

Green Infrastructure and Urban Revitalisation in Central Europe: Meeting Environmental and Spatial Challenges in the Inner City of Ljubljana, Slovenia

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Abstract

The paper focuses on developing the green infrastructure concept in the emerging strategies of urban resilience and sustainability in response to the multiple challenges facing European cities, including Ljubljana, the capital of Slovenia. In this context resilience is concerned with politically challenging questions about assumptions of equilibrium and the ability of humans to control the environment. Urban resilience can provide a common framework for multidisciplinary action by municipalities and other stakeholders, highlighting the impact of planning urban eco-systems with the development of green infrastructure to meet environmental and spatial challenges. This paper identifies some of these strategies and activities in Ljubljana on the basis of research conducted under the EU FP7 TURAS project (2011-2016). In the inner-city neighbourhood of Tabor, there is already a broad range of collaborative planning and community participation activities (both top-down and bottom-up) towards developing (public and private) green infrastructure. This diverse locality has been identified as a “bridging” area where urban resiliency strategies for green infrastructure development are considered as a tool for implementing urban revitalisation projects in order to sustain viability and improve the quality of life for local residents and other citizens in times of limited financial resources. The research in Tabor shows that developing green infrastructure in keeping with the urban resilience concept is not sufficiently integrated in official spatial planning and municipal action due mainly to institutional and social obstacles.

Keywords: urban resilience, revitalisation, green infrastructure, Ljubljana, Tabor neighbourhood, European cities, 7FP TURAS

Introduction

This paper examines the emerging concept of green infrastructure in urban (resilience) planning in response to the multiple challenges facing European cities. An understanding of the social-ecological aspects of urban resilience enables effective management of interventions to allow urban areas to adapt and adjust to disturbances, embracing a potential for transformation. Resilience poses politically challenging questions for assumptions about equilibrium and the ability of humans to control the environment. Urban resilience can provide a common stance for multidisciplinary action by municipalities, highlighting the impact of planning on urban eco-systems with the development of green infrastructure to meet environmental and spatial challenges. This research aims to identify some of these activities in Ljubljana and the Ljubljana urban region that have been undertaken in the *EU FP7 TURAS project (2011-2016)*.³

³ TURAS (*Transitioning towards Urban Resilience and Sustainability*) is a €8.9m (EU €6.8m) five year project supported by the 7th FP EU involving 30 partners – universities, research institutions, SMEs and 11 local authorities across Europe. TURAS aims to research, develop, demonstrate, and disseminate transition strategies and scenarios to enable European cities and their rural hinterlands to build vitally needed resilience in the face of significant sustainability challenges. TURAS has been split into 9 work packages (WP) looking at: *Geospatial*

This paper focuses on innovative top-down and bottom-up aspects of collaborative planning strategies and community activities in the inner-city Tabor neighbourhood in Ljubljana, where there is already a broad range of urban revitalisation projects for building green infrastructure at the local level.⁴ This diverse urban neighbourhood has been identified as a “bridging” area, where collaborative planning is considered a tool for developing green infrastructure in Ljubljana. The other aim is to address these various urban projects and activities as a way to sustain viability and improve the quality of life for local residents, other citizens, and visitors in times of limited public and private resources. This allows us to identify the capacity, knowledge, networks between people and places, and attitudes towards the development of green infrastructure over time. New schemes coordinate environmental, social, and economic action in the given urban context to examine how the social and physical setting of the Tabor neighbourhood contributes to the green infrastructure concept as an element of resilience strategies for urban revitalisation in the Ljubljana inner city.

The research shows that the concept of green infrastructure in urban resilience strategy is not sufficiently integrated in urban planning policies and city governance actions owing mainly to institutional and social obstacles.

We therefore investigate how “*community capital in specific inner-city urban areas can be used to pro-actively enhance the development of green infrastructure through resiliency planning towards urban sustainability.*” This allows us to correlate the physical assets of place, such as scale and distribution of urban institutions, services, amenities, projects and other stakeholders with social networks and the territorial capital of a specific urban neighbourhood.

