EXPRESSIONS OF SPATIAL QUALITY AND LOCAL IDENTITY IN URBAN RIVERFRONTS

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ABSTRACT

The paper discusses a set of spatial attributes referring to urban places and design, principally focusing on the urban riverfronts and their expressions of perceived quality and spatial identity. River landscapes, riverfronts and designed urban places along the river banks are among the most visible, strong and prominent features of the river cities. They bring certain uniqueness and potential to boost urban quality and to develop places for people. Following our earlier reviews and meta-analyses, we tackle some essential definitions and regularly employed characteristics that reflect the importance and relevance to riverfront development. We debate a list of place-related attributes and explain their role regarding human perception, formation of local identity and their relation to places' appeal, in the case of two different European river cities, Ljubljana and Lisbon.

Keywords: spatial attributes, spatial quality, urban riverfronts, local identity, urban design

LE ESPRESSIONI DI QUALITA' SPAZIALE E IDENTITA' LOCALE NELLO SVILUPPO DI LUNGOFIUME URBANO

SINTESI

Il documento descrive una serie di caratteristiche spaziali relative alle localita' urbane e alla progettazione, concentrandosi principalmente sui riverfront urbani e sul loro effetto di qualità percepita e identità spaziale. I paesaggi fluviali, il lungofiume e località urbane progettate lungo le rive del fiume sono tra le caratteristiche più visibili, forti e prominenti delle città attraversate da un fiume. Essi portano una certa eccezionalita' e potenzialità per aumentare la qualità urbana e sviluppare i posti adatti alla gente. Prendendo in considerazione le nostre revisioni precedenti e meta-analisi, affrontiamo alcune definizioni essenziali ed usiamo regolarmente le caratteristiche che hanno impatto sull'importanza e rilevanza per lo sviluppo del riverfront. Discutiamo un elenco di quattro particolarità relative ai luoghi sopracitati e provvediamo a spiegare il loro ruolo nella percezione umana, nella formazione di identità locale e nel loro rapporto con l'attrattività dei luoghi, nel caso di due diverse città fluviali europee, Lubiana e Lisbona.

Parole chiavi: caratteristiche spaziali, qualità spaziale, i riverfront urbani, identità locale, progettazione urbana

INTRODUCTION

Rivers and river landscapes[1] in urban environments have always been important factors of the development and have often been recognized as a resource and advantageous predisposition in multiple senses – as a connection, greenery, border, protection, in terms of fisheries, industrial and port development, recreation, leisure, aesthetics, public open spaces, and of course their role of preservation and nature from the ecological perspective. Remarkable in this sense is also another factor – the creation of spatial identity – which brings, among other, spatial recognition and authenticity of a broader geographical locality.

In urban environments the recognition and authenticity of a broader geographical locality are leaned upon the intertwinement of a large range of elements and features: from morphological structures, vegetation, climate, built structures and infrastructures, historical character and existence of cultural heritage, land use patterns, to more indirectly visible, less tangible, such as inhabitants' habits and customs, governmental regulations or behaviour patterns (Verovšek et al., 2016). However, a river in a city, river landscapes and riverfronts are of the most visible, strong and prominent elements in these terms – they bring certain uniqueness and potential to boost urban qualities and develop places for people. Throughout the years, the multifunctional nature of riversides revealed their potential to respond to diverse necessities, thus acquiring several meanings. From being principally traffic routs in the Middle Ages and economy booster in the industrial era, they are lately being readapted to places for wellbeing and re-naturalization. These constant and successful functional and spatial reinventions of riverside areas depict their values and capacity to obtain various significations in urban life.

As claimed by Larice and Macdonald (2010), the tendencies towards studying, designing and creating urban places with a greater relevance to the user's personal experience – as a response to the impersonal approach of design – have reinforced the search for alternative ways of tackling the city and its parts, including riverfronts. Therefore, the scientific community has developed a rich set of aspects to approach the evaluation and interpretation of urban reality, either in a conceptual/ concise/abstract way (Bosselman, 1998) or by means that provide perceptions closer to the experience (Juvančič et al., 2014). Criteria and indicators for assessing spatial potentials, pre-dispositions or constraints are therefore based on physical, cultural and social or purely perceptual nature of urban reality.

This paper provides a descriptive overview of a set of spatial attributes related to urban riverfronts from the aspect of urban design and planning. Following our earlier reviews and other meta-analyses of the common qualities in urban environments (Ewing et al., 2006; Verovšek, 2012; Verovšek et al., 2013; Čavić and Beirao, 2014), we tackle some essential definitions and regularly employed characteristics that reflect importance and relevance in terms of river banks. We select and discuss a set of place-related attributes and explain their role in terms of human perception and the role for a wider audience and users. The discussion is systematically underpinned by geographically two different showcases; that is, by two river cities in Europe – Ljubljana with the Ljubljanica river and Lisbon with Tagus river.

