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THE ISSUE OF THE LINEARITY OF THE WATERFRONT BASED ON THE
REDEVELOPMENT OF LYON'S RIVER BANKS

ZAGADNIENIE LINIOWOŚCI NABRZEŻA NA PODSTAWIE PRZEMIAN
BRZEGOWYCH LYONU

Abstract

The article discusses the issue of the redevelopment of Lyon's waterfront areas and long-term development strategy following the process of redevelopment. Owing to the large scope of the operations in question and a radically different approach to the problem of the revitalisation of the areas where the city and water meet, it is possible to conduct comparative analyses by pointing out specific factors, which determine the success of the enterprise. That is why it is reasonable to consider the latest example of redevelopment, which is that of Confluence, a post-industrial district of Lyon. The degree of activation of this peninsula can be related to various factors, which create the linearity of the waterfront.

Keywords: linearity, redevelopment, waterfront, Lyon

Streszczenie

Artykuł dotyczy problematyki rewitalizacji frontów wodnych Lyonu oraz związanemu z nią zagadnieniu liniowości nabrzeża. Dzięki dużemu zakresowi rozwiązań oraz diametralnie różnym podejściom do rewitalizacji styku miasta z wodą można przeprowadzić analizy porównawcze, wskazując konkretne czynniki decydujące o skuteczności inwestycji. W tym celu zasadne staje się odniesienie do najnowszego przykładu transformacji obszarów poprzemysłowych dzielnicy Lyonu, Confluence. Stopień aktywizacji tego półwyspu można stopniować względem czynników tworzących liniowość nabrzeża.

Słowa kluczowe: liniowość, rewitalizacja, front wodny, Lyon

1. Introduction

The second half of the 20th century brought a growing awareness of urban ecology and the need to transform it and bring it closer to the environment. Cities located above water reservoirs began to turn back to forgotten waterfronts that had remained deserted for several decades. The changes also affected the largest French cities, among which Lyon has become a leader. Located between the Saone and the Rhone rivers, this city is characterised by a long coastline. Therefore, the possibility of its re-adaptation and transformation became a huge challenge for the city authorities. With a wide range of solutions and diametrically different approaches to waterfront redevelopment, analyses can be carried out to identify the specific determinants of investment effectiveness. For this purpose, it is reasonable to refer to the linearity of the waterfront and the factors influencing it. By examining the degree of activation of individual districts of Lyon, we can distinguish features contributing to the successful transformation of the waterfront.

2. Degradation of the Lyon waterfront – the need for change

The slow degradation of the Lyon waterfront has been in progress since the 18th century. The Saone waterfront was largely inaccessible since it was built up by houses located directly by the river bank. Due to the slow current, it was only possible to sail and transport goods on this side of Lyon. The waters of the Rhone were much more rapid, making it possible to locate mills near the river. However, the fast current weakened and destroyed the waterfront to a great extent. The second half of the 19th century brought only minor changes involving the reconstruction of several docks and, due to river transport, digging several channels on the Rhone. In the second half of the 20th century, Lyon lost all contact with its rivers. Water transport moved to peripheral ports, while vessels, already reduced in number, disappeared completely from the waterscape of the rivers. A part of the waterfront was degraded due to being cut off by road sections and car parks. The A7 motorway was constructed along the banks of the Rhone, which not only makes contact of the residents with the river impossible now, but also visually spoils a very large section of the waterfront. At the end of the 1980s, the need for change began to be noticed, and major issues and recommendations were identified to restore the city's rivers [1, 2].

3. The Blue Plan – Lyon's new strategy

In 1991, the Lyon City Council adopted the “Blue Plan”, a new strategy to bring the rivers Rhone and Saone closer to urban areas. The plan was focused on 27 municipalities and based on integrating their activities. Within a few years, communication was improved along the river bank, creating new cycling and pedestrian trails. In addition, river stops were upgraded or introduced. The implementation of the plan also had an impact on the environmental and

water quality issues as well as the improvement of the quality of life in the river areas. The economic factor was also taken into account, determining the following steps:

- ▶ Introduction of water sports on rivers;
- ▶ Adaptation of river banks and making them available to residents;
- ▶ Restoration of the natural and historical character of the banks [3].

