proGIreg

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Spatial Analysis in Front Runner and Follower Cities

Deliverable 2.2

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2	Stadt Dortmund	DORTMUND	Germany
3	Città di Torino	COTO	Italy
4	Grad Zagreb	ZAGREB	Croatia
5	Cascais Ambiente – Terrestrial and maritime environment management	CASCAIS	Portugal
6	Dimos Peraia	PIRAEUS	Greece
7	Asociatia de Dezvoltare Intercomunitara Zona Metropolitana – Cluj	CLUJ	Romania
8	City of Zenica	COZ	Bosnia and Herzegovina
11	lohrberg stadtlandschaftsarchitektur	LOHRBERG	Germany
12	Kyttaro Enallaktikon Anazitiseon Neaon	KEAN	Greece
19	Urbasofia s.r.l.	URBASOFIA	Romania
22	Consiglio Nazionale Delle Ricerche	CNR	Italy
23	Politecnico di Torino	POLITO	Italy
26	Zenica rezvojna agencija	ZEDA	Bosnia and Herzegovina
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28	Zavod za prostorno uređenje grada Zagreba	ZZPUGZ	Croatia
30	Udruga Zelene i Plave Sesvete	ZIPS	Croatia
31	OrtiAlti	OA	Italy

34	Institution of Urban Environment, Chinese Academy of Sciences	IUE-CAS	China

Abbreviations

AxTo	Azioni per le Periferie Torinesi (Actions for the suburbs of Turin)
CMA	Cluj Metropolitan Area
CSA	Community-Supported Agriculture
CSR	Corporate Social Responsibility
EEA	European Environment Agency
ELP	Emscher Landschaftspark
FRC	Front-Runner City
FC	Follower City
GDP	Gross Domestic Product
GI	Green Infrastructure
HSP	Hoesch Spundwand und Profil
IGA	International Garden Exhibition Ruhr 2027
IPA	Instrument for Pre-accession Assistance
LAU	Local Administrative Unit
LL	Living Lab
NBS	Nature-Based Solutions
NDVI	Normalized difference vegetation index
NUTS	Nomenclature of Territorial Units for Statistics
PM	Particulate matter
PPP	Public-Private Partnership
proGIreg	productive Green Infrastructure for post-industrial urban regeneration
RA	Replication Area
R&D	Research and Development
R&I	Research and Innovation
ROP	Regional Operational Programme
SDG	Sustainable Development Goals
SWOT	Strengths, Weaknesses, Opportunities, Threats
TNE	Torino Nuova Economia
TRL	Technology Readiness Level
UIA	Urban Innovative Actions
VOC	Volatile organic compound
WP	Work Package

Executive Summary

This report is part of the Task 2.1, Work Package 2 – Planning, design and participation processes for nature-based solutions (NBS) coordination providing an overview of the state of art of the development in the proGIreg project Front Runner Cities (FRC) and Follower Cities (FC) concerning the project's four key assessment domains: socio-cultural inclusiveness, human health and wellbeing, ecological and environmental restoration, and economic and labour market. The analysis covers the four FRC (Dortmund, Turin, Zagreb and Ningbo) and the four FC (Cascais, Cluj Metropolitan Area, Piraeus, and Zenica) at city level and Living Lab level (LL, in FRC) or Urban Regeneration Areas (in FC), where this assessment was possible.

The report follows the methodology developed in Deliverable 2.1 – *Methodology on Spatial Analysis in front-runner and follower cities* (Elisei and Leopa, 2020), and represents the collaborative work of city partners, aimed at grounding the future implementation of nature-based solutions (NBS) in FRC, as well as their embedding in Urban Regeneration Plans in FC. The structure has been elaborated according to the above-mentioned methodology, which proposes six steps: 1) Data availability check, 2) Analysis of existing plan and policy framework, 3) Basic data collection and area-base stakeholder identification, 4) Quantitative data collection and interpretation, 5) Data synthesis and spatialization, 6) Formulation of conclusions.

The report covers the second step of the methodology by collecting information about the existing local planning framework for each FRC and FC to give a general idea of the actions / projects / plans either foreseen, under development or under implementation until the start of the project that support GI and NBS investments and allowing an assessment of possible connections and synergies between proGIreg project and different other projects and initiatives insisting on the same territory. Ultimately, this paves the way to demonstrate how NBS can be embedded in local level spatial planning and decision-making; new forms of planning and implementation with citizens in real-life contexts in LL (WP2 co-design, WP3 co-implementation etc.), and to upscale, translate and adapt solutions to long-term local needs (WP4 and WP5).

The analysis continues with setting up the local context, the spatial analysis territorial scale for each of the eight ProGIreg cities, the levels of analysis and the NBS to be implemented (FRC), or those identified for potential implementation at this stage (FC). Each FRC tests a number of NBS in clearly defined post-industrial neighbourhoods with related socio-economic challenges (Huckarde, Mirafiori, Sesvete), while for FC, Urban Regeneration Areas have been defined, ranging from neighbourhoods (Cascais) to river corridors across the whole city (Cluj-Napoca) as well as dispersed locations in specific city districts (Piraeus).

By drawing a well-defined local stakeholder landscape at this incipient stage, the project provides a more comprehensive idea of local priorities and design more "local rooted" solutions, boosting the sustainability potential of the planned actions. An initial stakeholder list compiled cooperatively by the partner groups involved in the implementation of each FRC Living-Lab and each FC Urban Regeneration Plan identified and described four types of stakeholders according to proGIreg's quadruple helix approach for FRC and generally represent well-rounded, robust groups for the co-design process in Task 2.2 to build and expand on in order to include all necessary stakeholders for successful implementation in WP3 and NBS benefit assessment in WP4. Stakeholder lists of the FC represent a first draft, leveraging on the „usual suspects" of local participatory processes, and will need to be refined as the project progresses and the cities clarify their approach to developing the Urban Regeneration Plans.

In parallel to the stakeholder identification process, a collection of quantitative spatial data has been conducted by the eight cities in proGIreg. Leveraging on the most common statistics from municipalities or national / regional statistics offices, a dataset of statistical spatial data and indicators has been provided by both FRC and FC with the aim of building a compact comparable base of spatial information between cities (FRC and FC) and between conditions at the beginning and end point of the project both at city and, where available, at LL / Urn Regeneration areas level. Achieving the expected result of a cross- city comparability dataset has been challenging due to the lack of different data sets for many cities. However, the overall process has been useful to shape an overview of the "state of art" in FRC and FC. Where possible, cities sought to compensate the lack of requested information by data requests placed to external institutions or other municipal departments. This however caused significant delays of the timeline and should therefore be part of the contingency planning from the outset of the spatial analysis process.

As a final step, all collected data have been synthesized and reunited into schematic SWOT analysis that allows interpretations both at urban and at LL / Urban Regeneration areas / Urban Plan level in terms of strengths, weaknesses, opportunities and threats to the implementation of the proGIreg planned actions. Despite different local contexts, cultures and histories, the SWOT analysis allowed for assessing cross-cuttig issues, common between post-industrial and socially-deprived areas such as low level of connectivity, high levels of pollution, private ownership of browfields and a general lower-income social situation with low education and high criminality.

The spatial analysis process encountered several obstacles and challeges. Heterogeneity of local contexts, both in terms of data availability and experience with implementing NBS initiatives, represents one of the major challenges when aiming at creating a homogenous and comparable overview of the cities. The existence at local level of projects that are already developing NBS or are planning to integrate them in the urban environment, implies a greater familiarity with the general concept and procedures and improves the level of availability of data that could have been already collected for the purpose of past experiences. Furthermore, different contexts means also inequalities in the level of distribution of economic resources and local facilities and equipment availability, bringing to different methodologies, tools and consequently different outputs' levels. To help overcome this challenges it would be important to dedicate sufficient resourse and time for the methodology development, the data scoping and collection, and to have a committed partnership from the very beginning of the process that can assure a good integration between the different tasks. Furthermore, to better adress the differences between the FRC and FC and their distinct purposes and data availability, it would be useful to elaborate an adaptable spatial analysis methodology.

The common challenges will contribute to the baseline established through WP2 and WP4. Corroborated with the results of LL implementation (WP3), they could also help frame a strategy for replication of the proGIreg approach in the future.

Overall, the Spatial Analysis Report represents a first building block of relevant baseline and spatial data framing the local challenges and priorities, and providing analyses of relevant, in-depth city data for NBS implementation and to foster transfer of NBS into planning processes in FC, while at the same time revealing data gaps that can be filled through focused research in the respective subsequent work packages, notably for NBS benefit assessment in WP4.

1. Introduction

1.1. Introduction to the project

Productive Green Infrastructure for post-industrial urban regeneration (proGIreg) is developing and testing nature-based solutions (NBS) co-creatively with public authorities, civil society, researchers and businesses. Eight nature-based solutions, which will support the regeneration of urban areas affected by deindustrialisation, will be deployed in Dortmund (Germany), Turin (Italy), Zagreb (Croatia) and Ningbo (China). The cities of Cascais (Portugal), Cluj-Napoca (Romania), Piraeus (Greece) and Zenica (Bosnia and Herzegovina) will receive support in developing their strategies for embedding nature-based solutions at local level through co-design processes.

Figure 1 - The proGIreg partnership. Source: RWTH, proGIreg Application Form

1.2. Introduction to the Task 2.1

Work Package 2 – Planning, design and participation processes for NBS forms the basis for future planning and implementation in order to realistically measure success of the proGIreg interventions**.** WP 2 consists of three tasks (T) (see fig. 2), with the overall aim of enabling and preparing a location-based and locally adapted implementation of the NBS to be developed within the proGIreg FRC and to identify the potential for their transfer to the project's FC.

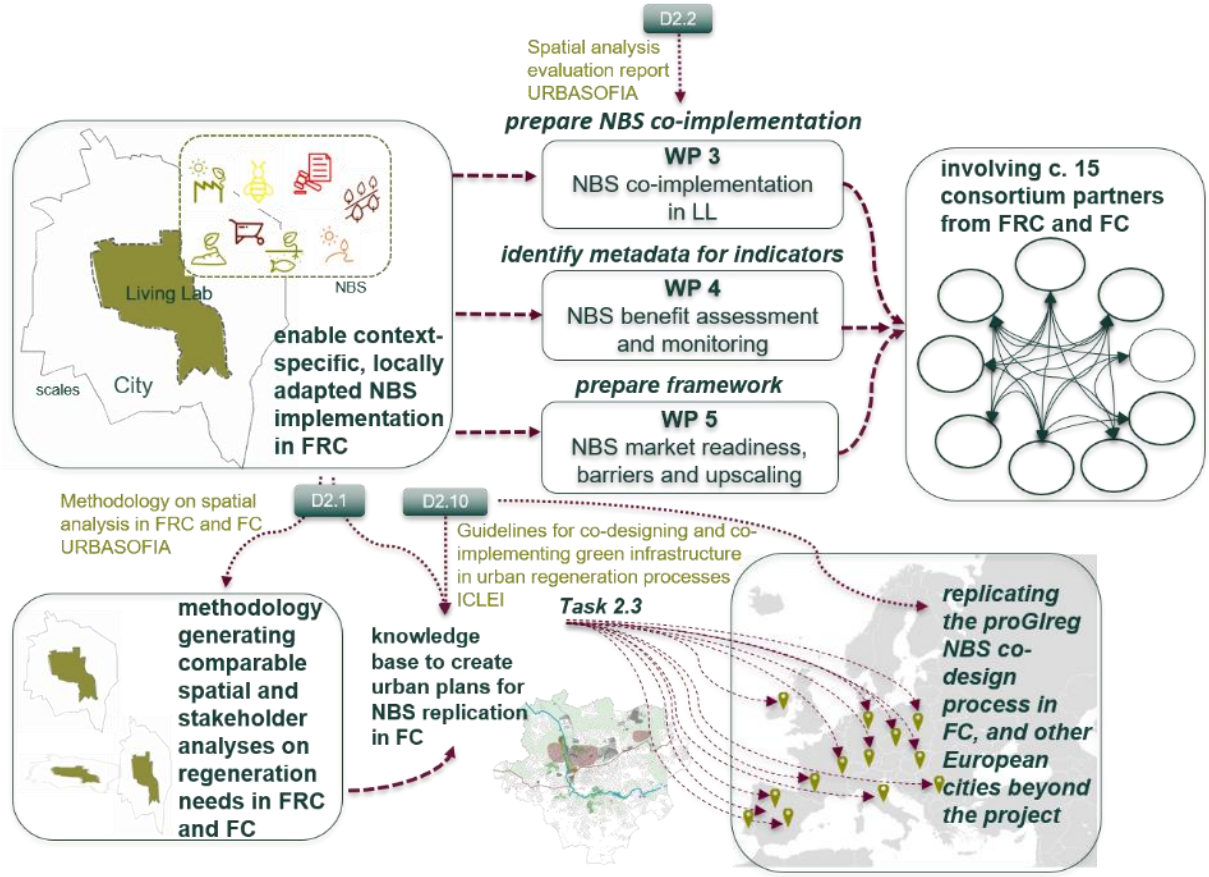


Figure 2 – Overview of Task 2.1 embedded in the project structure and the impact of deliverables D2.1 and D2.2 on overall project goals. Source: proGIreg, RWTH

The role of Task 2.1: Spatial Analysis in front-runner and follower cities is to generate comprehensive and context-specific spatial analyses using spatial baseline data and meta-databases. Its purpose is to:

- Set a baseline for FRC to facilitate the tracking of change and contributing to defining a common methodology for implementation of the Living Labs (LLs) in the FRC, evaluate the state of art in the FC for NBS within the local policy framework and as background for the co-design of urban plans (Urban Regeneration Plans – RP) in Task 2.3.;
- Render a holistic picture on the specific local issues and challenges in FRC and FC as background for the NBS co-design and implementation processes;
- Assist the co-design activities in FRC (Task 2.2) to support decision-making, NBS selection and design and NBS pilot implementation (WP3) with contextual information;

- Assess the need for NBS in a city and support the quantification of the potential benefits / impacts (WP5) that could be achieved using NBS (NBS benefit assessment and monitoring activities in WP4 by defining a baseline of spatial data).

Task 2.1 analyses the available (from the dataset point of view) **baseline conditions** for the four key scientific assessment domains defined in WP4. It leverages on the cross-disciplinary, multi-benefit approach used by the NBS assessment framework developed by the Expert Working Group (EWG) of the EKLIPSE project under EU-DG R&I request and further developed in Raymond et al. (2017), as well as input coming from the WP4 in forms of statistical spatial data transposing the assessment domains at spatial-urban level:

1. Socio-cultural inclusiveness
2. Human health and wellbeing
3. Ecological and environmental restoration
4. Economic and labour market.

The Spatial Analysis in FRC and FC relies on the deliverable **D2.1 – Methodology on Spatial Analysis in front-runner and follower cities** (Leopa and Elisei, 2020). The methodology has been developed based on the principles of the Theory of Change (ToC), which allowed mapping the linkages between the T2.1 results, the outcomes of their use in linked activities, and the contribution to the achievement of proGIreg main goals and overall objective (Figure 3).

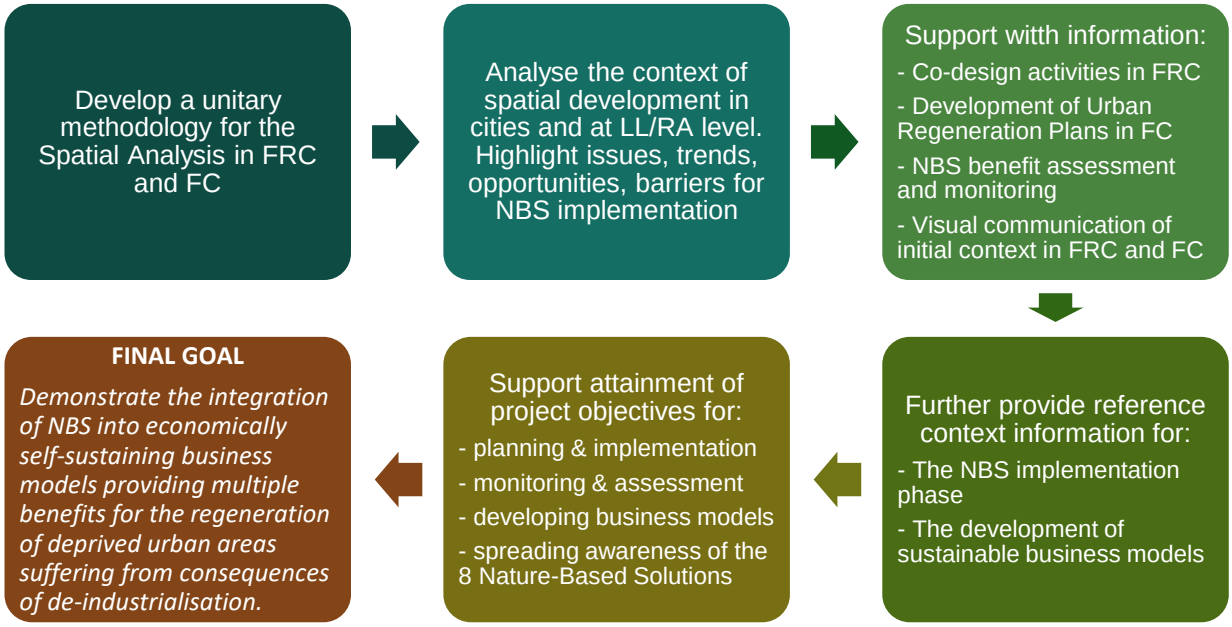


Figure 3 – Spatial Analysis in FRC and FC outcomes pathway and expected project contribution. Source: URBASOFIA

The main purpose of this present report (D2.2) is to develop a common spatial framework based on spatial data (hard data) and also on soft contextual information, where this information is readily available, guiding further project implementation in FRC (co-design processes and NBS pilot implementation within the LLs) and FC (development of locally adapted Urban Regeneration Plans for the implementation of NBS).

The development of the above mentioned common spatial framework followed a well-defined structure, based on the methodology presented in the previous deliverable.

Chapter 2 addresses the need to provide an overview of the partners' current planning tools of relevance for the implementation of proGIreg NBS, at different territorial governance levels. It screens upper territorial (regional), local and LL / Urban Regeneration Area levels for existing normative and strategic plans, as well as other city investments or actions on the topics of interest for proGIreg: urban development, green infrastructure, urban regeneration, participation and social inclusion. The purpose is that of assisting operationalisation of NBS into the local policy and plan framework, providing context information and support for translating scientific evidence of the project into policy and action. Findings of each city's analysis are included as a last subchapter in this section and indicate supportive planning frameworks for all the FRC.

Chapter 3 introduces the basic data and context of the proGIreg cities, providing information on the scales and delineation of the Analysis Areas considered further in the assessment of the cities. It provides a general description of the eight ProGIreg cities, the levels of analysis and the NBS to be implemented (FRC), or those identified for potential implementation at this stage (FC). Further, an overview of the core, primary and secondary stakeholders of each city is presented in order to obtain a comprehensive image of the stakeholder landscape, as a step for future participation and NBS co-design.

Chapter 4 presents the quantitative data collection, relying on a cooperative spatial data framework developed between WP2 and WP4. A set of 71 statistical spatial data and indicators based on the four key assessment domains offers a baseline image into the situation at the scale of the city and – where available – the LL or Urban Regeneration Areas. The final data collection fiches are presented in a separate annex (3, and from 3.1 to 3.7), showing a rather heterogeneous availability, with very limited data particularly in what concerns information on the health of the population and the environment quality (air, water and soil). Cross-city comparability of datasets is thus limited, but the spatial data lists offer nevertheless important information for performing interim and final analyses of NBS implementation within each of the FRC.

Based on the collected data, as well as spatial information available at the level of the cities, Chapter 5 synthesis the statistical spatial data assessment, in the form of SWOT (Strengths, Weaknesses, Opportunities and Threats) tabular analyses at two levels (city and LL / Urban Regeneration Area, where available). These findings are further spatialized in thematic SWOT maps and point to common challenges for FRC LL areas, such as: social deprivation, lack of public services, low urban fabric permeability and accessibility of green spaces, higher comparative incidence of respiratory, cardio diseases and allergies, problems of urban public safety, higher-than-average unemployment and a generally low-dynamic business and entrepreneurship environment.

Finally, conclusions of the report outline the state-of-play situation in the cities and their specific proGIreg NBS implementation areas in what concerns socio-cultural inclusion, human health and wellbeing, ecology and the environment, economy and labour market.

1.3. Approach to working with FRC and FC

Based on the provision of the methodology developed and included in the Deliverable D.2.1, the Spatial Analysis relies on the following steps:

Figure 4 – Methodological steps of the Spatial Analysis. Source: URBASOFIA

In order to accomplish the Spatial Analyses, under coordination of URBASOFIA, each of the four FRC and four FC developed together with their local partner working groups a per-city Spatial Analysis report. For the European cities, the delivery of data was carried out between September 2018 and February 2019, due to the complexity and challenge of submitting data requests to other institutions for the required statistical spatial data and subsequent joint requests between WP2 and WP4. Data from FRC Ningbo was received and included in the Spatial Analysis between November 2019 and January 2020, due to a later official accession to the proGIreg partnership.

The work carried out by partners was summarized textually (per-domain SWOT analyses) and visually (thematic maps on the four key scientific domains), and conclusions have been drawn. Particularities of data collection, processing and visualisation roadmap represented constraints for conducting Spatial Analysis. These are further detailed in the conclusions section of this document.

2. Existing plan and policy frameworks in proGIreg cities

The planning and policy framework analysis provides the backdrop of the Spatial Analysis, and represents the first step after spatial data availability check. It informs on the determinants of the context in each FRC and FC and singles out the provisions which either explicitly or implicitly support or disincentivize GI and NBS investments. It also helps further identification of **potential barriers, synergies or entry points** moving forward, which is useful both for FRC as well as FC.

This part of the spatial analysis considers three criteria when identifying relevant documentations: **governance level, instrument character and policy domain.**

A guiding matrix containing these criteria has been provided to the cities within the methodology (D.2.1). Based on it, FRC and FC have identified the existing local planning frameworks (i.e. urban and territorial planning documents, strategic documents etc.), programmes and actions which are already foreseen for the development / implementation of NBS at local level. Furthermore, cities have compiled a list of NBS-focused or otherwise relevant programmes, actions and projects either foreseen, under development or under implementation (within the framework of proGIreg or as parallel initiatives), which are going to be considered further within the project.

In the following tables, only those plans which include requirements or provisions that are important for the implementation of NBS are presented.

2.1. Local plan and policy framework for Dortmund

Key topics	Regional level	Local level Formal Plans (Dortmund, LL Area)	Local level informal plans, investments and actions
Urban development	**International Garden Exhibition Ruhr 2027** (IGA Ruhr 2027) Specific concepts for the International Garden Exhibition (IGA) Ruhr 2027 are in an early preparation phase. Nevertheless, the planning results of Emscher nordwärts Dortmund have been an important and convincing basis for the IGA application process. Dortmund will be one of the five cities of the Ruhr region with future gardens as main attractions of the IGA, supplemented by Dortmund´s other large IGA garden "Parkkreuz PHOENIX" which is located in Dortmund´s south connecting and further enhancing the green spaces of PHOENIX lake, PHOENIX West, Westfalenpark and Rombergpark **Position Emscher Landschaftspark 2020+** (2013) ELP continues a two-decade process of developing GI and focuses among others on climate protection, urban agriculture, green infrastructure and the economic power of the park supporting structural change	**Flächennutzungsplan der Stadt Dortmund** (Formal Zoning Plan, City of Dortmund) was adopted in 2004 by Dortmund's city council, it indicates development goals for land use in Dortmund and foresees the area north of former Hansa coking plant to be planned as an economic site. **Formal Development Plans (Bebauungspläne)** - Bebauungsplan InW 217 Rheinische Straße, Teilbereich West (2009) - Bebauungsplan InW 210 Unterdorstfeld (1997) - Bebauungsplan InN 204 verlängerte Mallinckrodtstraße/ Hafenbrücke (1989) - Bebauungsplan Hu 124 Huckarder Straße, 1. Änderung (1990) - Bebauungsplan Hu 126/1 Gewerbepark Hansa - Bebauungsplan „Kokerei Hansa Nord" (Planned 2019)	**nordwärts/ "going north" (2015-2025)** In 2015, the city council approved "nordwärts", covering seven northern districts of Dortmund and aiming to harmonize quality of life across Dortmund in a participatory manner. The following LL area projects are listed among the total 234 projects: - Vision: Creation of a beacon on Deusenberg (n. 032) - Hansa Brückenzug: integration in local path network (n. 521) - Restoration of Hansa coking plant´s Salzlager (n. 713) - Integrated Action Plan Huckarde-Nord (n. 752) - Development of HSP-site/ Rheinische Straße (n. 497, 843) - **Emscher nordwärts/ IGA Ruhr 2027 (n. 928)** **Emscher nordwärts Dortmund** covers the same scale and area as proGIreg LL, and establishes goals for three subdivisions: 1) Subarea North (Hansa coking plant, Deusenberg, Mooskamp); 2) Central Subarea (Emscher, Hansa Brückenzug); 3) Subarea South (Union quarter, HSP-site) Pertaining to Urban Regeneration, **Stadtumbaugebiet „Huckarde-Nord"** (2016) is an urban renewal project substantiated by an **Integrated Action Plan (Integriertes Handlungskonzept IHK)** focusing attention on aspects also of importance for proGIreg (provisions for connection improvement between Huckarde and „Hansa Revier Huckarde" (Hansa coking plant, Deusenberg, light train museum Mooskamp) and for the development of the latter).
Green Infrastructure			
Urban Regeneration			
Participation, social inclusion			

A detailed description of plans and policies is available as a separate Annex (2.1).

