

Connectivity of urban rivers and environmental justice

Connectivité des rivières urbaines et justice environnementale

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RÉSUMÉ

La multiplication des projets de revitalisation des berges urbaines, notamment dans les pays développés, alimente la réflexion sur les relations entre les villes et leurs cours d'eau. Comment les rivières ont-elles influencé le développement urbain ? Comment les villes ont-elles appréhendé leurs cours d'eau depuis le XIX^{ème} siècle ? Et dans quelle mesure les relations spatiales villes-rivières contraignent-elles et favorisent-elles la connectivité entre les populations et leurs cours d'eau ? Tantôt célébrés pour la revitalisation de centres urbains négligés et tantôt critiqués pour la marginalisation d'habitants et d'activités, ces projets soulèvent des questions sur ce qui constitue la « restauration » des cours d'eau dans les villes, sur le degré de réhabilitation des processus naturels et des valeurs écologiques, et sur la durabilité des bénéfices écologiques qui sont rétablis dans de tels contextes. Ces projets sont lus au prisme du cadre théorique de la connectivité sociale – dans ses dimensions longitudinales, latérales et verticales –, en nous concentrant sur les exemples du Rhône et de la Saône à Lyon, mais aussi en faisant des comparaisons avec d'autres fronts d'eau urbains à travers le monde. Nous étudions en particulier comment ces projets ont affecté les pratiques (qui dépendent inégalement de l'eau), en soulignant les implications en termes de justice environnementale que suscitent les déplacements des anciens usages et leur remplacement par de nouveaux usages.

ABSTRACT

With the explosion of urban waterfront revitalization projects in the developed world, it is timely to reflect on the relations between cities and their rivers: how the rivers influenced development of the cities, how cities have treated their riverfronts since 19th century, and how the spatial relations of city and river constrain and enable improved connectivity between urban populations and their rivers. Both celebrated as revitalizing neglected urban centers and criticized for displacing the disenfranchised populations, riverfront revitalization projects raise questions about what constitutes 'restoration' in cities, to what degree natural processes and ecological values can be restored in such contexts, and how sustainable ecological benefits will be in light of the altered processes of the urban context. We examine these projects through a framework of social connectivity in longitudinal, lateral, and vertical dimensions, focusing on the Saône and Rhône Rivers in Lyon, drawing comparisons to urban riverfronts across the globe. We consider how renewal projects have affected uses along riverfronts, some of which were river dependent, others river independent, and environmental justice implications of displacement of former uses for the uses that are established in their place.

KEYWORDS

City-river interactions, river restoration, social connectivity, urban riverfront revitalization

1 INTRODUCTION

Through the 19th and most of the 20th century, urban riverfronts were increasingly given over to navigation, infrastructure, and industry, cutting people off from the river. Degradation of water quality completed the disconnection from the river, as traditional uses such as fishing and washing clothes became less easy in contaminated waters. In the late 20th century, the shift to centralized container ports and displacement of industries elsewhere made urban waterfronts available for re-use, and improvements in water quality have made rivers more attractive for human interaction, prompting a flood of urban riverfront renewal projects throughout the developed world, and increasingly, in the developing world. Riverfront revitalization projects raise questions about what constitutes 'restoration' in cities, to what degree natural processes and ecological values can be restored in such contexts, and how sustainable ecological benefits will be in light of the altered processes of the urban context. We approach the trajectories of urban waterfronts and their renewal from a perspective of connectivity, especially social connectivity, applying the framework of longitudinal, lateral, and vertical dimensions of connectivity commonly applied in the hydrologic and ecological sciences but not previously applied to social factors (Kondolf and Pinto 2017). We analyze i) how ecological and social connectivity can be intertwined, ii) how social connectivity can be linked with environmental justice, and iii) how urban riverfronts reveal different priorities in globalization. The first part focuses on our framework, which is applied in the second part through different case studies in the developed and developing world.

2 SOCIAL CONNECTIVITY AND ENVIRONMENTAL JUSTICE AS A FRAMEWORK

Concepts of connectivity are well established in the literature dealing with biophysical aspects of river processes, restoration and management, distinguishing connectivity in longitudinal, lateral, and vertical dimensions. These concepts can be adapted to *social connectivity*, the communication and movement of people, goods, ideas, and culture along and across rivers, recognizing longitudinal, lateral, and vertical connectivity, social interactions that are especially intense and pervasive in urban reaches of rivers. Viewed from a connectivity perspective and a longitudinal dimension, urban waterfront revitalization focuses on reaches which may be quite small. Furthermore, it represents a partial restoration of the lateral connectivity lost in many cities in the 19th century, when the formerly rich connections between river and city (with the banks heavily used by merchants, mills, laundry boats, tripe butchers, dyers, etc) were sacrificed to improve longitudinal connectivity for navigation. However, the former vertical connectivity has often not been restored; people can sunbathe but may have no direct access to river waters because of the activities (such as navigation), the water quality, or the design of the bank (for example vertical stone walls). The three dimensions of social connectivity are not recreated in each project. Furthermore, if social connectivity can be improved, the ecological connectivity may be forgotten in different projects of waterfront revitalization.

