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Land-use change in riverfront areas. Two case studies: Lyon (France) and Lleida (Spain)

Changement d'utilisation du sol dans les espaces fluvio-urbains. Deux études de cas : Lyon (France) et Lleida (Espagne)

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RÉSUMÉ

De nombreux projets de restauration écologique et de reconquête sociale et urbaine des espaces fluvio-urbains ont été mis en place en Europe depuis les années 1980. Cette politique a eu une signification particulière dans la gestion de certaines grandes villes comportant un fleuve, comme Lyon (France). Elle a aussi été importante, moins connue et peu divulguée, dans les petites ou moyennes communes comportant des berges fluviales, comme le cas de Lleida (Espagne), ville d'environ 130 000 habitants située sur le cours inférieur du Segre (à 150 km de Barcelone). Dans cet article, deux villes sont comparées à la fois sur le plan spatial et temporel : tout d'abord à l'international par l'élaboration d'une cartographie de l'utilisation des sols des espaces fluvio-urbains; mais aussi temporellement, sur une période de cinquante ans, afin d'essayer de comprendre et d'analyser les séries de processus similaires dans et entre les deux villes. En somme, dans les deux villes étudiées, l'accroissement de la sensibilité environnementale dans les projets urbains a favorisé une transformation profonde des berges fluviales. Elles sont devenues progressivement un élément de centralité urbaine et citoyenne, produit des mutations adaptées aux pressions et extensions d'origine anthropique.

ABSTRACT

Many projects for ecological restoration and social and urban regeneration of riverfront areas have been developed in Europe since the 1980s. This policy was of particular significance in the management of large cities crossed by rivers, as Lyon (France). It was also important, though often little known and disclosed, in small or medium-sized town with river banks, as the case of Lleida (Spain), a city of about 130,000 people located on the lower reaches of the Segre river (150 km from Barcelona). In this paper, two cities are compared by developing a map of land-use change in riverfront areas over a period of fifty years to try to understand and analyze the series of similar processes within and between the two cities. In the both cities, increased environmental awareness in urban projects fostered a profound transformation of river banks. They became progressively an element of urban and civil centrality producing by the anthropogenic pressures, making some states and some responses.

KEYWORDS

Land-use change; Lleida; Lyon; riverfront; urban regeneration.

1 INTRODUCTION

1.1 Background, context and challenges

The coexistence of city and river is an objective of enduring relevance in our relationship with nature. Since the 1980s and 1990s, a whole series of plans for the urban regeneration and development of riverfronts have been introduced at the local level. An excellent example of this new integrated policy for city-river environments is provided by the Rhône river as it passes through Lyon (France). The ports of low altimetry in river margins (*bas-ports*) suffer an uniformity process during the first half of the twentieth century: the left margin becomes a parking, and the right one is limited by a new highway (*North-South direction*). This situation changed in the late twentieth century with the establishment of expert working groups ("*Lyon ville fluviale*", 1981) and the approval of *Plan Bleu* (1991), a strategic document that allows urban and social renewal of the left margin with the creation of *Berges du Rhône* (2007). In the case of Lleida (Spain), the riverfront regeneration begins in the 1980s by the urban development planning following the flood in 1982. Great urban projects are conducted like the river canalization, the construction of a fluvial park on both banks, the building of new bridges, the development of the *Cappont* neighborhood and the transformation of *La Mitjana* forest into a new urban park. In this paper, based on a series of cartographic studies, we are thinking about the major urban changes experienced in the cities of Lyon and Lleida over the last fifty years and examine the evolution in the uses of their respective river banks. From the data generated, we are able to analyze the general trends underlying these changes and to identify the similarities and main differences between the two cases that, ultimately, have pursued a common goal.

1.2 Methodology

The land-use analysis study we are conducted here was based on information obtained by two aerial orthophotographies for each cities. For Lyon, we used especially 1960 and 2011 aerial images (both at a scale of 1:25.000^{e}, from *Institut National de l'Information Géographique et Forestière, IGN*). We used for Lleida 1956 and 2012 aerial images (at a scale of 1:5.000^{e} and 1:2.500^{e}, respectively, coming from *Institut Geogràfic i Geològic de Catalunya, IGGC*). A special effort was made to find aerial images taken in roughly the same years, so that the final comparison could be made over a similar part of time (50 years). We used Quantum GIS software to practise the geoprocessing steps: for georeferencing phase and for the spatial analysis step. The legend has been created by the adaptation of the third level of land use nomenclature in the Corine Land Cover (CLC) of the European Environment Agency (EEA).

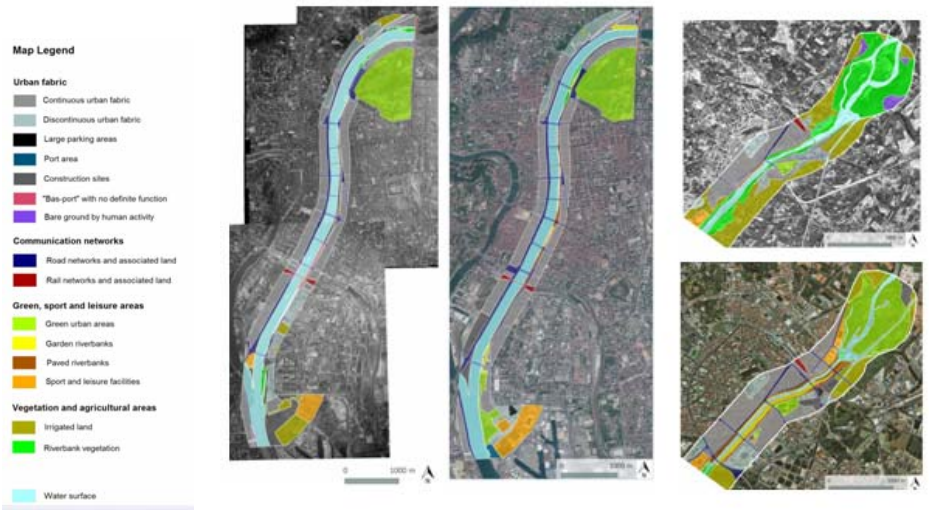
2 MAJOR CHANGES OCCURRING OVER THE LAST FIFTY YEARS. A COMPARATIVE STUDY OF LYON AND LLEIDA

