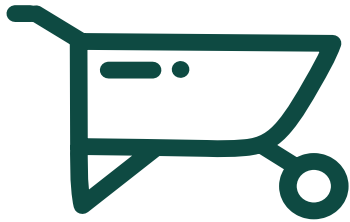




Living Lab Zagreb, Croatia



NBS 3

Community-based urban farming and gardening on post-industrial sites

Modernisation of existing Urban Garden



NBS description

The NBS activities are linked to the „City Gardens“ project established in 2013, which has proven a successful example of sustainable public land use throughout Zagreb. It enables citizens to produce food (vegetables and berries), herbs and flowers for their own needs. Besides providing space for healthy food and improving citizens' available income. The gardens also offer the possibility of traditional food production in coexistence with nature, and fosters social interaction of Sesvete residents.

The district of Sesvete has two urban gardens. The urban garden located in the Living Lab next to the post-industrial area Sljeme has been upgraded by installing solar water distribution pumps and solar water purifying devices using renewable energy sources. Irrigation water is taken from underground water in which spores were detected.

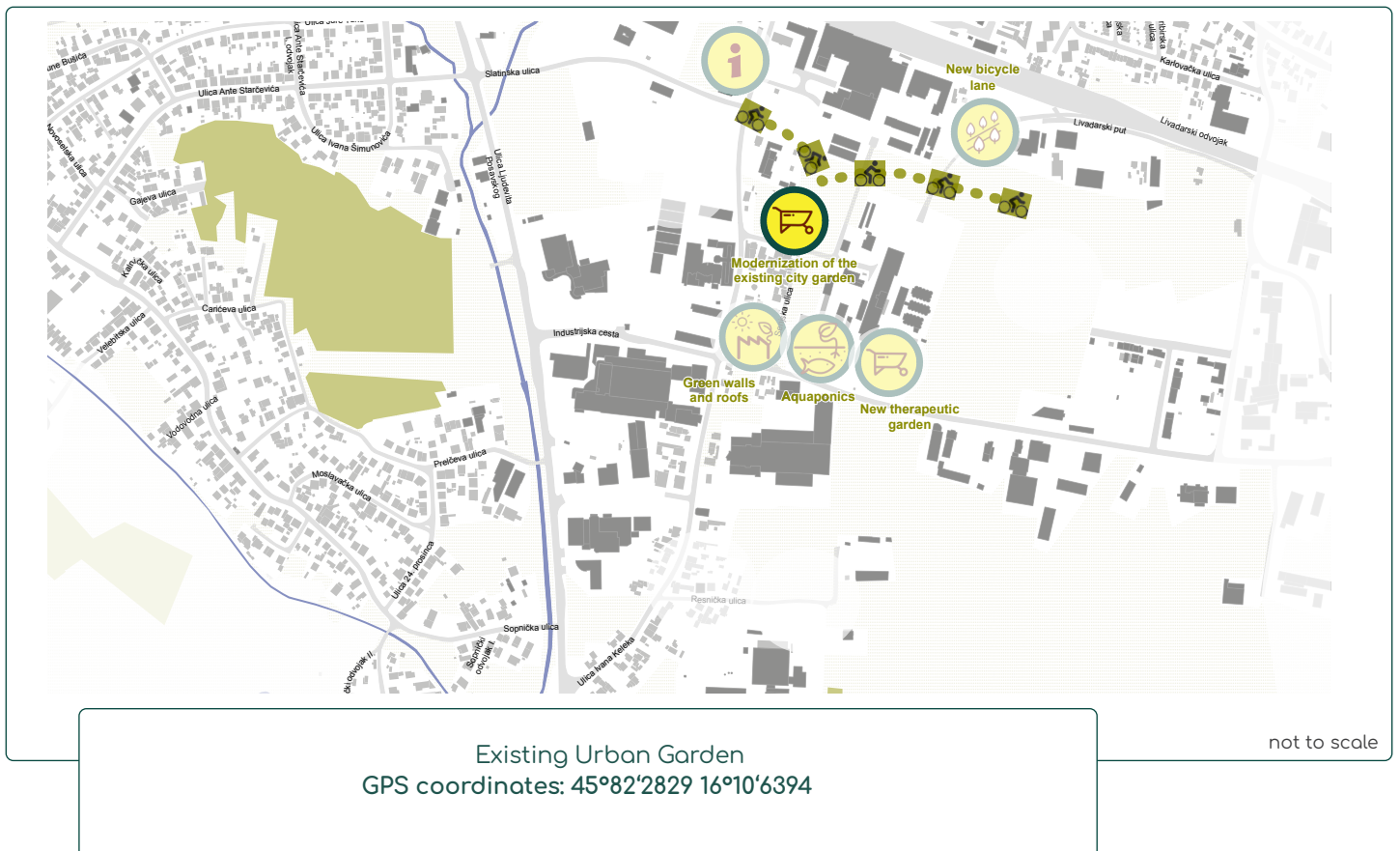
This innovative and resource-efficient solution facilitates access to safe groundwater for irrigation and consumption. It is purified from chemical impurities and pathogenic organisms found in the groundwater.