Together with the development of ecological and economic awareness of the residents and city authorities, the scope of the Blue Plan was widened, predicting that the process of restoration of Lyon's rivers would take place in three main spheres:

- ▶ Ecology:
 - ▷ Protection of the landscape and improvement of the natural heritage quality. The impact of the environment is directly related to the quality of life;
 - ▷ Reinforcement or protection of the river banks against floods;
 - ▷ Limitation of river pollution.
- ▶ Restoration of the river to residents:
 - ▷ Preservation of the continuity of communication solutions for pedestrians and cyclists;
 - ▷ The inclusion of urban organisations in tourism projects and recreation;
 - ▷ Utilisation of the river as a binder connecting municipalities and districts.
- ▶ Economy:
 - ▷ Support for economic activities in river areas;
 - ▷ Development of river transport, water sports and tourism [3].

The Blue Plan became a catalyst for change both for Lyon and for other municipalities, revising the perception of the river's role and becoming the basis for further projects and implementations aimed at restoring the Rhone and Saone to the residents. As a result of growing public awareness among the population and authorities of Lyon, further projects and initiatives were developed:

- ▶ Banks of the Rhone project [4, 5];
- ▶ Confluence district project – stage I and stage II, at the confluence of the Saone and the Rhone;
- ▶ Saone River Project, including the development of the following projects: Rochetaillée and Fontaines promenades, a path at Caluire-et-Cuire, Port Gillet, a promenade at Rambaud docks, the opening of the bridge at Palais de Justice, and others;
- ▶ The “Peninsula Terraces” project (les terrasses dela presqu’île) [6].

4. Linearity as the main factor in the revitalisation of the Lyon waterfront – comparison with the transformation of the Lisbon coastline

When comparing large urban planning projects associated with the waterfront, it is helpful to refer to similar implementations that have continued to confirm their success over the past decades since the transformation. A model illustration of an efficient transformation of the waterfront is a section of the Lisbon waterfront, the Oriente district. By analysing this

example, we can distinguish factors that characterise the linearity of this investment, the level of which determines the degree of the waterfront activation, including:

- ▶ Earlier analyses and studies of planned revitalisation on a large area – a larger area and development of a wider strategy allows for continuity of investment and avoidance of less effective point-based activities;
- ▶ The linearity of investment – connecting the river bank into a coherent whole with a continuous line of pedestrian trails related to recreation;
- ▶ Integration of the coastline with the city – boosting the coastline by connecting the river bank to the city with arteries, streets, pedestrian trails, bridges or crossings (e.g. water tram), connected with investment linearity.
- ▶ Providing the diversity of functions – thanks to the diversity due to the type and design of buildings, a well-functioning and constantly developing labour and property market has been created. Enriching the space with squares, parks and recreation areas integrates the new part of the city with its adjacent districts;
- ▶ A solution of environmental issues and enlargement of green areas – while diversifying the coastline, the recreational areas and parks were not forgotten. Today, they are one of the most popular places visited both by residents and by tourists. This demonstrates the important role of urban greenery and its significance in shaping revitalisation transformations [7].

The definition of linearity refers to the term “linear settlement”, a group of buildings located along roads or rivers due to physical limitations such as the coastline. In the context of urban development, thoughts about conscious linear systems were initiated at the end of the 19th century by Soria y Mata. In his plans for Madrid, he proposed an axial system developing in parallel along the main communication line [8]. Linearity is also connected with the concepts of the edge in urban space of the city. In his work “The Image of the City”, Kevin Lynch defines the edge as a linear element, the border [9, 10]. Taking into account the example of Lisbon and attempting to characterise the model example of linearity of the waterfront fully integrated with a city, the following factors need to be considered (Fig. 1).

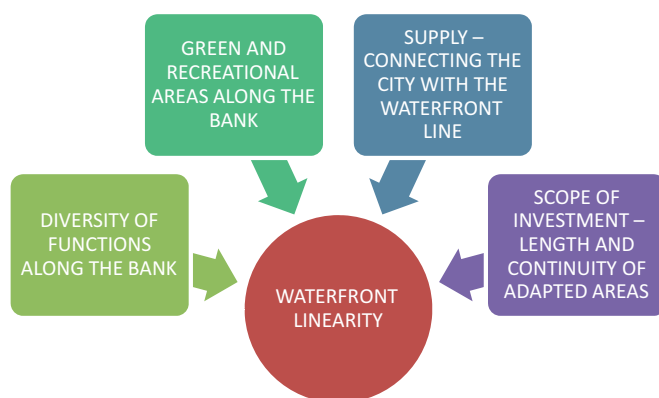


Fig. 1. Waterfront linearity – fundamental factors included in the linearity range and affecting the degree of waterfront activation

The above guidelines can be compared with Lyon's revitalisation plan, and consequently, the evaluation and classification of individual parts thereof. When analysing the waterfront transformation, reference should be made to the specific linearity factors and how they are met. The Confluence peninsula is an excellent example described in the following chapter.