PLACES' EXPRESSIONS FOSTERING URBAN QUALITY AND LOCAL IDENTITY

Most commonly speaking, the identity of a place represents the key characteristics with which a particular place is associated.[2] The numerous elements and features and their combinations define a certain place and bring an expression of uniqueness and authenticity, which has been, since the earliest times, regarded as a sign of value and quality, however, not necessarily strictly correlated to what is considered architectural or urbanistic quality.

The definition of place is closely linked to comprehension of its identity, which by differentiation allows for place's distinction within spatial continuity and topologic configuration. In broader sense and using Saussure's linguistic theory of meaning-making (Saussure, 1959), the definition of any significant entity is linked to its uniqueness in comparison to proximate or similar elements within the system. Said differently, a place as a meaningful element generates its identity twofold: a) in a relationship towards proximate and the neighborhood places and b) in relation to functionally similar but physically separated places.

Lynch (1960) considered identity as part of the image of a city with the appearance being the most instantly perceived reflection of its spatial identity, even if neglecting the subjective interpretation of it. However, counting with its counterpart, a place-related identity also inevitably refers to either subjective or objectivised cluster of ideas about the place. It represents an assemblage of information about the place for its user or the observer. Spatial identity is in this view seen as a dynamic, collective creation of the interaction between, on the one side the capacities for memory, consciousness,

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1   Urban rivers include rivers, or river segments, which originate or flow in urban regions, as well as canals or channels (which are man-made but have, over time, achieved characteristics of natural rivers (Yue, 2012).

2   Place identity can commonly be defined in two different ways, by either the ways people express identifications with reference to the physical environment or the distinctiveness of the environment itself. For the purpose of this paper, place identity is confined to the unique or distinct character of a place (Azmi et al., 2014).

and organized construal and on the other the physical and societal structures and processes which constitute the social context (Breakwell, 1986; Lappegard, 2007). As such, the local or regional identity and character are never a stable construct, but is continuously evolving (Kaymaz, 2013) on the long term basis, however, the essence of it persists due to the more constant factors influencing its appearance. The later forms, what Mlinar (1994)[3] calls the *continuation*, as one of the two most conspicuous measures that define any kind of identity (identity in any sense).

Consequently, the place identity is also inevitably in conjunction with tradition: "A city's identity relates to its historical background and to the particularities that traditionally characterized that city" (Deffner and Metaxas, 2010, 52). However, respecting the spatial identity as a quality, which is pursued by many European documents,[4] proposes not rigorously preserving current state or copying the old models, but rather defining the spatial *differentiation* and *continuation* in an always new context and attuned to new means of accomplishing it. In terms of urban design, it suggests moving the focus from static to dynamic, from formal towards functional, from economic to social dimension of urban and architectural space, that is by lived experience (Tuan, 1975) turned into a Lefebvre's *living organism* (Lefebvre, 1991). From the urban planning point of view, as Mrđa and Bojanić Obad Šćitaroci (2016) ascertain, it is essential to integrate the protection of places' identity into the planning process, to create a new assessment model that will trigger a new method of specific planning approach.

No matter how we set it, the concept of local or spatial identity predictably connects the existing urban form and configuration, morphology and land patterns, as well as climate, vegetation, to some less tangible features (such as inhabitants' habits and customs, governmental regulations or behavioural patterns) that define the perception of a place. Therefore, the identity connects the multifractal urban characteristics and attributes, yet at the same time relates to what constitutes the urban quality as perceived by users. As pointed out above, not all the spatial configurations forming its identity are considered architectural or urbanistic quality, however, many of the existing spatial attributes have recognised significance of quality and identity.

In the paper we do not intentionally categorise the attributes and qualities by their type, however, we discuss them from the aspect of visual physical form, socially-economic liveliness that provides urbanity and assures users' sojourning, as well as from the aspect of spatial identity which is shared by the users through their mental perceptions.

SELECTION OF URBAN ATTRIBUTES APPLIED TO URBAN RIVERFRONTS

In the following chapter we introduce four urban attributes relevant to urban riverfronts and fostering urban quality and the sense of local identity as noted by literature and also judged by the expert panel in past studies (Ewing and Handy, 2009; Carmona, 2010; Verovšek, 2012; Verovšek et al., 2013; Cavic and Beirao, 2014). The selected set is put in the perspective of two geographically different showcases; the city of Ljubljana with Ljubljanica River[5] and the city of Lisbon with the delta of Tagus River.[6] We use three photos in a row, demonstrating the riverbank scenery according

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3   Mlinar (1994) claims, there are two key measures that define each identity, these are differentiation and continuation.