Aerial view of the urban garden (c) City of Zagreb

Area of implementation

The urban garden in Senjska street in Sesvete has been in use on an area of 10.732 sqm adjacent to the former Sljeme meat processing factory in the proGReg Living Lab.



Aim & goals

The need for city gardens has existed for decades, evidenced by the 'guerilla gardens' in almost all city districts. Users get about 50 sqm garden plots of arable land for a period of two years without compensation, with the possibility of extending, provided users treat the land well. Key goals are:

- Setting a positive example of sustainable use of city-owned land
- Improving citizen quality of life in social, economic and ecological term
- Ensuring healthy food production including safe irrigation water
- Achieving greater resource efficiency through renewable energy sources using solar power
- Contributing to a healthier environment and healthy lifestyle
- Promoting preservation of biodiversity and



- raising ecological awareness
- Developing the partnership between the City of Zagreb and citizens

Target groups

- Urban gardeners of Sesvete and their families & friends
- Interested citizens and practioners in the technology



Stakeholder constellations

Main responsible partner

- City Office of Economy, Environmental Sustainability and Strategic Planning of Zagreb is the main responsible partner
- coordinating the planning, implementation, use and maintenance of the garden and the new technical equipment.

ProGReg partners involved

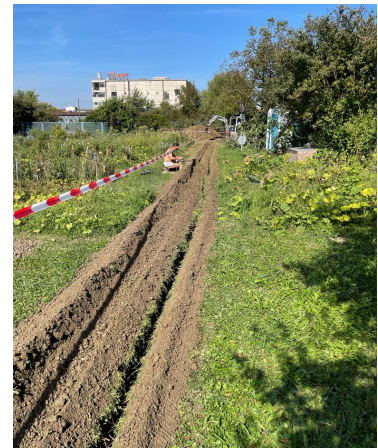
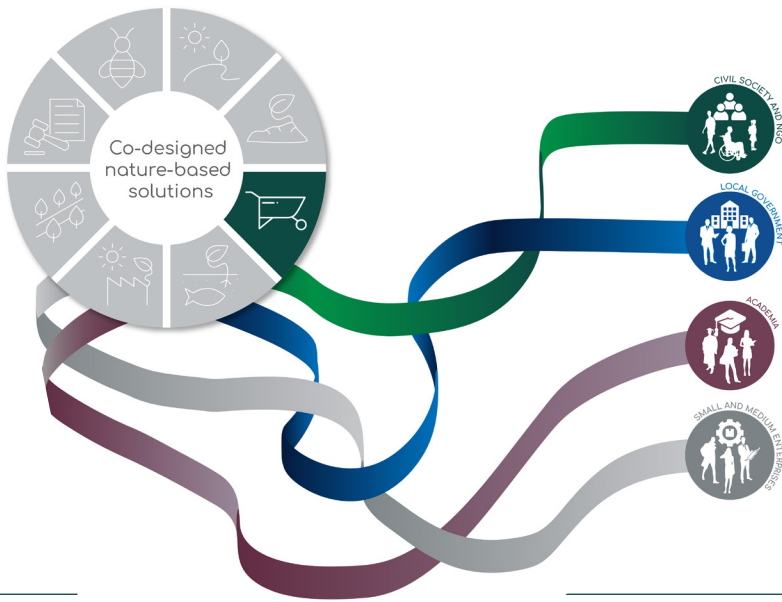
- Green Blue Sesvete (ZIPS) - link to the local community
- ZZPUGZ (Institute for Spatial Planning of the City of Zagreb) - consultation on planning regulations and requirements
- Zagreb Faculty of Architecture - consultation on spatial planning

Other stakeholders involved

- Users of urban gardens
- University of Zagreb Faculty of Agriculture
- Faculty of Geotechnical Engineering, University of Zagreb - design
- Franjo project simple Ltd. - design
- Ripina Ltd. - construction
- Kaj Radio and 24 Sata news - media channels reporting on urban gardens



Co-design activities, stakeholder engagement, and pre-implementation activities



Irrigation channel (c) City of Zagreb

Planning and preparatory activities (administrative and technical procedures)

Using innovative renewable energy technology required lengthy bureaucratic and procurement procedures. Key steps carried out to plan the implementation of the NBS included:

- Analysis of the practical use of garden
- Chemical analysis of the ground water
- Public procurement for design and implementation of the solar fixtures to upgrade the garden
- Public procurement for the construction supervision

Implementation budget



The implementation of this NBS was funded by the European Horizon 2020 program proGReg.

