



Karlpooling

0. Introduction

The abundance of water is a great wealth of the city of four rivers, but it easily becomes its curse. In past decades, floods in Karlovac have been increasing in both intensity and frequency. For the community of the city, they are probably the most visible sign of global climate change. In the face of a natural disaster, the community must show solidarity and ability to cooperate. An extreme condition can build certain social capital. But when the extreme becomes recurrent and predictable, a long-term and sustainable solution has to be undertaken. The paradigm in urban design needs to be changed. A single district is not able to stop the catastrophe, but it can become a firsthand example of good practices, that will change the thinking of the city. Lušćić lies at the junction of the lowland and hills, and is not directly affected by floods. Nonetheless it has a great potential to contribute to the town's water security.

1. Karlpooling

We should build on Karlovac social capital to create an innovative district, and city resilient to climate change. **Karlpooling** is a proposal of a gradual transformation of Lušćić barracks into a testing ground for experimental multifunctional district based on urban pooling and commoning. This long-term process must flow from bottom-up initiatives and be rooted in a strong sense of community of its residents and users: civic, public, cognitive and social. The district's functional program,

although physically focused around water retention, should be collectively worked out in details by its inhabitants and users.

Comprehensive development of the new district should take place in three areas: environmental, economic and social. Maintaining the balance between them can be achieved by applying the principles of a circular economy.

2. Pooling in circular economy

Building a new district offers a great opportunity to rethink how we use resources (material and social), leading to entirely new ways of creating value. We must change the way urban systems are planned, designed, governed and financed, and how they are created, used, and repurposed. Pooling is the grouping together of resources (assets, equipment, personnel, effort) for the purposes of maximizing advantage or minimizing risk to the users.¹ The aim of urban pooling is to deploy cooperative actions, practices, institutions, and ventures, to share existing urban resources, collaborate to generate new value. In the context of Karlovac, rainwater can provide a good example: in the scale of a singular plot, it can only become a muddy puddle, a sewage waste. But if gathered from the neighborhood, it can become, after phytoremediation, a useful common resource: an irrigation for urban agriculture, or a pleasant common bathing pond.

¹ **Pooling (resource management)**. Updated August 20, 2018. [https://en.wikipedia.org/wiki/Pooling_\(resource_management\)](https://en.wikipedia.org/wiki/Pooling_(resource_management))

The city is a best suitable testing ground for pooling. The accumulation of goods, resources and people in a limited territory enables an economy based on sharing and connecting.

Resources. Several potential common resources can be identified on site:

- a) **Water** - received directly from precipitation and running down the adjacent urbanized hills - can be gathered, stored and purged for various purposes like irrigation, landscaping, or leisure.
- b) **Debris** regained from demolished military buildings can be shredded and crushed to be used in landscaping (as a filling for gabions or soft surface trails material) and as a concrete aggregate in new constructions.²
- c) **Compost** produced by households, urban farms and gastronomy can be easily gathered, processed and redistributed on site.
- d) **Food.** As the project site stretches from urban to suburban, it offers good spatial conditions for urban farming on its periphery. Small scale plantations (vegetables, fruits, herbs, honey are grown and consumed locally.
- e) **Geothermal energy.** Geothermal sources have been found in the vicinity of Karlovac, and can be used on site.

Less palpable, yet equally significant are immaterial, social resources:

- f) **Knowledge.** The city is proud of its tradition of engineering, and is recently developing its Polytechnics as a centre of education and knowledge. New mechatronics centre of excellence has been very active since recently.
- g) **Open documentation.** The practice of commoning produces knowledge and experience that should be shared globally. A *Meme Pool* is conceived as a virtual platform of open documentation and ideas (both tested and untested) that can be used by communities and academics all over the world.³
- h) **Skills.** Karlovac used to be a thriving industrial center in this part of Europe. Many of the town's residents were qualified industry workers and still hold specialized skills. Their endangered expert knowledge and craftsmanship must be passed on to the next generation.

2 Cement manufacture significantly contributes to the world's greenhouse gases emissions both directly through the production of carbon dioxide when calcium carbonate is thermally decomposed, and also through the use of energy, particularly from the combustion of fossil fuels. Thus, concrete should be recycled in a fully closed system.