5. Confluence peninsula as an example of the application of the waterfront linearity principle

The adaptation project at the confluence of the Rhone and the Saone, one of the largest urban projects in Europe in recent years, was launched in 1998. It was divided into two stages covering a total of 150 hectares. The first stage began in 2003, covering an area of 41 hectares. The investment was supposed to refer to the industrial character of the place while adapting it to the new infrastructure of the emerging district.

The anticipated end of stage I is supposed to take place in 2018, yet the first effects of the undertaken activities are already visible. Referring to the previously mentioned waterfront linearity pattern and principle, we can characterise the above transformation of the peninsula [11].

5.1. Scope of investment – length and continuity of adapted areas

1.5 km of the waterfront from the Saone's side was changed. The area extends from Confluence Museum to Perrache Station. There are paths and cycling trails along the waterfront, the courses of which are interrupted from both directions due to the A7 and A6 motorways. This issue was partly resolved by the completion of the Raymond-Barre Bridge completed in September 2013, which is a pedestrian walkway with a cycling trail and a tramline, leading to the other banks near the North Sea Park (Parc des Berges Nord). It should be noted that areas where the promenade line has been disturbed and its continuity interrupted are much less activated or not activated at all. As a result, there is a continuation of the promenade provided near the Nautique Square by establishing the Pont des Arts footbridge over the channel. Only this solution allows for continuity and connection with other already revitalised areas at the Rhone (Fig. 2 & 3).

5.2. Boost – connecting the city with the waterfront line

At the completion of stage I of the peninsula revitalisation, some of the areas will remain undeveloped. There is still only one row of office buildings by the promenade, stretching from Confluence Museum to Jean Couly aquatic garden. In this section, we cannot talk about a full boost of the waterfront with of with pedestrian trail axes or streets. The completion of stage II and the construction of residential building and green areas behind the offices will create new connections to the coastline and contribute to greater activation of these areas in the long run.

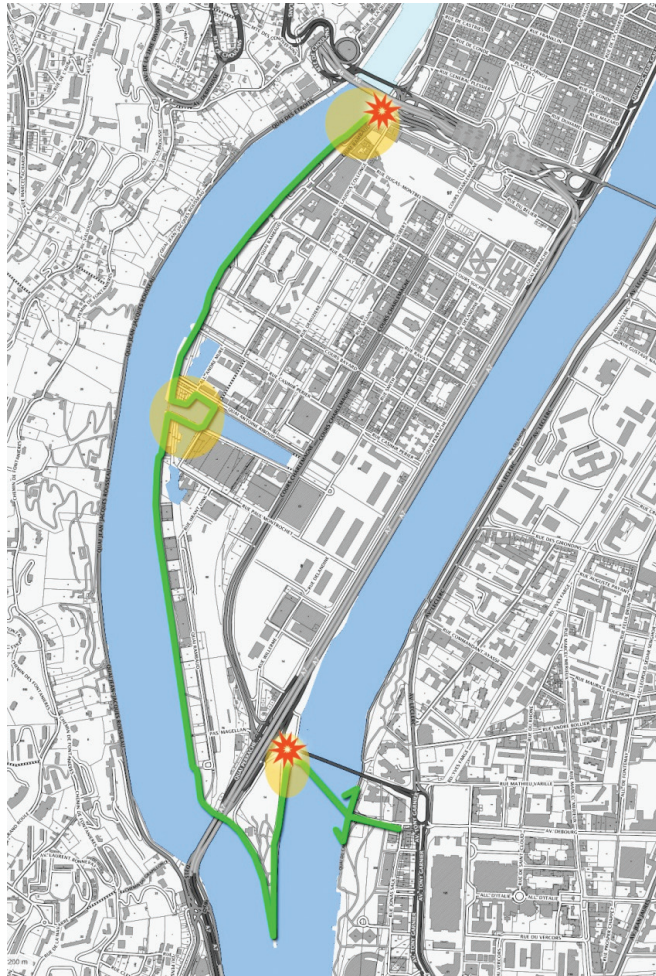


Fig. 2. The scope of investment – length and continuity of adapted areas: a) Green – the line of pedestrian and cycling trails, b) Red – interrupted linearity, c) Orange – disturbed linearity caused by lack of continuity or unusual promenade course (by Rafał Zieliński based on <https://www.geoportail.gouv.fr>)