4   The European Urban Charter in 1992 was on the European level among the first concerted efforts to bring the existing local and urban identity in line with efforts linking legislative reform with spatial and architectural development. Following this agenda, also other more contemporary planning and strategic documents highlight the need to preserve or reinforce the locally specific character and identities, which refer to newly created or retrofitted places. Also, a number of contemporary policies have responded by integrating the protection of traditional cultural landscape into their objectives and measures.

5   The Ljubljanica River is the continuation of several karst rivers that flow from the Karst region towards Ljubljana and Ljubljana basin. After entering Ljubljana from the south, it defines a hoop around the northern slope of Castle hill and encircles the historical centre. In the eighteenth century, the Gruber Canal was built in an attempt to reclaim lands against frequent flooding, cutting through the southern end of the promontory. Today the river is considered as one of the greatest spatial potentials in the city of Ljubljana. In the outer parts of the city the riverfronts are less urbanized, greener and gradually sweeping down; however, the central part of the city river is strongly confined; at that time it was a unique solution (Plečnik) which was complemented by other Plečnik's works such as monumental buildings, open squares, canals, embankments, and riverside parks, altogether forming a strong spatial identity, which is today protected as a cultural heritage. In the last decade, the riverbanks in the section of the old city centre of Ljubljana were partly renovated. Interventions were inserted within the existing design not to overrun the existing heritage and identity. Ljubljana received The European Prize for Urban Public Space for this project in 2012. (The European Prize for Urban Public Space is a biennial competition organized by seven European institutions with the aim to recognize and encourage the recovery projects and defence of public space in cities (http://www.publicspace.org/en/prize/2012).

6   Out of 18 municipalities that compose the Lisbon Metropolitan Area, 16 have one or more waterfronts: 6 of them by the sea and 10 of them along either the Tagus or the Sado rivers estuaries. In the case of Lisbon, river and the riverside represent an important element in city development. Lisbon Riverside is nowadays, almost in its totality, placed over artificially constructed landfills which as outputs of a long process of conquering water areas, depict the relationship city has established with its river. The nature of Lisbon's shore has been changing over centuries, moving from the rich, direct and intense city-river interplay, towards a gradual levelling of their joining area through the artificial and mostly industrial expansion of landfills which led to the extension and regulation of the shore ring. Nowadays, due to decline and relocation of industrial activities Lisbon shoreline is an artificially regulated area that despite its morphological uniformity allows for diverse urban interventions and various open public space typologies (recreational, social, etc.).

Figure 1 and 2: Bringing people closer to the water and greenery of the river edge is one of the well-recognised approaches to boost the sense of naturalness

to the selected spatial attribute (one of the three photos demonstrates the non-designed riverfront scenery, not specially targeting urban use or proposing attendance) and an additional non-river scenery referencing high (max) or low (min) value by this attribute in one of the two cities (*Table 1, Table 2*). Short descriptions are provided, pointing out the features that make each scene either high or low with respect to each spatial attribute.

Nature in the city – naturalness

The presence and effect of natural environments and elements of nature in urban and architectural space is widely discussed and investigated. It is well documented (e.g. Balling and Falk, 1982; Ulrich, 1986; Kaplan and Kaplan, 1989: Ward Thompson, 2002; Beatley, 2010, etc.) that elements of nature or "nature in the city" bring positive effects in numerous aspects such as biodiversity, microclimate, air quality, aesthetics, variety in appearance, noise reduction, to more subtle and complex, such as restorative effects for humans, aroused sense of balance or control and preferences by people. The concept of naturalness in these terms refers to people's perception that a place is connected to nature if containing elements such as water, vegetation, natural materials as woods, geomorphological variegation or offer vistas to mountains, hills or presence of animals, etc. In this context the naturalness represents the relation or proportion between the man-made impact and his natural counterpart or input. The question of "real" or total naturalness does not seem to be very crucial at this point. It is apparent that elements of nature in the urban realm capture adjusted form and reflect limited essence. However, from the aspect of human perception and preferences, it does not seem to

be any less effective. Beatley (2010) claims that even the smaller doses of nature in more discontinuous ways (e.g. a rooftop garden, an empty corner lot, single tree, water pass) that are incorporated or found in the compact parts of the cities, have positive effects on human wellbeing and raise the quality of living environments. Additionally, in the case of study referring to larger green areas or remote riverfronts (Kaplan and Kaplan, 1989), those areas were recognized as more attractive to users if moderately reformed, designed and equipped, thus in a way urbanized, adjusted and controlled. We could claim that harsh wildness is not particularly cherished among urban users if it does not provide with basic functionalities and infrastructures, path networks and adequate sense of safety or control. However, the uncontrolled, wild spaces such as railway sidings, river corridors, canal-side banks are claimed to be important in continuity of natural habitat for plant and animal diversity allowing for restoration of wildlife, city resilience and biodiversity (Baines, 1986). Wildness in urban areas is given a value due to its special conditions to hold a memory on what urban space was before it got constructed. It is an undetermined, open and free area, which leaves space for creativity and differently from constructed natural spaces with cut grass, permits observation of ecosystem in its originality and self-organising spontaneity (Ferraton and Iotzova, 2015).