3 ...which perhaps enables an extension of the turtistic offer of the city to a new branch: an urban tourism focused on visitin progressive, innovative districts (eg. Wiena, Rotterdam, Stockholm).

3. Project and process

As the renaissance ideal city used to be described in analogy to a harmonious human body, the modern city must be perceived as an ecosystem: the more diverse and rich in species, the more lively and resilient to change it becomes. Man-made monocultures are weak and unsustainable. They require constant maintenance and energy-consuming support. On the contrary, diversified natural ecosystems are self-sufficient and much more resistant to changing conditions. Thus, we see Luščić of the future as a complex urban environment composed of multiple parties (actors), functions, scales, land uses and interviewing landscapes.

3.A Strategic Site

The Strategic Site spans along the main urban axis, Karlovac's virtual timeline, extending from the remarkable past of Zvijezda, through the retro-modern *ideal* of Novi Centar, to the city of the future in Luščić.

- a) **The main urban axis** remains just an abstract line on the map apparently lacking any spatial manifestation. The project proposal traces the axis with a sequence of attractive and diverse public spaces (squares, bulevands and linear parks) to bring back its importance to the town and make its space attractive and functional: a town's main corridor of active mobility. Now, it is hard to believe that Luščić is only walkable distance away from Zvijezda!
- b) **The star-shaped moat** and perimetric remparts used to delimitate the urban from the rural. They constitute Karlovac's strong spatial identity as an ideal city until today. A Dutch style all-earthwork remparts in their history more often defend the city from the flood water than hostile armies. According to the new research⁴, this military *blue-green infrastructure* was fully flooded only in a war emergency. To reintroduce more perfection to the *ideal*, the moat is reconstructed as a rain garden filled with water but only during periods of dense precipitation.
- c) **Novi Centar** - an ambitious, yet unfinished development project, lacks urban dynamics. To bring more urban qualities to the area, the obsolete, car-oriented planning and strict functional zoning has to be replaced by a mix of various urban functions. Scattered public buildings surrounded by parking lots should be complemented with new structures of different scales and uses.

4 John Harris, *Karlovac: the Renaissance Ideal City in Central Europe*, in: *Fort*, vol. 38, 2010, p. 56

3.B Project Site

Unlike to Zvijezda or Novi Centar, new Luščić has no singular patron or dominant purpose. It grows as a part of a larger entity. It interweaves with the existing urban tissue. Its spatial composition reflects its pluralism, a multitude of actors, and participatory design. New communities will create a **framework of commons** - infrastructure open and accessible to many - enabling social and economic pooling to manage and multiply some of its assets and services.

- a) **The urban axis** continues into Luščić and makes up its functional backbone - a wisp of public spaces, greenery, ecological corridor, open water infrastructure.
- b) **Blue-green infrastructure.** There is a variety of water devices on the site: pools, detention ponds, stormwater wetlands, rain gardens, bioretention areas, swales, drains, rainwater harvesting systems and roof gardens. The disclosure of the water infrastructure not only makes it an attractive component of public spaces, contributes to biodiversity but also draws public attention to the problem of water security.
- c) **Access.** Previously restricted area opens for citizens. New entrances are created, the existing streets are prolonged into the project site, creating new connections between neighbourhoods. Luščić becomes an open, porous district. Its street layout supports the active forms of mobility. It is pedestrian- and bike-friendly. Few streets are open to municipal buses, taxis and service vehicles. On the district's outskirts there is a multi-storey garage for individual cars, integrated with municipal bike and car-sharing stations, in perspective - also autonomous cars.
- d) Program. As Christian Iaione points out⁵, it is the city (municipality) that have to often provide solutions for global problems (eg. mitigate floods caused by global warming). In response to new global challenges, Karlpooling aims to address the global problems in a local scale by proposing innovative functional program: zero- waste canteen with local food production can help close the food waste loop; alternative typologies of living (co-living, housing cooperatives, multigenerational housing units, adaptable apartments) can help with housing shortage; senior citizens residents with active healthcare will adapt city for the for the upcoming silver wave; introducing cooperative Factory - technological spaces, with Fab-lab and DIY unit for different scale entrepreneurs, local manufacturers; creating Research and Knowledge Transfer Centre - a training spot for local crafts; promoting reuse and repair initiatives, allotment workspaces and common spare parts warehouse will provide the missing parts of circular economy