2.2. Local plan and policy framework for Turin

Key topics	Regional level	Local level	Local level investments and actions
Green Infrastructure	**Torino Metropoli 2025 (The Metropolitan Torino 2025 Strategic Plan) - Environmental sustainability** The strategic plan for Turin 2025 underlines strategic trajectories in which future development should be conveyed. It recognizes the necessity of a diffuse dimension of sustainability and addresses it with a set of specific governance actions. One action, in particular, can be of use for this project: **Agenzia Metropolitana Corona Verde** defines the vision of the urban metropolitan green as a diffuse system with cultural, environmental and economic dimensions; accessible and opened to forms of cooperation between formal and informal actors. It is further developed in the Stakeholder Analysis. **POR FESR 2014/2020** (See "Asse VI": “Sviluppo Urbano Sostenibile” (in English: Sustainable Urban Development)	**Torino città d'acque – Turin, city of waters** Torino Città d'Acque is the project approved in 1993 by the City of Turin and currentl under implementation which provides for the recovery of the banks of rivers in a single river park of 70 km, with an area of 17 million square meters. The project links the four rivers of Turin (Po, Dora Riparia, Stura, Sangone) to create a continuous system of river parks connected by networks of pedestrian, cycling, naturalistic and educational routes. (**Museo Torino**) **Piano Gestione MAB Po Collina –** Management Plan for the Man and Biosphere reserve of the territory of „CollinaPo”. For the reserve, an Application Dossier was submitted to the UNESCO MaB Commission in 2015 **Progetto TOCC – Torino Città da Coltivare** (Torino, city to be cultivated) – represents a project approved in 2012 with the aims to promote the development of agriculture in the urban area: sustainable crops and addressed to the concept of "short chain", social agriculture, individual or collective horticulture, agritourism, urban forestation. **Piano strategico metropolitano 2018 - 2020 (cfr. P5: Una Città Sostenibile e Resiliente)** – The Strategic Metropolitan Plan of Turin 2018-2020 (PSMTo), The PSMTo identifies a vision of unitary development for the entire territory of the medium to long term CMTo, and is divided into 5 project platforms, 20 strategies and 63 actions / projects; the PSMTo identifies the action priorities for the reference period and the dedicated	

Key topics	Regional level	Local level	Local level investments and actions
		resources within the Annual Operational Agenda. The GI component is addressed in **P5: A sustainable and resilient metropolitan city**.	
Urban Development and Urban Regeneration	**Torino Metropoli 2025: Urban Regeneration** The strategic plan looks at regeneration considering its diffuse dimension. Regeneration is considered in the form of innovative programs that need to coordinate new forms of social inclusion of the community and stakeholders to activate public and private resources. The basis of this form of regeneration is to be found in past Turinese experiences in urban regeneration which were able to mobilize the social dimension as well as the institutional one. Regeneration is seen as a multi-dimensional concept containing economic development, employment opportunities, services effectiveness, cultural and social regeneration, inclusion. This can be useful to recognize the resources that can be moved or activated on the field, and the possible actors that can help in rendering the project future proof and economically independent and sustainable.	**PRG Torino (Plano Regolatore Generale, 1995) – Turin Urban General Plan,** which went through a general revision in order to be transformed into an urban instrument accessible with more simplicity and transparency - **http://www.torinosiprogetta.it/** **AxTo - Azioni per le periferie torinesi** (Actions for the Suburbs of Turin**)** This project analyses and proposes area-based actions and urban acupuncture operations for the peripheral neighbourhoods in Turin, concerning housing, schools, infrastructure, GI, support of micro-enterprises, cultural production and social planning of the urban community. **Piano Strategico Metropolitano 2018-2020** (cfr. P3: Una Città Metropolitana innovativa e attrativa nei confronti di imprese e talenti) – Priority „An innovative and attractive metropolitan city for enterprises and talents”	**Programmi urbani complessi di Torino** (“Complex Urban Programmes”) - tools for intervention in critical urban areas, with different purposes, but with similar characteristics **PRIU** - Programmi di Riqualificazione Urbana (“Urban Requalification Programmes”) are complex urban projects traditionally of an infrastructure-focused nature, but being implemented in Torino under the provisions for an integrated and participatory approach similar to CLLD **Torino Metropoli 2025: "Quindici progetti pilota di qualità urbana".** The strategic plan has proposed 15 pilot projects for urban quality. These projects are aimed at places which are sparsely defined or have high urban development potential. These projects must follow a specific approach (placemaking) in order to resew the urban fabric with a mix of uses and to promote the community to take in charge the management of these public spaces. It can be useful to analyse these projects in order to understand what the outcomes where.
Participation, social inclusion	**Torino Metropoli 2025: Social Inclusion dimensions.** The strategic plan makes of social inclusion a founding concept for its development.	**AxTo - Azione per le periferie torinesi** (see above); **Piano Strategico Metropolitano 2018-2020** (cfr. P4: Una Città Intelligente e Inclusiva) – Priority „An	**AxTO Mirafiori Sud,** with currently three projects underway for the redevelopment of green areas (Emilio Pugno garden, Nino Farina gardens, Camilla Ravera)

Key topics	Regional level	Local level	Local level investments and actions
	Point 5.3 - Strategy 2. *Abilitating the socio-economic context*, identifies horizontal "abilitating factors" for the development of the entire economic, territorial and social system. Social inclusion here is based on local economic base rehabilitation. The basic idea is to enable resources that are not only public to offer a set of new services that can improve quality of life in the city and thus actively involve the social dimension in the process. Social inclusion in the strategic plan is a broad term, and it involves many dimensions, from economics to transport, to sustainability. Point B.13 - "*Social Innovation*" points to the renewal of the welfare state system with the involvement of non-formal and non-public actors in the system. This interest and sensibility can be useful to the Progireg project, as it can help in sustaining projects of social innovation and renovation, mixing technology and territorial innovation, and using them to enable projects of social inclusion and participation.	Intelligent and Incusive city	**UIA Co-City Project**

Key topics	Regional level	Local level	Local level investments and actions
Other connected topics of interest	**Torino Metropoli 2025: Environmental sustainability** - A.5 "Manager for the Sustainable metropolitan city". This action has to do with the economical dimension of sustainability. It aims to reach opportunities offered by innovation through a more efficient use of resources creating socio-economic value with minimum impact on natural systems. This manager figure should promote coordinated actions on efficiency of use of natural resources, but also landscape restoring and rehabilitation and sustainable economy models. It has also to do with diffusion and experimentation of new action plans for the territory that concern environmental sustainability.		

2.3. Local plan and policy framework for Zagreb

Key topics	Regional level	Local level	Local level investments and actions
Urban development	**City of Zagreb Development Strategy 2020 (2017)** represents the basic framework for all project initiatives and proposals at the level of the city, which must be coordinated with its aims: - sustainable development, protection of nature and improvement of the quality of environment - sustainable energy management - balanced and systematic physical development through sustainable use of the	**The Master Plan for the City of Zagreb (2015)** defines the use and purpose of areas, a network of economic and social activities, transport and utility infrastructure and conditions for the use, development and protection of the area (urban policies, procedures for urban spatial planning, protected natural areas and immovable cultural property). It is both a strategic and an implementation document determining the future shape of the city through regulations, the requirements of buildings and defining urban rules (Prelogović, Pintarić and Njegač, 2016)	

	entire City space, improving inhabited City areas, development of the city projects system, improving traffic systems, improving infrastructural systems and improving regional traffic connections - improving the quality of housing - improving social infrastructure The Action Plan, a separate implementing document, shows funds planned to be disbursed for the implementation of specific measures in the three-year period 2017–2019.		
	Urban agglomeration Development Strategy Zagreb 2020 (2017) - improving quality of life, public and social infrastructure and human resources - improving environmental, nature and space management - network projects like increasing public passenger transport efficiency, cycling and pedestrian infrastructure, development of public spaces and facilities etc.	**The Master Plan Sesvete (2015)** prescribes the use and purpose of the areas in Sesvete, ensuring**:** - new public facilities - quality economic structure development, removal of pollutants - consolidation of the urban structure of Sesvete	
	Spatial Plan City of Zagreb (2016) defines conditions for the development of the City, and establishes the following guiding actions of relevance for proGIreg: - stressing the importance of sustainable development - limiting urban sprawl - improving the life standard of suburban and rural settlements	**Landscape study Sesvete* (2016):** - encouraging sustainable transport and decrease in car usage - encouraging compact city development - infrastructure network expansion with maximum use of existing capacities **Archaeological sites in a tourist offer Sesvete*** **Green and Blue Sesvete (2016)*** - a project put forward by an association with the same name envisioning the redevelopm4ent of the former Sljeme factory (proGIreg LL area) and the Divjača forest (80 ha) among others. Proposal (in Croatian)	
Green Infrastructure	**Spatial Plan City of Zagreb (2016)** The Plan, specifically graphical representations Land use and Terms of use, development and		**Bicycle lane from Sesvete to Vugrovec** (5 km, 2016)

	preservation of space define the main green massives Natural Park Medvednica and Sesvetsko Prigorje in the north, Vukomeričke Gorice in the southwest, Sava park along the main river corridor of Sava.	**Both the Master Plan City of Zagreb (2015) and Sesvete (2015)** contain two graphical representations concerning green infrastructure: Land use and Protected and registered natural heritage and immovable cultural heritage. The former represents, among others, public green spaces (parks, urban forests, theme parks), sports and recreation areas, as well areas prohibiting construction, stream corridors and other water surfaces. The latter defines special green area use and preservation regimes. Mandatory percentages of natural terrain of development areas are provided in the regulation part of the plan.	
Regeneration		**Master Plan City of Zagreb (2015), and Master Plan Sesvete (2015**) which aims at: - preventing spontaneous development of industrial complexes and agricultural farms - the use of urban potential through city projects and urban development plans - all future development directed towards the reuse of land for facilities and programmes for urban transformation and creation of public spaces of urban character **Landscape study Sesvete*:** - project propositions for reconstruction, recomposition and improvement of the rural and agricultural landscape of Sesvetsko prigorje; - preservation and improvement of cultural heritage.	
Participation, social inclusion	**Law on the Right of Access to Information (2015)** **Public discussion as part of the procedure for adopting a plan**		

Other connected topics of interest	**OTHER CITY INVESTMENTS:** NBS implementation: Urban gardens in Zagreb Environment management and sustainable development: Sustainable Energy Action Plan Zagreb – SEAP (2010) Urban regeneration projects: Gredelj, Blok Badel, Zagreb Fair

** document not accepted by the City Assembly*

2.4. Local plan and policy framework for Ningbo

Key topics	Regional level	Local level formal plans (Haishu, LL Analysis Area)	Local level informal plans, investments and actions
Urban development	In 2018, Zhejiang Water Resources Department launched “the beautiful river and lake construction” action (2018-2022): 1. Comprehensively promote the construction of green corridors such as Qu River, Jinhua River, Fuchun River, Oujiang River, and Jiaojiang River, and strengthen dikes over 400 km. 2. Start the construction of important embankments such as Qiantang River, Guanchao, Jiangdong, Yayun, Zhijiang, etc., and build 60 km high quality landscape embankment. 3. Repair 500 beautiful rivers and lakes, manage 5,000 km of small and medium-sized rivers, and remove 200 million m^3 of silt in water bodies.	The "**Five Water Treatment**" special action put forward by the local government with the goal of "struggling for 200 days, destroying inferior V class", focusing on solving problems such as river dredging, river regulation, sewage interception, river beautification and agricultural non-point source pollution in 2017.	In 2018, Tianyi-Moon Lake Scenic Spot was rated as a national 5A-level tourist scenic spot. In 2019, Tianyige Museum & Moon Lake Scenic Area Phase II upgrading project started
Green Infrastructure	On May 1, 2019, the "**Zhejiang Waters Protection Measures**" was officially implemented. This is the first provincial-level waters protection method in the country, which clarifies the government's responsibility for watershed protection management.	On March 25, 2017, Haishu District launched the **comprehensive management project of the Moon Lake water ecological environment**. This project is the first lake management PPP (Public-Private Partnership) project in the province, with a total investment of 77.32 million yuan and a contract period of 10 years, of which the rectification period is 1 year.	Landscape greening and supporting road works along the Nantang River in 2019-2021. In 2019, the environment improvement project along the railway line, replanting and greening, and renovation of parking lots.
Regeneration	In 2019, the Ministry of Housing and Urban-Rural Development issued the **Work Plan for the Delineation of Historical and Cultural Blocks and the Determination of Historic Buildings**.	In 2013, Haishu District launched a special action of “**three reforms and one demolition**” and proposed the goal of “completely dismantling” unfit urban constructive areas. The three reforms tackled old residential areas, old factory areas and urban villages, while the demolition addressed illegal buildings: - Buildings that illegally occupies land for construction;	In 2019, Haishu District will promote the creation of a “**zero sewage direct discharge area**” and strengthen the regulation of sewage (water) outlets to rivers.

		- Buildings that have not obtained the relevant planning permit or have not been constructed in accordance with the relevant planning permit; - Buildings that violate the laws and regulations of roads, rivers, etc. 2016, **Ningbo Moon Lake Historical and Cultural Street Protection Plan**.	
Participation, social inclusion	In 2016, **Zhejiang Province 's Action Plan for Water Pollution Prevention and Control**: combining government, market, and public participation to achieve water pollution control goals.	**Ningbo Haishu District Ecological Civilization Construction Plan** (2019-2025): Promote the establishment of "Zero Sewage Direct Discharge Zone" and strengthen the sewage (water) mouth remediation into the river.	Haishu District has improved the public consultation and complaint reporting platform, and public opinion has participated in decision-making.

2.5. Local plan and policy framework for Cascais

Key topics	Regional level	Local level – City and Brejos (Regeneration Area)	Other city investments / actions
Urban development	**PROT-OVT - West and Tagus Valley Regional Land Use Plan (2009)** has a regional scale and encompasses the west centre of Portugal, including the metropolitan area of Lisbon. As a regional spatial planning program, it defines the regional strategy for territorial development, integrating the options established at national level and considering sub-regional and local strategies for local development, providing the framework for the elaboration of programs and inter-municipal plans and of municipal plans. The **PROT-AML** for the Metropolitan area of Lisbon (2002, renewed 2011) adapts the rules and guidelines determined by the PROT-OVT, at the metropolitan area scale	**Cascais Master Plan (2015)** has been developed according to the guidelines established in the PROT-AML, detailing these rules and applying them to the city scale. This is the main document that reflects all the guidelines for territorial interventions in Cascais. The Masterplan shows a list of categories and territorial planning status in the area of Brejos, with the following provisions for the categories of interest in proGIreg: - The Urban Regeneration Area is characterised as urban soil - All urban interventions must promote new landscapes, connect pre-existing urbanized areas, and promote the use and recovery of abandoned areas; - Most of the area represents production and leisure green areas, part of the urban ecological structure (protected / preservation status) - Other green areas: Conservation and protection areas (flood area, river banks and slopes – protected) and GI protection on highway sideways and water pipeline (protected, non-aedificandi) - Equipment areas (some public and private parcels which may be converted to social equipment) **Plan for Development of Pedestrian accessibility in Cascais**	
Green Infrastructure	The **Natural Park of Sintra-Cascais** - occupies 1/3 of Cascais territory with very specific regulations. The urban regeneration area is not	**Municipal Regulation for Green-Areas and Tree protection** - sets a special status of protection to some species in the municipality, like *Pinus pinea* and *Olea europaea*, for example. Before any intervention all pre-	

	included in the Natural Park, and thus not relevant for proGIreg. **Natura 2000** is present mainly in the Natural Park and coastal area, following European legislation. **Environmental Fund** (Fundo Ambiental)	existing trees must be evaluated; they can only be cut down with municipal authorization.	
		Climate Change Adaptation Action Plan (PECAC, 2016, on the basis of 2010 Strategic Plan) promotes resilience against climate change, yet its provisions do not include urban agriculture as a target. Instead, Action 5 concerns green river corridors (outside Urban Regeneration area) and action 12 aims for new Urban Parks as naturalized areas for water infiltration. The general principles of PECAC will be considered in proGIreg,	
Regeneration		"**Terras de Cascais**" strategy is an agriculture programme with several projects (since 2009) concerning vegetable community gardens, associative gardens, school home gardens and daycare center gardens. A Market study (GFK, 2017) about consumption of produce in Cascais, by private and public sectors, indicated preference and gave support for the Terras de Cascais strategy.	**Local Programme for public participation, the Municipal Participatory budget** is executed every year. Anyone can apply with a project that costs less than 300,000€ within the scope of Municipal activities (Orçamento Participativo). **Cascais Social Net (Rede Social de Cascais)** created by law 115/2006 is a contact network and participatory forum involving several local actors to work on social issues. It has a local council of social action (CLAS).
		PEDU – Urban Development Strategic Plan (2015) supports the implementation of Article 7 ERDF (Sustainable Urban Development) and concerns actions to improve the urban environment, revitalization, and support for the physical, economic and social regeneration of communities north (Tires) and south (Zambujal) of the Urban Regeneration Area, mainly concerning the built areas and public spaces.	
Participation, social inclusion		"**Terras de Cascais**" strategy actions involve the communities, families and schools to pursue new synergies around community gardens, association gardens, school gardens, vegetable garden nurseries, etc.	

2.6. Local plan and policy framework for Cluj-Napoca

Key topics	Regional / Metropolitan Level	Local Level (Cluj-Napoca Municipality)	Other city investments / actions
Urban development	**Regional Development Plan for the North-West Region** (2014-2020) is the main regional planning document and presents relevant development policies at regional level, in the context of the area's specific needs. It is not binding for lower levels, as NUTS 2 regions in Romania are statistical; but one of the flagship projects of the RDP is the Somes river waterfront development (part of the Regeneration Plan area). **Integrated Development Strategy of the Cluj Metropolitan Area (2017)**, creates the strategic framework for the Metropolitan Area (2030) and pro-vides the Action Plan for the current programming period (2014-2020, implementation until 2023). **County/ Metropolitan Territorial Development Plan**, to be realized by the Cluj County Council and the Metropolitan Association, with expertise from the World Bank Romania office, starting in 2019 – a key document which can up-scale and mainstream the proGIreg approach in Cluj	**Cluj-Napoca Urban General Plan (2015)** – provides the general development framework of the city and includes medium and long-term provisions for areas where urban regeneration is expected, specifically along the corridors of the Somes river and railway, the areas considered for the Urban Regeneration Plan in proGIreg. **Cluj-Napoca Municipality Integrated Development Strategy 2014-2020** (2013) – is built on three pillars: Innovation, University and Participation. The strategic priority `Green Cluj` proposes several operational programmes and projects mainly aimed at creating framework conditions for GI (plans, studies), but also the development of a forest park in the Faget area, and development of mini-parks / `EcoMiniRelax` within the urban tissue. **Sustainable Urban Mobility Plan** (SUMP) Cluj-Napoca 2014-2020 (2030) – provisions for re-configuration of the city's transport network, pedestrianization, measures for enhancing sustainability and lowering the environmental impact of mobility in the city	**Metropolitan Train** project (under development) **Metropolitan Bypass** (under development)
Green Infrastructure			**Rethinking Somes design** contest (2017) and the subsequent winning proposal for the redevelopment of the Somesul Mic river banks within Cluj-Napoca city. **ROP 2014-2020** 4th Axis Projects: Between Lakes recreation area and Tineretului Park **Natura 2000 site ROSCI0074** Făgetul Clujului – Valea Morii **H2020 "Stardust" Project** offers a holistic approach in transforming the carbon-based cities to smart, highly efficient, intelligent and citizen-oriented cities, or "Innovation Islands". As a Replicator City, Cluj-Napoca has the opportunity to cross-fertilize between the project and proGIreg, specifically in what concerns innovative instruments and solutions for improving the energy efficiency of buildings and microclimate (such as capillary GI, green facades and roofs). Interreg Danube Programme – **URBforDAN** - Management and Utilization of Urban Forests as Natural Heritage in Danube Cities

Regeneration			**URBACT III REFILL Project** (2015-2018) - Reuse of vacant spaces as driving force for Innovation on Local level **Cluj Participatory Budgeting** Several Zoning Plans approved by the City Council in the former Industrial Areas (Record, Sobarilor etc)
Participation, social inclusion		**Cluj-Napoca Municipality Integrated Development Strategy 2014-2020** – the `Social Inclusion` sub-strategy (2010)	Interreg Danube Programme - **NewGenerationSkills Project** - Unlocking the potentials for business and social innovation in the Danube Region by equipping young people with new generation skills **EUCANET**- EUropean City Agencies NETwork for citizenship, inclusion, involvement and empowerment of communities through the urban transformation process Housing Project for the most deprived – financed through the Poverty Alleviation Programme - Norway Grants

2.7. Local plan and policy framework for Piraeus

Key topics	Regional Level	Local Level (City)	Other city investments / actions (current)
Urban development	**Regulatory Plan "Athens-Attica 2021"** (2011) **–** strategic development plan for the spatial	**Piraeus Strategic Plan**, developed with the scope of making the city of Piraeus an international business,	**MOBILITAS** – MOBIlity for NearLy-zEro CO2 in MedITerranean Tourism DestinAtionS,

Green Infrastructure **Regeneration**	organisation of the city and entire Attica region. Key concepts of relevance: - Stimulation of the cohesive city; - Urban regeneration through recycling the city stock in land and building; - Building restriction in non-urbanized areas - Environmental protection and a set of environmental policy directions - Restructuring of the productive fabric (incl. agricultural production) - Restructuring of the city centres of Athens and Piraeus	touristic, cultural, maritime and commercial destination, leveraging on the following concepts: - Blue" city: maritime cluster for the port of Piraeus; - "Green" city: using green energy in public infrastructure, promoting energy upgrading; - "Smart" city: new digital technologies and support for youth who wish to create start-up companies. - "Sustainable" city: combined implementation of environmental, traffic and social interventions for the revival of deprived urban areas. - "Open" city: optimize the permeability of the urban areas through upgrading motorways and establishing functional connections between the city and the passenger port and the cruise ship areas. **Piraeus Blue Growth Strategy 2018-2024** – specifically, provisions under PA-4: Urban Interventions and Smart Infrastructures for Blue Growth: - Measure 4.1 Integrated Spatial Planning - Measure 4.2 Interventions for urban revitalization **Piraeus Port Masterplan** (2018) – developed by COSCO for the Piraeus Port Authority aims to enhance the port's growth prospects through an expansion of activities are not are directly linked with port operations, which are still under debate (e.g. a new mall). The plan is still pending approval.	INTERREG-MED 2014-2020 programme (2016-2019) Aim: Elaborate different scenarios that enable policy makers and stakeholders to better understand effects of different choices on improving environmental quality. **Interventions for Urban Regeneration of degraded areas of the Municipality of Piraeus – Green Fund** (2012-2015) Aim: To regenerate degraded areas within the Municipality of Piraeus to improve both the city's attractiveness and bioclimatic design, by funding interventions such as provision of soil conditioners, soil works, landscaping. **SUPAIR** – SUstainable Ports in the Adriatic Ionian Region project, INTERREG-ADRION 2014-2020 programme (2017-2019) Aim: Reduce of emissions from shipping and on-shore port operations with an integrated approach, enhance port authorities' capacity to plan and implement low-carbon and multimodal transport and mobility solutions and further empower decision-making of the main related political, technical and trade stakeholders and partners. **BLUE GROWTH INITIATIVE**, URBACT programme (2017-2020) Aim: Encourage entrepreneurship and the promotion of innovative business ideas related to maritime economy and the values of sustainable entrepreneurship, contributing to the improvement of business culture and strengthening of business activities with significant socio-economic benefits for Piraeus.

Participation, social inclusion		**MIVA -** Integration through Volunteering Activities, Asylum, Migration & Integration Fund (AMIF) programme (2018-2021) Aim: The implementation of interactive activities to increase Third Country Nationals' participation in socio-cultural life and the volunteering sector and to foster building capacity for diversity addressed at host communities for successful migrant integration. The above will be achieved through the organisation of cross-cultural, the deployment of the INDIGO solidarity platform and app, and the implementation of workshops. **VAI** – Volunteering Among Immigrants project, AMIF programme Aim: Explore innovative actions to the topic of the "social integration" and "active participation" of Third Country Nationals focusing on volunteering as a tool. **BLUACT project**, URBACT Transfer **Network** (2018) Aim: Implement a Call for innovations to enhance traditional financial activities through innovative business ideas in relation to shipping and the blue economy and create 25 Good Practice Transfer Networks, focusing on the adaptation and transfer of established good practices to other EU city partners faced with similar challenges. **BLUES** – BLUe growth connects European Seas project, ERASMUS+ programme (2017-2019) Aim: Design and develop a new dynamic training material in order to retrain and upskill "blue" professionals (workers, unemployed people) to upgrade their knowledge and competences allowing them to progress in their career or move to other promising job opportunities in the Blue Economy (Coastal - Maritime Tourism and Shipping). **Seminars and Lectures for Citizens** from the Department of Lifelong Living of the Directorate of Education of the Municipality of Piraeus (2018-2019).
Other (completed) initiatives	**CYCLECITIES project** – European cities for integrating cycling within sustainable mobility management schemes, INTERREG IVC (2012-2014): Municipality of Piraeus was the Lead Partner and developed, among others, a good practice guide on land use planning, on cities' mobility management strategies, on citizens' participation practices and on cycling architectural infrastructure; and a Regional implementation plan. **TRACE Project** – Transnational cooperation for the improvement of buildings energy performance and efficiency, South-East Europe (SEE) (2012-2014): Municipality of Piraeus was the Lead Partner (LP); the project focused on deploying transfer and training activities (workshops, seminars, meetings, stud visits, trainings) on the topic of energy efficiency, and findings were incorporated into operational plans for each of the partners. **SMILE Project** – SMart green Innovative urban Logistics for Energy efficient Mediterranean cities, MED PROGRAMME (2013-2015) produced, under LP Piraeus, a benchmark of MED cities in Urban Logistics energy gaps, and then implemented logistics pilots; based on their assessment, the project final developed a reference guide for energy efficiency in urban logistics. **REPUBLIC-MED – REtrofitting PUBLic spaces in Intelligent MEDiterrannean Cities, MED PROGRAMME (2013-2015) developed** a holistic methodology to perform complete techno-economic studies for the energy upgrade of public buildings to mitigate the Urban Heat Island (UHI) in public open spaces. **NEETs ON BOARD project**, EASI (2017-2018) created PPPs in the field of blue growth and social economy in order to mobilize and involve NEETs aged 15-24	

	within the Piraeus, Saronic Islands and east Peloponnese areas. Municipality of Piraeus makes efforts raise money to **expropriate former industrial and derelict sites** that are abandoned and contribute to the degradation of the surrounding areas to allow for the development of new green spaces for the benefit of the general public.