Fig. 3. Left: The line of pedestrian and cycling trails near Confluence Museum; Right: Interrupted linearity near Raymond-Barre Bridge (photo by R. Zieliński)

The area that boosts the waterfront more effectively through the pedestrian trails and road sections stretching to the shore begins at the shopping centre above La Place Nautique. Such a combination results in much greater integration with the waterfront. The river bank on the east side of the peninsula is significantly degraded due to it being cut off with the A7 motorway. This area remains dead and one rational solution to this situation would be to change the course of this communication artery, e.g. by setting out a new bypass (Fig. 4 & 5).



Fig. 4. Boost – connecting the city with the waterfront line. The arrows indicate areas connected by axes to the bank of the river. The red stars indicate a break in connection due to the A7 motorway, which makes the waterfront boost impossible, contributing to the waterfront degradation
(by Rafał Zieliński based on <https://www.geoportail.gouv.fr>)

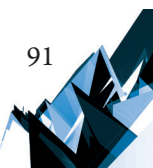




Fig. 5. Left; Right: The break in connection due to the A7 motorway (photo by R. Zieliński)

5.3. Diversity of functions of buildings and services along the river bank

Another factor discussed is connected to the proper spatial organisation and functional diversity near the waterfront. The examples of Seville and the Expo'92 area show how the absence of the above can cause numerous problems. In the case of waterfront linearity, this is not a necessary element, but it certainly supports the connection between the city and the new districts with the river in a crucial way. Moreover, it is a factor influencing the economy of revitalised areas and increasing their investment value [12]. In the case of Lyon and Confluence peninsula, we can distinguish areas where the diversity of functions stimulates the waterfront to a greater extent and areas where the lack thereof proves to be negative:

- ▶ Lack of diversity – the section by the Quai Ramboud promenade is largely built up by offices, and only during stage II, it will be complemented with residential quarters. In addition, recently completed Confluence Museum is located in on the peninsula's spike. In this case, the lack of urban diversity is caused not only by natural constraints, but also by the course of the A7 motorway and the unfinished stage II of the new district. The situation will change after the second stage of revitalising post-industrial areas. Additional green areas, as well as new residential and service buildings, will also be created;
- ▶ Functional diversity – from Place Nautique channel to Cours Bayard Street. This section includes the design of hotels, office and service buildings, a shopping centre, over 1,600 flats, a playing field, squares, gardens and recreation areas. In addition, according to the Great Lyon plan, it was predicted that social flats will constitute approximately 25% of residential housing [13, 14] (Figs. 6 & 7).

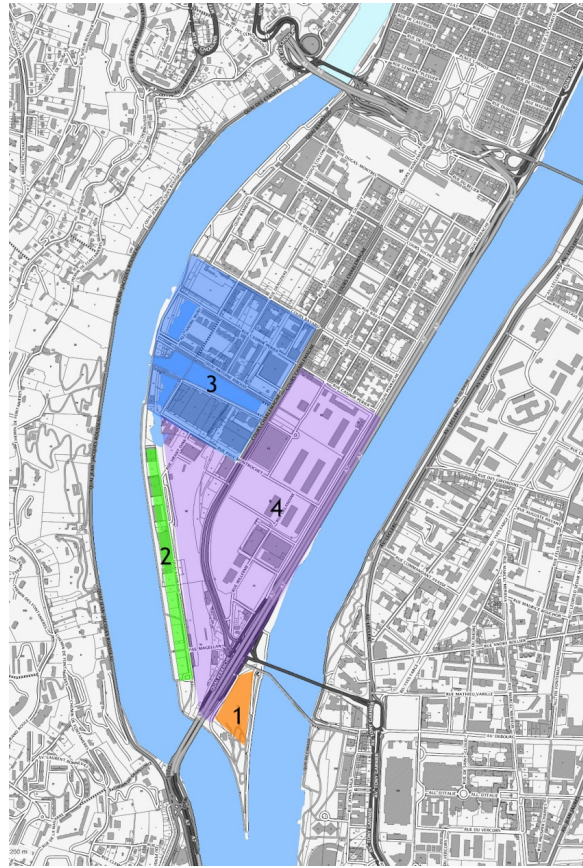
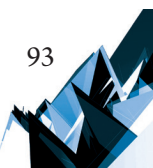