According to abundant theoretical and empirical literature, deductive reasoning shall lead us to the statement that river as an element in the urban environments brings rich predisposition in terms of higher levels of naturalness. Not only is the proximity of water advantageous for the development or design of adjacent urban places, but also the often required green buffer zone/corridor[7] lengthwise the river enriches the potential for develop-

7   Different documents on EU level use dissimilar terminology and required building offsets: Slovenian legislation proposes a 15 meter offset from the river line for new constructions and infrastructures for most rivers of the first class (hydro-morphological classification;

ment of quality and pleasant spaces, usually related to recreation, play and leisure. Slovenian strategical plans on the level of municipalities, which are prepared in accordance with European environmental and planning agendas, are laying great efforts to develop and make good use of areas adjacent to rivers in urban contextures. Special concern goes to approaches that bring recreational and walking paths closer to water *(Figure 1, Figure 2)* and design solutions that offer user experience in the immediate vicinity of water and greenery along it.

Spatiality – openness, spaciousness, containment and enclosure

In architectural theory authors such as Joedicke (1985), claim that even though very basic, the feature of spaciousness is very important in spatial experience. 'Spaciousness' depends on the area or space and height of facades adjacent to it – when the space is small with high surrounding buildings, it is perceived as less spacious comparing in comparison to a larger one with a lower built surrounding (Beirão et al., 2014). Spaciousness is deemed significant due to its importance for safety and utility because more spacious places provide area for satisfaction of basic human needs giving them enough room not to feel threatened by enabling their capacity to see or move (Stamps, 2010). In urban theories, less spacious or more contained places allow for closer human interaction and mingling giving possibility for hearing and seeing other people as crucial factor for sojourning and social interaction (Gehl, 1987). Similarly, the term of openness refers to a view, visual scope and addresses the characteristics of spatial built membrane and refers to how much of the spatial two-dimensional or three-dimensional perimeter is enclosed or open towards its background (Nasar, 2011) and relates as opposite to attribute enclosure.[8] As a more narrow and focused attribute, openness of spatial boundaries participates in generating spaciousness of urban space – higher openness contributes to higher spaciousness. Interestingly, both attributes – openness and enclosure in different urban places – can be considered either valuable or disturbing in terms of human perception. There are human-related and space-related reasons for this occurrence. The spatial cognition is influenced by one's previous experiences, memories and individual predispositions and preferences. The phenomenon of openness which to someone might evoke emotion of freedom could to the other represent intimidation (Arnheim, 1977). Cullen (1961), for instance, states that enclosure of an

outdoor space, that is, what forms a room-like (Ewing and Handy, 2009) impression, is, perhaps, the most powerful, the most obvious, of all the devices to install a sense of position, of identity with the surroundings. The connotation one gives to an extremely broad or enclosed space, positive or negative one, will as well depend on the spatial context and the anticipations of the user. At lower urban densities, building masses become less important in defining space (Ewing and Handy, 2009), which is followed by the users expectations and cognition, thus the spaciousness - at least in a sense of defined openness (Kaplan and Kaplan, 1989; Nasar, 1990, 1994) – become appreciated feature. When the contexts and reference change, the perceptions and spatial cognition reasonably follow.

It is evident that riverfronts in their nature capture more spaciousness and form specific context in these terms due to relatively less dense urban contexture and wider buildings' edge offsets. Along with the river width and bridges that bring certain sense of spaciousness, there is, as stated before, a green buffer zone lengthwise the river required and regulated by the architectural and planning legislation in numerous European cities.[7] This brings different predispositions to such places and their potential for development as liveable and pleasant public open places. There are, of course, exceptions to this principle, referring to the existent greater building densities (e.g. old/historical urban centres), closely confining the river and the water line by the buildings and built infrastructures. In these cases, the sense of spaciousness remains due to the river width, but is less intense comparing to riverbanks with wider offsets of buildings. As Ewing and Handy (2009) states, at low urban densities, building masses become less important in defining space, and trees assume the dominant role. Rows of trees, either along the street or along the river paths can humanize the height-to-width ratio. Thus, the perceived spaciousness can be strongly affected also by trees and canopies of the green buffer zone, however, the greenery provides more transparent less solid enclosure, which, for some authors is the finest solution for places suffering from exceeded openness perceived. Besides, the scale of spaciousness at the riverbank sceneries can be established in different scales of spaciousness *(Figure 3 and 4)*.