Theoretical Aspects: Urban Resilience and Green Infrastructure

There is now a plethora of interlocking discussions on resilience (Porter and Davoudi, 2012, Collier et al., 2013, etc.) as an approach to the multifaceted nature of local and global challenges. Urban resilience is a relatively new concept – defined as the degree to which cities are able to tolerate alteration before reorganising around a new set of structures and processes (Alberti et al., 2003, Ernstson et al., 2010). Contemporary challenges call for innovative and sustainable solutions in creating more resilient and adaptive cities and regions, which balance economic competitiveness, environmental protection, and social well-being. These solutions could derive from spatial planning, urban design, community engagement and technological innovation to ensure that urbanisation is managed to sustain the viability and improve the quality of life for residents *vis-à-vis* the global economic and socio-political crisis and climate change. In fact, the ability to react to and recover from sudden shocks and long-term disruptions can be considered an indicator of resilience (Collier et al., 2013). The promotion of urban resilience requires:

- ***The ability to adapt and change*** to enable flexible governance, collaborative decision-making, and behavioural change towards resilient and sustainable cities

ICT – Support Infrastructure for Urban Resilience, Greening Public and Private Green Infrastructure, Urban/Industrial Regeneration, Land Use Planning and Creative Design, Climate Change Resilient City Planning and Climate-Neutral Infrastructure, Limiting Urban Sprawl, Short-Circuit Economies, Integrated Transition Strategies, Dissemination, Training and Exploitation of Results, and Project Management and Coordination.

⁴ TURAS WP 2 deals with *Green Infrastructure* while WP 3 deals with *Urban/Industrial Regeneration, Land Use Planning and Creative Design*. In these two TURAS WPs, the research team in Ljubljana has addressed examples of urban resilience planning through urban agriculture / gardening activities in several different projects and locations (as a traditional leisure activity in Ljubljana), as well as examples of urban revitalisation projects resulting from collaborative planning and community participation in the Tabor neighbourhood.

- **Urban policy** that pursues a more integrated, multi-disciplinary and open planning system, with community stakeholders playing a key role in the planning process and innovative, creative and holistic planners working within a multi-disciplinary and multi-functional framework
- **Urban green space policy** that enhances resilience and sustainability by supporting biodiversity and ecosystem services. Regeneration projects and innovative creative design for vacant sites and buildings could help improve planning to make cities and urban communities more resilient
- The **mobilisation** of social capital, economic and environmental resources in collaboration on an equal footing with planning stakeholders, with the *de facto* inclusion of cultural and other forms of knowledge.

In the light of the challenges facing urban communities, European cities are seeking to improve their resilience and move towards adaptive governance, collaborative decision-making, and behavioural change in the interests of sustainability. Resilience is seen mainly as complimentary to or an extension of urban sustainability, driving urban policy towards a more integrated, multi-disciplinary and open planning system, which views community stakeholders as central to the planning process, and planners as innovative, creative and holistic actors working within a multi-disciplinary and multi-functional framework (Ahern, 2011; Lawrence, 2004; Ling et al., 2007). The importance of multiple perspectives is evident in analysing and managing complex systems, and in recognising that local, non-expert knowledge is of great value to urban management.

Urban communities, however, may conceive resilience in many ways: some may see it as maintaining the *status quo* and others may view it as an opportunity to design a new environment or improve the quality of life. In many European cities, traditional urban planning has often focused on addressing design responses to complex social challenges focusing on neighbourhood renewal (Kennedy et al., 2011). This has resulted in specific design prescriptions that tackle the initial issues, but cannot respond to changing social structures, environmental and cultural awareness, or demands for public spaces. These newer, complex demands include collaborative approaches to the conservation, restoration and augmentation of ecosystem services, such as biodiversity, flood control, waste management, air quality etc. (Berkes & Turner, 2006; Colding, 2007; Cook et al., 2012; Folke et al., 2005). In addition, there is growing awareness that the future of civil society is inextricably linked to maintaining and valuing ecosystem services in an effort to retain environmental and social resilience (Alberti & Marzluff, 2004; Hubacek & Kronenberg, 2013).

Urban green policy is increasingly being used as a tool to enhance urban resilience and sustainability supporting biodiversity and ecosystem services (Simmons et al., 2008). The green infrastructure concept is important because it aims to learn from nature and integrate it into urban living, and to enable cities to reduce their urban ecological footprint through better implementation of public and private green infrastructure, using organic materials and/or products and green processes inspired by nature (i.e. biomimicry). This may upgrade urban services and boost urban biodiversity. Vacant sites and unused buildings could give cities and urban communities a potential for greater resilience, enabling them to improve planning efforts through revitalisation projects and innovative creative design. Greater awareness of the need to integrate resilience in mainstream planning and design is therefore important, improving the capacity of a community to adapt, its social capital, and local planning policies for particular urban neighbourhoods.

The current emergence of community-led projects owes much to both changing perceptions and physical processes. Collaboration seeks to stimulate processes conceived and driven by citizens, facilitated by wider stakeholders, and drawing on existing social capital networks, and in collaboration with academic research, management practitioners, and innovative design groups (Hostetler et al., 2011). Citizen-led planning entails a fundamental shift in the planning paradigm with the focus on facilitating communities in creating a concept for their future needs and wishes, while seeking to work with planning stakeholders on an egalitarian level. This can mean becoming more open to actors outside traditional disciplines, therefore *de facto* refers to the inclusion of cultural, as well as other forms of knowledge (Fry, 2001), thus pointing to the various social, environmental and economic benefits that can be derived from exploring collaborative processes (Collier et al., 2013; Pichler-Milanovič & Foški, 2014).