No additional funds were necessary to implement the NBS.

Total implementation budget: 107.141,54€



Construction phase (c) City of Zagreb



Water distribution (c) City of Zagreb



Solar fixture control panel (c) City of Zagreb

Co-design and engagement activities

The City Gardens Project is a collaborative and bottom-up initiative since its beginning. Already before the start of implementation in 2013, gardening NGO initiatives cooperated with the city government, specifically the Department of Agricultural land to convert underused public land into productive and accessible green spaces. The initial idea was to use empty city-owned land and create urban gardens. Both as a measure of sustainable land use and a social measure given users are mostly disadvantaged groups of citizens.

The project is being continually improved and expanded, involving users in the procedure and tailored to their needs. Since water quality analysis showed levels of contamination in the urban garden within the Living Lab, it has been the first garden to be modernized with solar technology using solar pumps and photocatalysis fixtures.

Key achievements and implementation results

The „City Gardens“ project is a positive example of sustainable use of city land and improving the quality of life of citizens socially, economically and ecologically. The NBS intervention of modernising the urban garden in the Living Lab represents an improvement, making the use of the garden plots easier, more convenient and healthier.

The modernization of the urban garden had been planned since the beginning of the proGReg project. The implementation of upgrading the urban garden took place toward the end of the project due to complex administrative procedure processes, and communication mistakes leading to procedure delays. However, it was finished within the project’s timeframe; in the summer of 2023 all procedures were finalized and the solar pumps and fixture installed in November 2023. The solar pumps and photocatalysis fixture have been put in place with water distribution in preparation for the start of the gardening works in spring 2024.

This NBS is an innovative solution not yet been applied in city gardens in Croatia. The quite specific and innovative intervention required complicated administrative and public procurement procedures of the solar panels and pumps.

Critical implementation issues and barriers encountered



Delays occurred due to the Covid-19 pandemic and the earthquakes hitting Zagreb in March and December 2020, putting considerable strains on city budget and slowing down the planning and implementatino process.

Synergies with other proGReg activities

The modernized urban garden is closely connected with the activities at the Sesvete Info point serving as community hub for exchange on NBS while connecting the garden to NBS 4/5 self-standing modular urban farm as an educational platform and potential provider of seeds and seedlings. The nearby therapeutic garden can be used for larger-scale events following consultation with the regular users of the therapeutic garden.



NBS 3: Therapeutic garden



NBS 4: Aquaponics



NBS 5: Green roofs and walls

Links with other external projects or activities

This NBS is an integral part of the City Gardens project since 2013. The urban gardens consist of garden plots and communal areas for socializing and relaxation and for educational purposes and workshops. Common equipment is open to all users (access paths, wooden and prefab storage facilities for tools and organic fertilizer, composters, benches and bins for waste disposal, garden gazebos and canopies).

Therefore, the modernisation measures in the urban garden within the Living Lab represent pilots for the other gardens belonging to the City Gardens project. Moreover, it may inspire other large gardens to apply similar technology.

Communication activities



- All project activities are advertised in the Info point through lectures, exhibitions, discussions, film projections and other events,
- Info point programme published in the local media, especially via social media channels.
- Kaj Radio and 24 Sata News report on urban garden projects including the modernisation solar water pumps
- Exhibition in ZgForum, a venue for communication between the City of Zagreb and the public
- Updates on the urban gardens are continuously published on the city web page and GIS database.

Maintenance & Sustainability beyond proGReg

The urban gardens are a successful project that the City implements for over ten years. The solar pumps and water distribution system, as well as the purification plant, will be maintained by the City as part of the maintenance of the urban garden.

The intervention serves as a pilot project for any public urban gardens in Zagreb and other Croatian cities, therefore representing significant replication potential, even beyond Croatia.

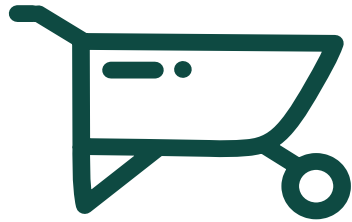
NBS benefits for the Living Lab

The NBS benefits the entire Living Lab area:

- Easier use and maintenance of the gardens
- Allowing for more time socializing and relaxing in the common areas, enhancing social cohesion
- Introduction of a new technology can be an incentive for potential garden users

NBS 3 benefits and co-benefits





NBS 3



(c) Mgt Dom

Community-based urban farming and gardening on post-industrial sites



Modernisation of the Urban Garden

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