

# Zagreb

## and its Green Infrastructure

# Front Runner City

### Zagreb and its metropolitan region

Zagreb is the capital of Croatia, covering an area of 641 km<sup>2</sup>. It has 17 districts and 790 017 inhabitants.

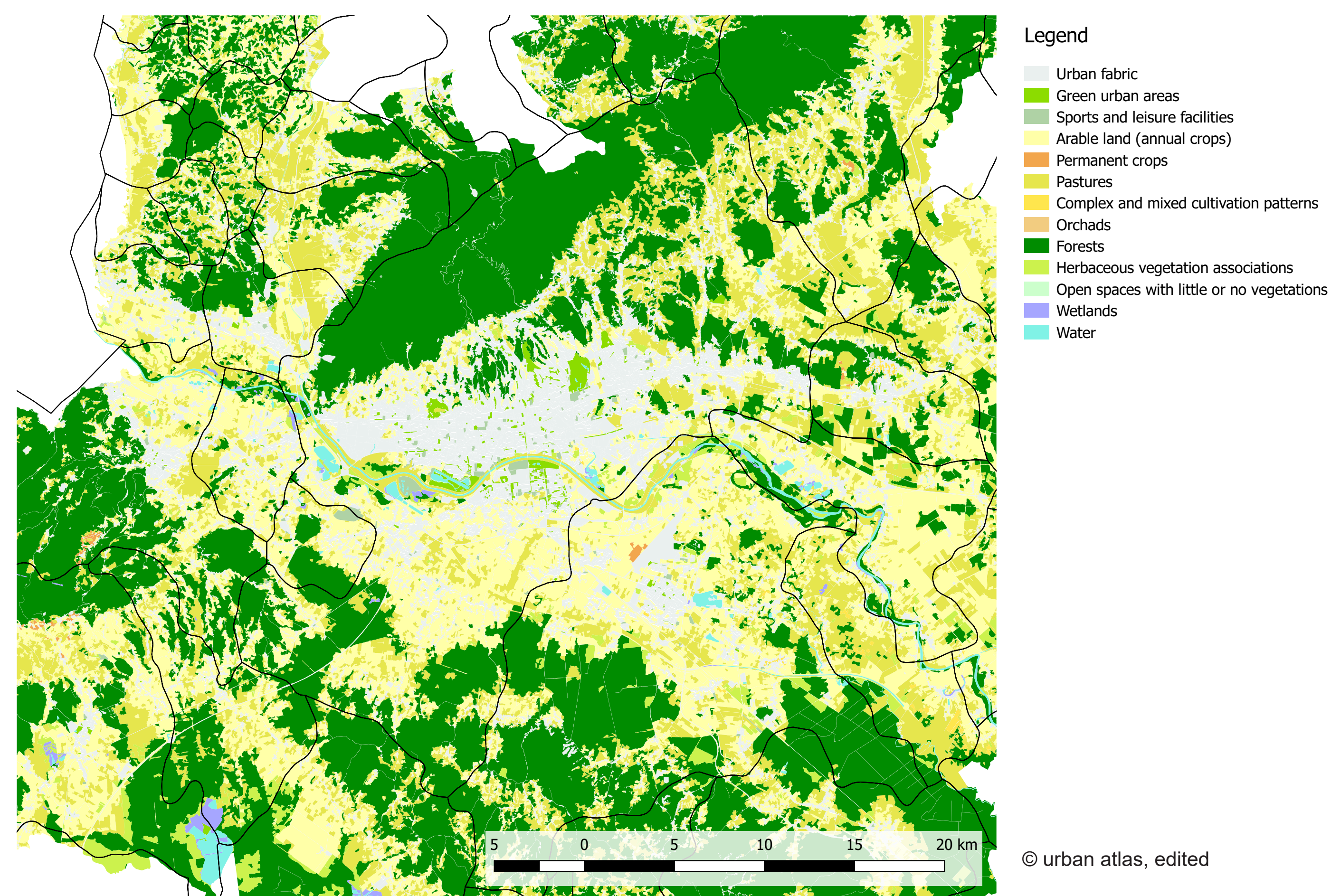
Zagreb plays a very important role in the wider metropolitan region. Its two neighbouring counties provide a portion of its natural resources and food, as well as residential space for commuters. The surrounding area fulfils Zagreb citizens' needs for recreation, nature and housing, thus creating further demand for commuting, suburbanisation and the growth of towns in the area.

