO HISTORIC VALENCIAN IRRIGATION

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Cultural heritage analysis from a geographical viewpoint is driven by the close link which exists between societies and their territories. This is because an inhabited space produces events and symbols which are translated directly onto the territory. Geography becomes a key discipline in the interpretation of space by means of patrimonial assets, given that the general population defines itself by, and seeks explanations of, the territory in which it lives.

The relationship established between a community and the environment in which it lives explains the formation of its cultural areas. Geography is responsible for the morphological and functional analysis of these cultural areas, or landscapes: landscapes which are the product of relationships which individuals and groups establish with nature, and which integrate the cultural and natural heritage with which the community identifies.

The marks and traces which societies leave on geographical spaces are numerous and varied. This has provided a variety of landscape settings determined by the key component. Among the various types of resulting «thematic» landscapes, those which are related to water excel in the Mediterranean territories. Water landscapes are those landscape systems in which water plays a vital role in its origin and architecture, in its dynamics, and in the social and cultural perceptions of the territory.

The traditional Mediterranean irrigation systems – recognized through the landscape units of *huertas*, fertile plains and meadows – are spatial landscape units with undeniable heritage value. On occasion, this value contrasts with their current agricultural production functions, which are often questioned and devalued.

The study of agriculture requires a multidisciplinary approach, given the multifunctional nature of this ancient activity. Traditionally agriculture has been studied, above all, as a productive activity – the generation of food and industrial raw materials. Meanwhile the methods employed to consider the significance and functions, have not developed. For decades,

the study of classical Agricultural Geography has been emphasized above that of Cultural Geography.

However in recent years we have witnessed a gradual overcoming of the traditional approach, in such a way that has led to an opening of new meanings and ideas about the objects of study, by considering agriculture as cultural heritage. Thus, it tends towards a greater appreciation of the heritage significance of agricultural spaces. It has moved from the study of isolated landmarks to the assessment of the whole spatial system.

In the Mediterranean climate regions, irrigated landscapes are the «most comprehensive expressions of cultural landscapes of water», and are configured on hallmarks of territorial units of a different scale. They are both cultural and heritage-significant because they express a long history of adaptation to the environment, and because they create relationships of affinity and identity.

This adaptation has led to two opposing models resulting from traditional irrigation: the river-coastal-suburban model and rural-mountain model (relating to mountain agricultural systems). Both landscapes are associated with surface runoff; with rivers, streams and flood-plains; with the alluvial aquifers; as well as with wells and springs, traditionally exploited for human supply and historical irrigation.

Water cultural spaces are places near and close to the citizens; it's an immediate landscape, composed of many irrigated areas, which take the forms of gardens, meadows, river-banks, oases, etc. Therefore these landscapes are the result of adaptation to the environment and, in turn, to a historical dynamic that has led to small-scale farming – to a structure of fragmented plots of land.

The traditional role of these agricultural areas – the production of food for urban demand has been modified, if not disrupted, by the new logic of commercial agriculture. This process, no stranger to others related to urbanization in the second half of the twentieth century, generated a decline in agricultural production; a regressive state of systems and elements that make up the irrigation architecture; and the transformation, if not mutation, of irrigated landscapes of the Mediterranean region.

The heritage value of the historic irrigation systems is due to a combination of factors that lead to valuable and valued landscapes. Included among these factors are spatial structures described as: water infrastructure (synthesized in the network of canals) and communication infrastructure (road network); the structure of the property - small-scale farming – which results in a closed field morphology and jigsaw parcels; the appearance adopted by settlements linked to irrigated agriculture, with constructions usually spread out or in small settlements; and the variety of crops grown, resulting in crop mosaics. These landscapes are characterized by a high symbolic value and a deeply rooted sense of identity.