Linkage – access and connectivity

Accessibility and linkage are tightly interrelated attributes of urban places that raise interest of many

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greater offsets are required in case of protected area of nature, green zones (50 m), water protection zones, protective forests and flooding areas, Zakon o vodah Uradni list RS, nr. 67/02.

8 Enclosure and the related spatial containment are considered both in plan and vertical section. The amount of enclosure and the resulting degree of containment, partially depend on the ratio of the width of the space to the height of the enclosing walls (Carmona, 2010). Enclosure refers to the degree to which streets and other public spaces are visually defined by buildings, walls, trees, and other vertical elements. Spaces where the height of vertical elements is proportionally related to the width of the space between them have a room-like quality (Ewing et al., 2006).

Figure 3 and 4: Opening the views and spacing-out the sceneries at the riverbank can be established in different scales of spaciousness (city centre and outeards)

practitioners and theoreticians. One can judge the accessibility of an urban place by openness of its limits, which allows for its connections or linkages to its surrounding places, both in visual and physical sense. Ewing and Handy (2009) define the linkage as a feature that promotes the interconnectedness of different places and that provides convenient access between them. As they claim, the linkage refers to physical or visual[9] connections longitudinally or laterally across a place, forming, as Cullen (1961) defines it, continuity[10] of the visual or physical path. There is of course a distinctive difference between the visual and physical connections. Physical connections can be represented by the travel trajectories, whereas visual connections don't necessarily (or at all) coincide with them and thus do not relate to the actual accessibility and linkage network. The actual linkage is also closely associated with intersections, network configuration and urban nodes,[11] the latter being reasonable accompaniment of the linkage nodes. As complex process of organization connects the different nodes of the urban fabric, connections enable one to get easily to any point, preferably by many different paths (Salingaros, 1998).

Although the position of a certain place within the network of other places in the city cannot be taken as a short-term or bottom-up design quality but rather a

positive or negative predisposition to it, it definitely impacts the estimated value of space in the urban matrix.[12] Centrality (as opposed to positional periphery) is always an advantage in these terms and brings higher levels of accessibility and connectivity.

Inversely, as with the attributes of naturalness and spaciousness that commonly reach higher values in case of riverfronts, the attribute of linkage expectably gains lower levels at places along the river. This is a reasonable impact of the waterline as an obstacle to common modes of movement.[13] However, although the access from bank to bank is clearly more impeded than, for instance, in the case of a city road, we can claim that cross linkage channels gain accumulated movements in these terms *(Figure 5, Figure 6)*. Bridges here play a crucial role by pooling the movement into defined currents and forming strong connection nodes, which commonly adds to liveability, dynamics and quality in societal terms.

Topography and visual amplitude

One of the strongest attributes that that participates in constitution of place identity is related to spatial topography and the extent to which the built structures follow and adopt the terrain configuration. Depending

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9   As emphasized by Lynch (1960), visual connections are necessary for orientation and for creating a coherent picture of an urban setting; however, they do not necessarily (or at all) coincide with the travel trajectories and thus do not relate to actual accessibility.

10   Cullen (1961) defines continuity as "a simple way to show how one type of space is directly linked to another by the physical elements." When a physical element creates a small field to move along, such as a fence or a sidewalk, continuity indicates whether a viewer is within the field. It suggests a path and an uninterrupted view within the object's field (Sora et al., 2008).

11   Urban nodes are not entirely defined by structures in urbanistic terminology, however, most often they represent an object or place of attraction for a greater part of users (Salingaros, 1998).

12   There are well known models of spatial geometric configurations developed (e.g. Hillier and Hanson, 1989) that offer analysis of spatial arrangements and relational concept of space and describe the relative connectivity, accessibility and centrality in regard to possible paths, position, choice and integration.

13   In this paper we regard river as a travel network negligible in terms of traveling in the city and daily travel behaviours of the majority.

Figure 5 and 6: Bridges accumulate the movement currents and form strong connection- and activity- nodes

on the slope shapes and the urban design embedded, places are more or less exposed towards environment or embedded into it, which permits a stronger or weaker control over territory, influencing the feeling of safety, place visibility, wind protection, sun exposure (insolation), etc. The topographic aspect is, therefore, implicitly involved in the definitions of several well distinguished but structured qualities, such as visual complexity or imageability of place (Ewing et al., 2006). It is clear that terrain configuration is an attribute that doesn't provide with quality itself, but offers higher or lower potential for the development of it, if places are structured around topography by taking advantage of its natural benefits such as terraces, viewpoints, depressions as defined by contour, valleys, slopes; or by overcoming its slope and height obstacles for water supply, drainage, accessibility. The analysis of topography is often undertaken by geographers (Huggett & Cheesman, 2002) and real estate economists (Hurd, 1924), who observe the way settlements are being adapted to the environment and its impact on functionality, cost-effectiveness or the influence on other related processes. In urban and architectural researches, topography analyses are often conducted for comprehension of how urban heat, flooding, microclimates, temperature, landuse, etc are influenced by the environment. Interesting from our point of view is the relationship that urban place establishes with the topographical features, as they profoundly define its character, predefine its insolation, limit or enhance its usage and potentiate its visual amplitude. Visual amplitude in its definition is strongly related to topographic