The population of Zagreb together with the Zagreb metropolitan region, consisting of the larger area of 690 municipalities, includes a total of around 1.1m inhabitants. In recent years the suburban population has grown, whilst in contrast, the City of Zagreb, especially its historical centre, has witnessed a decline in population. Zagreb continues to integrate and incorporate former suburbs within its urban fabric.

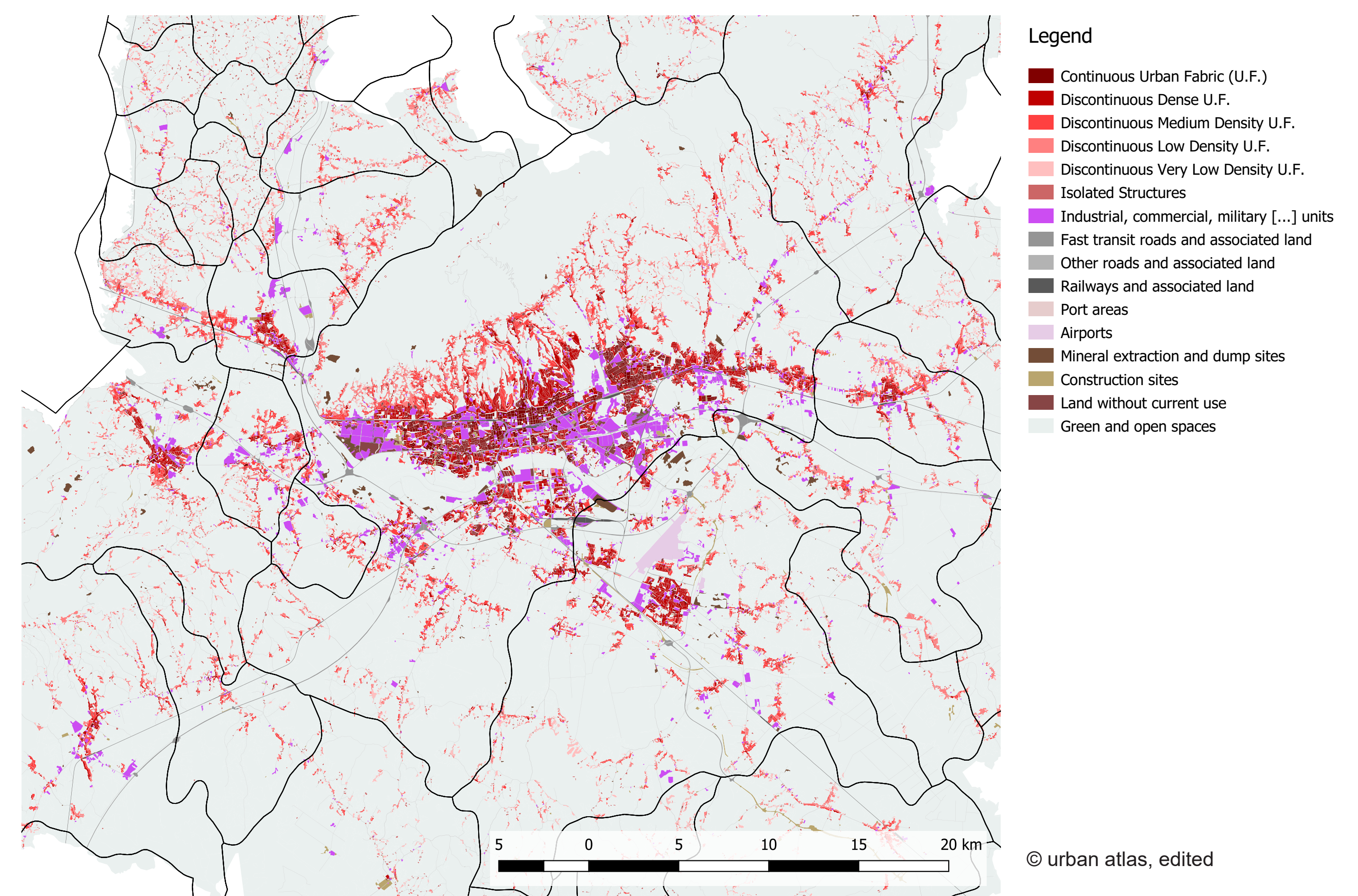
Positioned between the historical centre and the newly planned New Zagreb, the Sava River and its surrounding area form the geographical axis of the city, as one of its main elements of green infrastructure, the other being the Medvednica mountain, hovering above the city and providing fresh air and ample space for the citizens. Another important element of green infrastructure are urban forests and parks, patches of natural land throughout the town. One of the most important parks, incorporating the zoo and in close contact with the soccer stadium is the Maksimir park .



