
ARTICLES

VEGAS AND DELTAS AS PLACES OF TERRITORIAL AND URBAN PLANNING. AN INTERPRETATIVE MATRIX

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Vegas and deltas are characteristic peri-urban, agricultural landscapes in Andalucía. Vegas (agricultural floodplains) are traditional agricultural landscapes linked to historical irrigation systems in the Mediterranean. These spaces are known for their high fertility and as a part of the landscape trio river-city-vega (Landscape Strategy for Andalucía, 2012). Delta is a better known term referred to a particular agricultural landscape at the mouth of a river (Meeus et al. 1990; Kruse et al. 2010). Vegas and deltas have been historically occupied by human uses due to their geomorphology and topography, edaphology, productivity, water resources, etc. In recent years, these spaces have been also in the core of interest for urban and infrastructural development, causing, in some cases, the degradation and loss of these landscapes.

In this paper we focus on the role of vegas and deltas for the territorial structure of Andalucía, their planning and the gaps in their consideration from a holistic approach.

The materials used are the official land-use maps from 1956, 1999, 2003 and 2007 (the last available), landscape units and geomorphology map of Andalucía and the information provided by documents from the Territorial Plan for Andalucía (POTA) Sub-regional Plans (PS), the Andalusian Network of Protected Natural Areas (RENPA) and the Singular Agricultural Spaces contained in the Special Plans for Protection of the Physical Environment (PEPMF).

The proposed method consists of three main phases:

1. Location of vegas and deltas and their relationship with built-up areas (urban and infrastructural).
2. A review of planning documents, searching for specific questions and regulations about vegas and deltas in particular and agricultural peri-urban spaces in general.

3. A proposal of an interpretative matrix for vegas and deltas aiming to help in their analysis and characterization as spatial scopes for territorial and urban planning.

In order to observe the relationship between vegas, deltas and built-up areas we have quantified the coverage of built-up areas that have been developed completely on vegas and deltas, as well as the built-up areas in contact with vegas and deltas and the perimeter of shared edges of vegas (or deltas) and built-up areas. Despite the fact that vegas and deltas represent less than 5% of the total area in Andalucía, 67.57% of urban and infrastructural areas are located in the vicinity of these spaces and nearly 25% of the total perimeter of built-up areas is shared with vegas and deltas. From these numbers it may be interpreted:

- (a) Vegas and deltas have a strong role in the territorial structure of Andalucía.
- (b) Vegas and deltas represent the main territorial and landscape matrix in the peri-urban area of Andalusian cities and villages.
- (c) Vegas and deltas are one of the most familiar (daily life) landscapes in this region.
- (d) Specific landscape integration measures should be taken into account for vegas and deltas.
- (e) Specific proposals concerning urban edges should be considered, since vegas and deltas are in the vicinity of most of the cities and villages in Andalucía.
- (f) Given their structural role and their presence in Andalusian peri-urban landscapes, special attention should be paid to how spatial planning is facing these spaces.

After the previous analysis, we undertook a review of how spatial planning is facing these particular areas. There is no a thoughtful planning regarding vegas, deltas and peri-urban agricultural landscapes in general. We can observe how Singular Agricultural Spaces are not considered in some sub-regional plans or how the identification of specific agricultural spaces in the scope of the plan does not lead to the development of specific regulations. Even more, the terms delta and vega appear frequently as descriptive components but not with normative implications or maybe just in those cases in which these spaces are considered under flooding risk, but not underlying their productive and multifunctional values and other roles they may play in the peri-urban context.

Within this context, we propose an interpretative matrix containing six descriptive bases to characterize vegas and deltas:

1. Geomorphologically dynamic landscapes.
2. Productive and multifunctional landscapes.
3. Geographic, territorial, environmental units.
4. Water landscapes, patrimonial landscapes.
5. Peri-urban agricultural landscapes.
6. Non urbanizable land and open space.