features of any space. It depicts the attribute of a visual field a certain place propagates giving an idea about the overall visual angle and coverage from a certain place, describing the visible spatial structure of an environment. Visual amplitude is dependent both on topography and built structure. Places on convex and parallel slopes, especially those, which are less enclosed, have stronger visual amplitudes. The quality of visual amplitude is thus partly dependent on openness; however, in this case, it does not relate to the perception in terms of spaciousness but to proportion and variety of the vistas encompassed. The more enclosed places tend to obtain lower visual amplitude and less powerful views.

Visual fields are usually addressed by isovist and viewshed methodologies. While isovist represents the portion of space that can be 'overviewed' from a certain spot, viewshed shows objects and parts of the objects that are visible from specific spatial point. Isovist depict shape of the view from certain location as being carved out by built and topographic obstacles, whereas viewsheds[14] are about the visibility of features.[15] Viewsheds are commonly used where terrain heights come into play (Weitkamp, 2011). Thus, the visual amplitude can be depicted by viewshed representing a possible visible coverage towards urban – or landscape from a certain point – the greater the visible portion, the stronger the visual amplitude.

By applying the attribute of visual amplitude to riverfronts and river scenery, we can for sure confirm both: potentials and weaknesses deriving from topographical predispositions of the riverscapes. By taking into ac-

14 A viewshed is the geographical area that is visible from a location. It includes all surrounding points that are in line-of-sight with that location and excludes points that are beyond the horizon or obstructed by terrain and other features (e.g., buildings, trees); (Weitkamp, 2011).

15 Inversely, the area from which a structure, object or a standpoint can be seen may be called the zone of visual influence. It is the area from which a particular object/point is theoretically visible. Zones of visual influence have been used extensively in wind farm development. A cumulative zone of visual influence is used to define the cumulative effects of many developments (The European Wind Energy Association, 2012).
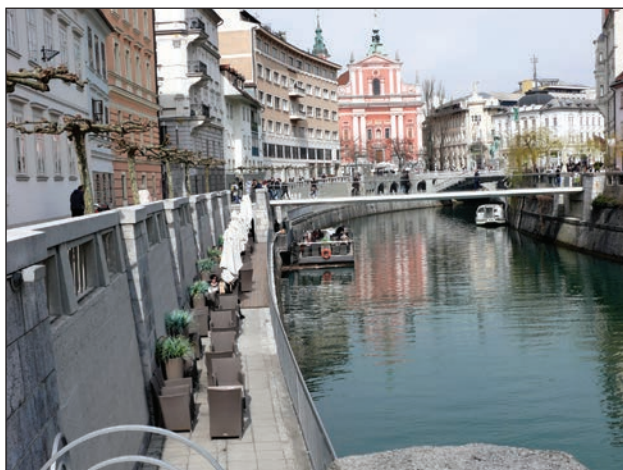
Figure 7 and 8: Slight river curves commonly establish richer sceneries with higher visual amplitudes as opposed to sceneries by straight banks

count the concave form of the river bed and surrounding slopes, one can make inferences on lover visual amplitudes. From a specific standpoint on the riverfront, the visible coverage is commonly lower due to lower position, while convex and higher slopes would provide more extensive views and consequently more visual complexity. However, if taking into account commonly lower building densities along riverfronts, or greenery that allows transparency, or the possibilities offered by the bridges, one can also make reasonable inferences on some higher visual amplitude, compared to places lying higher from the riverbed where/if the building densities are higher. The attribute of visual amplitude is therefore very much dependent on the micro location and its topographical, as well as build configuration, also the river width, stream meandering and the nature of river slopes, which are frequently dependent on geology of the river basin *(Figure 7, Figure 8)*.

DISCUSSION

In an attempt of the urban design and planning to achieve the quality within the spatial attributes examined and discussed in this paper, many different tactics occur. Each place can be seen through a set of ideas about how it should perform, what functionalities it should promote, what form it would capture and how it should be organized to provide with well-balanced public life and distributions, well designed and functional furniture, quality environment in terms of visual appeal, orientation, or noise/air pollution etc. There are great differences among different kind of places (plazas, squares, streets, banks, parks, atriums…) and their potentials to develop certain urban qualities. However, there are also great variances, among a particular kind of places – in our case riverfront spaces and their relation to the city

form and layout. And yet, there are differences in perceptions of the qualities, as being contingent on various pre-established conditions such as the cultural context. For example, the concept of spaciousness/openness and enclosure within the context of North American cities cannot be compared with European or Asian ones. In the same way as we are born into the language and culture, we are born into the spatial context. Our culturally influenced and therefore almost intrinsic concept of space is present as a reference to understanding and valuing new realities.