### Green Infrastructure



### Regeneration Challenges



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Green infrastructure - the slopes of Medvednica mountain north of Zagreb



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Green Infrastructure - Maksimir park, northeastern part of Zagreb



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Urban regeneration - „Janko Gredelj“ rolling stock producing factory



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Urban regeneration - „Zagrepčanka“, former slaughterhouse



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Sava River and the Jarun lake



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Podused, former cement factory

Thanks for contribution to: Iva Bedenko, Matija Vuger, Nives Skreblin, Jelena Bule, Nives Mornar, Bojan Baletic, Mladen Josic





# Zagreb

## as a Living Lab

# Front Runner City

## Living Lab area

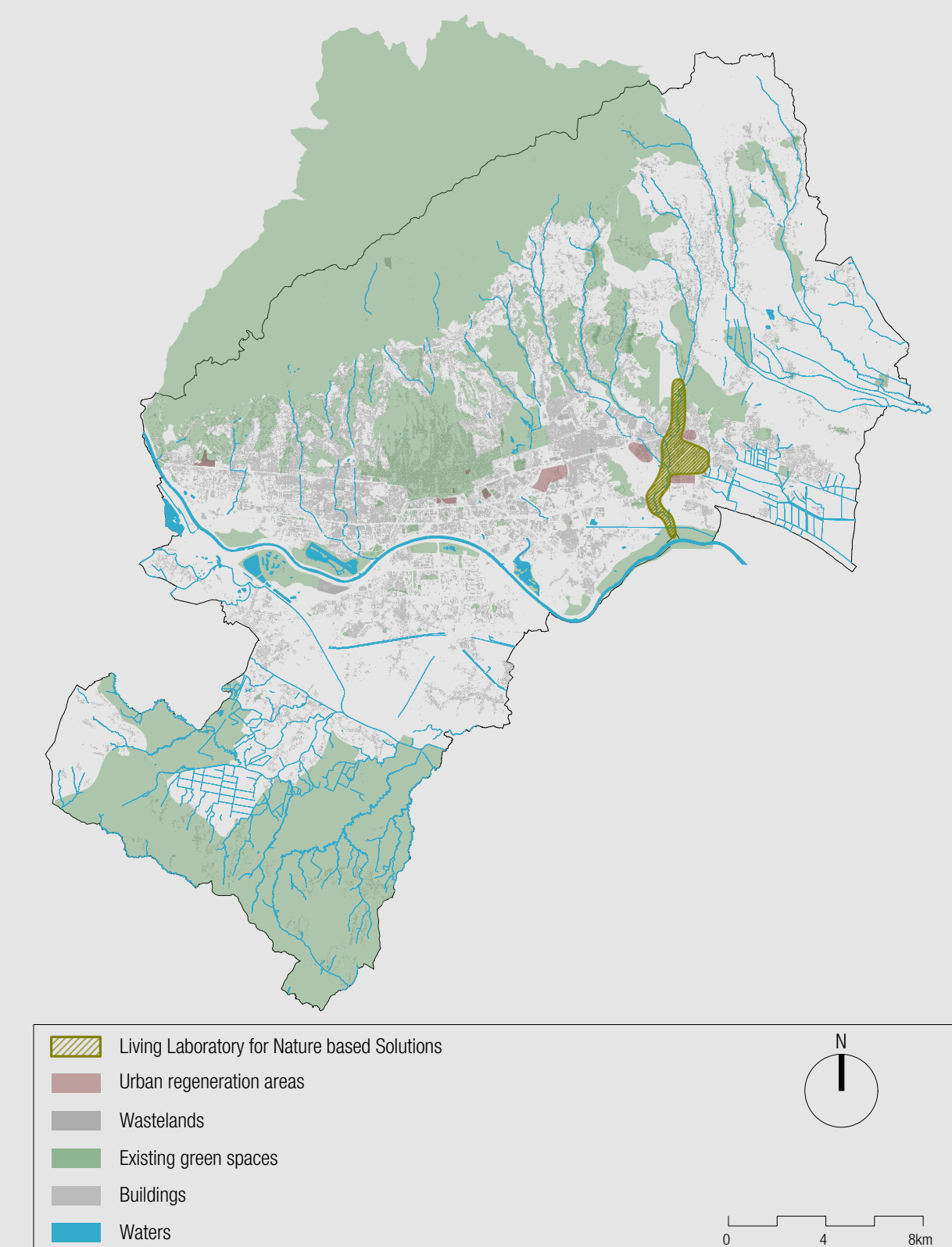
Sesvete is a district of the City of Zagreb and a part of the Zagreb urban agglomeration. It is the easternmost neighbourhood of the Zagreb administrative area, covering 20% of the overall surface area of Zagreb.