2.8. Local plan and policy framework for Zenica

Key topics	Regional level	Local level Formal Plans (Zenica City, Regeneration Area)	Other Local level actions
Urban Development and Urban Regeneration	**Environmental Fund of Federation of Bosnia and Herzegovina** – supporting environmental policies for sustainable development. It is guided by international rules and objectives towards climate change adaptation, water protection, nature and biodiversity. **Zenica-Doboj cantonal Urban plan (2009-2029)** – This Plan mainly concerns the built areas, and public urban spaces and applies to vacant land, including in the Urban Regeneration area. *It is to note that the Master Plan of Federation of Bosnia and Herzegovina (2008-2028) is currently not yet adopted, while the Draft of the Plan needs to be taken into consideration by the House of Peoples of Bosnia and Herzegovina (Bijelić, Đorđević, 2018)*	**Master Plan for the City of Zenica** (2016-2036, adopted 2017) has been developed in conformity with the Cantonal and Federal plans and provides the framework for local development – including the further definition of specific land use, neighbourhood, infrastructural and investment plans for future trade and economic zones (Municipality of Zenica, 2018) **Traffic study of City of Zenica** – defines pedestrian, public transport, pedestrian transport and transport in general. It also sets the pedestrian paths and cycling profiles to be adapted in the Urban Regeneration area.	Currently, the department for urban planning is working on **two Regulation plans** in the inner city (urban area) and working on best possible solutions in accordance with suggestions on public hearings and demands of citizens.
Green Infrastructure			The City is also currently in the process of developing a **Green City Action Plan**, in which creating green belts around industrial parts of the city is foreseen.
Participation, social inclusion			The **open-air market,** which works every day selling fruits and vegetables, with a Saturday market for clothing, shoes and household linen.

2.9. Conclusions of the plan and policy analyses

Below presented the first conclusions and comparisons drawn from this first analysis of the local planning framework for each of the ProGIreg city.

NBS implementation in **FRC Dortmund** can build on a very well-articulated planning framework and a supportive environment of several running renewal actions and programmes. Dortmund´s Landschaftsplan focuses on qualitative improvements of nature. Activities in the LL need to be aligned with these initiatives and, in particular, the International Garden Exhibition (IGA) Ruhr 2027. While these parallel processes pose some challenges on how to ensure coordination among them, they stimulate urban transformation in the LL area and allow synergies with the foreseen NBS 1, 3, 4, 6 and 8.

NBS planning and implementation in **FRC Turin** subscribes to the Turin Metropolis 2025 Strategic Plan (specifically on the components Green Infrastructure, Urban Regeneration, Social Inclusion, Environmental Sustainability), which provides the framework of action for all dimensions tackled through the LL: socio-cultural inclusiveness, human health and wellbeing, ecological and environmental restoration, economic and labour market benefits. Furthermore, at local level, regulatory plans (General Urban Plans) set up the conditions for implementation, and other strategies and urban programmes help frame the priorities of proGIreg NBS testing.

FRC Zagreb benefits from a structured plan and policy framework at contextual level, comprising of spatial plans / masterplans for the Zagreb Urban Agglomeration, Zagreb City and Sesvete district, the development strategy for Zagreb City, and further studies and documentations focusing on landscape and the blue-green network. The city implements NBS 3-7 with the purpose of re-converting an existing brownfield (former meat processing factory Sljeme) and providing new public spaces and facilities for enhancing urban resilience, wellbeing, community sense; as such, it is contextualizing the proGIreg LL and adapting the NBS to the local priorities of ensuring new public facilities, densification, preserving and further developing green infrastructure, improving the quality of the environment, housing, and limiting urban sprawl (via densification).

FRC Ningbo's "Five Water Treatment" comprehensive water management policy and the "Zhejiang Waters Protection Measures" provide policy support for the implementation of NBS in Ningbo LL. The implementation of NBS in Ningbo is in line with the special action of the “three reforms and one demolition” in Haishu District, the protection plans of Moon Lake Historical and Cultural Street and the planning of ecological civilization construction in Haishu District. The comprehensive management project of the Moon Lake water ecological environment is the first lake management PPP (Public-Private Partnership) project in the province, which includes the cultivation of aquatic plants and water quality monitoring in Ningbo NBS3. Overall, this plan and policy framework can further enable and provide a strong support to proGIreg actions within the LL, especially in light of newer initiatives such as the 2019 “Work Plan for the Delineation of Historical and Cultural Blocks and the Determination of Historic Buildings” which could provide support to integrated regeneration initiatives focusing on the Moon Lake historic, cultural and environmental asset valorisation.

FC Cascais has had experience in the past with urban agriculture and its embedding into the local plan and policy context. NBS 3, 6 and 8 are of core interest for Cascais, and an area for Regeneration Plan has been identified, contextualizing the intervention within the very dynamic urban processes of the last years and the acute urbanisation and densification happening in Brejos district. Project implementation within the city builds on, and benefits from other actions in synergy (Terras de Cascais), facilities and assets, including local cooperative programmes, financing mechanisms, participatory and community actions.

FC Metropolitan Area of Cluj has a well-consolidated plan and policy framework, with a metropolitan / county development plan in the making, which could accommodate provisions derived from the experience of proGIreg. The strategic context gives weight to GI, and Cluj-Napoca city has taken steps so far with several projects and international contests to ensure the crystallization of a vision for the blue-green Săsar River corridor. Synergies with like-minded initiatives (e.g. The URBforDAN project, tackling urban forest management, or the STARDUST project, implementing innovative Energy Efficiency solutions) can be ensured.

FC Piraeus, albeit not having focused on the prescriptions of the spatial plans approved at municipal level, presents a vast previous experience in coordinating transnational cooperation actions which relate to blue growth, energy efficiency, mobility and public space regeneration, with the latter playing into the capacity of the partner to produce an Urban Regeneration Plan encompassing provisions for green spaces such as roofs (NBS 5) and corridors (NBS 6); there is local experience in implementing sustainability- and regeneration-oriented actions by the city municipality, within EU projects, which focus prominently on policy-making, transnational exchange and citizen involvement.

Lastly, **FC Zenica's** main spatial planning documentation is the Master Plan for the city (2036), with both regulatory / land use and strategic components, which supports the redevelopment of the Kamberovića Regeneration Area. The Green City Action Plan in development offers the possibility of embedding NBS and their transversal nature (impacting both the environment as well as social, wellbeing, residential, economic and cultural aspects of urban life) within the city's planning framework, in support to future implementation of the Urban Regeneration Plan, to be developed through the project.

Overall, proGIreg can bank on existing plans and policies (such as landscape programmes / strategies, or provisions of normative plans leveraging conservation of green space / nature). However, the traditional approach in normative spatial planning regarding GI is to protect and develop public green spaces, while productive and co-designed NBS require shared competencies and resources across sectors. In this respect, approaches and experiences from informal planning and other activities such as participatory budgets, transdisciplinary research projects and socially-inclusive urban regeneration projects can provide a supportive framework for NBS.

3. Analysis scales, basic information and stakeholder identification

3.1. Baseline assessment of local conditions

This section sets the context for the spatial analysis, framing the baseline assessment of local conditions and the spatial data, while synthesizing the main characteristics of the FRC and FC / metropolitan areas involved in the project in order to be compared and disseminated at local and project level.

ProGIreg will implement NBS aiming at generating benefits for the whole urban area, in particular social and economic benefits. Contextualizing these changes implies conducting a baseline spatial analysis at **two different territorial scales**:

1) the city/metropolitan analysis scale,
2) the LL analysis scale (for FRC), and the regeneration areas for which Urban Regeneration Plans will be designed (for FC)

The delineation of the spatial analysis area for the city / metropolitan scale has been conducted considering the **administrative border of the city and / or the limit of the metropolitan area or metropolitan association area**, depending on the partner. A methodological note on identifying and delineating the analysis areas of LLs and Urban Regeneration Areas is included in the methodology (D.2.1), and applying it has resulted in the following definitions of analysis areas:

Table 1 - Definition of FRC and FC Analysis Areas

proGIreg city	Analysis Area and availability of data
FRC Dortmund	A 22 km^2 area surrounding the LL area, mainly containing Huckarde neighbourhood (West), the port (East), parts of the neighbourhoods Westerfilde, Deusen, Innenstadt Nord, Dorstfeld and Union quarter (see Annex 1.1.).
FRC Turin	The Mirafiori District with 11.49 km^2 contiguous area in the south of the Turin city (see Annex 1.2**).** In the Turin case, the Analysis Area and the LL overlap.
FRC Zagreb	The local census districts Sesvetska Sopnica, Novi Jelkovec, and parts of the districts Staro Brestje and Centar in Sesvete (see Annex 1.3).
FRC Ningbo	The district level represents Haishu, the county-level district under the jurisdiction of Ningbo city in Zhejiang Province of the People's Republic of China. Haishu district covers a large 595.5 km^2 contiguous area. At its easternmost part, the Moon Lake Street represents the LL Analysis Area

	(2.07 km², see **Figure 72, annex 1.4)** Within it, the LL (Moon Lake Park) covers ca. 28 hectares (0.28km²) (**Figure 73, A1.4**)
FC Cascais – Provisional identification	The Urban Regeneration Area has been defined as a 0.42 km² area encompass the localities of Tires, Matarraque and Zambujal, that belong to the parish of São Domingos de Rana. (see SWOT Maps in Chapter 5.5)
FC Cluj Metropolitan Area – Provisional identification	The Urban Regeneration Area has been delineated as a corridor along the Somes River and Railway in Cluj-Napoca, crossing the whole city in its densest area. The Analysis Area has consequently covered the municipality of Cluj-Napoca of 179 km² (see SWOT Maps in Chapter 5.6 and **Fig. 77 Annex.1.6**). There is a considerable difference in size in what concerns the Analysis Area between this partner and the rest, partly because of unavailability of sub-municipal data and partly because Cluj Metropolitan Area itself is 1,538 km².
FC Piraeus – Provisional identification	The Urban Regeneration Areas have been identified in **Fig. 78**. Spatial data is only available at municipal level; however, some data could be provided for the two districts containing the possible Urban Regeneration Areas: District C' (1.77 km²) and District E' (2.69 km²).
FC Zenica – Provisional identification	The Urban Regeneration Area has been delineated in this stage as a 0.34 km² area containing the Kamberovića field and the Bosna riverbanks in the central part of the city. Due to lack of sub-municipal data, it was not possible to use an area for the two-level analysis – all data collection and SWOT analysis are conducted at city level.

3.2. Spatial analysis levels and NBS to be implemented in the FRC

Cities fiche identification, more in-detailes descriptions of the local contexts and figures are presented in separated Annexes (see in particular Annexes from 1.1 to 1.8).

3.2.1. Front Runner City Dortmund (DE)

The implementation of the NBS in Dortmund will focus on the designated Living Lab but aim at influencing urban transformation beyond its boundaries. To measure and evaluate these effects, a larger area surrounding the Living Lab will be examined.

In this report, three different spatial levels are referred to, while two will be used further into the analysis (the City Level and Analysis Area):

1. The **City Level** (280 km²) comprises Dortmund city area which is administratively divided into 12 city districts. The City Level serves as a comparison level for statistical analyses.

2. The **Analysis Area** (2,275 ha) represents a 500 m to 2,000 m wide buffer around the Living Lab. The outer line of 13 statistical sub-units defines its boundary. The effects of realized NBS may have a direct impact on the Analysis Area as numerous inhabitants are living here in several settlement areas directly adjacent to the Living Lab: Huckarde in the North-West,

Deusen in the Northeast, Dorstfeld in the South-West, the Rheinische Straße quarter respectively the Union quarter in the South. Several industrial sites are in the East.

3. The **Living Lab** (215 ha) comprises the project area in which the NBS are intended to be realized. It is situated about 2 km west of downtown Dortmund. At its longest north-south extension, it is 4.8 km long. At its broadest extension in the northern part it is 1.25 km wide, at its most narrow section it is only 40 m wide.

Dortmund Living Lab is divided into three parts: two larger areas in the North and the South and a small green and blue ribbon along the Emscher River in between.

The **Emscher River** is the linking element between all three parts. It has been recultivated. Its adjacent foot and bike path is well integrated into the regional path network, but local connections are missing in some sections.

In the **northern part** of the Living Lab, Hansa coking plant is situated which closed in 1992. Nowadays it is a listed monument of industrial heritage, a popular museum of regional interest, and a location for events, being restored since 2008 and with more restoration projects within the near future. The coking plant is also a place used by schools to illustrate industrial history of the Ruhr valley, structural change, or “industry nature”.

North of Hansa coking plant, green open spaces are used as fields (north-west) and grasslands (northeast). The grasslands cover an area of the former coking plant with rehabilitated soils and a dump for contaminated soils (“*Landschaftsbauwerk*”).

North of the freight train tracks, the light rail traffic museum “Mooskamp” is located on the former train depot of Hansa coking plant. The museum reintegrates long-term unemployed into the labour market by participating in special training programs for restoring and repairing the machines.

East of Hansa coking plant the former landfill Deusenberg is situated with extensions of 500 m x 1,000 m. For about 70 years, 11 billion m³ of household garbage was dumped there until 1992. Afterwards, according to legal regulations and approvals, the dump received a gasket and a drainage to prevent pollutants to penetrate into ground water bodies. Dump gases were extracted and converted into electricity. The surface received a soil cover to allow revegetation. Today, the re-cultivated 50 m high hill is accessible and allows a spectacular sight. On the slopes, 150,000 trees and shrubs have been planted. On top a 3.56 MW photovoltaic power plant is in use since 2017. Some constructed paths are part of a mountain bike area, others are designed for pedestrians (overall length: 6 km). So far, the Deusenberg is only accessible from the eastern side from the Emscher pathway and via a bridge over the Emscher River from the Deusen district.

The **central part** of the Living Lab encompasses mostly areas directly adjacent to the Emscher River. In the northern half, the Living Lab is divided into two parts, with a western part encompassing freight train tracks, which are used by engines of Mooskamp light rail traffic museum. In this part, the Container Terminal Dortmund and other industrial sites are surrounded by the Living Lab.

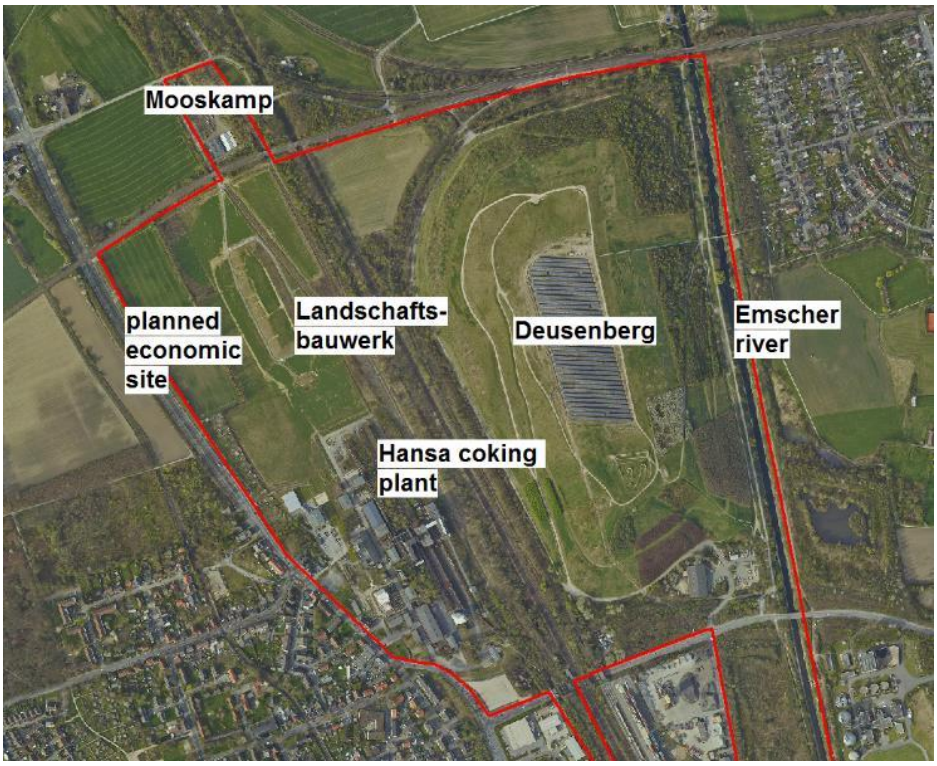


Figure 5 - Northern part of Dortmund Living Lab. Source: City of Dortmund

Where both parts of the Living Lab come together, Hansa Brückenzug as a preserved and listed part of a pipe for blast furnace gas, which crosses several bridges thus being characteristic for the former collective economy of the Ruhr valley. This situation is unique, but today hidden and hardly visible.

The Living Lab area south of Hansa Brückenzug is limited in the west by the Emscherallee, an important road in north-south direction, and artificial dams in the East respectively industrial deposition sites. To the East an artificial, vegetated dam limits the Living Lab. On its eastern side, a building yard is located.

The **southern part** of Dortmund Living Lab encompasses the Emscher River and its adjacent areas in the West, the 45 ha large Hoesch Spundwand und Profil (HSP) site and in the south the Rheinische Straße quarter. A private investor bought the site and will develop it to reuse the area for housing, as economic sites and for green infrastructure including an artificial lake. Currently, the planning process is at an early stage. The industrial buildings still exist. The transition will also have a positive effect on the Rheinische Straße quarter south of the HSP-site, which is isolated.

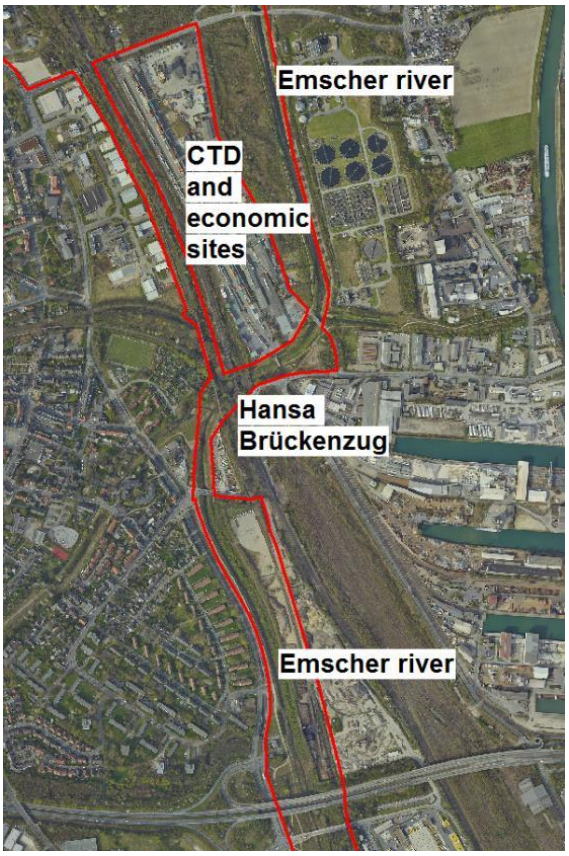


Figure 6 - Central part of Dortmund Living Lab. Source: City of Dortmund

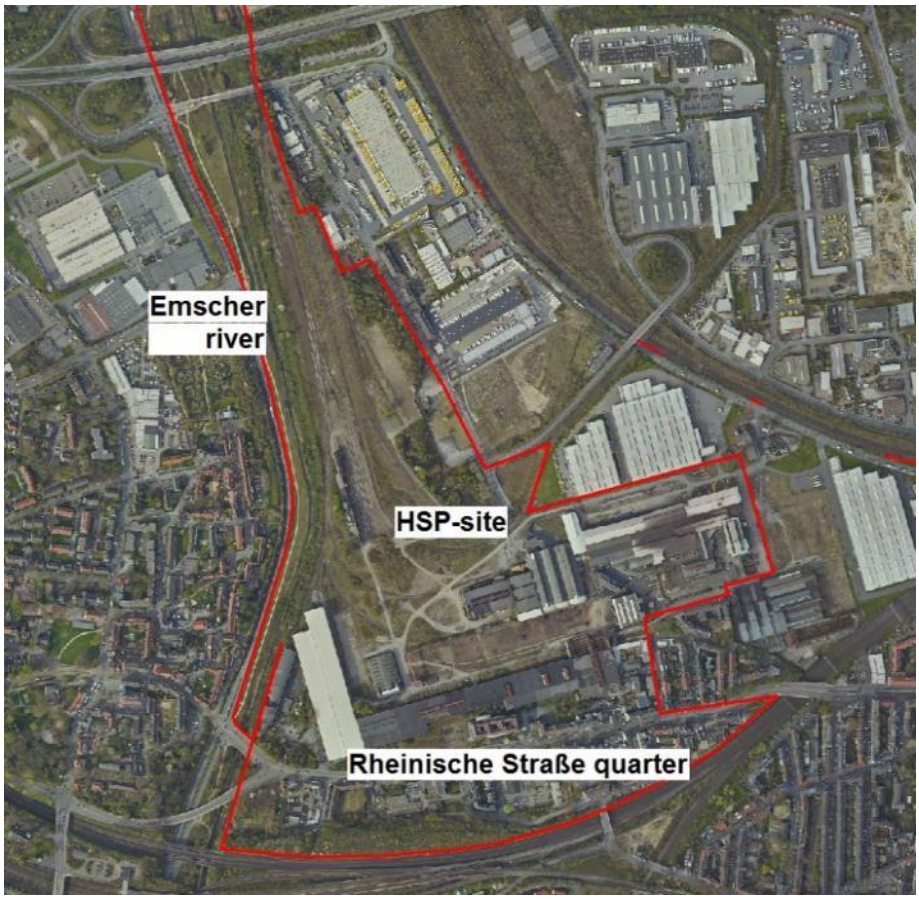


Figure 7 - Southern part of Dortmund Living Lab

Source: City of Dortmund

In Dortmund, the following set of NBS will be realized:

DORTMUND PROGIREG NATURE-BASED SOLUTIONS

- NBS 1: Renaturing landfill sites for leisure use and energy production
- NBS 3: Community-based urban farming and gardening on post-industrial sites
- NBS 4: Aquaponics as soil-less agriculture for polluted sites
- NBS 6: Connecting the isolated Huckarde borough with the renatured Emscher river and Deusenberg sites
- NBS 8: Pollinator biodiversity improvement activities and citizen science project

3.2.2. Front Runner City Turin (IT)

In this report, the following investigation levels for the city of Turin are used:

1. The **City Level** (129,99 km²) – Citta di Torino area, which is administratively divided into 8 districts (*circoscrizioni*)

2. The LL **Analysis Area** comprises the Mirafiori Sud district (1,149 ha), one of the largest districts in the city, and the area in which the **Living Lab** is going to be implemented. It is situated in the southernmost area of the Municipality.

Since the 1970s, the urban green area grew from 4 to 18.4 km², reaching a standard per inhabitant of 19.05 m² that puts Turin in first place in Italy. This increase, a result of a far-sighted and ecologically sound strategy, was guided by a series of urban studies elaborated since the late 1970s, which informed the General Regulatory Plan approved in 1994. Now, the city's urban green network includes:

- The "Green-Blue System" connecting four river corridors and the "Green Ring" (Anello Verde), a 45 km path system connecting hills and river banks
- The "System of the Cyclopists" along transport corridors and within the system of urban and peri-urban parks
- The "Spine System", green areas created following former railway lines and industrial areas of the semicentral urban area
- The "Urban Park Network", parks and gardens of the urban core area
- The "Urban Tree Network", the city's woodland heritage network distributed across the city
- The "Network of small green neighbourhood areas" for which the city administration is seeking direct involvement of citizen groups.

The purpose of proGIreg implementation in Turin is to address the issues of the Mirafiori district (pertaining to infrastructure, poor urban quality, social and economic issues, and safety concerns) by implementation and testing of NBS through the LL methodology. The outcomes are supposed to contribute to:

- Education in schools;
- Inclusion for disadvantaged social groups (social housing inhabitants; refugees);
- Support to new entrepreneurship and new green jobs;
- Common goods regulation to apply on NBS.

In Turin, the following set of NBS will be realized:

TURIN PROGIREG NATURE-BASED SOLUTIONS

- NBS 2: a 2 000 m² test area “New soil and plant species for urban forestry” in Parco Sangone
- NBS 3: a 8 ha development area for urban farming and gardening involving disadvantaged groups
- NBS 4: a small aquaponics testing installation
- NBS 5: small scale GI interventions
- NBS 6: a new greenway and cycling corridor along Sangone river which is connected to the overall Turin metropolitan cycling network and links ex-industrial private areas with public ones
- NBS 7: New environmental compensation instruments, connected with the environmental assessment and compensation of big events and the realisation of a “green business network”
- NBS 8: Pollinator friendly green spaces

3.2.3. Front Runner City Zagreb (HR)

In this report, the following territorial levels for the city of Zagreb are used, with the first two being also further investigated in the analysis:

1. The **City Level** (641 km²) – divided into 17 districts,
2. The **Living Lab analysis area – District Sesvete** (165.25 km²), bordering on the eastern side with Zagreb and including 36 smaller self-contained settlements.
3. The **Living Lab** of Zagreb, which primarily consists of the former meat processing factory Sljeme (0.128 km²), and a N-S green corridor connecting with the Sava river.

As a community, Sesvete is somewhat traditional and closely-knit. Although with an entrepreneurial mind-set, Sesvete has never developed a clear urban form or clear identity in the past. However, thanks to the activities of a local NGO in recent years it is now developing an increased sense of confidence with people demanding better-connected public spaces and parks, bike lanes, more public facilities and a hub for start-up businesses and culture, to create a new urban identity. These objectives have been articulated in the study “Green and Blue Sesvete” (2016) which proposes the development of a new housing area for more than 20,000 inhabitants on a former industrial site, which will connect the two existing settlements.

The core of the LL will be the 128,000 m² brownfield site of the former meat-processing factory Sljeme that 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 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 “share culture”.

The main objective of the brownfield regeneration program in the Zagreb LL is the creation of new public spaces, and introduce principles of sustainable urban planning. The GI approach must strengthen initiatives regarding urban resilience (low water table, storm water), wellbeing programs (jogging and cycling paths, recreation areas), community activities (urban gardens, green market) and bioclimatic building principles (mitigating city heat islands, natural cooling, green roofs and facades).