The City and Neighbourhood Context: LJUBLJANA and TABOR

Ljubljana, the capital of Slovenia, is the largest city in the country with a population of approximately 285.000 (2015), located at the crossroads between Central Europe, the Mediterranean, and South-East Europe. Since the 1990s, Ljubljana has been exposed to the international challenges of globalization, *Europeanisation* and inter and intra-city transformation. As a result of successful macro-economic reforms after Slovenia gained its independence (1991) up until accession to the EU (2004), the City municipality of Ljubljana (LAU 2) and the Central Slovenian (statistical) NUTS 3 region (or Ljubljana urban region as it was known from 2001) became the most important locations of economic activity in Slovenia, and one of the most competitive cities in Central Europe – while preserving the environment, social cohesion, and the quality of life for local residents. Since 2008, Ljubljana – and Slovenia – have been in crisis: financial, economic, political, social, etc. As a consequence, not many large strategic projects have been completed in accordance with municipal spatial and land use plans, and national and regional development programmes, due mainly to a lack of capital investment, and in some cases opposition from local residents. But many other urban revitalisation projects have taken place or are under way, especially in the centre of Ljubljana, e.g. traffic calming, upgrading of the Ljubljanica river and its embankments with communal infrastructure, new urban park(s), bridges, pedestrian areas, retrofitting of buildings, etc. They are all important investment projects towards building green infrastructure and urban sustainability in Ljubljana.

The new city development strategy with a spatial development concept for the municipality of Ljubljana was adopted in June 2002 under the paradigm of sustainable development, which also specified the programmes and projects needed to improve the competitiveness, quality of life – and (partly) internationalisation of Ljubljana. These two new planning documents are now elements in the more comprehensive *Strategic Spatial Plan* (Figure 1) and *Implementation Plan* (land use) as an integral part of the new *Spatial Development Plan of the City Municipality of Ljubljana (2010)* under the new *Spatial Planning Act (2007)* and *Spatial Management Act (2002)*. In 2007 the Ljubljana municipality also adopted the *Vision of the City of Ljubljana by year 2025* emphasising 22 *strategic projects* (from a list of some 100) to be realised by 2025, linking the three principal development aims of Ljubljana: *Ideal city (i.e. the optimal city size – for living, working, recreation)*, *Sustainable city (i.e. preserved natural and urban environment in the city and urban region)*, and *Slovenian metropolis (European competitive capital city)* (Pichler-Milanovič, 2010; Pichler-Milanovič & Tominc, 2013; Pichler-Milanovič & Foški, 2014).