What is "social" in social connectivity? These strategies addressed the "public", *i.e.* inhabitants and tourists. These actions are intended to benefit a wide range of social classes, including those who cannot afford to travel to 'classic' summer beaches. Both celebrated as revitalizing neglected urban centers and criticized for displacing the disenfranchised populations, revitalization is linked with environmental justice which refers to spatial inequalities, inequalities of quality of life, inequalities of risk exposure, and inequalities of action (following the IFEN's definition in 2006). In the developed world, many city planners create projects or events to recreate a link between society and river. In the developing world, river-city connectivity is more fraught. Is it a phenomenon in rich countries for rich people? In a political ecology approach, these revitalizations can be read as a diffusion of capitalism: new resources are created and some old uses disappear because of concurrence and profitability.

3 RECONQUEST OF THE BANKS: DIFFERENT CASE STUDIES

3.1 Material and methods: a comparison between different contexts

We systematically compared case studies of riverfront renewal projects in diverse settings in developed and developing countries, documenting how the projects addressed connectivity in the three dimensions, emphasizing social aspects. The comparative approach allows us to distance ourselves from the familiar, to know other rivers better, and to identify commonalities and differences among the cases. We drew upon field observations, press accounts, historical maps and other documents, review of scholarly literature as well as government and consultant reports, aerial and ground imagery (before-after), using maps of sequential change and textual data analysis.

3.2 Case studies and main results

Viewed from a connectivity perspective, the longitudinal dimension of urban riverfront revitalization is weak. Only a few cities have projects that extend long distances longitudinally, and these may be expensive (Fig. 1) because of accommodations for flood risk and other factors. In the urban context, riverbank projects are typically short.

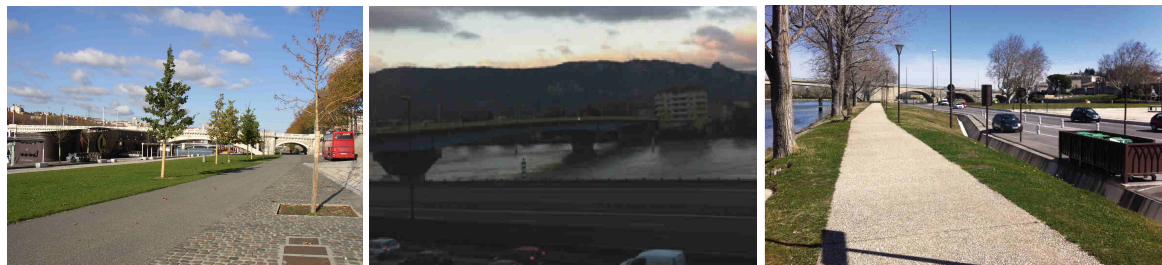


Figure 1. Waterfront revitalizations along the Rhône River in Lyon, Valence, and Avignon

The social lateral connectivity is maybe easiest to restore. For example, the *Paris Plages* is a celebrated example of urban riverfront revitalization for social uses. The city of Geneva recently enhanced both lateral and vertical connectivity by building wooden platforms halfway down the vertical masonry walls that flank the Rhône, thereby providing direct access to the river waters for swimming. Re-establishing vertical connectivity assumes suitable water quality for human contact. The city of Paris plans to have its 2024 summer Olympic water sports in the Seine, which like the wooden platforms along the Rhône in Geneva, presupposes good water quality.

The relationship between social connectivity and environmental justice can be ambivalent. In the mid-late-20th century, the banks of the Rhône and Saône Rivers in Lyon had been largely turned over to parking lots and motorways, with with left-over spaces occupied by marginal populations, such as drug users and prostitutes, uses that were not river-dependent. The return of large lengths of the riverfront to the people of Lyon over the past two decades required construction of large structures to provide alternative parking, redesign of long reaches of riverbank, and an extended political process, with much of the opposition focused on the loss of the river-side parking (Comby 2013). The “new” banks are open to everyone, but people need to pay to access to certain places (such as bars). In Cairo, the banks of the Nile, formerly alive with quotidian activities (washing, fishing, and felucca landings), were by the end of the twentieth century largely cutoff from free public access by a wall of private clubs, luxury hotels, restaurants, nurseries, and police and military stations, as well as heavily trafficked roads, all uses promoting exclusivity and social segregation rather than integration and leisure opportunities for all citizens. On the Sabarmati River in Ahmedabad, India, a controversial, ongoing project is creating spaces for public enjoyment of a restored river (with promises of improved water quality by diversion of sewage away from the river and a constant flow pumped from another source), with both improved lateral connectivity to neighborhoods and continuous trails providing longitudinal connectivity. But the project is displacing thousands of poor inhabitants of *bidonvilles* along the river, involves extensive filling to narrow the river and create land for high-end apartment blocks and hotels, raising questions of environmental impact and justice.

4 DISCUSSION: TOWARDS AN UNDERSTANDING OF CITY-RIVER CONNECTIVITY AND ITS IMPLICATIONS

As illustrated by the different described experiences and elsewhere, riverfront renewal has become not only a way for cities to provide their populations with access to open space and water-oriented experiences, but also allows these cities to restore their “traditional” identities as river cities in a political process. Closely examining the distribution of uses along the river and with distance from the river, we can see a gradient in types of uses and economic level, raising questions about potential gentrification effects. In some cities, waterfront renewal has been modeled on famous cities elsewhere and imported with the implicit expectation that the receiving city will gain in global stature.

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