As part of the proGIreg LL, in Sesvete the following NBS will be implemented:

ZAGREB PROGIREG NATURE-BASED SOLUTIONS

- NBS 3: developing urban gardens on 10 250 m² for 102 prospective users and additional green areas with 12 500 m² and an educational area next to the HUB building for growing plants used as biomass
- NBS 4: a small aquaponic testing installation on the north side of the existing urban garden for technology transfer from Dortmund. It will be run by City of Zagreb with the partnership of the local community and Faculty of Agronomy. The size of the aquaponic installation will be about 100 m²
- NBS 5: 4 historic buildings of the former Sljeme meat-processing factory will be reused for public facilities and will be equipped with green roofs and/or green walls. Testing locations for this are the roof (700m²) and wall (300m²) of the HUB_S building
- NBS 6: A new cycle path of 850 m length will connect the Sljeme brownfield urban gardens with the neighbourhood of Novi Jelkovec housing 11 000 inhabitants
- NBS 7: New ways of promoting and financing of environmentally important projects will be sought, and procedures will be devised, with the aim to include it in the development strategy and implement it in the legislative process.

3.2.4. Front Runner City Ningbo (CN)

While Ningbo's NBS will be conducted in the LL, a larger area (Analysis Area) around the LL will be investigated in order to assess the impact of NBS more efficiently and accurately. The spatial levels in this report are consequently the following three:

1. The urban level (595.5km^2) is the entire Haishu District of Ningbo, including 17 township streets (see **Figure 72, Annex 1.4**)

1. The analysis area (2.07 km^2) is the entire Moon Lake Street where the Living lab is located. The NBS implemented in the LL will have a direct impact on the analysis area. Moon Lake Street consists of 7 communities, with Jiefang South Road in the east, Changchun Road in the west, Nanyuan Hotel in the south and Zhongshan Road in the north. It is one of the central urban streets of Haitang.

2. The Living Lab (28 ha) is the area where the Moon Lake Park scenic spot is located. It is located in the center of Moon Lake Street, extending from north to south, with a water area of 9ha:

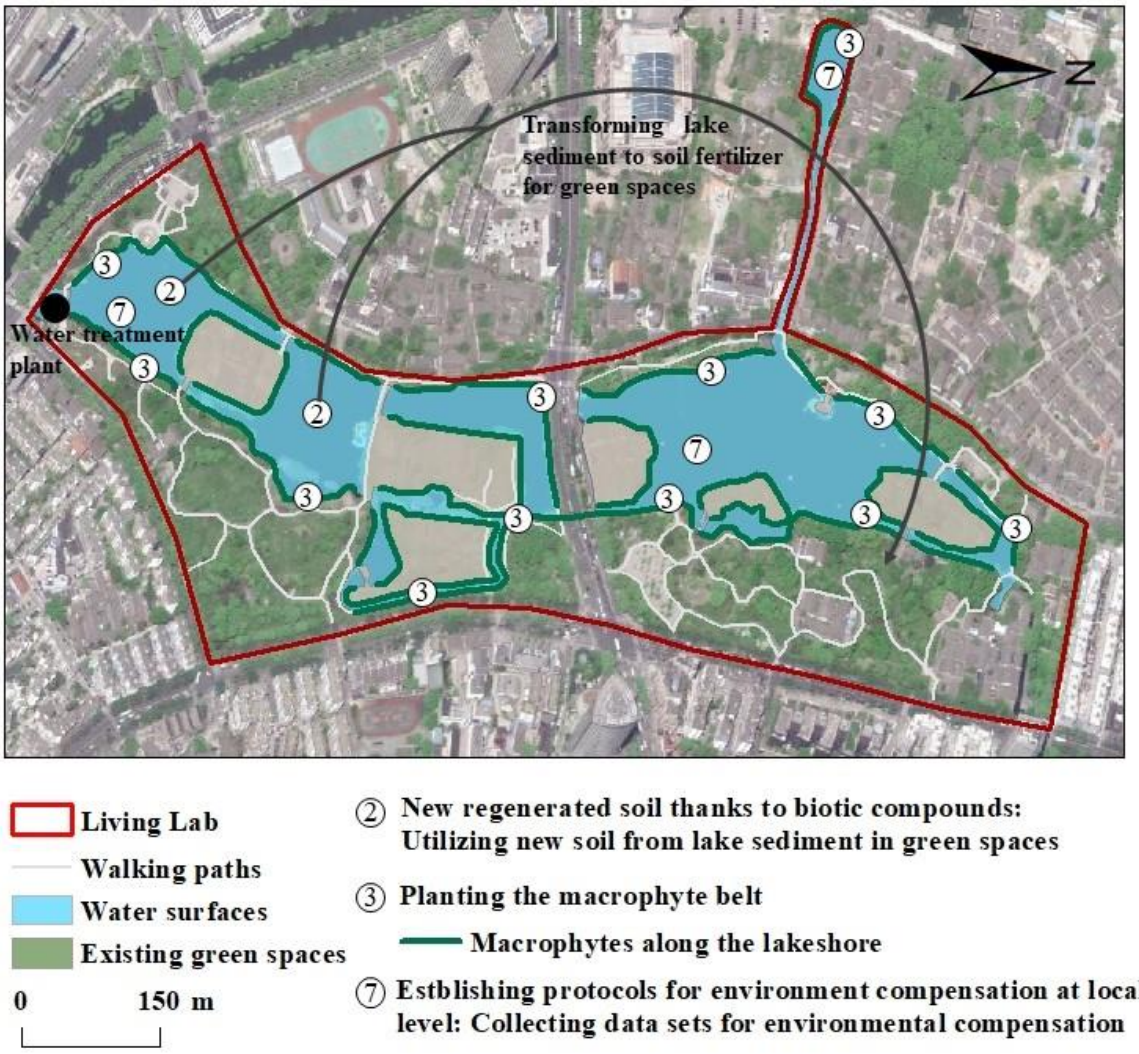


Figure 8 - Living Lab in Ningbo.

In Ningbo, the following set of NBS is envisaged to be realized:

NINGBO PROGIREG NATURE-BASED SOLUTIONS

- *NBS 2: Utilising the fertiliser derived from lake sediment into the soil regeneration in a total area of 20 ha green space located in the central district of Ningbo City* ***(not feasible to implement due to heavy metal concentration in the sediment – see above)***
- NBS 3: Using the emerged macrophytes to re-nature a 5 km corridor surrounding the urban lake which will limit the runoff from non-point pollution sources in urban space;
- NBS 7: Collecting the integrated dataset of meteorological, hydrological, chemical and ecological parameters to develop the data-based quantitative protocols and procedures for environmental compensation.

3.3. Spatial analysis levels. Potential approach for the Urban Regeneration Plan

3.3.1. Follower City Cascais (PT)

In this report, for the ciy of Cascais, the following investigation levels are used:

1. The **City Area** (97 km²) – administratively divided into 4 civil parishes, of which São Domingos de Rana (20.36 km²) in the eastern part, hosting the potential Regeneration Area;

2. The **Regeneration Area**, comprising of part of the localities Tires and Zambujal in São Domingos de Rana (see **Figure 75, annex 1.5**), spanning about 0.42 km².

Regeneration Area Cascais faces challenges posed by areas which are within the GI network, but which are currently not sufficiently valorised through NBS. The lack of appreciation of these spaces results in increased pressure for urbanisation. An operational programme, which values these spaces is an urgent requirement, and one which can be addressed by proGIreg.

In Cascais, the following three NBS are of particular interest and will be pursued in the development of the Urban Regeneration Plan:

CASCAIS POTENTIAL PROGIREG NATURE-BASED SOLUTIONS

- NBS 3: community-based urban gardening and farming on post-industrial sites
- NBS 6: making post-industrial sites and renatured river corridors accessible for local residents
- NBS 8: Pollinator biodiversity improvement activities and citizen science project

3.3.2. Follower City Cluj-Napoca (RO)

For the purpose of this report, the following investigation levels of the metropolitan area of cluj-Napoca are used:

1. The **Metropolitan Area** (1,603 km²) – the level of the ADI;
2. The **Analysis Area** –represents the whole territory of the Municipality (179.5 km²).

For the **Regeneration Areas** – delineated provisionally in Figure 77 (Annex 1.6) - micro-data is unavailable, and specific data will be collected through the co-design process of Task 2.3. An overall assessment leveraging on data from the municipality and existing plans (interpretation of spatial data) was however still possible, for some of the components, albeit statistical data collection at the Regeneration Area was not possible

Strategic interventions for the regeneration areas are planned through an integrated approach in which the municipality's GI provides the backbone for testing new models of urban regeneration using NBS. Developing an integrated municipal system of GI represents an important planning task for Cluj-Napoca, which aims at working towards the conservation, development and connection of existing and planned GI (i.e. a green ecological corridor in the Southern part of the city, integrating the large forests and green spaces and the development of bike routes which interconnect major green areas). Secondly, the vacant and derelict industrial areas are now the subject of future regeneration schemes, aimed towards their redevelopment with the help of new forms of economic activity along the waterfront of Someș River; thus, consolidating it and allowing the connection of the city with its wider metropolitan area via NBS.

In Cluj-Napoca, the following main three NBS are of particular interest and will potentially be pursued in the development of the Urban Regeneration Plan:

CLUJ-NAPOCA POTENTIAL PROGIREG NATURE-BASED SOLUTIONS

- NBS 3: community-based urban gardening and farming on post-industrial sites
- NBS 5: capillary GI on walls and roofs
- NBS 6: making post-industrial sites and renatured river corridors accessible for local residents

3.3.3. Follower City Piraeus (GR)

Piraeus is a very dense but relatively homogenous municipality, and there is currently no data available at sub-municipal level, so the data collection process for the quantitative Spatial Analysis of the city has been realized at municipal level.

The Municipality of Piraeus is divided into administrative sub-units – five city districts (see Figure 78):

- **The A' City District** (2.35 km²) is surrounded mainly by sea, containing a small section of the city centre along the north coast. It is mainly characterised by residential areas (the most affluent ones in Piraeus, along the coast) and small neighbourhood commercial areas;
- **The B' City District** (2.06 km²) comprises of Piraeus' city centre (approx. half of the surface of the district) and concentrates the characteristic administrative, cultural and commercial activities, alongside a residential area.
- The **C' City District** (1.77 km²) is mainly residential with small local neighbourhood commercial areas. The east boundary runs along Kifissos river (ground level) and Kifissos highway (above). The latter has been identified as a **potential site for the Urban Regeneration Plan of Piraeus**.
- The **D' City District** (2.21 km²) comprises residential and small local neighborhood commercial areas, small industrial areas;
- **The E' City District** is the largest district area of the Municipality of Piraeus (2.8 km²). With the exception of the passenger port, located on the south boundary, the remaining district is located on the mainland. The facilities of the former Papastratos industry are located within the district and the area is scheduled for regeneration. The former Dilaveri Clay brick factory is also located within the district, which has been converted into a park where the main features of the industry such as the chimneys and clay brick machine Hoffman oven have been preserved as landmarks and some of the buildings have been allocated new use. The district is mainly residential with small local neighbourhood commercial areas. This district has also been identified as the second **potential site for the Urban Regeneration Plan of Piraeus.**

In the Municipality of Piraeus, the following NBS are of particular interest and will be pursued in the development of the Urban Regeneration Plan, within the areas of District C' and E':

PIRAEUS POTENTIAL PROGIREG NATURE-BASED SOLUTIONS

- NBS 5: capillary GI on walls and roofs
- NBS 6: making post-industrial sites and renatured river corridors accessible for local residents

3.3.4. Follower City Zenica (BA)

Leveraging on the Integrated Development Strategy of Zenica and Regulation Plans, the area of intervention is focusing on the river Bosna banks. As a potential focus area for the regeneration plan, this area inside Kamberovica field has been identified.

In this report, the following investigation levels are used:

1. The **City of Zenica Area** (550.3 km²) – the entire territory of the city, including 83 settled areas, which is also the Analysis Area for what concerns the data collection and SWOT analysis given unavailability of spatial data at lower scales than the city;

2. The **Regeneration Area** (34 hectares) – for which specific data will be collected through the co-design process of Task 2.3 (Urban Planning in Follower Cities).

Kamberovića field occupies 34 ha of land, out of which railroad takes up 2.5 ha, a shopping center with the city Arena occupies 2.36 ha, parking around the shopping center occupies 2.1 ha, parks cover a surface 9.0 ha and finally, outfield courts take up 8.0 ha, with possibility to expand on other 1.9 ha of land. Kamberovića field represents the largest and most central of Zenica's green infrastructure, landscaped as a park with sports facilities, and providing facilities for jogging and cycling paths that partly follow the river line. Therefore, this area is strictly regulated and defined as a protected urban area. However, one side of the river bank is not protected neither renatured or accessible for local residents. The right side of the river needs intervention to allow urban regeneration through construction of cycling and walking paths. The area considered for the Urban Regeneration Plan follows the flow of the river throughout the city (urban area) and it is included in Kamberovića field. The City of Zenica aims, through the actions taken within ProGireg project, to renature river banks inside Kamberovića field. The municipality has also identified two investment locations for which spatial plans have envisioned GI on roofs; one location is in the city center (business-residentual complex) and the other one is a new business zone at the entrance of city.

For the municipality of Zenica, the following NBS are of particular interest and will be pursued in the development of the Urban Regeneration Plan:

ZENICA POTENTIAL PROGIREG NATURE-BASED SOLUTIONS

- NBS 4: aquaponics as soil-less agriculture for polluted sites in proximity of the ArcelorMittal site
- NBS 5: capillary GI on walls and roofs
- NBS 6: making post-industrial sites and renatured river corridors accessible for local residents

3.4. NBS stakeholders in proGIreg cities

Each city has a specific stakeholder landscape and culture of participation. But in order to ensure that NBS and Urban Regeneration Plans are co-produced at local level and reflect the expectations and needs of all relevant stakeholders, their identification is a critical first point, so it is included in the Spatial Analysis.

ProGIreg follows **a quadruple helix-approach** to foster and sustain NBS innovations, in order to ensure the sound scientific grounding of the solutions implemented, the adaptation and fit within the legal frameworks of the FRC and the wider governmental actions, as well as the public acceptance and uptake, economic viability and sustainability. In all stages of the project, four types of stakeholders are of interest to be engaged in the testing of NBS (FRC) and the development of Urban Regeneration Plans (FC): Local government, Academia, Industry and the Civil society.

Defining this stakeholder base at the very beginning of the project allows to have a more comprehensive idea of local priorities and to design more “local rooted” solutions, fostering a high degree of sustainability for the proGIreg actions.

The first step for this cooperation is **identifying the relevant stakeholders** from each of the quadruple helix domains to support FRC and FC with a basis for their participatory processes. In the next steps, FRC (Task 2.2) and FC (Task 2.3) will refine this information and will analyse and engage the stakeholders in co-design activities.

Figure 9 | proGireg quadruple helix approach. Source: ICLEI

Based on the categorization included in the Methodology (D.2.1), the following stakeholder lists have been compiled cooperatively by the partner groups involved in the implementation of each FRC LL and each FC Urban Regeneration Plan (with the exception of Cascais Ambiente, who is the sole representative of FC Cascais in the partnership). This initial list will serve as the starting point for involving key stakeholders in the co-design (Task 2.2) and subsequent co-creation steps (e.g. WP3, WP4). Over the course of the project, this list will be extended and updated as needed.

3.4.1. Stakeholder overview for Dortmund

The stakeholder overview has been compiled from the individual stakeholder lists per NBS type, and illustrates the wide variety of local actors to be included in the proGIreg NBS implementation processes in Dortmund.

Each NBS type has a specific internal stakeholder base, but will be led either by the municipality or by the university partners, with the exception of NBS 4 to be led by the NGO die Urbanisten together with two SMEs (Hei-tro Gmbh and aquaponik manufaktur GmbH) as is illustrated below:

INTERNAL STAKEHOLDERS INVOLVED IN THE NBS IMPLEMENTATION

- NBS 1: City of Dortmund, Department of Urban Renewal
- NBS 3: University of Applied Sciences, Soest (FH Soest)
- NBS 4: Urbanisten; also Hei-tro and FH Soest
- NBS 6: City of Dortmund, Department of City Renewal
- NBS 8: University of Applied Sciences, Soest

Overview of primary stakeholders – All NBS

Role	Type	Name
Users / Beneficiaries	**Citizens**	Inhabitants of Huckarde using the Deusenberg for leisure activities (NBS 1) Citizens involved in planning / implementing / running food forest/ permaculture orchard (NBS 3) Residents of Huckarde resp. Dortmund, refugees, long-term unemployed people (NBS4)
	Civil society associations/ multipliers	Nature conservation associations/ organizations (BUND, NABU, etc.) – NBS 3, 4, 8 Lernort Bauernhof, Stadt und Land NRW, Aufbruch am Arrenberg e.V., QueerBeet Hörde, (NBS 3, 4) KITZ.do (NBS 3, 4, 8)
	SMEs	Aquaponik Manufaktur (NBS 4) Werkhof Projekt gGmbH (NBS 4) Grünbau (long-term unemployed persons) – NBS 8
	Academia	University of Applied Sciences South-Westphalia (NBS 4)
Governance	**City of Dortmund**	Department of Urban Planning and Building Regulation (StA 61) – NBS 1, 3, 4, 6 Department of Urban Renewal (StA 67) – NBS 1, 3, 4, 6

		Department of Youth Welfare (StA 51) – NBS 1 nordwärts (StA 1) Department of Public Order (Veterinary, StA 32/2) – NBS 4, 6 Department of the Environment (StA 60) – NBS 8 Department of Civil Engineering (StA 66) – NBS 6 International Garden Exhibition Ruhr 2027: planning committee (all NBS)
	Local politicians	District mayor Local policy parties' representatives (All NBS)
Providers	**Owners of land**	EDG – Entsorgung Dortmund GmbH– owner of landfill (NBS 1, 6) Not known yet (NBS 3, 4) Thelen Holding GmbH Stiftung Industriedenkmalpflege und Geschichtskultur RAG Montan Immobilien (NBS 4)
	Service provider / industry representatives / SMEs	NBS 1: Owner and operator of solar factory - Entegro NBS 3: Possible start-ups, companies up-/downstream value chain (e.g. -plant providers and nurseries, processing fruits/ products, etc.), Lernbauernhof Schulte-Tigges, Werkhof Projekt gGmbH NBS 4: Building contractor DSW21 (water, energy, internet supplier) Companies up-/ downstream value chain Exner Grüne Technik GmbH Ratz Aqua & Polymertechnik GmbH & Co.KG Fischgut Ulrich Schulte Fischgut primus NBS 8: Pollinator service provider, APM, Werkhof Projekt GmbH
Influencers	**Civil society associations/ multipliers**	UmweltKulturPark Dortmund (NBS 3) IHV Interessensverein Huckarder Vereine (NBS 3, 4) Westfälische Almetalbahn (WAB) e.V. (NBS 3, 4) Huckarder Pfadfinderkreis e.V. (NBS 3, 4) SJD Die Falken (NBS 3, 4) Gartenverein Glückauf Hansa (NBS 4) Huckarde für Huckarde e.V. (NBS 3, 4) Dortmunder Netzwerk Geflüchtete (NBS 3, 4) Lokal Willkommen (NBS 3, 4) Citizens forum (NBS 3, 4) Educational institutions, Huckarde kindergartens and schools[1] (NBS 3, 4, 8) Kokerei Hansa (educational programmes for kids/teenagers), Bee keeping associations,

[1] Kindertagesstätte Abenteuerland, Katholischer Kindergarten Sankt Josef, Gustav-Heinemann-Gesamtschule, Geschwister-Scholl-Gesamtschule, Hansa Grundschule, Urbanusgrundschule, Grafenschule, Gemeinschaftliche Widey-Schule, Westricher Schule as well as other schools of surrounding settlements

	Deconcentrated institutions / initiatives	stakeholders involved in the EU COST-Action proposal „Urban Food Forests“ (submitted) – NBS3 Actors involved in the CoproGrün Project (NBS 8) The international trade fair for plants - IPM Conference, Essen (each January) – NBS3

Overview of secondary stakeholders

Role	Type	Name
Users/ Beneficiaries	**Civil society associations** **Citizens in general**	ADFC Dortmund – NBS 1 VeloCityRuhr – NBS 1 Citizens of Huckarde – General (NBS 6)
Governance	**-**	-
Providers	**Civil Society**	Förderverein Permakultur Dortmund e.V. – NBS 3 Permakulturverein Dortmund – NBS 3 ADFC Dortmund – NBS 6 Kreisimkerverein Dortmund – NBS 8 Imker Familie Lückemann – NBS 8 Imkerverein Castrop-Rauxel – NBS 8 Imkerverein Dortmund-Hörde – NBS 8 Bio-Imkerei Vera und Hartmut Thiel – NBS 8 Menschen an der Emscher e.V. – NBS 6
Influencers	**Institutions and government agencies**	Wald und Holz NRW – NBS 3
	Media and press	For all NBS 3, 4, 8: RuhrNachrichten, Westfälische Rundschau WDR FarbFilmFreun.de GmbH Co.KG Radionrw, Radio 91,2, ElDoRadio Wochenkurier Coolibri Heinz-Magazin Bodo Westanzeiger Dortmund Cityanzeiger Dortmund Ruhr-guide Revier-magazin.de Nordstadtblogger.de Urbanisten Blog

		blog www.speiseraeume.de Facebook, Instagram

3.4.2. Stakeholder overview for Turin

The Turin Living Lab will be implemented in a formerly-industrial neighborhood at the Southern periphery of the city (Mirafiori Sud district), currently characterised by social, economic and built urban environment challenges which strongly orient actions towards the need to regenerate, secure and integrate spaces and communities.

Thus, the internal stakeholders within proGIreg consists of the collaboration between the municipality and the local universities (Università degli Studi Di Torino, Politecnico di Torino), citizen associations and NGOs already working in the area (MIRAFIORI, ORTIALTI), SMEs and industry (DUAL, ENVIPARK). FRC Turin represent civil society actors – associations of parents, NGOs protecting the interests of vulnerable groups (the homeless, Roma, Sinti, asylum seekers).

INTERNAL STAKEHOLDERS INVOLVED IN THE NBS IMPLEMENTATION

- COTO – Comune di Torino
- UNITO – Università degli Studi Di Torino
- POLITO – Politecnico di Torino
- MIRAFIORI – Fondazione della comunità di Mirafiori
- ENVIPARK – Parco Scientifico E Technologico Per L'Ambiente – Environment Park SPA
- DUAL s.r.l.
- Orti Alti

Overview of primary stakeholders

Role	Type	Name
Users / beneficiaries	**Civil society**	social housing residents
	Education	Istituto Comprensivo Cairoli (Comprehensive School “A. Cairoli”) Istituto Comprensivo Salvemini (Comprehensive School “Salvemini”)
	Civil society	Associazione genitori Cairoli (Parents association)
		Associazione Genitori Castello di Mirafiori (Parents association)

		Association for homeless men - Coop. Stranidea / Serivizio Adulti in difficoltà, Comune di Torino
		Association for homeless women - Coop. Animazione Valdocco / Serivizio Adulti in difficoltà, Comune di Torino
		Association for migrants - Coop. Progetto Tenda on the behalf of Consorzio Kairos / Ufficio Stranieri Comune di Torino
		Associazione CEPIM – Torino (Center for persons with Down Syndrome)
Governance	**Local organisations**	Comitato Borgata Mirafiori (Township committee)
	District government	Circoscrizione 2 (2nd Neighbourhood)
	City administration and agencies	Città di Torino - Servizio Verde pubblico (Green spaces public service) Città di Torino - Servizio Grandi Opere del Verde (Large green infrastructure public service)
		The Metropolitan Green Agency - future unique reference point for institutions, citizens and visitors in relation to the green dimension.
	Environmental protection	ARPA Piemonte (Regional Environmental Protection Agency)
	Local health authority	ASL Città di Torino (Local Health Authority)
Providers	**Social Housing agency**	ATC (Territorial Agency for Housing)
Influencers	**Network of associations**	Mirafiori Social Green
	Enterprises and industry	TNE, FCA
	Non-profit projects	Essere anziani a Mirafiori Sud (NGO “Being elderly in Mirafiori Sud”)”), Casa Farinelli

Overview of secondary stakeholders

Role	Type	Name
Governance	**Local administration**	servizi sociali ex circoscrizione 10 (10th Circumscription Social Services)
Secondary / beneficiaries	**Local health provider**	Asl Città di Torino – Neuropsichiatria (Local Health Authority – Neuropsychiatric)
		Asl Città di Torino - Servizio dipendenze (Local Health Authority – dependencies service)
	Education	IIS Primo Levi
		ENGIM San Luca
	Civil society organisation	"+1 nel mondo"
		Benvenuti in Italia
		Casa del Mondo
	Civil society	Daycare Centers for Elderly: Centro Anziani Via Candiolo, Centro Anziani Via Morandi
	Civil society: shop owners' associations	UNIONE MIRAFLORES
		VIA PLAVA e VIE LIMITROFE
		A.MI.CO. 10
		A.COM.ART
Governance	**Metropolitan area administration**	Città Metropolitana di Torino
	Regional administration	Regione Piemonte

Providers (Services and Data)	**Cleansing department**	Amiat
	Integrated water services	SMAT
	Research institution	Inrim – Istituto Nazionale di Ricerca Metrologica
Potential secondary influencers	**Non-profit organisations and trade associations**	OrMe - Orti Metropolitani Torinesi
		Associazione Italiana Persone Senza Dimora / homeless people Italian Association
		Coldiretti
		I passi
		cpg strada delle cacce
		Mirafleming
	Church communities	Santi Apostoli, San Luca, Beati Parroci, San Barnaba

3.4.3. Stakeholder overview for Zagreb

The Zagreb LL has also been shaped as a quadruple helix, comprising of the City of Zagreb and the Bureau of Physical Planning (public authority), the University of Zagreb (academia), “Green and Blue Sesvete” Association/ZIPS (NGO), and an SME which will explore business models for promoting and upscaling the NBS (Komfor Klima Gruppa d.o.o.):

INTERNAL STAKEHOLDERS INVOLVED IN THE NBS IMPLEMENTATION

- ZAGREB – Municipality of Zagreb (involved in all NBS)
- AF Zagreb – University of Zagreb
- ZZPUGZ – City of Zagreb Bureau for Physical Planning (Involved in NBS 7)
- ZIPS – Udruga Zelene i Plave Sesvete (NGO) (Involved in NBS 3)
- KKG – Komfor Klima Grupa d.o.o. (Involved in NBS 4, 5)

Given the challenges of the Sesvete area and the LL in terms of lack of amenities and of a common identity in spite of a very young population, accessibility and urban quality issues, the key stakeholders identified represent mainly the civil society (social inclusion and entrepreneurship), as well as education stakeholders and service providers.