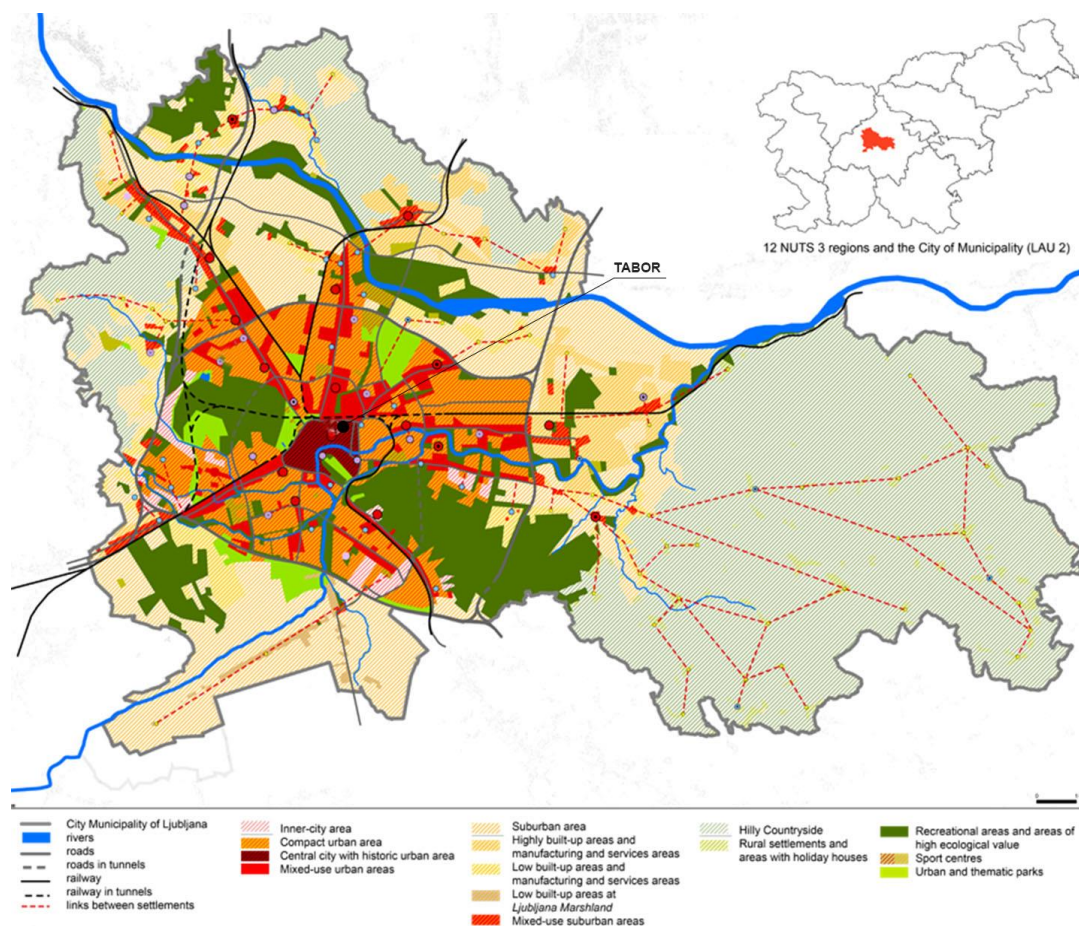


Figure 1: Municipal Spatial Plan of Ljubljana 2010: Land use plan (source: Internet 1).

The principle goal of the *Spatial Development Plan of the City Municipality of Ljubljana* is *smart city growth*, emphasising the *internationalisation of the capital city through urban revitalisation*, as a *city of art, culture and knowledge*, a *safe and healthy city*. The spatial development strategy also emphasises the quality of life for local citizens, preservation of local identity, enhancement of city competitiveness, use of information technology, while tackling urban development problems such as: suburbanisation and urban sprawl, decline of the city centre, inadequate maintenance of cultural heritage buildings and housing estates, and the loss of urban identity with the expansion of market forces, and globalization of the cityscapes (Pichler-Milanovič, 2010).

The Ljubljana inner-city neighbourhood of Tabor (Figure 2) lies between the central bus and railway station, city hall, national medical centre, and the historic city centre. It is a small, mixed-use (formerly industrial and working-class) neighbourhood. Tabor is located of Center District (5 km², 25.000 inhabitants, 50.000 jobs), one of 17 in Ljubljana established in 2001 under local government reform ongoing since 1994. The district contains the old medieval city with the castle, university with some faculties, government institutions and agencies, most cultural institutions and museums, financial institutions, schools, restaurants, etc. (Internet 2).

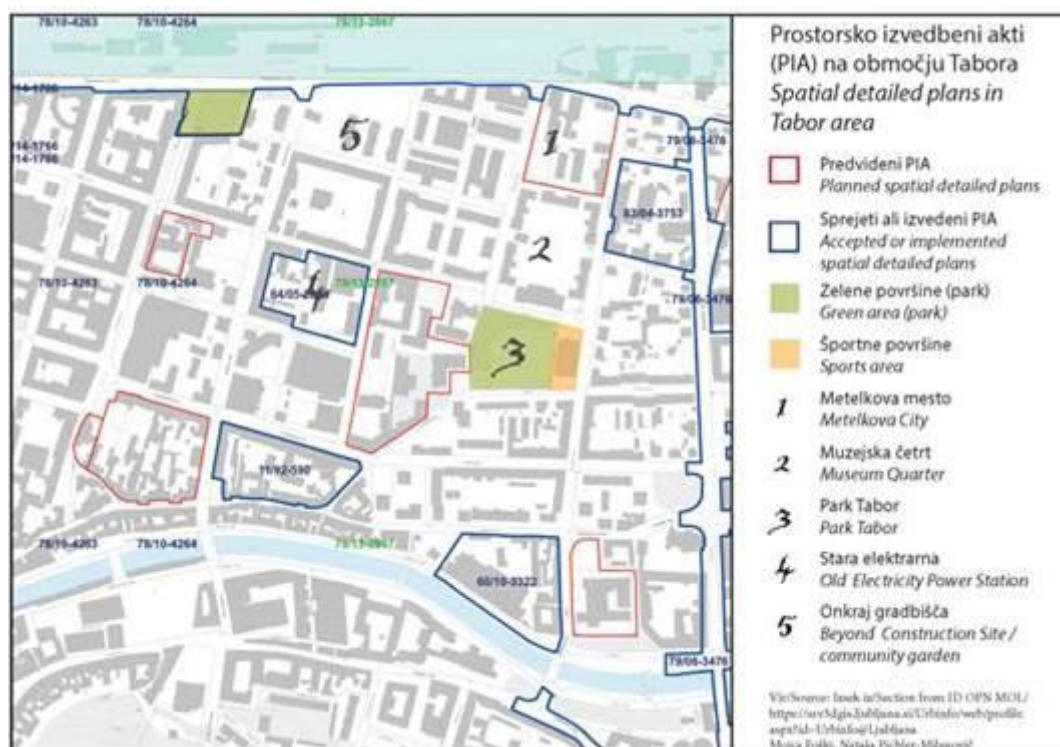


Figure 2: Detailed spatial plans of Tabor with 5 case studies areas (source: Internet 3; authors' modification).