According to the 2011 census, Sesvete has 70 009 inhabitants; the number of households is 22 512 and the number of dwellings 30 256. The population has grown by 10 000 people since 2001 whilst the number of households has grown by 5 000 and the number of dwellings by 10 000. Sesvete has the youngest population in Croatia, with an average age of 38.

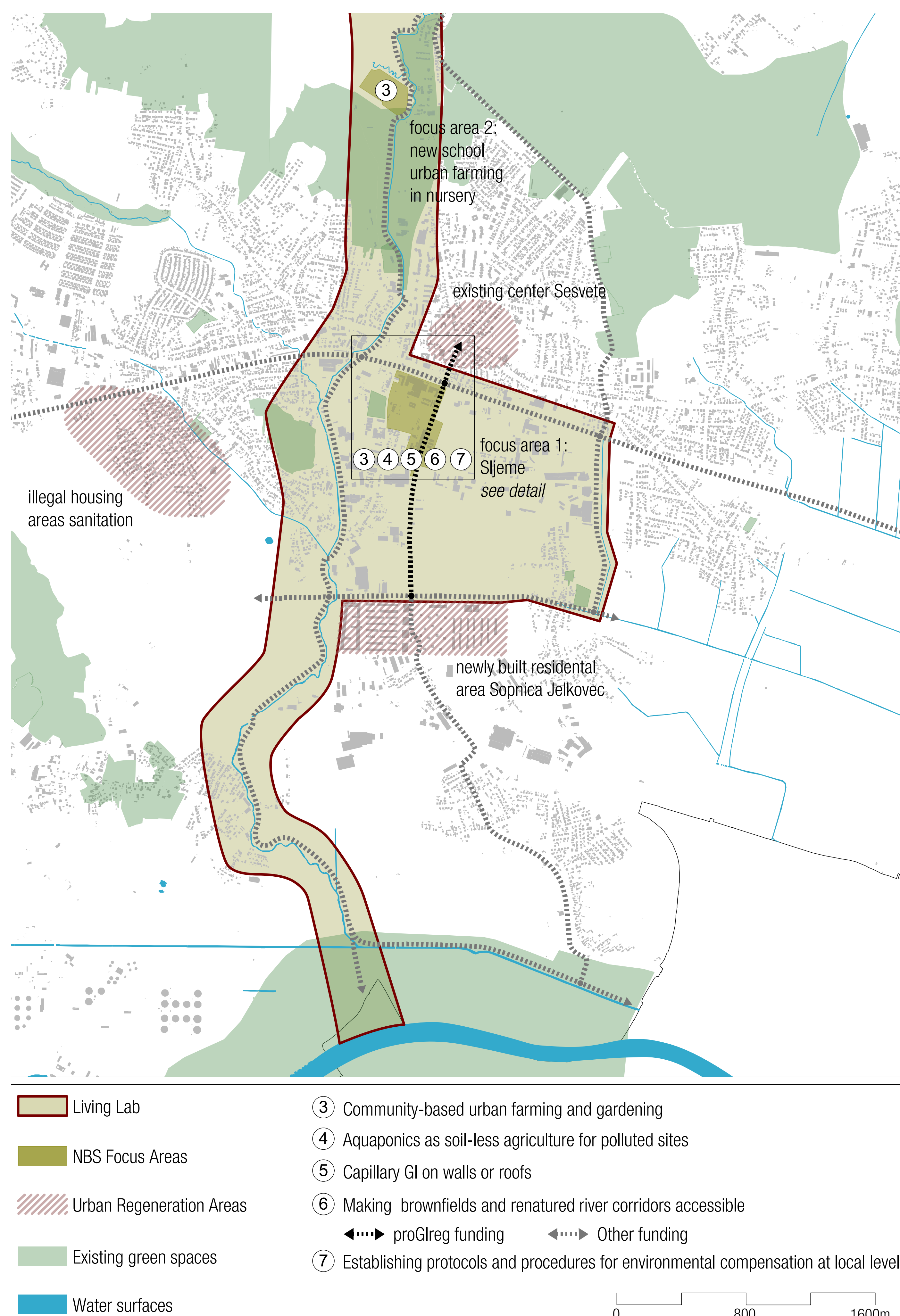
The district is connected to the city centre by railway and several important city roads (Zagrebačka, Branimirova, Slavenska and Vukovarska in the future). The nearby tram station of Dubec may be extended to provide access to the centre of Sesvete. The Sesvete District is also located on important European traffic corridors leading to Budapest, Riga, Germany, Austria, Belgrade, Sofia, Athens and Istanbul.