We applied our review to the riverfronts in Ljubljana and Lisbon regarding set of selected attributes. Between these two cities, there are two crucial deviances that further drag most of the spatial characteristics, these are, size of the river and the position of the river within the city fabric, and the size of the city distances that provide different scales, especially in terms of spaciousness, linkage and visual amplitudes. Lisbon's case offers greater distances, and the Tagus delta, due to its broadness, provides with the sceneries and spaces on a different scale regarding spaciousness, while Ljubljanica scales lower and flows through the very central part of the city, thus allowing for more proximate social interactions. Although it is evident, that riverfronts in their nature capture more spaciousness and form specific context in these terms due to relatively less dense urban contexture, the two cases revised, show great differences also regarding openness of the public spaces nearby. It is evident that Tagus River creates a sea-like impression in its lower flow (river delta). The distances between the banks crate a perception of separation which literally results in inexistent cross linkage for the pedestrians.

Bridges providing the linkage are well-distinguished but offer almost exclusively the transport function for motorized traffics. Number of bridges affects visual

Table 1: Selected spatial attributes; Ljubljana – Ljubljanica River

LJUBLJANA Ljubljanica	non-river scenery reference o	riverfront scenery -	riverfront scenery +	un-designed or irrelevant riverfront reference o
Naturalness	Naturalness in the non-river scenery weakly expressed (appeal compensated with other qualities)	Naturalness in the scenery less expressed but still strong comparing to environments without the water proximity	Naturalness in the scenery notably expressed (water, trees, green plot)	Naturalness in the scenery extremely expressed due to un-designed nature and less control – banks not designed for people
Spaciousness	Spaciousness not expressed – strong enclosure by buildings	River edge closely confined – spaciousness remains due to river width surface	River edge less firmly confined – spaciousness notably expressed**	River edge not designed for people – spaciousness intense, not confined
Linkage	Linkage intensely expressed – exceeding effect, and place becoming strongly transitional	Linkage only longitudinal, crosswise connection not in a reach of sight	Linkage clear and notably expressed longitudinally and laterally	Linkage not designed for people, longitudinal linkage inexistent
Visual amplitude	Visually amplitude strongly expressed due to the topographically advantageous position	Visual amplitude low from the bottom of the confined river bank	Visual amplitude notably expressed due to viewer position on the bridge	Visual amplitude of the scenery intensive but not available to users nor fitting human scale*
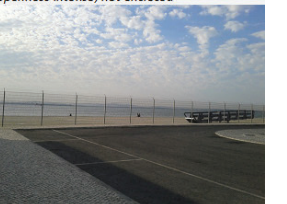
amplitude of the places twofold. On one side, when observing from a place, a higher number of bridges chunk visual field into smaller portion diminishing visual amplitude of a place. When observed from outside, more bridges offer more opportunities to capture better stand/view point, widening the visual field towards a certain place on the bank. The attribute of visual amplitude in these two cases is of course very much dependent also on the micro location and its topographical, as well as build configuration, the river width, stream meandering, and the nature of the river slopes grading down the riverfronts and holding the bridges' edges. In the central part of Ljubljana on the distance of 10 km, there are 20 bridges, of which 9 is exclusively proposed for non-motorised traffic (pedestrian, bike). This proportion ranks high in comparison to most of the European cities, and by taking in the account also the slight meandering of the river, we can claim that Ljubljanica's riverfronts are

well pre-dispositioned in terms of visual amplitudes towards the riverbank, but are quite constrained regarding visual amplitude from riverbank locations. Differently, in case of Tagus, visual amplitude from the riverside is rather high due to wideness of river's delta and lack of proximate bridges that would work as visual constrains. Due to the lack of bridges, visual amplitude towards the places is low since stand/viewpoints are non-existent. Likewise, both, the linage with the connectivity and the characteristics related to spaciousness are almost in diametric contrast within these two rivers, however in both cases these provide with the uniqueness and adds to the geo-local identity and appeal.