Tabor has a range of residential buildings, offices, churches, kindergartens, elementary and secondary schools, old-age homes, student hostels, sports clubs, parks, museums, cinemas, cultural centres, shops, cafes, etc. It has faced problems common to many changing urban areas with a lack of social cohesion, exclusion of local residents from the urban development process, degradation of public spaces (i.e. green areas and non-commercial public spaces, former military barracks, old industrial buildings, and the old bus and railway station nearby), with growing dissatisfaction and insecurity, etc. The neighbourhood was also under pressure of developments on the property market until 2010 to the detriment of community and social life.

New projects in Tabor demonstrate the effectiveness of a model that connects the physical regeneration of specific neighbourhood areas with the organisation of innovative cultural and creative activities and the provision of services for local residents, other inhabitants of Ljubljana, and visitors.

Methodology

One of the research tasks under the 7FP TURAS project was to address innovative aspects of collaborative planning with community participation towards the development of green infrastructure as part of urban resilience strategies in revitalising the Tabor neighbourhood in the Ljubljana inner city. The overall goal of these strategies and activities is to sustain urban viability and improve the quality of life for local residents and visitors at a time of economic austerity from 2008.

The methodology of this research comprised the selection of a number of good practice case studies of urban revitalisation in the Tabor neighbourhood, based on a review of previous research projects, planning documents, interviews with stakeholders, and participant observation. The study of official documents such as research reports, web presentations, and

interviews with principle stakeholders working and living in Tabor were counterbalanced by interviews with officials from the Ljubljana municipality, the Ministry of Culture and the Ministry of Environment and Spatial Planning. Some interviews were also conducted with local residents in Tabor and with other citizens and visitors from Ljubljana actively (or passively) involved in implementing various projects and other revitalisation activities in Tabor. The stakeholders and Tabor residents were chosen primarily for their role in selected local urban revitalisation projects and their willingness to participate in the evaluation study. The research was conducted in several phases during 2012-2015 as part of several EU-funded (research and evaluation) projects.

During the summer of 2015, the following evaluation questions were sent to 25 stakeholders in Tabor to obtain additional information on the development of green infrastructure as an element in collaborative planning strategies. Answers (by email, telephone, or personal interview) were forthcoming from 11 principle stakeholders such as the Ministry of Culture, museums, municipal officials, non-profit associations active in Tabor, local politicians, and few professional experts:

a) *What are the planned short and medium-term activities for the development of green infrastructure at the selected case study locations in Tabor neighbourhood?*

b) *How do the initiatives of inhabitants, land users and other civil initiatives (non-profit associations such as Bunker, Prostoroz, Onkraj gradbišča, etc.) who are active in the Tabor neighbourhood influence the development of green infrastructure and activities of the municipality of Ljubljana (i.e. modification of planning documents, planning recommendations, financial budget, etc.)?*

c) *How is cooperation between different actors and stakeholders in Tabor and decision and policymakers from the City of Ljubljana in urban resilience planning and the development of green infrastructure in the Tabor neighbourhood?*

Research Findings: Key project interventions as examples of urban resilient strategies and collaborative planning in the inner-city TABOR neighbourhood in Ljubljana

This empirical study has focused on a few – but very diverse – good practices case study areas of urban revitalisation in the inner-city Tabor neighbourhood: Metelkova City, Museum Quarter, Park Tabor, Old Electricity Power Station, *Beyond Construction Site* (urban gardening project).

1) Metelkova City

The history of Metelkova City as a cultural centre goes back to 1993, when the northern part of the former Yugoslav Army military barracks complex was squatted by a group of 200 volunteers on the initiative of an independent association of mainly underground artists and intellectuals known as the *Metelkova Network* to stop the abandoned army complex from being pulled down. After that, the former army barracks, built in the late 19th century under the Austro-Hungarian Empire, were transformed by Slovenian artists. Today it is home to a large number of clubs hosting a regular programme of concerts, club nights, and one-off events featuring underground artists and DJs from around the world. The centre also hosts art performances, exhibitions, and festivals. A former military prison was renovated in 2003 into the well known *Hostel Celica* with an original interior, much appreciated by travellers and travel guides (Pichler-Milanovič & Foški, 2014).