Overview of primary stakeholders

Role	Type	Name
Users / beneficiaries	**Civil society**	NGO NOVI JELKOVEC -The residents of Novi Jelkovec
		NGO Bosnian Roma Association - Roma people in the Sesvete area
		ISKRA NGO– Social entrepreneurship and new technologies
		KRILA NGO– Therapy horseback riding
	Education	SESVETE Gymnasium
		SESVETE technical school
		Music school
		People's University of Sesvete
		Zagreb Polytechnics
		Faculty of Agriculture
	SME	Tokić d.o.o car dealer
Governance	**Local government unit**	SESVETE District Council
		CENTAR Local Committee
		SESVETSKA SOPNICA Local Committee
		NOVI JELKOVEC Local Committee

Providers	**Public amenities**	Museum of Prigorje
Influencers	**Local prominent figures**	Ivan Miličević – local athlete

Overview of secondary stakeholders

Role	Type	Name
Users / beneficiaries	**Education**	The Faculty of Agriculture
		elementary schools
		Faculty of Kinesiology
	Civil society	the Lipa Mountaineering Association
		local sports clubs
	SME	the iGrow Indoor Gardening Shop
Governance	**Representation institutions**	Crafts Chamber
Providers	**Public service providers**	Libraries of the City of Zagreb
		National Hydrometeorological Institute
		Social Welfare Center of Zagreb, Sesvete Branch
		the Sesvete Parish

3.4.4. Stakeholder overview for Ningbo

The Ningbo LL represents the entire Moon Lake Park, while the Analysis Area is the ca. 2 km^2 cultural and historic district surrounding the park. Internal stakeholders are project partners involved in the construction of NBS types in Moon Lake Park.

INTERNAL STAKEHOLDERS INVOLVED IN THE NBS IMPLEMENTATION

- FBNC – Ningbo Municipal Center for Forestry Science & Technology Services (involved in NBS2 and 3)
- IUE-CAS – Institute of Urban Environment, Chinese Academy of Sciences (involved in NBS 7)

Overview of primary stakeholders

Role	Type	Name
Users / beneficiaries	**Citizens**	Residents of Moon Lake Street who are engaged in leisure activities in Moon Lake Park
		Citizens participating in the green maintenance of Moon Lake
	Civil society	Cultural relics protection agency
	Education	Ningbo No.2 High School
	Companies	Ningbo Yinhai Electronic Technology Co., Ltd. Tianhe Aquatic Ecosystems Engineering Co.Ltd
	Local economy	Hotels, restaurants, shops in Moon Lake Street
Governance	**Haishu, Ningbo**	Haishu District Development and Reform Commission
		Ningbo Municipal Bureau of Natural Resources and Planning, Haishu Branch
		Ningbo Tianyige museum & Moon Lake Scenic Area Management Committee

		Haishu District Collection Office (District Key Project Construction Headquarters)
	Local politicians	Head of Haishu District
		Work Committee of Moon Lake Street
Providers	**Owner of land**	Government of Haishu District
	Service providers	Moon Lake Park Recreation and Leisure Facilities Provider
	Industry representatives / SMEs	Ningbo Chenyu Construction Engineering Technology Co., Ltd. Ningbo Huanhu Construction Co., Ltd. Ningbo Yinhai Electronic Technology Co., Ltd. Tianhe Aquatic Ecosystems Engineering Co.Ltd
	Research and academia	Zhejiang Chemical Engineering Geological Investigation Institute
Influencers	**Civil society associations/ multipliers**	Quanjinglian Ningbo Real Estate Innovation Club
	Deconcentra-ted institutions / initiatives	Peak Forum on Engineering Technologies of Urban Green Space Construction and Ecological Restoration and greening in Urban Challenging Sites

Overview of secondary stakeholders

Role	Type	Name
Users / beneficiaries	**Citizens**	Residents of Haishu and Ningbo
	Civil society associations / multipliers	Ningbo Association of Environmental Protection Industry
Governance	**Ningbo**	Government of Ningbo

Providers	**Civil society**	Shared bicycle platform
Influencers	**Institutions and government agencies**	Haishu District Housing and Urban-Rural Development Bureau
	Media and press	Ningbo Daily Sina Ningbo Haishu News TV Haishu News Radio Haishu Newspaper

3.4.5. Stakeholder overview for Cascais

The Cascais Urban Regeneration Plan will be coordinated by **Cascais Ambiente** as the main project partner. Cascais Ambiente is the Environmental Municipal Enterprise responsible for waste collection and also for municipal management of urban greenspace, natural spaces, and the coastline, as well as environmental education and awareness.

For the purpose of better framing the Urban Regeneration planning process, Cascais Ambiente has identified and will involve the following key actors at local level:

Overview of primary stakeholders

Role	Type	Name
Users / beneficiaries	**Civil society**	Residents
Governance	**Policy makers and politicians**	São Domingos de Rana Parish Cascais Municipality
Providers	**Public service providers**	Cascais Municipality Social intervention office (Gabinete + Perto) that develops activities with the residents, and gives them training and support for several social issues Private land owners

Influencers	**Civil society organisations**	Local association ARESC - Association for social and educational responses, in charge of the local FEBA (Food Bank) and educational and social support activities (http://www.aresc.pt/publico/)

Overview of secondary stakeholders

Role	Type	Name
Influencers	**Civil society organisations**	**IDEIA** - O Nosso sonho –is a cooperative for social solidarity and education, from Tires. **http://onossosonho.pt/wp/** **Scouts** – New headquarters in the Regeneration Area, 597 from Tires, catholic scouts from the CNE. Centro Comunitário de Tires – **Tires community center**, a catholic organization serving the local community. **http://www.cctires.org/**

Beyond these stakeholders, additional programmes and actors have been identified which could be involved in Task 2.3:

- **FACTOR C** Local Development Program Community was created to tackle the strong economic and social asymmetries between the coastal and rural areas in the municipality. The interior parishes of S. Domingos de Rana and Alcabideche are recognized as poorer and need investment for regeneration, and FACTOR C provides investment funds to support entrepreneurship and new jobs.
- **Local Health Academy** (Academia da Saúde): raised from the participatory budget, is a local office promoting health, information, challenges, lifestyle, connected to Cascais municipality services.
- **Agency DNA Cascais**: is a non-profit organization for Cascais, an Entrepreneurial Municipality. DNA Cascais's aim is to contribute especially to the promotion of social and young entrepreneurship in Cascais.

3.4.6. Stakeholder overview for Cluj Metropolitan Area

The Cluj-Napoca FC planning process will be coordinated by the **Cluj Metropolitan Area Intercommunity Development Association** and **Urbasofia,** as the main project partners involved in proGIreg:

INTERNAL STAKEHOLDERS INVOLVED IN CREATING THE URBAN REGENERATION PLAN:

- **Cluj Metropolitan Area Intercommunity Development Association:** partnership structure comprising of the municipality of Cluj-Napoca, second largest city in Romania, and 18 administrative-territorial units (communes) from its immediate vicinity. The General Assembly structure is composed of the mayors (elected local representatives) and local councillors of each of the previously mentioned administrative areas. The president of the Association is the Mayor of Cluj-Napoca.
- **URBASOFIA** is a town and regional planning company specialized in managing complex planning processes and EU projects, conducting high-level academic research around integrated, participatory, realistic and smart-oriented solutions to pressing urban problems, both socio-economic as well as environmental. Urbasofia have developed the Integrated Development Strategy for the Cluj Metropolitan Area (2015-2030).

Within proGIreg, Cluj-Napoca tackles challenges related to the re-consideration of post-industrial heritage, as well as the blue-green Somes corridor. As such, it aims at reconciling vacant and underused spaces with the needs of the local citizens and the ever-increasing local initiatives (cultural, artistic and creative industries). Preliminarily, the stakeholder group to be involved within the co-design activities of Task 2.3 comprises of universities, policy makers and professional associations, environmental institutions and service providers, as well as local industry, SME, start-up and cultural / activist associations for the environment.

Overview of primary stakeholders

Role	Type	Name
Users / beneficiaries	**Civil society**	Residents
	Academia	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (UASMV) Technical University Cluj-Napoca Babeș-Bolyai University (UBB) Cluj-Napoca
Governance	**Policy makers and politicians**	Cluj-Napoca Municipality Cluj County Council North-West Regional Development Agency of Romania Urbanists Register Romania

	Local and upper-scale institutions	Architects' Order Romania, N-W Regional Branch APM Cluj Divizia de Inovare CCC APM Cluj ROMSILVA CIIC
Providers	**Public service providers**	Compania de Apa Somes SA Administrația Bazinală Someș Tisa Potentially: CFR Călători and CFR Infrastructură
	Industry and SMEs	Cluj IT Cluster Consiliul Consultativ pentru Antreprenoriat si Inovare in IT Cluj Transylvania Energy Cluster-TREC ARIES - Romanian Association for Electronic Industry and Software
Influencers	**local organisations**	Local activists Iniative Groups Parcul Est Somes Delivery Urbannect

Secondary stakeholders

Secondary stakeholders will be identified during the preparatory phase to the Task 2.3, and will mainly comprise of organisations and non-profits (NGOs – eg. Visit Cluj, Grupul Pont), but also potentially new stakeholders or initiatives.

3.4.7. Stakeholder overview for Piraeus

On behalf of the FC Piraeus, the following organisations are involved as direct partners in Task 2.3 activities:

INTERNAL STAKEHOLDERS INVOLVED IN CREATING THE URBAN REGENERATION PLAN:

- **Municipality of Piraeus:** to be addressed are Directorates of the Municipality of Piraeus such as the Directorate of Environment and Green, Directorate of Architectural and other Technical Works, Directorate of Building Services and Urban Design, Directorate of Roads and Sewerage and the Directorate of Municipal Property and Cadastre
- **KEAN - Cell of Alternative Youth Activities**: an NGO founded in 2004 in Athens, Greece. It constitutes an Open, Social Youth Community that promotes universal values, such as peace, human progress and well-being and the protection of our environment. The main objective of KEAN is to design and implement activities for improving quality of life while protecting the environment, including the promotion of environmental education and ICT (Integrated Computer Technologies), and youth mobility and education.

As envisioned by the FC, primary Stakeholders constitute public and private high-level stakeholders that would participate in a stakeholder workshop, to communicate and discuss the proposed regeneration plan of post-industrial urban areas within Piraeus and invite their engagement.

Overview of primary stakeholders

Role	Type	Name
Users / beneficiaries	**Academia / Education**	Piraeus University of Applied Sciences (Technological Education Institute of Piraeus) University of Piraeus Agricultural University of Athens (AUA)
Governance	**Local and Regional Administration**	Attica Region Forest Service-Piraeus Branch Ministry of Culture and Sports Ministry of Culture and Sports Ministry of Environment, Energy and Climate Change Ministry of Tourism Decentralized Administration of Attica
Providers	**Public service providers**	Environmental Association of Municipalities of Athens and Piraeus – PESYDAP

	Associations and interest groups	Hellenic ICOMOS Hellenic Ornithological Society Hellenic Society for the Protection of Nature (HSPN) Institute of Geology and Mineral Exploration (IGME) Panhellenic Association of Landscape Architects (PHALA) WWF Greece
Influencers	**Local organisations**	Green Fund, 2018 Greek National Tourism Organisation (GNTO) Hellenic Chamber of Hotels KEAN - Cell of Alternative Youth Activities Piraeus Bank S.A. Piraeus Chamber of Commerce and Industry (PCCI) Piraeus Port Authority S.A. (PPA) SEV - Hellenic Federation of Enterprises

Overview of secondary stakeholders

The owners of private or public property (residential, commercial, industrial, post-industrial, land) as well as the lay public constitute the secondary stakeholders and may affect or even define the success and/or failure of future regeneration plans of post-industrial urban areas within Piraeus. Secondary stakeholders would participate in thematic focus group sessions and engagement activities to investigate their perceptions and attitudes or determine their responses to particular proposals for the regeneration of post-industrial urban areas within Piraeus.

Role	**Type**	**Name**
Users / beneficiaries	**Civil society and the citizens**	**Owners of private or public property (residential, commercial, industrial, post-industrial, land)** **lay public**

3.4.8. Stakeholder overview for Zenica

The Zenica FC planning process will be coordinated by the **Municipality (COZ) and ZEDA,** as the main project partners involved in proGIreg:

INTERNAL STAKEHOLDERS INVOLVED IN CREATING THE URBAN REGENERATION PLAN:

- COZ: City of Zenica
- ZEDA: Zenica rezvojna agencija, a non-profit organization owned by the City. The Agency's mission is to contribute, using every adequate means, to the promotion, incentive and development of entrepreneurship in general, especially focusing on the promotion of social and young entrepreneurship in Zenica. Agency ZEDA acts mainly by developing skills and knowledge, and promoting and stimulating creativity and innovation, in an entrepreneurial environment as a start-up incubator
- Public utility company for spatial planning and urban development of City of Zenica.

In this phase, FC Zenica has identified the core group of local organisations which will be part of the Urban Regeneration planning process. Given the particular challenges to transforming brownfields into productive green areas, this group relies on the presence of upper-level authorities, universities, utility providers, but also the support of NGOs and – potentially – other public and private organisations, to be identified closer to the actual execution of Task 2.3:

Overview of primary stakeholders

Role	Type	Name
Users/ beneficiaries	**Civil Society**	Eko forum NGO Forum Građana Zenica NGO
	Academia	Faculty of Mechanical Engineering
	Providers	Alba Ltd (utility company)
Governance	**Administration**	Zenica-Doboj Canton – cantonal level Federal Governance – entity level
Providers	**Spatial planning**	Public company for spatial planning
Influencers	**Local organisations**	Local organisations will be identified at a later stage

3.5. Conclusions of the analysis scale, basic information and stakeholder landscape in proGIreg

In order to define an appropriate analysis scale, analyses of the FRC have been conducted at two different levels: city level and the LL Analysis Area level. The approach used for the three European FRC was to test NBS in post-industrial neighbourhoods (Huckarde, Mirafiori, Sesvete) occupying several square meters, in the light of socio-economic challenges for which NBS can make a strong case towards supporting renewal and redevelopment. This main purpose is evident from the common choices that have been made by all the three European FRCs, respectively NBS 4 "*Acquaponics as soil-less agriculture for polluted sites*" ad NBS 6 "*Improving accessibility to post-industrial sites and renatured river corridors for local residents*". FRC Ningbo follows a completely different approach, aiming to continue its NBS projects in the Moon Lake Park, a cultural and historic landmark in the heart of the city and strong identity element of Ningbo, with a heritage conservation status and a high relevance not only to the inhabitants of the Moon Lake Street (sub-district of Haishu comprised of 7 local „communities" and representing the Analysis Area) but also the whole city. What could be interesting to remark is the fact that all of the FRCs have chosen to improve NBS 3 "C*ommunity-based urban farming and gardening*", highlighting the will of basing their proGIreg path on a strong community participation.

The approach differs for follower cities. FC Cascais identified a peripheral neighbourhood of the city, similar to FC Piraeus, who provisionally delineated two such areas in the Western and Eastern sides of the city. FC Zenica and Cluj both opted to select areas on the courses of rivers (Bosna and Somes respectively). While the first one has narrowed the potential Urban Regeneration Plan area to a 0.43 km^2 in the heart of the city, the latter has the ambition of including the entire main development axis of the city (along the Somes River and railway) within the activities of Task 2.3. This heterogeneity represents an opportunity to test the proGIreg NBS in very diverse settings, at diverse scales, and to validate them in multiple replicable contexts. Moreover, the selection of NBS in FC resulted in an interesting clustering of the cities' preferences with two cities opting for NBS 3 "*Community-based urban gardening and farming on post-industrial sites*" (Cascais, Cluj-Napoca), three for NBS 5 "*Capillary GI on walls and roofs*" (Cluj-Napoca, Piraeus, Zenica), and all four for NBS 6 "*Making post-industrial sites and renatured river corridors accessible for local residents*". NBS 7 "*Establishing protocols and procedures for environmental compensation at local level*" despite representing a zero-cost measure and even a way to facilitate further implementation of investments foreseen in the Urban Regeneration Plans, it was not selected by any of the FCs. While this is, to a degree, corroborated with the local situations (e.g., areas with highest potential have been identified along river corridors), it can point to a still immature, or incipient understanding of the potential of proGIreg NBS, and their opportunities for the local areas.

The stakeholder identification process identified primary and secondary stakeholders accurately in the four FRC, corresponding to the proGIreg quadruple helix approach by incorporating local governments, citizens and NGOs, SMEs, and academia as active partners of the NBS piloting. This forms the basis of involving key internal and external stakeholders in the co-design process (WP2, Task 2.2), to the implementation (WP3) in the Dortmund, Turin and Zagreb LLs and support the evaluation phase (WP4), either directly (local governments), or indirectly (other local partners). Since Ningbo has already implemented the lake restoration measures with a limited stakeholder involvement, proGIreg faces the challenge to involve a broader stakeholder community in the co-design (Task 2.2) and monitoring process (WP4).

Administration and decision-making actors have been identified across the board as key stakeholders, along with academia and NGOs, specifically those supporting social causes and social inclusion. A more diverse approach has been taken with respect to businesses and SMEs, with Dortmund

leveraging on the existence of enterprises within the NBS value chain more than the other two cities. Furthermore, Ningbo offers a complementary image of the governance structure for the Moon Lake LL, identifying not only multiple governmental key actors, but due to the importance and positioning of the LL, an ample number of users and beneficiaries, ranging from citizens to hotels and shops in the area. Generally, all FRC have included representatives from each of the quadruple helix sectors in their local LL stakeholder list, ensuring a holistic and inclusive implementation of the project.

In **Dortmund**, the project actions subscribe to a long-term ambition at Metropolitan level to recover, valorise and green post-industrial areas, and to further develop the Emscher Landschaftspark GI, and as such leverage on existing stakeholder configurations which have been already activated; including liaising with other existing projects (e.g. COST actions). Thus, proGIreg benefits from a well-consolidated GI development framework through the partner's extensive network of service providers, businesses, start-ups and SMEs that fit with the different NBS value chains. LL implementation will take place on private ownership plots.

Within **Turin's Mirafiori district**, the LL actions respond to specific local needs of the citizens, most prominently to provide green urban commons and use the NBS as tools for enhancing social cohesion, inclusion and entrepreneurship. Hence, Turin can leverage on already well-connected social NGOs and associations familiar with the needs of the larger beneficiary base at local level.

Zagreb's Sesvete district is confronted with the challenges of a strongly growing peripheral community, young, dynamic but lacking access to amenities, quality GI and generally missing a common identity. Here, proGIreg NBS should act as a catalyst for a new community and foster local rooting and a sense of ownership of Sesvete. The choice of the main stakeholders that has been made (particularly actors supporting inclusion and social entrepreneurship) reflect this challenge.

The Moon Lake Park of Haishu, Ningbo represents proGIreg LL, but is also the local symbol of Ningbo, the center of Moon Lake Historical and Cultural Street. Because of its status as a flagship green and blue infrastructure, proGIreg will draw interest beyond the project partners, namely residents, entertainment and leisure facility providers and SMEs active in the area and the scenic area management department. Furthermore, the LL actions in the Moon Lake Park will be supported by all the Ningbo government agencies. The challenge will be thus not one of drawing or involving attention and interest, but rather of articulating many perspectives and needs, and balancing intervention with cultural and historic heritage. As such, the stakeholder identification process in Ningbo has been focused on identifying all the potential primary and secondary users, beneficiaries, providers and possible influencers to this complex process.

All cities have provided evidence of a multi-stakeholder landscape for the governance of future NBS actions. In general, the identification of local actors indicates a complex network of public and private organisations, in line with the NBS selected either for piloting (FRC), or for the development of the Urban Regeneration Plans (FC). The different approaches between FRC can be linked to the local development context. For example, previous experiences in Dortmund/Huckarde and Public-Private Partnership (PPP) collaboration have identified private stakeholders as key, while the socio-economic challenges in Turin's LL area resulted in highlights the key role of public actors and NGOs of social inclusion and innovation.

Effectively managing the diverse stakeholder constellations from multiple backgrounds, and to integrate their competencies and fields of expertise within the NBS co-design and implementation processes will be one of the project's challenges. Despite the FRC effort to identify the respective urban planning, green spaces, social services and other departments / municipal services of relevance within the local government, the NBS co-design now needs to manage the process to involve the diverse stakeholder base concomitantly in a unified dialogue. Therefore, it is important to allot

sufficient time, effort and resources to create an operational governance context, given the transversal nature of productive NBS and their ability to produce visible change in a very wide array of domains (e.g. land use, water management, employment, social welfare, health, air quality, all subscribing to the four key assessment domains).

In the FC, the stakeholder identification process is still incipient. It will require an in-depth overview and refinement of key stakeholder groups and actors as the cities observe progress of LL and NBS implementation in the FRC. For creating viable, sustainable and shared Urban Regeneration Plans (Task 2.3), the FC need to involve a broad constellation of stakeholders within the co-design processes, leveraging on local knowledge and capacities of both public and private actors from different backgrounds in line with the NBS. Thorough engagement is needed, because beyond simple contributions (data, information, approval or disproval of proposals), the Regeneration Plans need to ensure large-scale ownership, public acceptance and local rooting for successful implementations. Hence, the FC are advised to start building on existing relationships and groups in their cities by involving well-established local associations (e.g. homeowners in the Urban Regeneration Plan area) which can further disseminate the project proceedings and collect citizens feedback of their requirements. Some FC, such as Piraeus and Zenica, have not yet identified the latter as key stakeholders, but citizens are the ultimate beneficiaries of the Urban Regeneration Plans' future implementation.

The stakeholder identification carried out in Task 2.1 is a first step for future stakeholder involvement. Co-creation and co-ownership of NBS are a core aim of proGIreg, which will strongly depend on participation and cooperation in NBS planning and implementation. Further stakeholder analyses and mapping will be developed in FRC in Task 2.2 (Co-design processes in Front Runner Cities), and in FC in Task 2.3 (Urban Planning in Follower Cities), also strongly feeding into the co-implementation phases of WP3.

4. Spatial data and indicators in proGIreg cities

4.1. The spatial data framework

In order to assess NBS benefits in FRC against a baseline, the Spatial Analysis Methodology (D2.1) provides a list of analysis subdomains and spatial datasets for each of the four key assessment domains of proGIreg: socio-cultural inclusiveness, human health and wellbeing, ecological and environmental restoration and finally economy and labour market.

This dataset relies solely on existing data from European, national, regional or local databases of FRC and FC, and in FRC will be further completed with quantitative and qualitative data collected through the tasks of WP4. Statistical spatial data from the initial list delivered through the Methodology for Spatial Analysis relied on previous work carried out through the Horizon 2020 „EKLIPSE" Project (http://www.eklipse-mechanism.eu), and „CITYKEYS" Project (http://citykeys-project.eu). As most of the information within the two frameworks are key performance indicators aimed at assessing impacts of certain actions or projects, for the purpose of D2.2 and its contribution towards the proGIreg analysis baseline, those process indicators have been transformed into (initial) state indicators, as described in the D2.1.

The final list represents an integration between data requirements of both WP2 and WP4, and has been applied to both FRC as well as FC at two spatial scales, if applicable. As such, some differentiations have been made marked individually in the spatial data list based on:

1) The scale at which information is required (City scale and / or LL area (FRC) / Urban Regeneration Plan area (FC)),

2) Whether the information is mandatory for all cities or just FRC.

Overall, datasets of 71 statistical spatial data and indicators have been requested from the FRC, and sets of 47 from the FC, on the following subdomains of spatial assessment. While the list leverages on the most common statistics from municipalities or national / regional statistics offices, there have been differences in spatial data definition and collection, those are specified in the Annex 3, together with suggestions for replacements (e.g. Building Coverage Ratio (%) has been replaced with total area covered with buildings (ha) in the case of FC Cluj; material deprivation rate has been replaced with total number of people receiving social assistance; etc.).

The data collection processes aimed at providing a compact comparable base of spatial information between cities (FRC and FC), and between the start of the project and its end. Achieving cross-city comparability has been challenging due to the heterogeneity of available data sets. However, a significant critical mass provides a starting point ("state of art") in the development level of FRC and FC, as well as – where available – their LL / Urban Regeneration areas and will be further extended through the work in WP4.

4.2. Availability of statistical spatial data and indicators in proGIreg cities

Based on the assessment framework co-developed between WP2 and WP4, the proGIreg cities processed data requests culminating in data collection sheets, included in Annexes from 3.1 to 3.7 and available as editable excel files on the project intranet platform.

For the FRC, the data collection and subsequently the SWOT analysis have been carried out at city level and at Analysis Area level. For FC, the SWOT analysis on different levels have been developed based on available resources and data:

- **Cascais,** having already identified the Urban Regeneration Plan area and having also access to microdata for the area, collected data and performed the SWOT analysis on both levels – city and regeneration area;
- The **Cluj-Metropolitan Area** performed the SWOT analysis at metropolitan level and at Cluj-Napoca city level, given that the Urban Regeneration Area crosses the whole city east to west, and further territorial refinement was not possible from the point of view of data accessibility;
- **Piraeus** delivered spatial data and indicators and the SWOT analysis at municipal level; further refinement of characteristics of the two districts, which have been identified as potential Urban Regeneration Plan areas, has been conducted via a more descriptive information, leveraging on available information from the municipal office;
- Finally, **Zenica** had access to a limited data set at municipal level, and consequently performed the SWOT analysis on a single level.

An overview of spatial data availability is presented in the Annex N°3 (where “LL” is the data pertaining to the Living Lab Analysis Area level, and “URA” is the data pertaining to the Urban Regeneration Area of FC. Green cells identify available data, and brown ones, unavailable). Below a brief analysis of the results for each city partner and some considerations regarding the overall data availability situation.