Vegas and deltas are especially dynamic landscapes, since fluvial and coastal agents are involved in their origin and evolution. They have been mainly dedicated to agricultural uses and agriculture has played a crucial role to set up their soils through irrigation and

drainage mechanisms. These places have also been appreciated for urban and infrastructural purposes (as it has been seen previously in the correlation between vegas, deltas and built-up areas). In general, some interventions related to the construction on these landscapes and also both the abandonment and industrialization of agriculture in vegas and deltas have affected their environmental conditions. We may find an example in the Vega del Guadalfeo, where changes affecting the irrigation network have reduced the groundwater recharge and flooding episodes have occurred where traditional ditches were abandoned, losing their function in the runoff regulation.

The high fertility of vegas and deltas is on the base of a productive agriculture. Beyond their productive, economic value, the traditional agriculture maintained in these landscapes offers many different ecosystem services, globally understood as agricultural multifunctionality. Vegas and deltas have multiple land uses, conforming heterogeneous landscapes, which is the base of landscapes for maintaining different functions simultaneously (Mander, Wiggering and Helming, 2007). These functions include ecological, social, cultural and patrimonial aspects of vegas and deltas. There are some examples in the literature, dealing with the multifunctionality of agricultural spaces in Andalucía (Silva, 2010) and in vegas and deltas in particular (Valenzuela, Pérez y Matarán, 2010).

Vegas and deltas have also a geographic nature. Concepts such as geographic region, natural region, physical region, etc. offer a more comprehensive view in contrast to administrative boundaries. This question meets structural and functional issues which give territories and landscapes a relative homogeneity in units. Thus, different methods have been developed to identify territorial units, e.g. environmental units or landscape units. Nevertheless, these units, if identified in planning documents, tend to be thought as descriptive frames more than from a proactive or regulatory approach. In this sense, some authors refer to a physical continuity vs. legal discontinuity, where physical continuity seems not to be especially considered in some plans. Vegas and deltas should be identified as units. Indeed, they are considered as homogenous landscape units by the Landscape Strategy for Andalucía and in most of existing sub-regional plans, environmental units are identified. Aglomeración Urbana de Sevilla, La Janda, Poniente de Almería, Aglomeración Urbana de Granada and Sur de Córdoba show vegas and deltas as environmental units in their plans. But as aforementioned, this information is contained in descriptive sections, not with normative implications.

Vegas and deltas are also water landscapes (González Bernáldez, 1992), since water is the fundamental component in their structure and functioning. It is present as fluvial agent (in the geomorphologic origin of vegas and deltas) and also flowing through the irrigation systems, which in some cases may be ancient, traditional systems, e.g. *acequias* (ditches), *albercas* (open water tanks) traced back to Al-Andalus (Muslim period). At the same time, all these elements are on the base to argue for a protection of these spaces under patrimonial conceptions. In this context, the concept of heritage itself has evolved from the consideration of isolated elements towards a more wide view of landscapes and the idea of «heritagisation» of territories and landscapes is gaining insight. An example of protection of vegas within this perspective is the case of the Vega de Granada. Nevertheless, all attempts have failed so far.

Previously in this paper, it has been shown the spatial correlation between vegas, deltas and built-up areas in Andalucía. It means that most of our peri-urban spaces are characterized

by the presence of vegas and deltas. As peri-urban spaces, they present specific, sometimes conflicting qualities. From the first reference about peri-urban agriculture given by the OECD in 1979, this issue has become an important topic, as the Opinion of the European Economic and Social Committee on «Agriculture in peri-urban areas» (EESC, 2004) also holds. And more recently (2010), the Red Agroterritorial, the Parc Agrari del Baix Llobregat, and the Fundació Agro-territori have proposed the Charter on Peri-urban Agriculture for the conservation and management of peri-urban agricultural spaces. This context of growing interest on peri-urban agricultural spaces may offer new possibilities for vegas and deltas.

Finally vegas and deltas, as agricultural spaces, find some problems related to a spatial planning which has been especially focused on urban uses and land for building, but not in the territory as a whole. That is way some authors have referred to the «urban pathology of rural space» or the «Penelope's syndrome of non urbanizable land». Within this context, vegas and deltas are considered open spaces and non urbanizable, but plans usually do not enhance their role beyond their expectancy to further becoming «urbanizable land». Then, many other values of vegas and deltas are being ignored and may be missed.

With these six descriptive bases we have proposed and interpretative matrix containing the existing relationships between them. This matrix allows us to understand vegas and deltas from a more comprehensive, trying to avoid the «dissipation process» which affects to these spaces.