The great success recorded by both cities can be seen in the significant increase in land devoted to green spaces and areas for sport and leisure. Yet, the magnitude of urban change is very different in the two cities as revealed by the analysis of the evolution in the three main river bank land use categories: in Lyon the percentage weight of green, sport and leisure spaces has increased, but it does not mean a structural change in the order of the city's land use categories. Thus, it maintains the hierarchy of urban fabric (1960 - 39.38% vs. 2011 - 36.75%), followed by green spaces (1960 - 18.69% vs. 2011 - 26.57%) and communication networks (1960 - 10.18% vs. 2011 - 10.92%). However, the situation is very different in the case of Lleida, which has experienced a radical change in its structure: in 1956 its riparian vegetation was dominant (30.81%), followed by irrigated agricultural areas (25.48%) and the urban fabric (24.25%). By 2012, though, this order had been inverted: today the urban fabric occupies first place (37.30%), while green spaces have emerged to occupy 36.55% and the agricultural area has been relegated to third position (10.78%). Broadly speaking, these results show that over the last fifty years the most significant urban change was the case of Lleida, because the city has tried to reclaim and integrate by urbanization a major part of the left bank of the Segre river.

One of the greatest changes in the urban landscapes of both cities has been the loss of their rural character. In Lyon, the urban horticultural allotments concentrated in the *Gerland* area, and which still existed in 1960 –the legacy of the *barraques de Gerland*– are no longer present in the latest orthophotography most of them having been replaced by the new *Parc de Gerland*. This represents one of the greatest losses in land use on the riverfront with virtually all the allotments having

disappeared (36,28 ha to just 1,10 ha). While in Lyon, the urban horticulture was typically for family use and consumption, in Lleida this land was historically an essential part of the city's agricultural and suburban landscape. The large area of irrigated horticultural land that occupied almost the entire left riverbank in 1956 had, by 2012, been reduced by more than half (from 99.29 to 41.98 ha), being replaced by a variety of urban, residential and commercial land uses thanks to the development and expansion of the *Cappont* neighbourhood. The loss of riparian vegetation in both cities over the last fifty years is attributable to very different reasons. In Lyon, the decline from 14.87 to 8.51 ha is due to the fact that certain areas of the river bank, which had a notable presence of riparian vegetation in 1960, were, in 2011, replaced with areas of grass and integrated as part of the *Berges du Rhône* and the *Parc de Gerland*. In the case of Lleida, the reason of the huge loss for this land use category (from 120.09 to 5.9 ha) is entirely structural. As such, it should not be regarded as a real loss of riparian vegetation but rather, and especially in the case of the *Parc de la Mitjana*, as a mutation in new category of land use: green, sports and leisure spaces.

While for Lyon city, this trend has been towards a slight decrease in the city's urban fabric. In Lleida case, in the opposite, this land use category almost doubling in size. In the case of Lleida, this increase is concentrated, mainly, near the eleven bridges built in the nineties years. Until the twentieth century, only one bridge (*Pont Vell*) done the connection with two river banks of the Segre, a task resolved much more efficiently in the city of Lyon, which has built bridges throughout its urban history, thus overcoming the physical barrier of the Rhône and the Saône river.



Riverfronts, mapping of land use in Lyon (*left*) and Lleida (*right*)

3 CONCLUSIONS

The *city-river relationship* presents a spatio-temporal variability that tends to be unique to each case. In practice, this uniqueness has an array of explanations, ranging from historical events of relevance such as floods to the specific solutions adopted by city authorities. The two cases of river cities studied here respond to a broadly similar logic; although, marked differences become apparent when they are examined in detail. While over the last fifty years the city of Lyon has managed to reconquer the left bank of the Rhône by developing new green spaces; Lleida has tried to achieve the same goals in a very little time and with an added difficulty: that of overcoming the physical barrier of the river so as to urbanize for the first time the left bank of the Segre. In the case of Lleida, the result has been a rapid and unprecedented change in the urban design and the city landscape, unlike that of Lyon, which has taken advantage intelligently of the ancient *bas-ports* as new spaces for social use.

BIBLIOGRAPHY

Bravard, J. P. (2004). Le façonnement du paysage fluvial de Lyon: choix urbanistiques et héritages de l'histoire hydro-morphologique. *Boletín de la A.G.E,* 37, 17-32.

Clémençon A.S. (1999),“ La fabrication de la ville ordinaire : pour comprendre les processus d'élaboration des formes urbaines, l'exemple du domaine des Hospices Civils de Lyon”, Thèse de Doctorat, Université Lumière-Lyon 2, Faculté de géographie, histoire, histoire de l'art et tourisme.

Llop Torné, J.M.; García Català, R.; Fanlo Grasa, E.; Llop Torné, C.; Puigdemasa, J.M.; Aldomà Buixadé, I. (2002). El río Segre, eje del Plan de Espacios Libres en Lleida. In: *Ríos y ciudades. Aportaciones para la recuperación de los ríos y riberas en Zaragoza.* Institución Fernando el Católico (CSIC), Zaragoza, 77-96.

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