Per-partner statisticle spatial data framework overview

FRC Dortmund

FRC Dortmund collected all requested available information, provided the Spatial Analysis Database in Annex 3.1. Except for seven statistical spatial data collected for a single year (2018, except educational attainment, which has been provided as 2011 census data), most spatial data have been submitted with multi-annual values (at least 2013-2017), allowing comparability across recent times, and assessing trends.

Data availability is sufficient for establishing a good baseline especially for the key assessment domain “Socio-cultural inclusiveness”. The FRC lacks city-scale information pertaining to the work intensity, accessibility of green spaces, homeownership, as well as heath data (all together – a crosscutting issue for all cities), structure of green spaces, soil and water data, employment, as well as number of tourists and a few other secondary spatial data. Data for the LL analysis area is slightly more limited, but nevertheless, enough to support an assessment on the state of the art of local development before NBS implementation.

FRC Turin

Turin provided the requested statistical spatial data list in the Spatial Analysis Database in Annex 3.2. Data availability has generally been good for all key assessment domains. Nine of the statistical spatial data and indicators have been collected for a single year, while the rest have been provided for a period (range 2008-2017), or for two non-consecutive years (in the case of property values, where single-surveys were used as sources). Like in Dortmund's case, this provides comparability across a more recent period, and allows assessment of trends.

Barring housing data, data availability for the first three assessment domains is very good; Turin is the only city which had access to health data at LL level, and which also could provide detailed information on the climate, meteorological, air quality and soil data. The FRC lacks city-scale information pertaining to housing, accessibility of green spaces, canopy cover, leaf area index, NDVI, VOC concentration, data regarding the number of businesses and jobs, value of property (sale/rent) – yet the latter is provided specifically for Mirafiori district.

FRC Zagreb

The statistical spatial data and indicators of FRC Zagreb are enclosed in Annex 3.3. While it was still possible to gauge the local situation at city level based on the spatial data provided (38 available out of 71), the availability of data at local Sesvete level is rather limited, with only 10 spatial data being available out of the required 60. Apart from the unemployment rate, surface of brownfields and green space, density of the built environment, basic population data (total, density), cultural facilities and housing quality, there is no statistical information available for the LL area.

Consequently, the SWOT analysis of the LL level (and to some extent, the city level) has focused on a qualitative assessment on behalf of the partners involved in the task.

FRC Ningbo

In the case of Ningbo, for the city district level, data is generally available for the establishment of a baseline assessment at Haishu District level, especially for socio-cultural inclusiveness and economic and labour market. There are still data missing which could assist in the provision of a baseline with respect to housing, health, soil and water quality, with the latter two being critical to the assessment of the proGIreg LL.

One important aspect to mention is the fact that, while data has generally been provided multi-annual for the period 2008 – 2017, the values for the year 2017 are considerably different due to the adjustment of the district administrative limits and its subsequent increase in size and population, with the latter more than doubling statistically between 2016 and2017. In September 2016, nine townships (including sub-districts) of the original Yinzhou District newly joined in Haishu District – including the LL Analysis Area. Observation of trends can thus be performed only at a general level, for the original district, with single-year values being relevant for the proGIreg LL Analysis Area.

Furthermore, the spatial data provided for the Analysis Area of the LL (see **Fig.73, annex 1.4**) are limited to basic demographic data of the communities around Moon Lake Park (4 spatial data). There is no possibility at this point to establish a baseline for the state of art of key proGIreg indicator categories, thus the SWOT analysis provides a more qualitative approach to identifying the main area characteristics.

FC Cascais

As a Follower City, Cascais has had a generally very good availability of required statistical spatial data, which are enclosed in Annex 3.4, lacking only eight values for the city level (incidence of chronic stress and mental diseases, surface of brownfields, PM2.PM2.5 concentration, structure of jobs,

commercial / industrial property value for sale and rent). At potential Urban Regeneration Plan area, requirements – for those cities already able to identify their areas – have been much lower in what concerns data specifically for the environment and economy, however Cascais was able to provide some very useful values, which have been further used in the SWOT analysis below.

It is to note that most spatial data have been provided as single-values, relying on the data from the National Statistics authority, the Census of 2011. As such, this data is (at the time of delivery) almost 8 years old, and while it does help to gather a picture, it cannot provide insights into more recent developments in either the city or the potential Urban Regeneration area. The city provided multi-annual data, however, for the city, in what concerns the demographics and statistics of urban safety (crime, accidents).

FC Cluj-Napoca

Cluj Metropolitan Area represents the interest and covers the expanse of the Cluj-Napoca city and surrounding communes. The GI, and possibilities to develop and upscale the Urban Regeneration Plan are equally important to be considered in the metropolitan area. At the same time, the potential Urban Regeneration Plan area in Cluj-Napoca crosses the whole city alongside two intersecting axes (railway and Somes River) and as such, affects the entire community. Therefore, the two-level analysis focused on 1) the metropolitan level, and 2) the Cluj-Napoca city level. In the actual SWOT analysis, the latter also provides an assessment of the Urban Regeneration area, via data from the city, where possible.

Some of the spatial data for the Metropolitan Area (as a LAU2 association) have only been available at upper, county or regional scales: material deprivation rate, work intensity, incidence of diseases, life expectancy, precipitation, GDP per capita, job typologies, revenues and basic utilities costs. This is mostly due to the fact that the statistics for these domains are being gathered at the level of deconcentrated social, health, economy and environment institutions, at NUTS3 level (county). Nevertheless, an extrapolation is possible.

Data availability for socio-cultural inclusiveness (only two spatial data missing) and the ecological and environmental restoration (only the PM10 concentration information missing) has been very good. However, health and wellbeing data is non-existent, and economic data is very limited.

FC Piraeus

Piraeus has performed the data collection process at Municipal level, mostly based on the Census survey 2011, undertaken every 10 years, as it lacks data for the delineated Urban Regeneration Plan areas. Instead, a quantitative and qualitative assessment of its districts C' and E', where the potential areas have been identified, is provided below on the four key assessment domains.

- Some information such as population growth rate per year are not available.
- Data not available at the Municipality level include material deprivation rate, recreational or cultural facilities the percentage of population having access to green space within 30 minutes walking distance or travel time by public transportation, and percentage of residents in public housing.
- Health data, land use and vegetation, soil, water and heat island effect indicators, as well as indicators for the local economy and labour market (property values) have not been available for the city.
- Similar to Cascais, most spatial data have been provided as single-values, relying on national Census data. The city provided multi-annual data for urban safety (crime, accidents), air quality, market and labour economy (albeit replaced from the original spatial data with similar ones), tourism, foreign students and local taxes values.

4.3. Conclusions of the data collection

The following conclusions can be drawn based on the data collection process and its results:

- → In general, data availability is relatively similar in both FRC as well as FC, at least in terms of values for single-year spatial data; with the exception of Piraeus and Zenica, all cities provided information regarding the LL / regeneration areas, however for Ningbo, that information is very limited (4/71 spatial data).
- → Several information are only provided by the national statistics institutes / bureaus (or equivalent authorities), based on the census surveys undertaken every 10 years. The census surveys in Greece, Romania, Croatia and Portugal have been performed in 2011, and the one in Bosnia and Herzegovina in 2013; data is hence relatively outdated.
- → Neither the FRC, nor the FC have had access to information pertaining to the following:
    - Land use and vegetation: structure of green spaces - % of meadow surfaces, % of polluted brownfield areas, canopy cover, Leaf Area Index, NDVI
    - Soil quality, except for Turin (any of the requested spatial data)
    - Water quality (any of the requested spatial data)
    - Market labour and economy information: private green jobs, qualified jobs.
- → Furthermore, data is scarce, generally, for the economy and labour market spatial data overall (fourth key assessment domain);
- → Human health and wellbeing data is generally not produced or tracked at municipality level, at least in what concerns the incidence of certain diseases. Where possible and relevant (i.e. evolution of incidence), data has been collected at higher territorial levels (e.g. County, for Romania).
- → Some of the unavailable data can be replaced by similar ones, as specified in each Annex 3 sheet;
- → In spite of the high volume of data lacking, with the exception of subdomains 3.4-6, all cities provided at least one valid value per sub-domain, which in turn supported the SWOT Spatial Analysis.

Due to the high variability of data, parallels between the cities are difficult to draw. However, corroborated with information from spatial datasets and a qualitative overview of the local state of art conducted by the cities, the statistical spatial data and indicators have been useful to shape an overview of the current general situation in FRC and FC. This overview will further be detailed within WP4 for FRC. It comprises part of the baseline analysis implemented through proGIreg.

5. Synthesis: SWOT analyses of proGIreg cities

In order to provide a useful, comprehensive, but condensed characterisation of the local state of development in FRC and FC, the SWOT (Strengths, Weaknesses, Opportunities, Threats) instrument is used. SWOT is recognized by the European Commission as a strategy analysis tool, useful for identifying possible strategic approaches (EC, 2017).

It offers the possibility to condense different elements of an urban audit into a comprehensive picture, and to analyse alternative scenarios of urban and territorial development. The SWOT analysis is a well-established approach in the field of sustainability assessments due to its versatility and ability to represent in an organized way the influence played by multiple factors on different decision contexts (Comino, Ferretti, 2016).

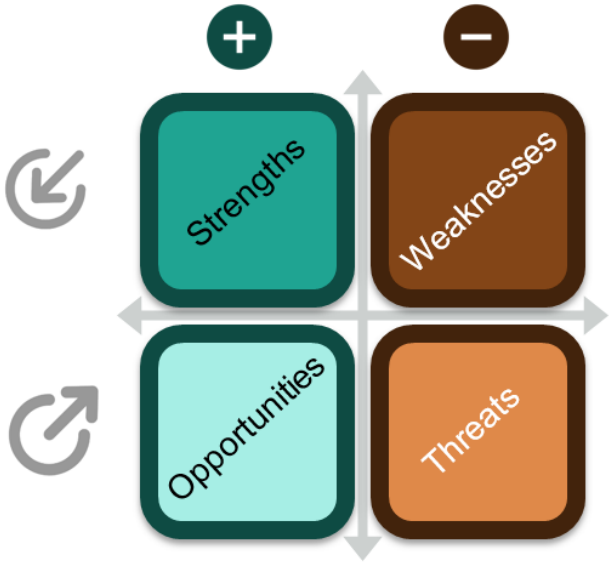


Figure 10 - SWOT Analysis. Source: URBASOFIA

Both FC and FRC synthesized the findings of the spatial data collection and interpretation in spatial SWOT analyses, developed on the four main categories of the NBS benefit assessment and monitoring (WP4). The SWOT analyses are delivered at the two analysis scales: city / metropolitan area level, and LL / URP analysis scale level. The main purpose was to provide input to the creative generation of possible strategies for co-design, in both FRC (T.2.2) as well as FC (T.2.3):

- How can we valorise the strengths (i.e. well-developed human capital)?
- How can we overcome weakness? (eg. low accessibility of green spaces)?
- How can we exploit opportunities?
- How can we mitigate or overcome threats?

The city SWOT analyses are further incorporated in a final cross-assessment of the FRC and FC by URBASOFIA. Because the spatial analysis is developed based on existing spatial data from administrative databases, subsequent tasks will complete the findings in participatory processes (T2.2, T2.3) and with additional collected data (WP4). Because of the concentration on quantitative information, a further validation with local stakeholders of the findings is necessary. Using a simple visual representation (Spatial SWOT maps) provides an easy-to-understand representation of findings, suitable to be used in citizen and stakeholder participation events, and touching on synthesis aspects such as for example:

- Degree of connectivity / fragmentation of green areas in the city

- Areas concentrating social problems – deprived neighbourhoods
- Quality of connections between residential and green areas
- Areas with high population density outside the radius of a green space (300m)
- Property values in conjunction with GI, etc.

High data variability has reflected on the SWOT analysis as well; of particular heterogeneity are the spatial representations of city SWOTS. While the design of the thematic spatial SWOT maps conforms to the visual communication guidelines of the project, the lack of a GIS (Piraeus, Cluj-Napoca, Zenica, Ningbo) has determined the cities to use other spatial data to support the realization of the documents, such as orthoimagery or raster / vector maps from existing planning documentations.

The following sub-chapters summarize the most important findings of the SWOT analysis, identifying challenges and opportunities on city and LL level for the future co-design and implementation of proGIreg NBS in both Front-Runner and Follower cities, where possible.

5.1. SWOT analysis for Dortmund

Dortmund has gained extensive experience in managing structural change due to the end of coal mining and steel production and its corresponding challenges and opportunities for urban development. Beyond the achievements of the last years, there is still much potential for further improvements, which are part of proGIreg:

- The HSP-site as an abandoned former industrial site offers manifold opportunities for urban development – sites for living, working and recreation as well as connecting so far isolated areas with adjoining neighbourhoods since the 45 ha site is still not yet accessible for the public.
- The Emscherallee within Huckarde-Nord and Dorstfeld impedes closer path connections in west-east direction. Improved opportunities to cross the busy road respectively the creation of new connections and attractive infrastructure at Hansa coking plant will help especially Huckarde-Nord to grow closer together.
- proGIreg aims to integrate the local population into implementation of nature-based solutions, especially underprivileged groups like children, elderly, unemployed persons or refugees. A good communication strategy during co-design process to address and interest these target groups mainly within the Analysis Area will be crucial for the success of proGIreg. At the same time, the opportunity to participate in the creation of new facilities and improvement of their living surroundings may be a decisive positive contribution to public life and improve the district´s image.

The Spatial Analysis conducted by the FRC yielded important considerations for the future implementation of the LL.

City level

Socio-cultural inclusiveness:

- City population has been growing slightly (+4.3% in the last 7 years), and subsequently the density has also been growing;
- High diversity of settlements
- Relatively high numbers of welfare recipients given the city's post-industrial challenges

Human health and wellbeing:

- Benefits from a high percentage of green infrastructure and high green space per capita
- A well-developed bike infrastructure inter-connects the city's areas and links them within the region.
- Inner city areas suffer from significant heat island effects.

Ecological and environmental restoration:

- Implementation of ample and complex renaturation projects for the Emscher River and post-industrial brownfields (ca. 1,100 ha) over the last decades
- Further action required in mitigating the negative effects of industrial soil contamination and effect of historic industrial production.

Economy and the labour market:

- Around 80% of Dortmund’s workforce is now employed in the tertiary sector despite de-industrialization of the coal and steel industries
- While declining, unemployment rate remains high, being about twice as high as Germany’s unemployment rate
- Ultimately, the surplus of workforce, relatively low values of land and property and the upward trend in tourism and business / investment interest, can point towards new opportunities for economic development within the next few years
- proGIreg can leverage the potential of NBS for providing green job opportunities.

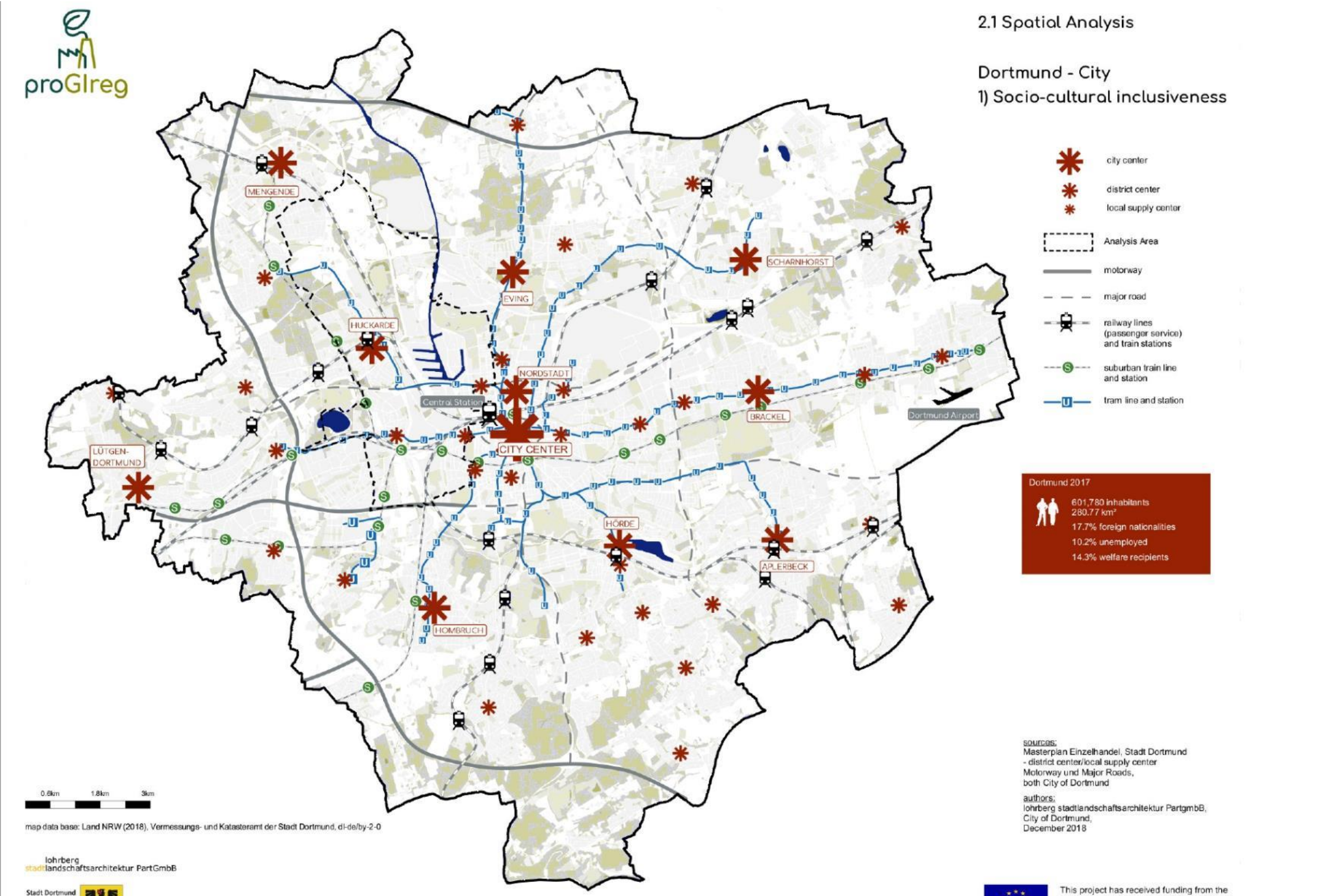


Figure 11 - FRC Dortmund: SWOT Summary on socio-cultural inclusion

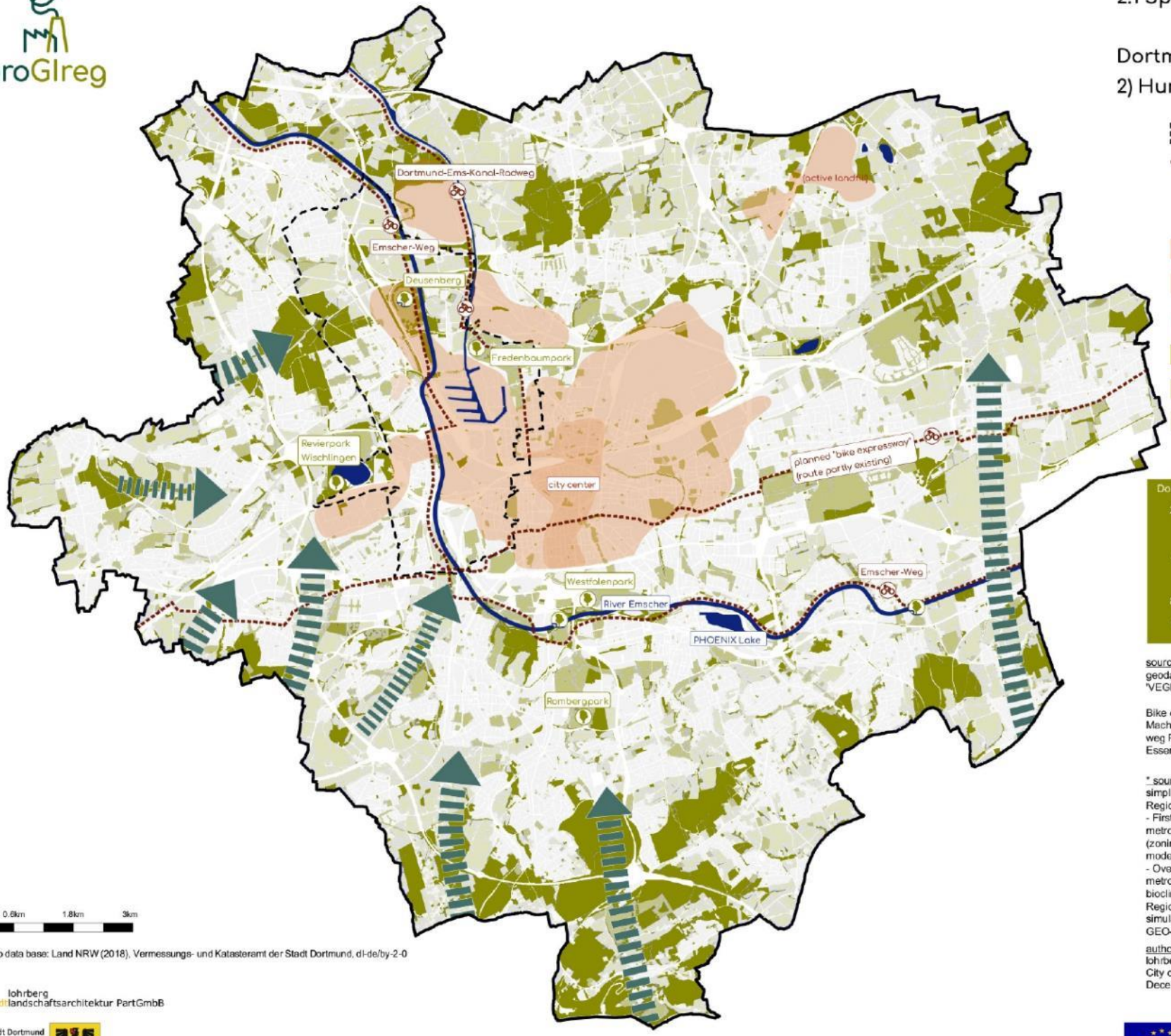
This project has received funding from the European Union's Horizon 2020 Innovation action programme under grant agreement no. 776528.

proGIreg

2.1 Spatial Analysis

Dortmund - City

2) Human health and wellbeing



Analysis Area

regional bicycle route

major public park

green infrastructure along riverside

zone of "inner city climate" *

zone of "city climate" and "industrial zone climate" *

main cool air inflow *

forests

parks, allotments, cemeteries leisure facilities

agricultural land, littoral vegetation fallow land

Dortmund 2017	
2.434 ha	urban green infrastructure (parks, cemeteries allotment gardens, outdoor leisure/sports facilities)
11,197 ha	other green infrastructure (agricultural use, forest, littoral vegetation, fallow land)
840 mm	precipitation
10.4 °C	annual mean temperature

sources:
geodata ALKIS, Objektdatenkatalog, Auswertung Kategorien 'VEGETATION', SIEDLUNG'

Bike expressway: pilot study - Machbarkeitsstudie RS-1, Radschnellweg Ruhr, Regionalverband Ruhr, Essen

* sources climate data:
simplified rendering of data provided by and © Regionalverband Ruhr, Essen, Oct. 2018
- First assessment of climatical conditions in the Ruhr metropolitan region based on existing geodata (zoning plans, aerial photographs, digital elevation models, urban climate analyses)
- Overview of climatic-ecological functions in the Ruhr metropolitan region (ventilation, cool air development, bioclimate) based on inquiries and recordings of the Regionalverband Ruhr (as of 2012) and wind field simulation (FITNAH-modelling, conducted by GEO-NET, Hannover)

authors:
lohrberg stadtlandschaftsarchitektur PartgmbB,
City of Dortmund,
December 2018

lohrberg stadtlandschaftsarchitektur PartGmbB

Stadt Dortmund

Figure 12 - FRC Dortmund: SWOT Summary on human health and wellbeing

This project has received funding from the European Union's Horizon 2020 Innovation action programme under grant agreement no. 776528.

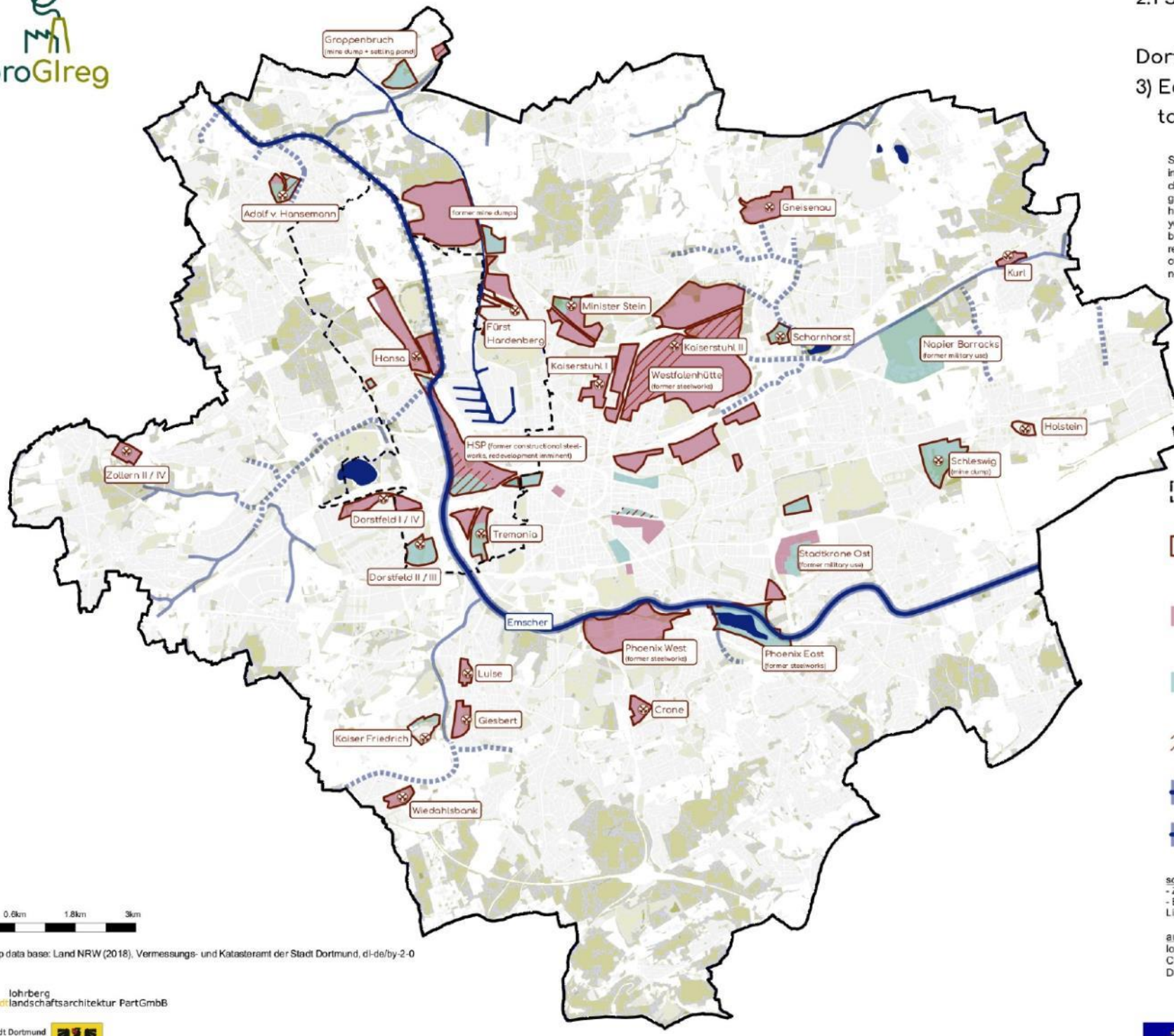
proGIreg

2.1 Spatial Analysis

Dortmund - City

3) Ecological and environmental restoration

Since the development of mining and other industry in Dortmund has always been subject to change, relocation and reuse, it is not possible to give a comprehensive overview of the industrial history in this map. The historic reference to the year of 1964 is rendered based on existing records but is possibly incomplete. The indications of rehabilitation measures are intended to show the overall purpose of reuse for each area and may not apply for the complete area in question.