CONCLUSION

Urban rivers with appurtenant riverbanks hold specific predispositions in terms of developing urban

Table 2: Selected spatial attributes; Lisbon – Tagus River

LISBON Tagus	non-river scenery reference o	riverfront scenery -	riverfront scenery +	un-designed or irrelevant riverfront reference o
Naturalness	Naturalness in the non-river scenery weakly expressed (appeal compensated with other qualities)	Naturalness in the scenery less expressed but still strong comparing to environments without the water proximity	Naturalness in the scenery notably expressed (water, trees, green plot)	Naturalness in the scenery extremely expressed due to un-designed nature and less control – banks not designed for people
Spaciousness	Spaciousness not expressed – strong enclosure by buildings	River edge closely confined – spaciousness remains due to river width surface	River edge less firmly confined – spaciousness notably expressed**	River edge not designed for people – spaciousness intense, not confined
Openness	Openness intensely expressed – low enclosure by buildings	Openness not expressed – high enclosure by buildings	Openness intensely expressed – low enclosure by buildings	River edge not designed for people – openness intense, not enclosed
Linkage	Linkage intensely expressed – exceeding effect, and place becoming strongly transitional	Linkage only longitudinal, crosswise connection not in a reach of sight	Linkage clear and notably expressed longitudinally and laterally	Linkage not designed for people, lateral linkage inexistent

places. They form distinct spatial arrangements to evolve place-based qualities, and promising possibilities to foster local identity. As claimed by the European centre for river restoration (ECRR, 2017), there are more than 50% of people in the world now living in cities and more than 75% live near a river. Rivers are increasingly valued as part of the urban environment; successful urban river restoration is as much about establishing trust with local people, boosting their sense of identity with their rivers, as it is about improving flows and habitats. There are indeed great differences among diverse urban rivers, their expanse, geomorphology, river profile and configuration of the banks, as well as how they are embedded into the urban fabric and integrated into the socio-cultural, ecological, economic and managerial structures of the city. In the article we delve into the selection of spatial attributes, which appear to be more common for the riverscapes and places along the river banks. We put them in the perspective of two unlike cities with unique and

rather dissimilar riverscapes, to demonstrate the differences and similarities and validate choice of the picked attributes. The characteristics relating to naturalness, distinct topography and spatiality, as well as particularity regarding linkage, are important factors concerning the development of river-by places and their urban design. Not all determine the quality itself, but rather the specific potential to be used in a constructive way from the aspect of visitors, residents and users. Likewise, from the aspect of the river sceneries and the spatial identity, these attributes are vital in bringing unique or distinct character to places longwise the river, which is to be recognized and recalled vividly by the users/observers in comparison to other places of the city, however, although not necessarily strictly correlated to what is considered architectural or urbanistic quality. The discussion we expose and consider important in this article is especially the gradual shift in designing, which tends to put forward the actual user's experience. The debated research and

findings related to the exposed attributes correspondingly represent a rich repository of knowledge to answer questions about spatial qualities, their meanings, ways of their achievement and the ultimate aims at pragmatic value of responsive, well-recognizable and user-friendly structure and shape. The perpetual challenge, however, is how to apply this knowledge to specific geo-local entity and how to assure the non-conflicting riparian uses among ecological, economic and social functionalities, while concurrently boosting the aesthetic, visual and locally distinct expression in the process of urban planning and design.

IZRAZI PROSTORSKE IDENTITETE IN KAKOVOSTI URBANIH PROSTOROV PRI RAZVOJU MESTNIH REČNIH NABREŽIJ

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POVZETEK

Razprava o kvalitetah urbanega prostora in identiteti, ki jo prostori nosijo, je stalnica strokovne, znanstveno-raziskovalne, tudi umetniške diskusije v disciplinah, povezanih z načrtovanjem in urejanjem urbanih prostorov. Članek obravnava sklop prostorskih lastnosti, ki se nanašajo na oblikovane urbane prostore in sicer s poudarkom na razvoju obrečnih mestnih nabrežij ter njihovega izraza prostorske identitete in kakovosti. Obrečni prostor, mestna nabrežja in oblikovani nizi prostorov na rečnih bregovih so lahko eden bolj močnih dejavnikov prepoznavnosti prostora in njegove kakovosti. Prinašajo namreč specifičen izraz prostorske identitete, hkrati pa nosijo ugodne možnosti za razvoj funkcionalnih in uporabniku prijaznih prostorov. Sledeč našim predhodnim študijam in obstoječi literaturi na tem področju v članku obravnavamo nekatere osnovne pojme prostorskih kvalitet, ki odražajo pomen za razvoj ali revitalizacijo rečnih obrežij ter prostorov na bregovih urbanih rek. Razprava sledi širim osnovnim prostorskim atributom, ki so značilni za obrečni prostor, pri tem pregledno izpostavimo njihovo vlogo za uporabnika in njegovo zaznavanje, pomen, ki ga imajo za razvoj prostorske identitete in pomen, oziroma potencial ki ga nosijo za nastanek odzivnih in, s strani uporabnikov, dobro sprejetih prostorov. Dana izhodišča in referenčne vrednosti prikažemo na primerih dveh evropskih rečnih mest, to je, Ljubljane z Ljubljanico in Lizbone z rečno delto toka Tajo.

Ključne besede: prostorski atributi, prostorske kvalitete, mestna nabrežja, prostorska identiteta, urbano oblikovanje

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