Since the early 1990s, *Metelkova City* has thus exemplified a kind of urban resilience strategy and collaborative planning action with intensive community participation by local artists, intellectuals and citizens, volunteers, and visitors to protect vacant historical buildings from demolition. The site has been gradually developed in the well-known and established alternative cultural scene in Ljubljana. But no green infrastructure concept has yet been fully developed there. Further revitalisation of this location in the Tabor neighbourhood depends on the ability of different stakeholders to maintain the alternative cultural scene while transitioning towards a “green revolution” involving various elements of future green infrastructure (green roofs, green walls, green living room, etc.). New urban green policies (since 2013) promote the upgrading of the buildings and the overall site.



Figure 3: Metelkova City with Hostel Celica (source: Pichler-Milanovič & Foški, 2014).

2) *Museum Quarter*

Museum Quarter has transformed a former military barracks complex on Metelkova Street (southern part) now comprising the *Slovenian Ethnographic Museum*, *Slovenian Cinemateque*, *the Institute for the Protection of Cultural Heritage*, and the new additional venues of the *National Museum of Slovenia* and the *Museum of Contemporary Art*. Nearby are also the premises and renovated building of the *Ministry of Culture* and the new building of the *Ministry of Education, Science and Sport*. The renovation of these premises was also co-financed by the ERDF as part of the OP for Strengthening Regional Development Potential 2007-2013. Museum Quarter represent a long term investment of national importance in the city of Ljubljana (expensive but durable projects) developed in collaboration with the Ministry of Culture, EU institutions and the municipality of Ljubljana (Pichler-Milanovič & Foški, 2014).

Museum Quartier is an attraction for visitors and tourists located between the main bus and railway station and the city centre. The concrete platform between these buildings is used for different activities, usually as a children’s playground. A fountain was installed several years ago but closed down due to leaking over the museum archives located below the platform. Now it has been renovated. Only individual small trees and plants are be found in pots in front of individual buildings. Green infrastructure has not been developed at this location, not even preserved from the situation before renovation. The individual museums are not directly cooperating with the city planning and other departments, but they are participating in the *Cultural District Tabor* (non-profit organisation set up in 2011). There is potential in this open space and play area between museums to enhance and promote the features of green infrastructure (i.e. green living room, etc.) even for educational purposes while supporting social interaction between visitors, staff, and local residents.



Figure 4: Museum Quarter in Ljubljana (source: Pichler-Milanovič & Foški, 2014).

3) *Park Tabor*

Park Tabor is situated in the heart of the Tabor neighbourhood and is one of the most important open spaces in Ljubljana. The park includes the fenced open playground, green areas and a fountain with pedestrian pathways. Next to the park is a heritage building of the Sport Club Sokol (*Falcon*) built in 1926 with own sports facilities, as well as a church, schools, students hall, senior citizens home, health centre, etc. Before 2009 the park was mainly used for sports activities, by senior citizens or dog walkers. Since then the park area has been revitalised with the help of the Ljubljana municipality, and *ProstoRož*, a non-profit association of professionals specialised in urban and landscape design with the organisation of the cultural, sport, and art performances in Ljubljana. Since then different events have been organised on a voluntary basis and attended not only by local residents, families, children, students, and the elderly but also by other citizens of Ljubljana, visitors and tourists (Pichler-Milanovič & Foški, 2014).

Not only the physical but also the social revitalisation of *Park Tabor* is an excellent example of collaborative planning and community participation with the active co-operation of different stakeholders and the involvement of local residents, citizens, professionals, firms, visitors, and city authorities. The revitalisation of the *Park Tabor* is also an excellent example of urban resiliency and green infrastructure. Co-operation between different stakeholders – local residents, other citizens, non-profit professional organisations, public institutions, private companies, local policy and decision-makers, ministries, etc. demonstrates the tradition in Ljubljana of transforming open spaces into active social and cultural locations for residents and visitors.



Figure 5: Park Tabor activities (source: Pichler-Milanovič & Tominc, 2013; Pichler-Milanovič & Foški, 2014).

4) *The Old Ljubljana Electricity Power Station* (Old Power Station)

The Old Power Station built in 1898 is a protected technical and cultural monument and one of the rare examples of preserved industrial architecture in Slovenia. It is still owned by the Elektro Ljubljana Company, which first renovated the building in 1998. The second renovation in 2004 was commissioned by the Slovenian Ministry of Culture. This project exemplifies co-operation between politics, economics, national heritage, and culture. The

building is made available free of charge for the purposes of the performing arts. The artistic programme is the responsibility of the *Bunker Institute*. A larger section of the building is now used for cultural performances, while a smaller part has been transformed into a museum. This is a unique building, as no less than a third of the city's electricity is still produced there. It is also a unique instance in Ljubljana of a long and well-established international tradition of transforming attractive industrial structures into cultural centres.