Analysis Area

coal mine (closed)

mining / steel industry and other industrial use in 1964 (information provided by City of Dortmund)

rehabilitation measures consistant with reuse for business and industrial purposes

rehabilitation measures consistant with reuse as residential zone / public green space

rehabilitation incomplete / imminent

ecological restoration of river course completed (as of Dec. 2017)

ecological restoration of river course ongoing or at planning stage (as of Dec. 2017)

0.6km 1.8km 3km

map data base: Land NRW (2018), Vermessungs- und Katasteramt der Stadt Dortmund, dl-de/by-2-0

sources:
- Zoning Plan City of Dortmund 1964
- Ecological restoration of the Emscher- / Lippe-System, City of Dortmund (Dec. 2017)

authors:
lohrberg stadtlandschaftsarchitektur PartgmbB,
City of Dortmund,
December 2018

lohrberg
stadtlandschaftsarchitektur PartGmbB

Stadt Dortmund

This project has received funding from the European Union's Horizon 2020 Innovation action programme under grant agreement no. 776528.

Figure 13 - FRC Dortmund: SWOT Summary on ecological and environmental restoration

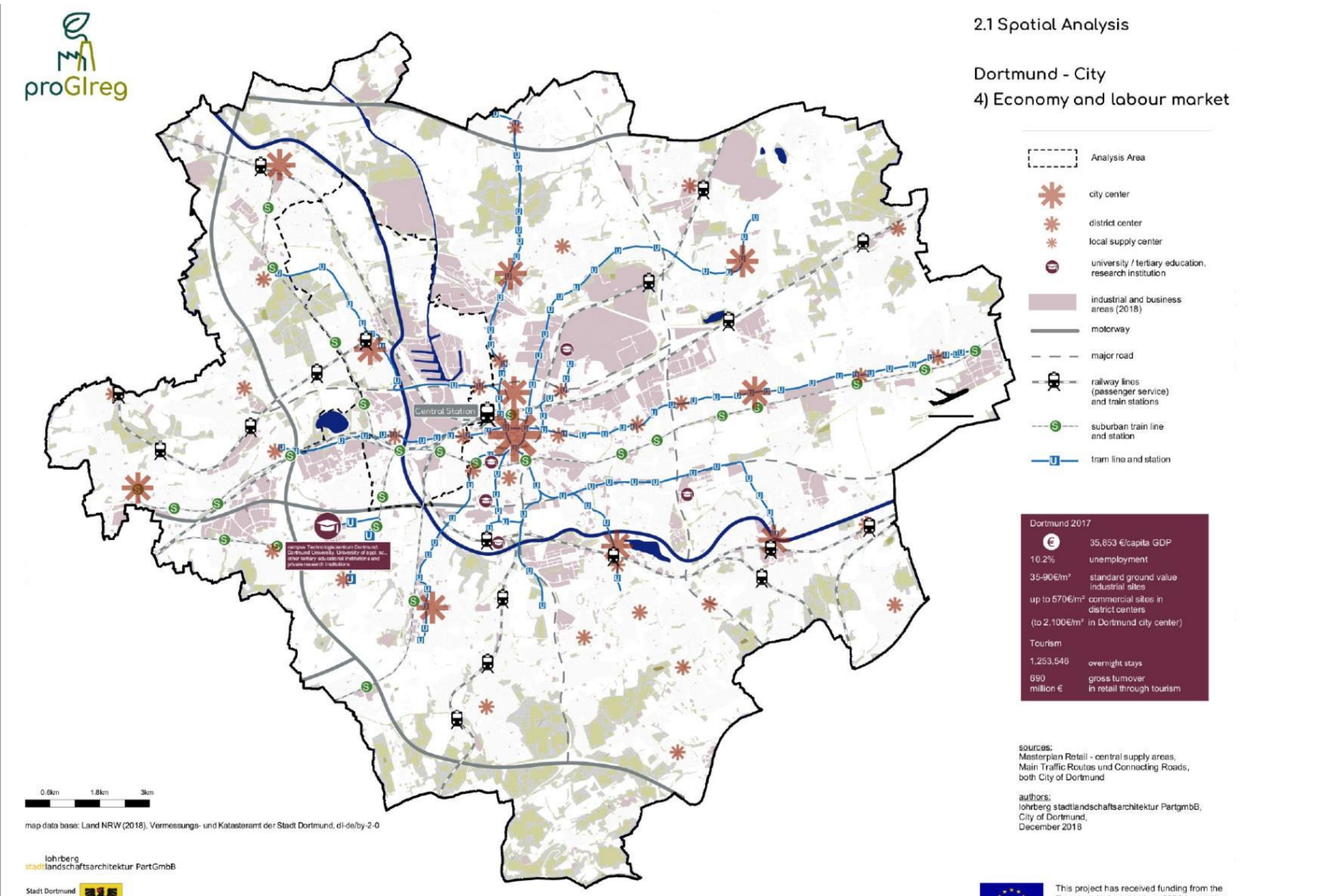


Figure 14 - FRC Dortmund: SWOT Summary on Economy and labour market

This project has received funding from the European Union's Horizon 2020 Innovation action programme under grant agreement no. 776528.

Analysis Area level for the Dortmund Living Lab

Dortmund urban renewal and green infrastructure initiatives are well represented in ProGIreg´s Living Lab and Analysis Area, which represents a 500 m to 2,000 m wide buffer around the Living Lab. The SWOT analysis has brought to the following conclusions regarding the Analysis area that will be used as an assessment of the state-of-play conditions, useful for the implementation of the renaturing strategy.

Socio-cultural inclusiveness:

- Analysis Area (AA) population slightly denser than the city, having a high degree of diversity (foreign-born residents) and registering a high degree of material deprivation, partly as a result of the decline of the coal industry.
- Being peripheral, the AA result to be a socially deprived settlement, an ex- industrial workers' neighbourhood with below average living space per person, in need of new urban renewal programs.
- Strong identity of the neighbourhood

Human health and wellbeing:

- High potential for recreation activities for inhabitants as well as the overall Dortmund population and tourists (industrial heritage museum of Hansa coking plant and Germany's largest climbing wall)

Ecological and environmental restoration:

- High proportion of anthropogenically influenced soils
- Only few areas left within the Living Lab for professional farming
- Necessity to extend the Living Lab to an area with appropriate soil conditions, good access and short-term availability

Economy and the labour market:

- Unemployment rate significantly higher than Dortmund average
- Presence of existing and future attractive economic sites, work force training initiatives, and comparatively low land prices, property and rent prices which can stimulate investment in the area

Challenge: synchronization of initiatives currently realized in the Huckarde district (e.g. the connection between Huckarde-Nord and Deusenberg (NBS 6) within proGIreg and "Stadtumbaugebiet Huckarde-Nord", respectively IGA 2027) because of delay in the timeframe.

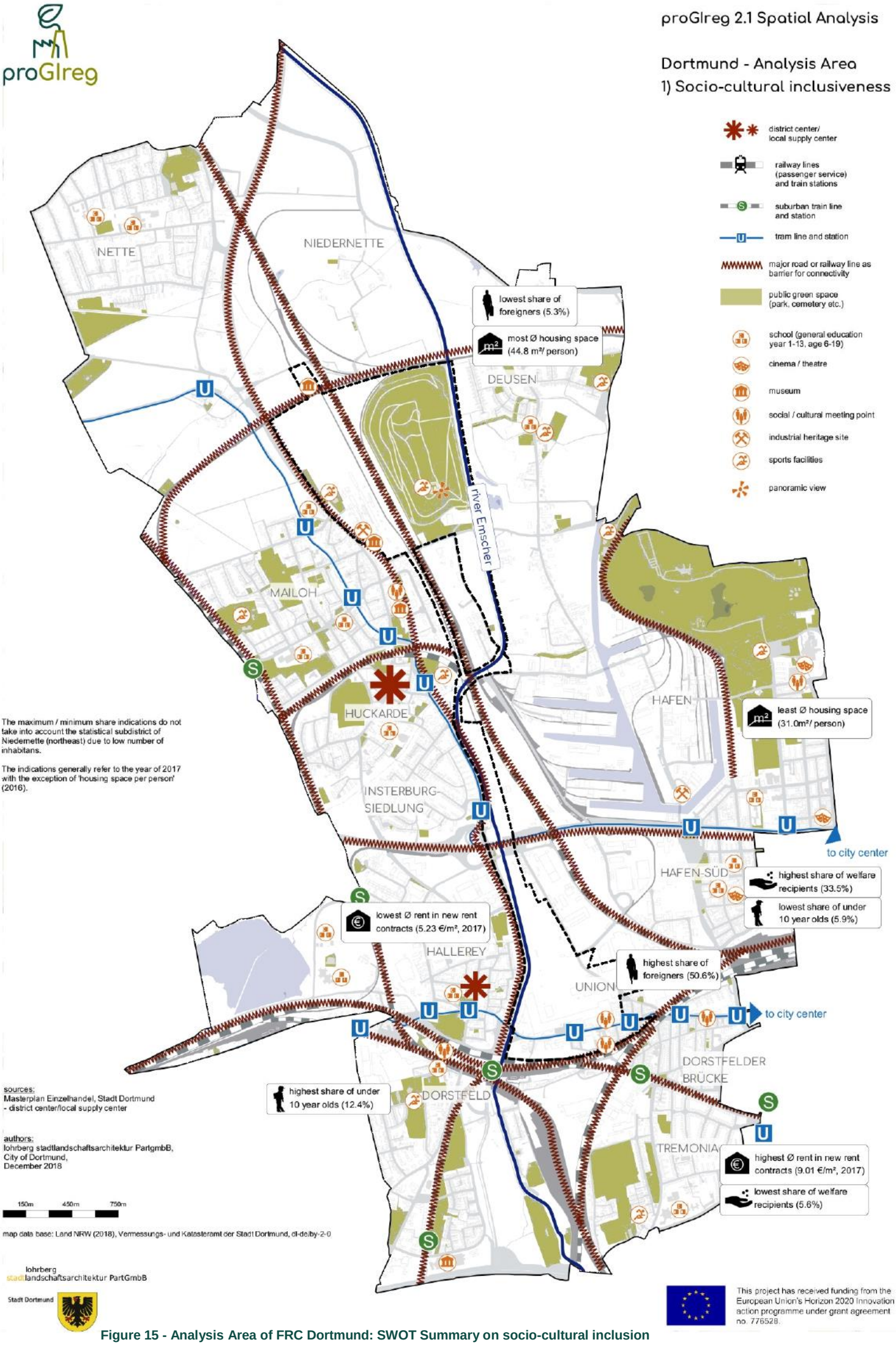


Figure 15 - Analysis Area of FRC Dortmund: SWOT Summary on socio-cultural inclusion

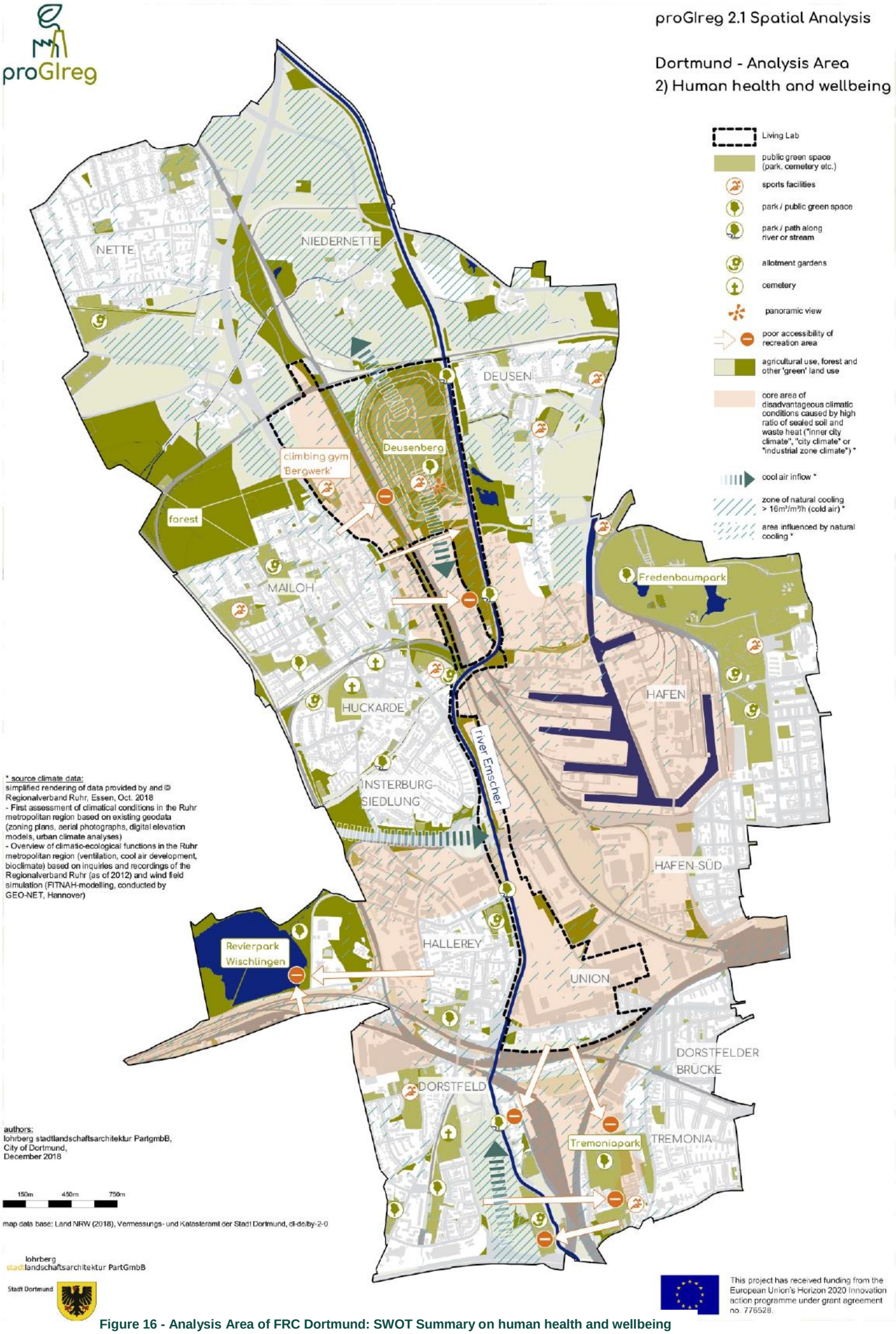


Figure 16 - Analysis Area of FRC Dortmund: SWOT Summary on human health and wellbeing

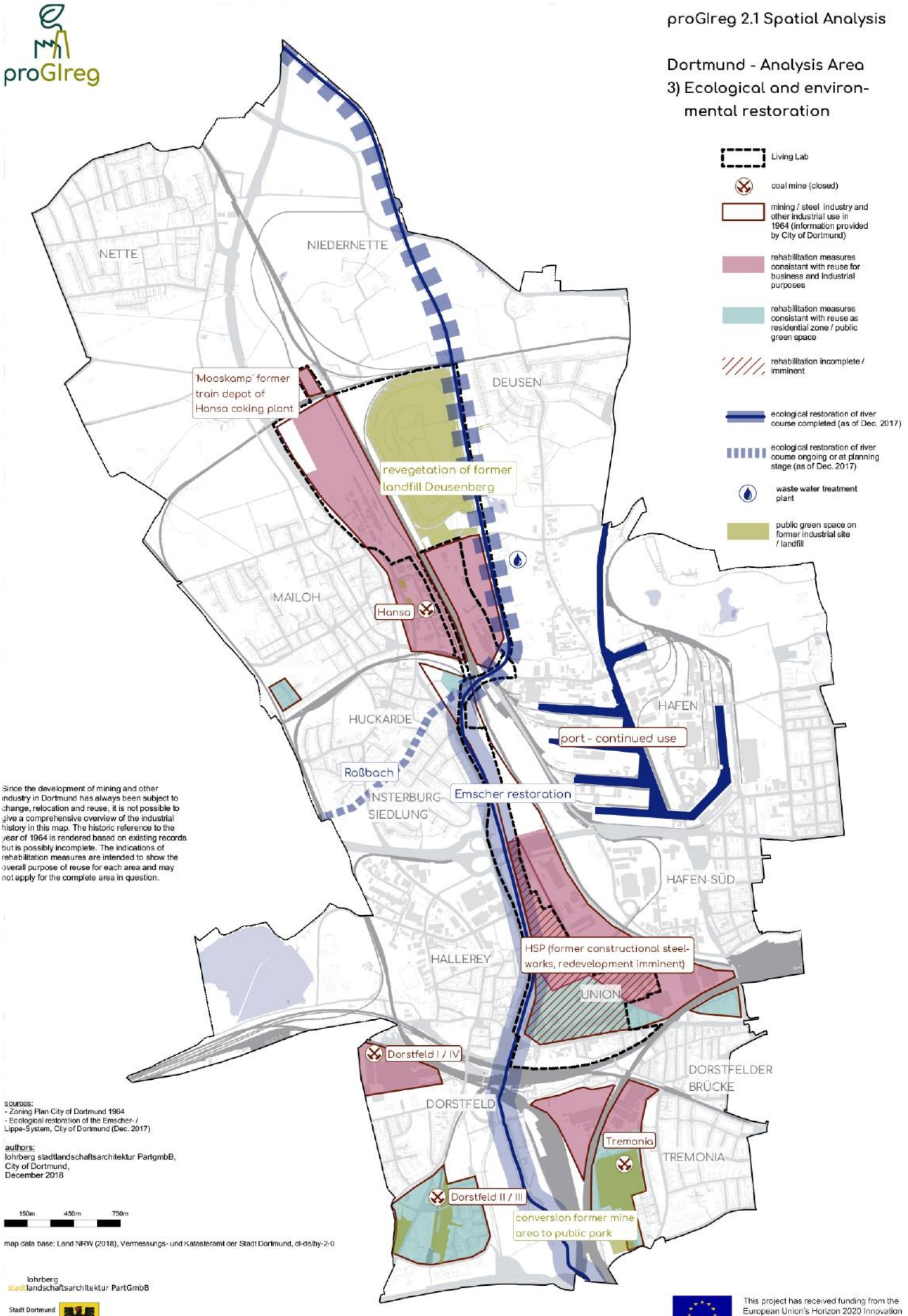


Figure 17 - Analysis Area of FRC Dortmund: SWOT Summary on ecology and environment

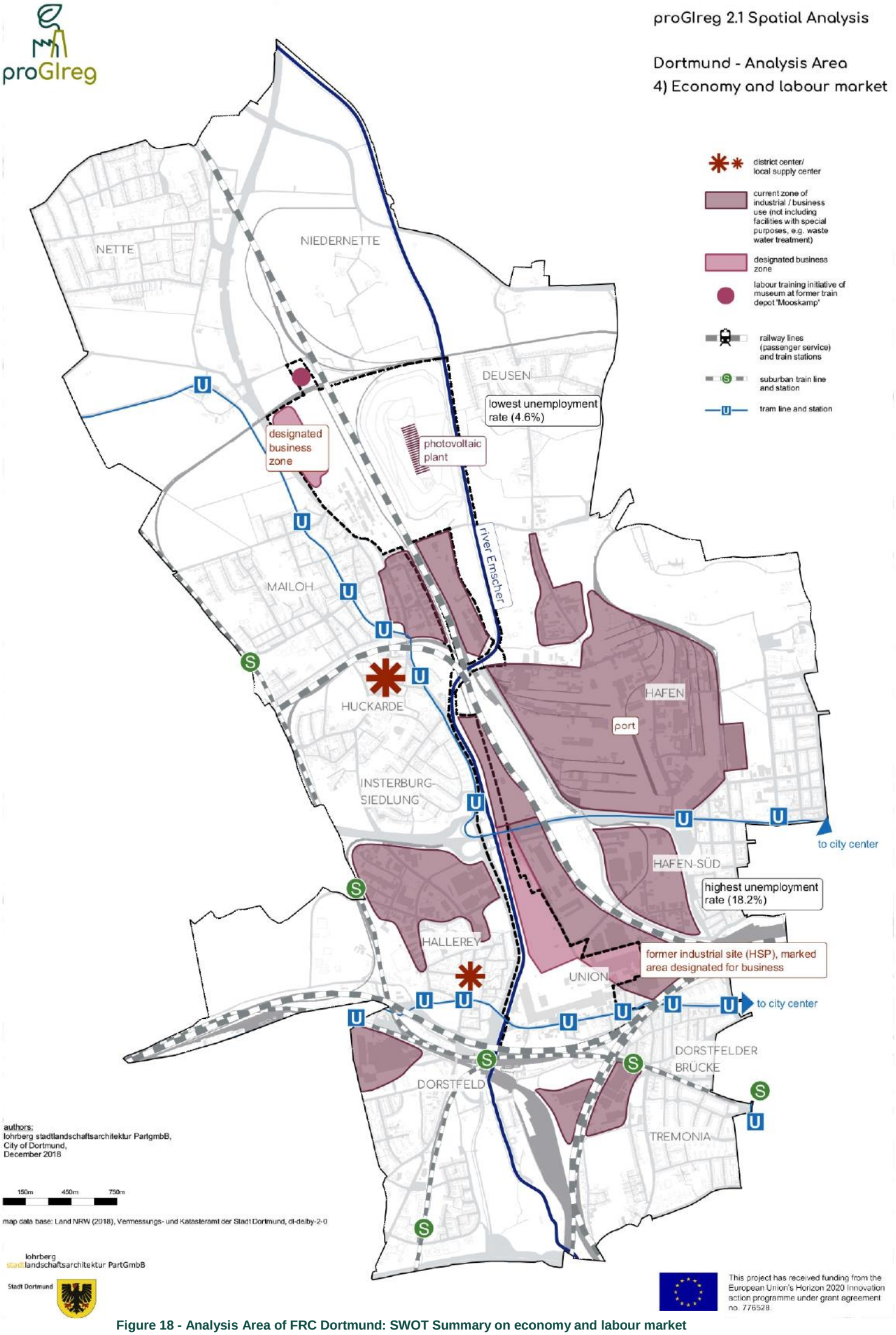


Figure 18 - Analysis Area of FRC Dortmund: SWOT Summary on economy and labour market

5.2. SWOT analysis for Turin

In the last 25 years, the city of Turin has changed radically, emerging from a deep structural crisis, due to the difficult transition from a company-town past into a post-industrial future. Since the 1990's Turin has been transformed from an automotive industrial centre into a city of innovation and culture, developing participatory and innovative regeneration strategies to deal with the social, environmental and economic legacy of its industrial past and the emergency of contemporary societal challenges.

City level

Socio-cultural inclusiveness:

- Social disparity due to marginal city areas and post-industrial socio-environmental problems
- Poor quality urban areas which highlight aspects of social deprivation, including difficult access to housing, high unemployment, low school attendance rates and low levels of vocational education
- Social marginalization of peripheral areas worsened by the weakness of the local public transport, not enough efficient in connecting these areas with the city centre
- Fragmentation of bike-lanes
- Perceived unsafety of pedestrian and bikes paths, mainly due to evident deficiencies in their maintenance
- Progressive depopulation process, in favour of the neighbouring towns of the metropolitan area
- Good educational offers which bring new urban inhabitants, like national and international students, which create new demand for services and housing.

Human health and wellbeing:

- Important quantity of green areas (ca. 55 m²/inhabitant) with a high ecological value, located within the city borders and connected to a wider green belt (Corona Verde) at the regional level
- Turin's green system largely public, well distributed and easily accessible by a walking distance, with still some deficiencies in the social housing districts (especially in west peripheries)
- Community gardens and farmed areas initiatives represent
- Widespread distribution of urban food markets and farmers markets ("zero-mile food"-oriented economy)

Ecological and environmental restoration:

- Problematic provision of sustainable and alternative mobility solutions
- Conversion of many brownfields areas into urban parks, contributing thus to increment the provision of public green space for inhabitants
- Preservation of agricultural areas from new urbanization and real estate development.
- Universities: drivers for innovation in the green infrastructures field, as research centres on environmental restoration, agronomy, urban agriculture, sustainable urban planning, and social innovation design
- Necessity to further develop adequate planning tools to deal with climate change effects

Economy and the labour market:

- Reduction of private investments in the city due to the economic crisis of the last years, with a consequent impoverishment of the public administration, which undermines public action.