The aim of this paper is to point out the keys to the interpretation of historical irrigation in the Valencian Region. In this sense, they are: coherence with the physical environment; the use and perception of water resources according to the geographical scale; temporal and spatial polyculture; the configuration of the canal network, hydraulic devices, plots and human settlements; ancestral knowledge passed down from generation to generation; the environmental component; the historical development of irrigation systems and government plans; and social demands of the landscapes, culture and heritage.

Several authors such as Antonio Lopez Gomez (1974, 1975, 1989), Juan Marco, Joan Mateu and Joan Romero (1994), Antonio Gil and Alfredo Morales (1992) or Juan Piqueras (1994) and Jorge Hermosilla (1999-2012) have indicated the formal landscape aspects that the traditional Valencian irrigated areas acquire and, as has been recognized by Rafael Mata (2010), these aspects are linked to the geomorphology of the Valencian Region, especially fluvial geomorphology, coastal geomorphology and geomorphology of slopes. It is a similar typography to that of other Mediterranean basin irrigation systems, grouped in the following formats:

- The irrigation of interior valleys and plains that make up relatively large, irregular patches.
- The irrigation of the river banks, whose linear features contrast with the surrounding monochrome landscapes.
- The irrigation of coastal floodplains and deltas, deployed in the lower courses of the Mediterranean rivers and near major cities. This undoubtedly concerns the most known and recognized historical irrigated areas.
- Mountain irrigation, often arranged in the characteristic systems of the inland terraced slopes.

If we use as a criterion the size of the irrigated areas and the management strategies of irrigation water, we can distinguish three types of irrigation systems related to different spatial scales: *microscale* or smaller systems, *mesoscale* or intermediate systems, and *macroscale* or large systems.

In recent decades the processes and dynamics that cause the depreciation of irrigated areas have intensified. In other words, it is producing a devaluation of their cultural assets and landscapes. The consequence is that these water landscapes could eventually disappear. Overall, several processes have acted, and continue to impact, negatively on the different scenarios of historical irrigation Valencia. These are:

- incessant urbanization,
- permissive policies of land use changes,
- the replacement of traditional crops by commercial crops,
- rural exodus,
- the replacement of the traditional systems with other modern irrigation,
- land market rules, which have encouraged speculation and easy income-generation in the short term for owners,
- or ignorance on the part of society to the cultural and heritage significance of these spaces and water structures.

This depreciation of the landscape and heritage of irrigation, is materialized by the abandonment of inland terraced fields; the proliferation of social fallow land in peri-urban areas; changes in land use without effective control by the Regional Administration; the planting of trees in traditional irrigation spaces; fragmentation of the plots of land and landscape, or replacement of the canal and irrigation distributor by the use of polyurethane tubes and computers.

The decline of cultural heritage and landscapes of these spaces has not been, nor continues to be, homogenous. The peri-urban coastline is characterized by a model adapted to the demands of commercial agriculture; a model supported by hydraulic infrastructure that replaces traditional and targeted water resource economics. A model also influenced, if not exhausted, by the pressure caused by the changes in land use (urban, industrial, service, communications). Inland landscape and heritage deterioration is due to the maintenance of uncompetitive traditional structures, accompanied by a process of rural depopulation, aging and the paralysis of traditional local economies.

Studies undertaken during the last 15 years by the research unit *Estepa* (1997-2012), Department of Geography, University of Valencia, allow us to say that between historical systems of irrigation, noticeable differences in Valencia region can be observed; between the mountain and the plain and between the inland spaces and coastline. However, these dimensions, macro-and micro, are not unique to the coast or inland areas, as other physical, social, technological or cultural factors also determine the morphology of irrigated spaces.

Considering those factors and processes that affect hydraulic heritage conservation, we can observe some significant features to distinguish differences between coastal irrigation systems and inland irrigation systems.

The current and future revitalization of Mediterranean historical irrigation needs the adoption and adaptation of functions and activities that complement traditional crop production. The future of historical irrigation lies in the configuration of multifunctional spaces, in some cases specialized commercial agriculture, and in other cases unproductive traditional cultural landscapes.