The green infrastructure concept has been developed at this site through the revitalisation of the Tabor neighbourhood with the help of the *Bunker Institute* through community projects financed by the city of Ljubljana, the Ministry of Culture, and with the support of European projects in cooperation with other non-profit organisations active in Tabor (*Prostorozh, Onkraj Gradbišča, etc.*), institutions and citizens. Various cultural and social events – e.g. workshops, festivals, art performances, etc. have been organised in the neighbourhood, under the comprehensive *Garden by the Way* (annual) project, focusing on how culture can influence social and economic innovation and the transformation and revitalisation of particular locations (Pichler-Milanovič & Tominc, 2013; Pichler-Milanovič & Foški 2014;).

Renovation and the multi-functional use of the *Old Power Station* shows the long-term co-operation between different stakeholders in the fields of politics, economics, national heritage and culture, with citizens, local residents and businesses. The role of the *Bunker Institute* is very important in organising and implementing various social and cultural events and in the education of local residents, citizens of Ljubljana, and visitors from other parts of Slovenia and abroad, etc.



Figure 6: The Old Ljubljana Electricity Power Station (source: Pichler-Milanovič & Foški, 2014).

5) *Beyond Construction Site:*

The purpose of this bottom-up urban gardening / agriculture project is to transform a derelict construction site surrounded by residential and other buildings near the Central Rail and Bus Station into a dynamic and creative common area through cooperation with local residents and other interested actors and visitors. The project is also supported by the Ljubljana municipality, which gave permission for the temporary use of this vacant plot for urban gardens, and the help of the *KUD OBRAT* and the *Bunker Institute*, non-profit professional cultural associations focusing on the relationship between arts projects and urban greening and gardening activities. Funding by the EU project *Sostenuto* also helped implement this gardening project. Commercial firms sponsored the project, too, providing soil, seeds, plants, etc. All partners have been taking part in various cultural and social activities organised on the site such as culinary activities, music performances, eco-farming and gardening lectures, etc. More than 50 gardening plots have been established since 2010 (Pichler-Milanovič & Tominc, 2013; Pichler-Milanovič & Foški, 2014). Due to publicity about this project in the city (and social networks), the Ljubljana municipality has recently

started to support it as a role model on a small financial scale (e.g. tree house in 2015 shown on Figure 7).

There is a well-established tradition of urban agriculture and gardening activities in Ljubljana with the transformation of abandoned urban land into vegetable gardens. With various social and cultural programmes organised by local residents, this green site is also an attraction for Tabor residents and other citizens in Ljubljana, as well as visitors and tourists. Green infrastructure is represented here by urban agriculture and gardening activities. But there are fears that the temporary land use permit issued on a yearly basis by the municipality could be cancelled, as the site may be converted into a parking lot like a few other empty sites around the bus and railway station.



Figure 7: Beyond Construction Site (urban community garden) project (source: Pichler-Milanovič & Tominc, 2013; Pichler-Milanovič & Foški, 2014, Internet 4).

Therefore, according to stakeholders interviewed in the Tabor neighbourhood (summer 2015) and the municipality, there are not that many short and medium term green infrastructure development activities planned in the neighbourhood. The city prefers to keep and use the available building land for other activities (temporary parking lots, or mixed use development projects: offices, housing, private garages, shops, etc.). As a consequence of financial crisis and economic austerity in Ljubljana and Slovenia since 2008, there are also several empty development sites in the inner city with construction permits but without investors and developers (known as “construction holes”).

The initiatives of local inhabitants, citizens, land users, as well as civil society initiatives and non-profit associations (such as *Bunker*, *Prostorozh*, *Onkraj gradbišča*, etc.) active in the neighbourhood, can influence the development of green infrastructure, with the modification of official city planning documents, new policy recommendations, and more resources from the municipal budget, EU funds, or even crowdsourcing; but they are developing at a slow pace. Cooperation between decision and policy makers and other actors and stakeholders in the Tabor neighbourhood needs to be stepped up for more transparent and flexible urban (resilient) planning, taking into consideration new needs and demands of different stakeholders as well as the environmental and socio-economic situation in the city.

All these activities in the neighbourhood resulted in the establishment of the *Tabor Cultural Quarter* (March 2011), a new non-profit association based on long-term partnership between different stakeholders living or active in Tabor: cultural institutions (museums, galleries, cinemas, theatres, etc.), public participation experts, professionals, other non-profit organisations, residents, businesses, etc. active in organising and implementing cultural events and activities. The partners communicate by email, web site, and personal meetings, but their activities depend strongly on the financial resources available for various projects and ideas.