- e) **Land for Water** - a site-specific pact between the land owner (municipality) and a developer (cooperative, entrepreneur, knowledge institution). In addition to a development plot, it also delimits a catchment area from which the water needs to be processed on-site to compensate its "water footprint". Therefore, any development, either public or private, has its section of water infrastructure connected to the central pool. In this way water becomes not only town's major natural resource, carefully pooled and shared, but also maps the flow of the district's social resources: knowledge, civic cooperation, handwork, co-governance; a metaphor of *the city as a pooled resource*.⁶

4. Phases of implementation

The process of implementation starts from now on. The last stage (2050) depicts one of many possible scenarios of how Luščić might evolve in future.

- a) **2020. Phase 1: incubate collective process.** There is no time to lose. Small scale actions like opening up the area, constructing some ephemeral buildings can effectively familiarize people with this "no-go" area. The former military canteen is adopted for the Local Centre to create the nucleus of the community and attract future residents. As **Land for Water** pacts are signed, first developments appear with their water infrastructure. The demolitions and constructions are held in parallel. The debris are processed on site and incorporated into new structures and landscape. The future development and district's economical basis is tested in a small scale: there is an urban farm, few residential buildings (of different kinds), kindergarten, etc. First neighbour friendships are made, first synergies occur. **The Meme Pool** inaugurates: everyone is invited to discuss the district's design and governance. The Bike&Camp site welcomes tourists in the vicinity of bicycle and trekking routes.
- b) **2035. Phase 2: prototyping, densifying, accumulating.** The second phase of development starts with the evaluation and verification of so-far actions. Conclusions on the performance of the first community are used to refine future pacts. Subsequent catchment areas get their hosts. Greater amount of retained water results in greater water safety and enables its effective use for cheerful recreation. Open water attracts wildlife. Tried-and-true path of action will stimulate testing of bolder building typologies: adaptable housings, mixes of co-living and co-working for young entrepreneurs. Luščić offers various types of residential buildings, for people of different age and material status. Many of them work within

5 The Co-City: Sharing, Collaborating, Cooperating, Commoning in the City
American Journal of Economics and Sociology, Vol. 75, No. 2 (March, 2016), p. 415.

6 Christian Iaione and Elena De Nictolis, **Urban Pooling**, 44
Fordham Urb. L.J. 665 (2017).
Available at: <https://ir.lawnet.fordham.edu/ulj/vol44/iss3/3>

a walking distance from their homes. The local economy gets stronger which is reflected in spatial development of the district (you can see it from the viewpoint tower). Former post-military brownfield is now a vital, diverse, yet young district, and a rich ecosystem. The Common, the central public space of the district, teems with life (and frogs' croaking). Strong community attracts future residents and investors. By 2050 no vacant plots remains in Lušćić.

c) 2050. Phase 3: reproducing, refining eco-efficiency, reinvesting.

By 2050 all the eco-efficient technologies are far more accessible and widespread. Majority of the buildings are equipped with photovoltaic cells so they achieve zero carbon footprint. An autonomous car revolutionizes our use of cities. The multi-storey garage, no longer necessary, is easily reconstructed for productive functions (a mix of workshops, offices and hydroponic

plantation). Over time, fluctuations in the economy and demography, climate change or technological progress, makes it necessary for many buildings to adapt to new needs and requirements. Since there is no spare plots in Lušćić, the districts densifies upwards. New storeys are constructed on the top of many buildings. Moreover, the buildings are complemented with facilities raising the quality of life: a sports center and an outdoor natural swimming pool. As a whole, district represents an alternative urban landscape: a profound mixture of functions, scales, densities, land uses, and most importantly, people. The first generation born in Lušćić already co-governs the district. Meantime, some of the former pioneers seek new challenges away. Their experience and knowledge on construction, commoning and co-governing gains wide recognition. The Meme Pool serves the international community of town planners, NGOs and academics.

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