It has an industrial tradition which has today been replaced with other economic activities including transport, automobile and the construction industry.

Intense growth of Sesvete has resulted in a neighbourhood which lacks key amenities such as a human-scale centre, a central urban park, suburban landscaped parks, cycle tracks, sports fields and many other facilities. One of the key problems is traffic: Sesvete lacks good North-South connections and is cut off by the railway and major roads oriented in an east-west direction. It also lacks public facilities such as a music school, a municipal court, police and fire service buildings and other cultural assets. Although it is presently an incomplete municipality, it has the full potential to become a true neighbourhood.



## Living Lab Plans



The core of the LL will be the 128 000 m<sup>2</sup> brownfield site of the former meat processing factory Sljeme which is now owned by the City of Zagreb. It is located south of the railway line and is part of the economic zone that now lies between the older centre of Sesvete and the new neighbourhood development to the south in Novi Jelkovec with 11 000 inhabitants. Its location is adjacent to the present centre of Sesvete. It is connected to the railway and will be well served by the future road network.

Distinctive, tall silo buildings form a unique industrial heritage which is characteristic of the local identity of Sesvete. Several existing buildings will be reused to accommodate the public facilities which will be created for the local community.

In addition to the architecturally attractive heritage, the new part of the city will be green, sustainable and smart and will promote healthy and sustainable lifestyles, entrepreneurial opportunities and a "culture of sharing".

As a start of the LL, the City of Zagreb is going to start a process of co-design with the local population to establish criteria for

- a sustainable urban development,
- an urban environment supporting health and wellbeing,
- social networks that will enable innovation and exchange between citizens.

The criteria are going to be translated into a list of actions which will be implemented in the LL.

The NBS in the LL will include the creation of green spaces for inter-generational interaction.

The GI elements to be implemented will be co-designed with the local community to create enhanced social cohesion, reduced crime rates and to enable new entrepreneurial activities.

The former meat factory buildings will be transformed into a business hub and musical high school.

## Current Situation



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Bureau for Physical Planning

northwestern part of the Living Lab:  
main buildings



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southeastern part of the Living Lab:  
silo buildings