Research therefore addresses innovative aspects of collaborative planning and community participation in revitalising the inner-city Tabor neighbourhood with the focus on various activities to develop the green infrastructure concept. At the same time, it reveals that the development of green infrastructure within urban resilience strategies is not systematically integrated in (official) strategic and urban planning documents and territorial governance action, the main reasons being institutional and social obstacles.

Conclusions: A Way Forward?

New urban resilient strategy schemes are drawing together environmental, social, and economic activities that are spatially applied in particular urban contexts. The focus on the inner city allows us to correlate the physical assets, such as scale and distribution of urban institutions, services, amenities within different urban revitalisation projects with networks of social capital. The revitalisation of the Tabor neighbourhood shows the spatial, temporal and organisational evolution of urban resilience strategies and various attitudes to sustainability through key project interventions. This allows us to identify the capacity, knowledge, and networks among people and places and their attitudes towards the development of green infrastructure over time.

There is a variety of collaborative planning activities in urban revitalisation of the Tabor neighbourhood with *community participation with local empowerment: bottom-up* initiatives may coincide with and complement *top-down* initiatives, each dominating different (political) phases of policy-making, implementation and monitoring. The scope of different projects funded from different sources is to encourage the municipality to engage in dialogue with other stakeholders, especially local residents and other citizens, thus empowering local communities. Local participation is also seen as instrumental in compensating for the limitations of the conventional planning and sectoral approaches towards integrating public policies for sustainable urban revitalisation. Resilience strategies and the urban revitalisation of derelict and / or underdeveloped urban sites with a sustainable, participative approach take mainly two forms: *horizontal*, bringing together “place-based” policies in an area, and *vertical*, bringing together different levels of governance. The vital ingredients of resilience strategy are lively partnerships, which bring in civil society organisations and individuals, and embrace the various tiers of government, as well as territorial governance (Pichler-Milanovič & Foški, 2014).

The EU projects (including ERDF funds) also support collaborative planning, community participation and empowerment in a variety of ways. Much of the success of collaborative development projects depends on the governance framework within which they operate, and on the capacity to involve all scales and tiers of government. In the most sophisticated cases, physical regeneration is only a driver for more comprehensive and integrated approaches to rethinking the future of an area – and of an entire city. Collaborative planning means different things to different stakeholders and in different policy documents. The best examples are those in which horizontal and vertical integration are combined and the key aspects of smart, sustainable and inclusive growth intertwine. The EU funds have on one hand inspired local practices by insisting on the principle of a sustainable approach and green infrastructure concept, and on the other have financially sustained the implementation of some projects. Among the cases under study, this has meant that EU funds and projects have helped to move forward ideas or projects that have already shown success on the ground, to encourage new partners and stakeholders to engage in local projects and to experiment with new forms of governance (AEIDL, 2013; Pichler-Milanovič & Tominc, 2013).

The implementation of urban revitalisation projects in the Tabor neighbourhood of Ljubljana has involved experimentation with new methods of cooperation and networking between economic, social and cultural actors and new forms of territorial governance. The projects encourage the development of community participative capacities, new roles of public and private organisations in cultural and creative sectors – which are becoming the innovative backbone of economic, social and environmental resiliency in European cities today.

This will hopefully lead to new but long-term partnerships in urban revitalisation activities based on shared responsibilities and a vision for further development of the green infrastructure in Tabor and other neighbourhood in Ljubljana. This has improved the quality of life in the city by creating a new cultural focus that integrates physical regeneration with the provision of cultural and creative activities, together with the active participation of stakeholders and the local community. These projects have added to the establishment of flexible and connecting places for various community activities, different events and workshops, and the establishment of the *Tabor Cultural Quarter* with various partnerships and stakeholders.

Therefore the successful implementation of official spatial strategies, urban policies and land use planning documents of the Ljubljana municipality depends on the ability of decision and policy makers, as well as other local stakeholders and individuals to encourage the active involvement of professionals, local communities, social networks, and inhabitants, and active cooperation and partnership between different public and private stakeholders to achieve complex goals of urban sustainability and accommodate new demands for a resilient city: i.e. energy efficiency, retrofitting of buildings, zero carbon growth, green cities, and multiple investment sources (including crowdsourcing) at the time of (global) economic austerity.

The further development of green infrastructure activities in Ljubljana is now very closely related to another European initiative “Ljubljana – the Green Capital of Europe 2016,” which is promoting the visibility of the city through the sustainability of the Ljubljana and the wider urban region. This initiative is important for Ljubljana to increase awareness of the need to integrate resilience and green infrastructure concepts in mainstream spatial planning and urban design, including the capacity of a community to adapt, and level of its social capital, as well as local land-use planning policy targeting particular neighbourhoods in urban areas.

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