Fig. 6. The diversity of functions of buildings and services along the river bank: 1. Confluence Museum; 2. Office buildings; 3. Correct functional diversity – office buildings, sports facilities, recreation areas, service centres, shopping centres, squares, playgrounds, etc., 4. Areas not yet revitalised. This will only happen after the end of stage II (by R. Zieliński based on <https://www.geoportail.gouv.fr>)



Fig. 7. Diversity of functions of buildings and services along the river bank – the panoramic view is showing a part of correct functional diversity (on the left) and areas not yet revitalised (on the right)



5.4. Green and recreational areas along the river bank

Waterfront linearity is connected not only with the continuity of pedestrian and cycling trails, but also with their connection to recreational areas and urban greenery. This is a feature shared with the Blue Plan, which concentrated on making the banks accessible to residents and restoring natural features to the waterfront. Along the Saone, on the left side of Confluence peninsula, 5 km of promenades were built, and after the completion of stage I, the public space will occupy approximately 22.5 ha. The concept was also supposed to refer to the industrial nature that characterised these areas before transformation. Due to the above requirements, the old infrastructure (e.g. railways and port structures, a part of docks) was preserved and incorporated into emerging squares and pedestrian areas. The old port channel with an area of 2 hectares was adopted as a new centre of the district around which concerts and festivals are to take place. By building a bridge over the channel, the continuity of the cycling trail along the bank was maintained. There are also new sports facilities and parks established. It is estimated that after completion of the first stage, about 35ha of green areas will be created (Figs. 8 & 9).

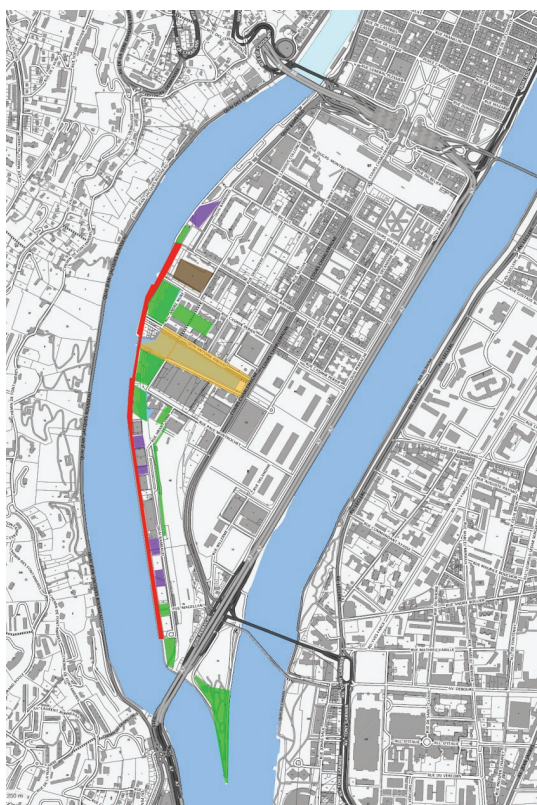


Fig. 8. 4th linearity feature – Green and recreational areas along the river bank. Red – promenades; Green – parks and larger green areas; Purple – small squares; Yellow – the main square; Brown – sports grounds, a playing field (by R. Zieliński based on <https://www.geoportail.gouv.fr>)



Ill. 9. Left; Right: Green recreation areas along the river bank near Confluence Museum
(photo by R. Zieliński)

6. Conclusions – using the principle of waterfront linearity to assess revitalised areas and to grade their activation

Using waterfront linearity as a determinant, the transformation quality of the remaining sections of the Lyon waterfront can be assessed. In this way, it is easier to define possible problems and disturbances resulting from specific cases of negligence. The degree of linearity can be determined by the number of factors involved. Obviously, the key question is whether all of them prove a successful revitalisation. An example of Confluence district helps to address this issue.

The lack of some waterfront linearity elements does not exclude the success of the investment, yet it affects the degree of waterfront activation. By removing some elements, such as the waterfront boost factor, less movement is introduced, making the areas more intimate and peaceful. The change of the location of recreational areas or the lack of diversified functions of the buildings can be influential in a similar way. Another issue is the continuity and length of revitalised areas, the disturbances of which have a greater impact on the possible degradation of the waterfront. Conscious planning and using the principle of linearity can serve to highlight the areas where appropriate, thus increasing the value of the waterfront.

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