© ZIPS

already existing gardens in the LL





# Zagreb

## and its Focus NBS

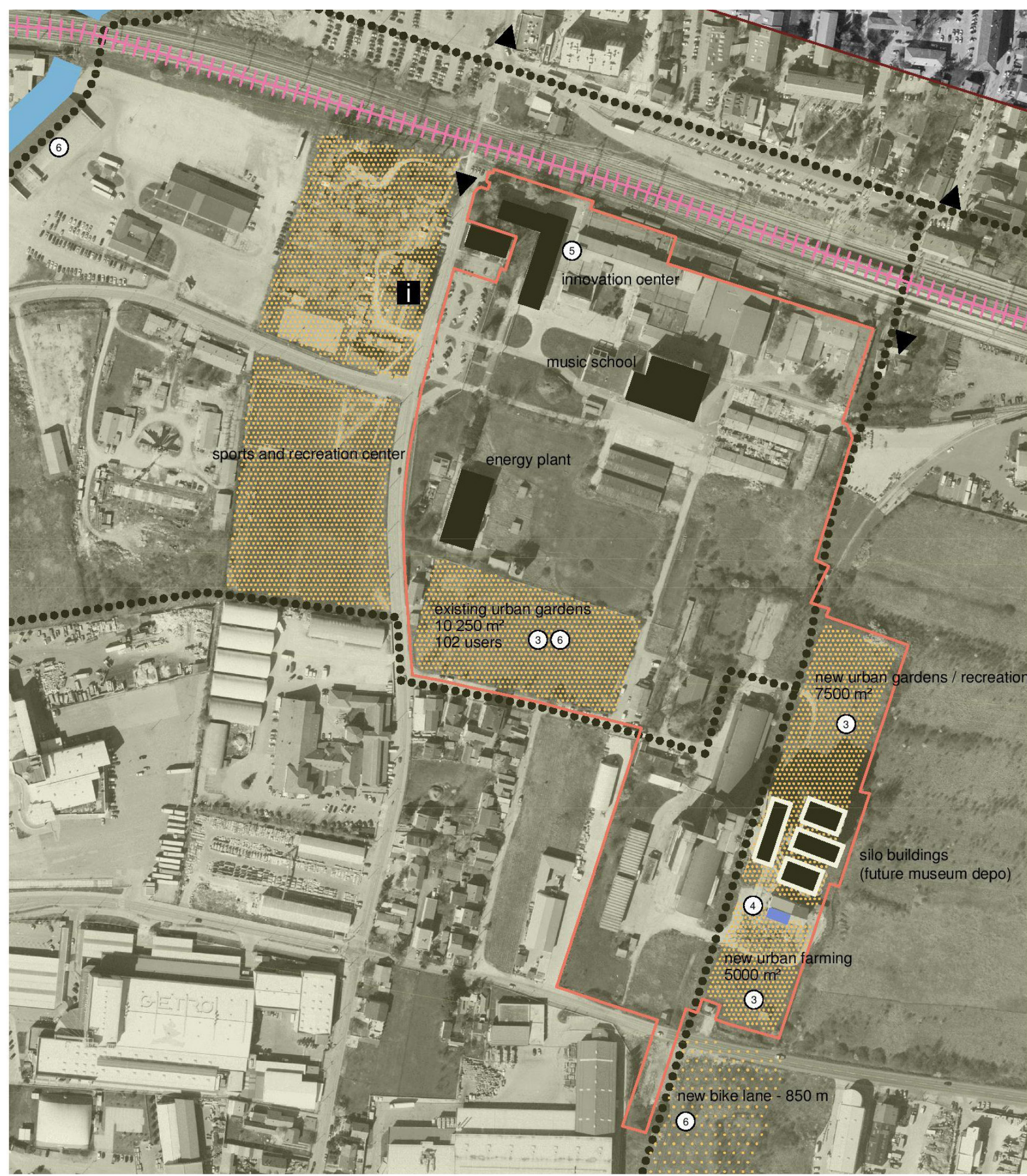
### NBS no.5 capillary Green Infrastructure on walls and roofs

#### Reusing the former Sljeme meat processing factory for public facilities

Green walls and roofs are planned on the existing historic building in the Sljeme brownfield which served as the head office and restaurant. After refurbishment it will serve as a business innovation centre (HUB\_S).

For the NBS implementation 700 m<sup>2</sup> of the HUB's roof and 300 m<sup>2</sup> of the facade will be used. The rest of the roof area (500m<sup>2</sup>) will be covered with photovoltaic and thermo-solar panels to complement the planned geothermal energy source.

The results of this NBS implementation can be scaled up and used on the refurbishment of other historic buildings on the site, especially the silo.



### NBS no.3 community-based urban gardening and farming on post-industrial sites

#### Developing urban gardens, additional green areas and an educational area for growing plants used as biomass

The project „City Gardens“ is an example of sustainable land use in Zagreb, improving the quality of life of citizens and the spatial quality and functions of the urban environment. The aim of the project is to enable citizens to produce food (vegetables and strawberries), herbs and flowers for their own needs. City gardens, besides providing space for healthy food and improving the home budget of citizens, also offer the possibility of traditional food production and coexistence with nature. They enable quality use of leisure time and augment the quality of life of citizens in a social, economic and healthy way. The „City Gardens“ project started in September 2013.

The Sesvete City Garden to be implemented within the LL area is one of twelve gardens in the City of Zagreb. It will cover an area of 10 300 m<sup>2</sup> and will have around 100 garden units. In a second phase it can be extended to a new area within the abandoned industrial site as well as by a nursery that is located in the north part of Sesvete which will become the main entrance to the future forest park area. At the nursery the neighbouring schools will have an educational school garden.

Four employees of the City Office for Agriculture and Forestry are in charge of the administrative tasks related to the implementation of the project (public tenders, keeping user lists, making contracts and liaising with garden site users).

The City Garden will be equipped with the necessary amenities such as storage crates, composters, water tanks and water pumps. In addition to individual units, there will be a common area for the meeting of the users which will be equipped with benches and tables, garden stools, cycle racks, grills and sports areas.

Food production will be strictly organic without the use of any chemical plant protection and fertiliser. Water supply for irrigation will be provided by solar pumps. Access routes and ramps will be useable for people with disabilities. A new communication point will be established within the HUB building in Sesvete, in order to facilitate the exchange between the planners, experts and community garden users (people of Sesvete).

# Front Runner City

### NBS no.6 making post-industrial sites and renatured river corridors accessible for local residents

#### New cycle path as a connection of the Sljeme brownfield urban gardens with the neighbourhood of Novi Jelkovec

Within the Zagreb LL two green corridors will be developed to connect it with the Save river. The first includes a stream that leads from the nearby hill and runs through the LL area. It is also a fresh air corridor which enables fresh air to flow down from the surrounding hills.

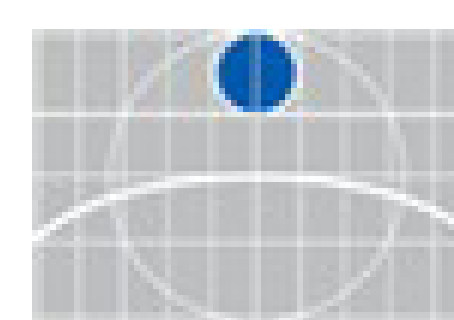
Planned interventions include the construction of a cycle path that will connect the hills to the main cycling route that is to be built on the banks of the Sava River. Different ecosystems will be connected, including the forest in the North with the river ecosystem in the South. The riverbanks will be re-vegetated through livestock exclusion and assisted regeneration. The corridor will provide additional recreation zones for citizens and will be the backbone of the LL area connecting different NBS test sites.

The second corridor will be implemented on a local scale of intervention in the Sljeme focus area of the LL. Starting from the historic silo building, the key local landmark, it will establish a future broad green corridor/neighbourhood park that will connect the two main development areas of Sesvete. The new natural green corridor will, in the future, be extended South of the river Save. The pilot implementation will be a model for the character of the larger future corridor which will start from



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## Core Stakeholders



Quad helix model: local/city government, NGO green and blue Sesvete, a consortium of SMEs and experts from the University of Zagreb. Their role in the project is to propose an urban regeneration approach, GI design standards (university), create local interest, acceptance and involvement (NGO), enable the planning framework for the transformation of the brownfield site and beyond (city and local gov.) and explore business models for promoting and upscaling the Green tech and GI solutions (SME).

The City Office for Strategic planning and Development of the City, is responsible for coordination and encouragement of regional development, strategic projects and programmes, spatial data and plan development, urban statistics, etc. It leads the implementation of the LL and organises the proGleg final conference. It is involved in several work packages (WP2, WP4, WP5) and the promotion of results by training events and training modules with global outreach.

Green and the Blue Sesvete was established to give support to the Green and Blue Sesvete Project, which insists on environmentally friendly, sustainable and organised growth. It works exclusively on volunteer work and contribution of its members. They support the spatial analysis and co-design processes, and are involved in implementing the pilot LL. Furthermore, they contribute to the training events and MOOCs training modules.

City of Zagreb Bureau for Physical Planning is an independent legal entity, not linked to the administration, but working closely with the offices for Strategic Planning and City Development. It is responsible for making urban planning documents, preparing competitions, collecting spatial data, etc. The Bureau develops two main urban planning documents: A Master Plan for the City of Zagreb and a Master Plan for Sesvete.

The University of Zagreb - Faculty of Architecture plays a key role in planning, design and participation processes for NBS, in particular spatial analysis and co-design processes, preparing the implementation of the pilot LL. In addition, they contribute to the training events and MOOCs training modules, as well as organize needed workshops, international meetings and the final conference.

Thanks for contribution to: Iva Bedenko, Matija Vuger, Nives Skreblin, Jelena Bule, Nives Mornar, Bojan Baletic, Mladen Josic