Turin is developing innovative and participative regeneration strategies for the urban fringe (AXTO, CO-CITY) and is connecting physical NBS interventions with action on social inclusion and the promotion of sustainable economies. For its support to social enterprise start-ups and for creating new business opportunities for urban innovations, the city was awarded the second prize for the “European Capital of Innovation” in 2016.

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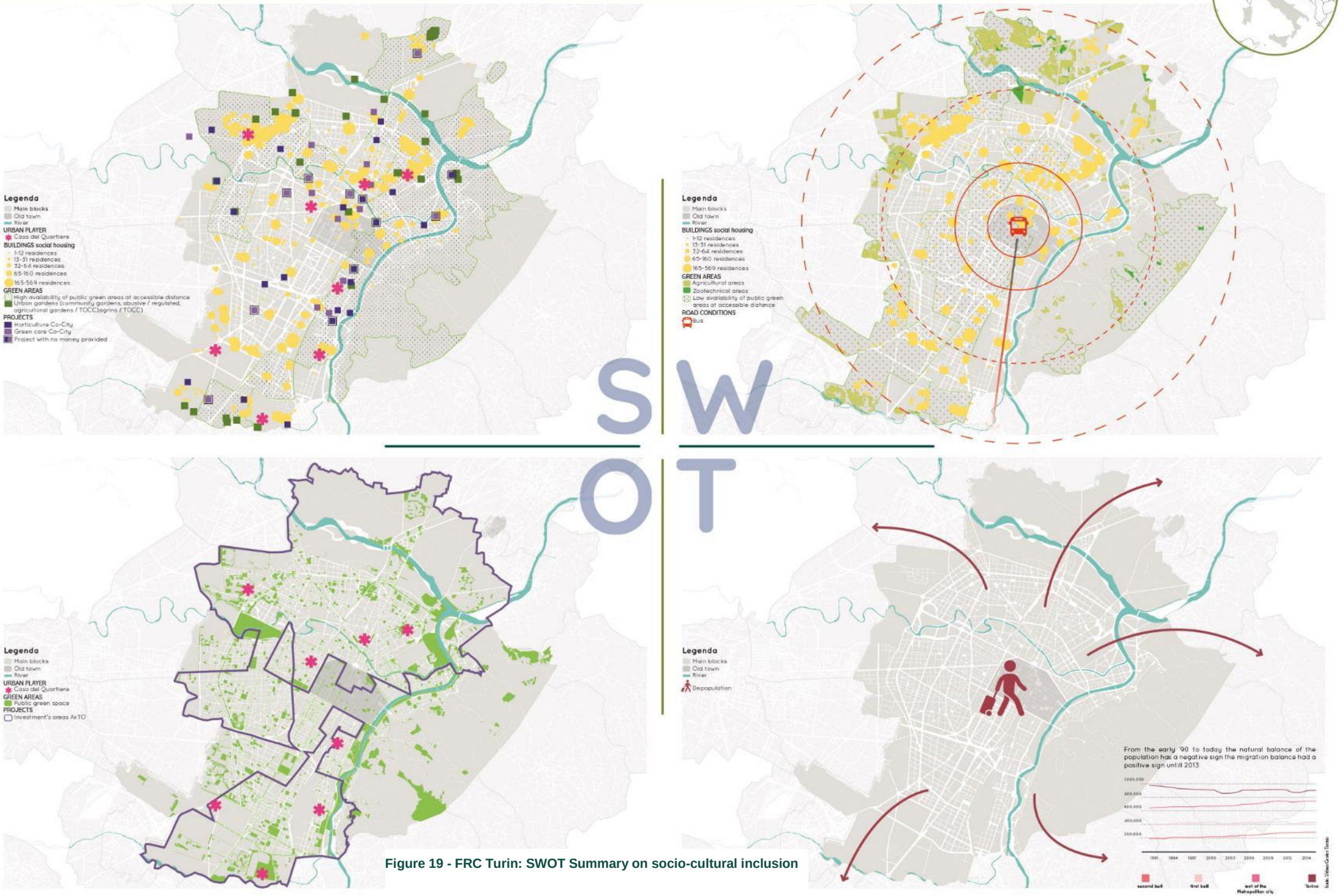


Figure 19 - FRC Turin: SWOT Summary on socio-cultural inclusion

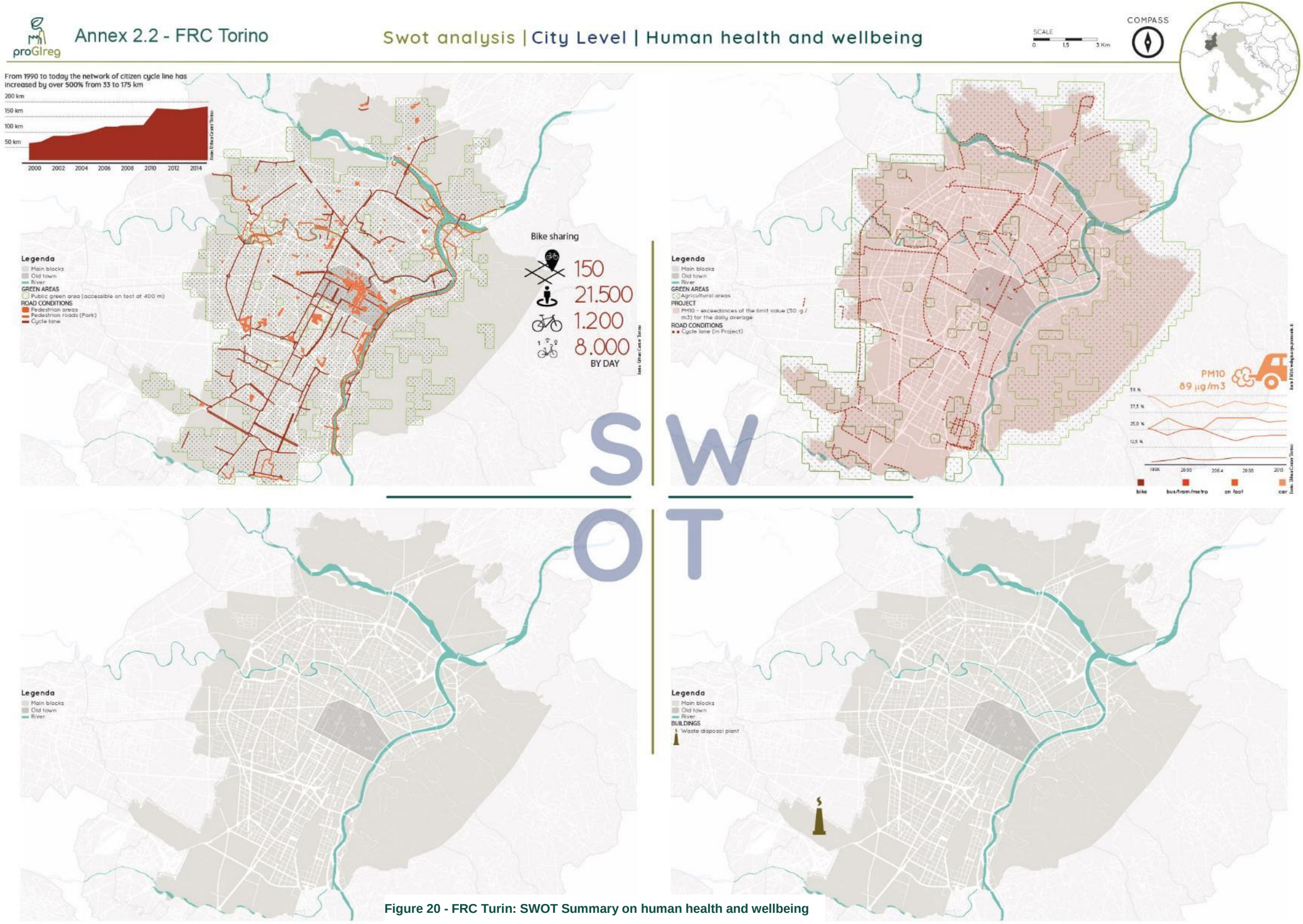


Figure 20 - FRC Turin: SWOT Summary on human health and wellbeing

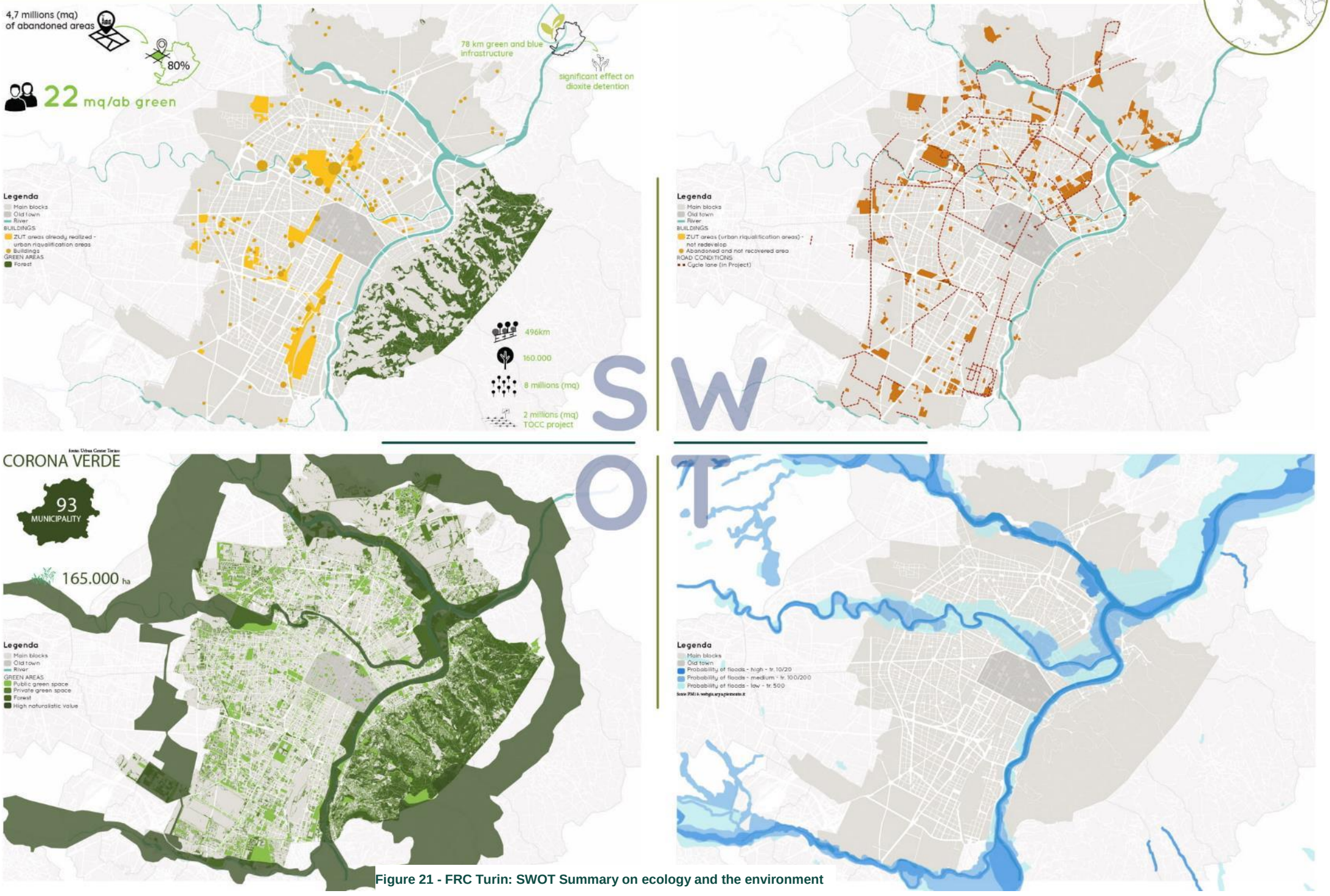


Figure 21 - FRC Turin: SWOT Summary on ecology and the environment

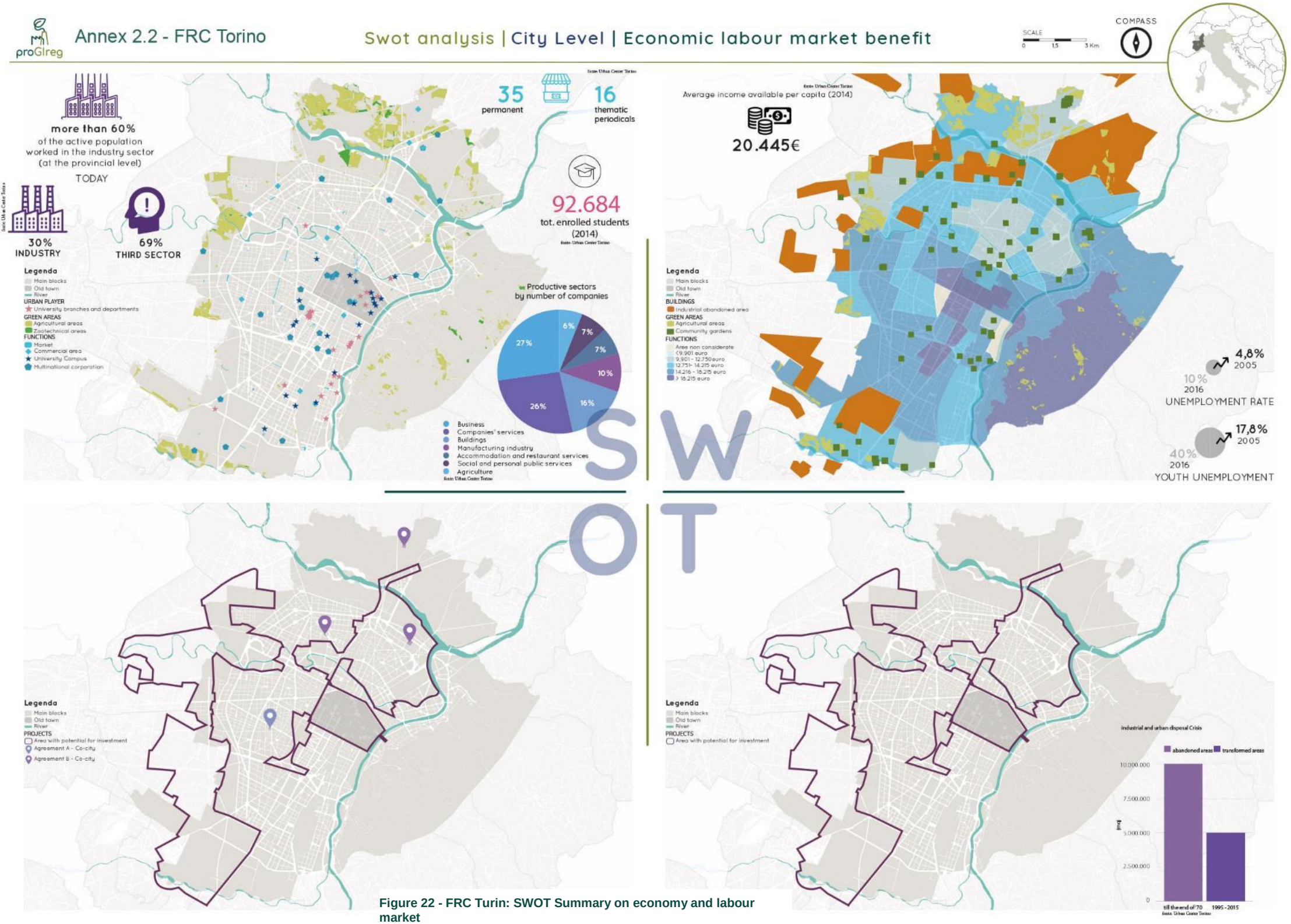


Figure 22 - FRC Turin: SWOT Summary on economy and labour market

Living Lab level

The post-industrial district of Mirafiori is linked with the history of FIAT Company, which has been one of the most significant examples of Italian city-factories. It was characterised in its post-industrial features by a relentless process of physical, cultural and social degradation. Nevertheless, FIAT continues to be one important player to bring regeneration on the area as they aimed to provide a strong CSR component that shows the commitment of the company to enrich the Post-industrial Cultural heritage site.

Socio-cultural inclusiveness:

- Progressive depletion of industrial and residential buildings and reduced commercial activities
- Unemployment and sharp decline in population density of the district due to the loss of industrial activity
- High number of elderly people and a considerable number of empty social housing
- Concentration of people with a high incidence of social problems and a strong cultural mix physically isolated and socially separated from the surrounding areas

Human health and wellbeing:

- Greenery present on the most important mobility corridors and public spaces
- Lack of accessibility from other parts of the district resulting from a lack of public transport connections with Mirafiori
- Emerging culture of community gardens, not all of them regulated by the city

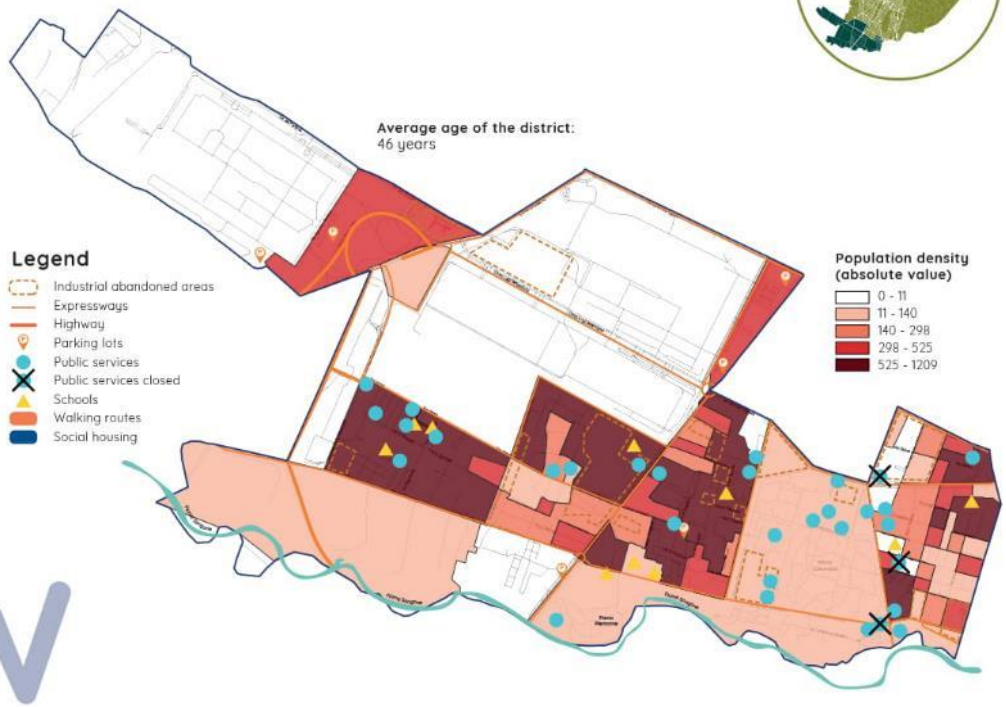
Ecological and environmental restoration:

- Presence of an important network of naturalistic pathways because of the natural assets of the area (green belt Corona Verde and Sangone River)

Economy and the labour market:

- Necessity of stimulating social entrepreneurship
- Necessity to enrich the economic profile of the district

Since the ‘90s, different urban regeneration projects were promoted to preserve and enhance the urban fabric and post-industrial cultural heritage sites, to give a new image to the district. These activities have been promoted by a strong presence of non-state actors including businesses and universities, which are gathered under Fondazione Mirafiori management.



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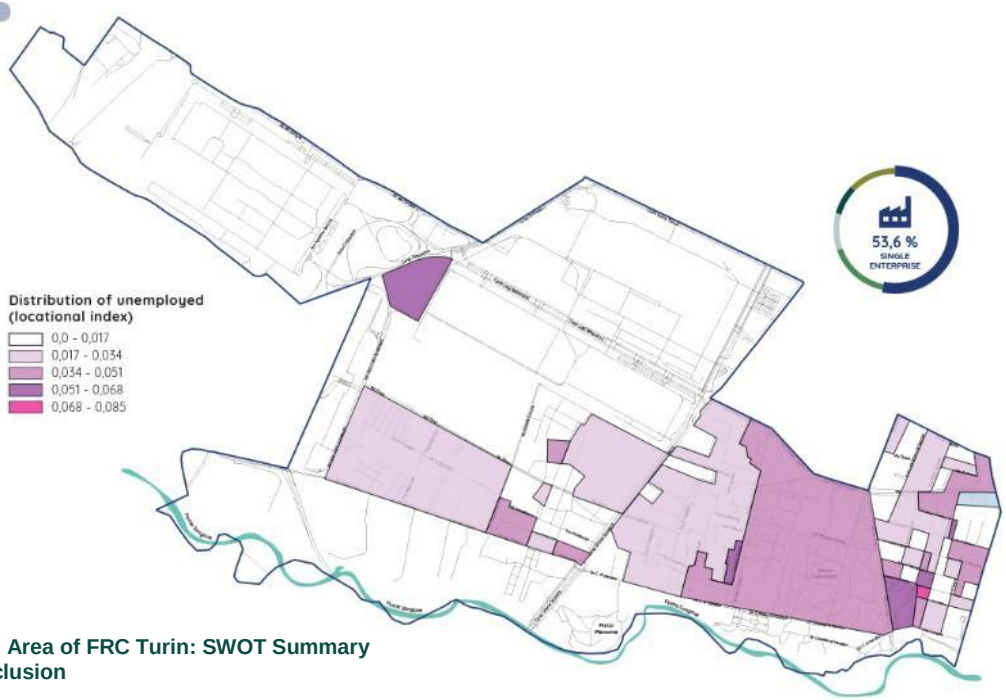
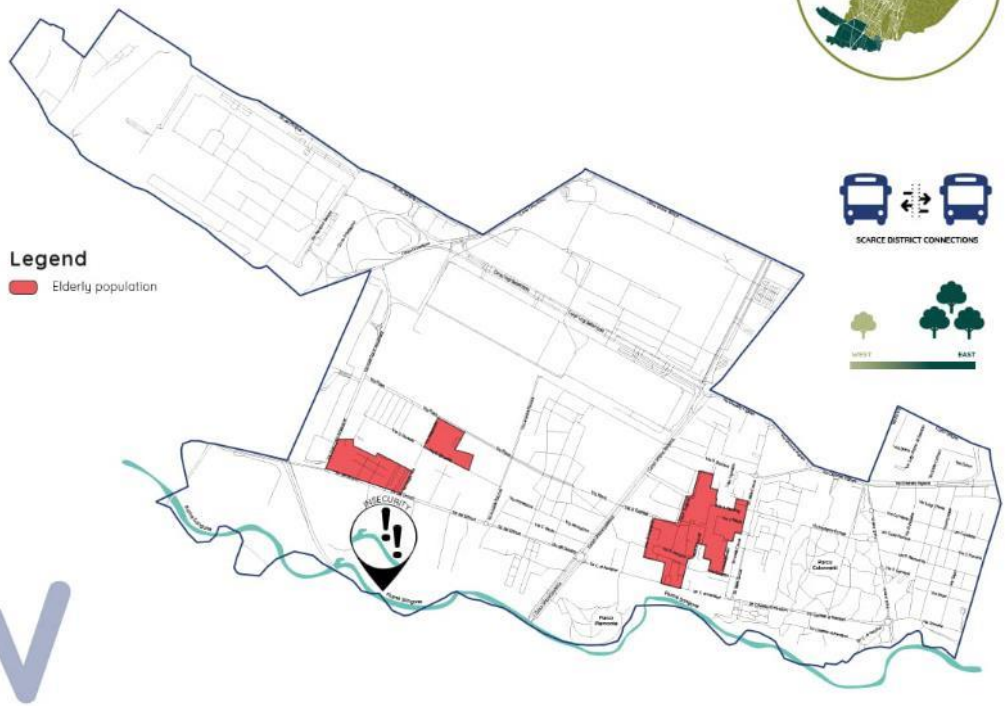


Figure 23 – Analysis Area of FRC Turin: SWOT Summary on socio-cultural inclusion



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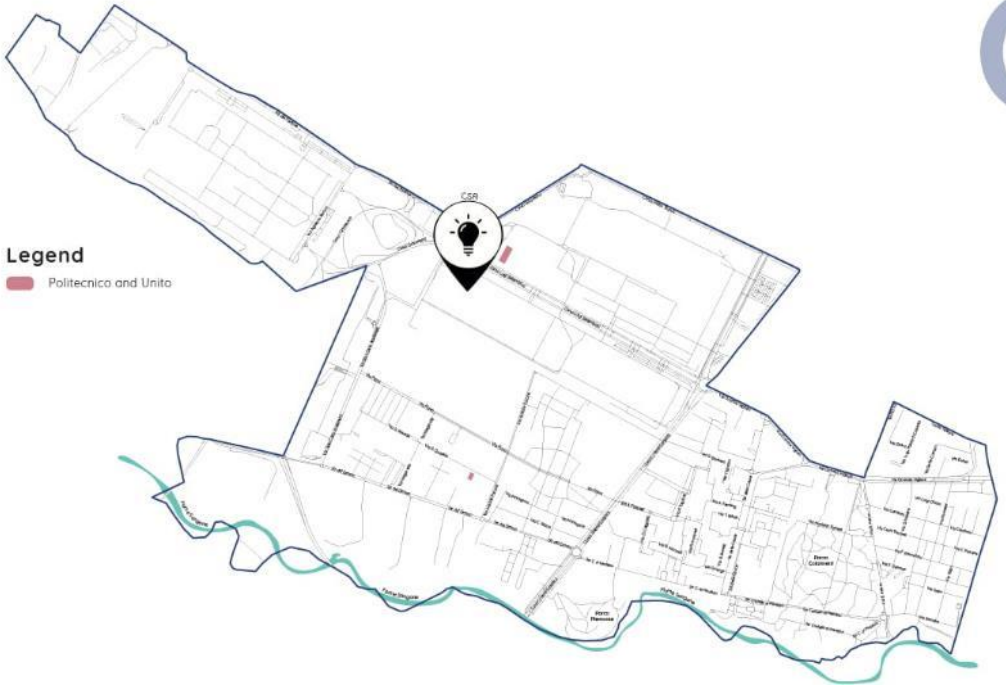


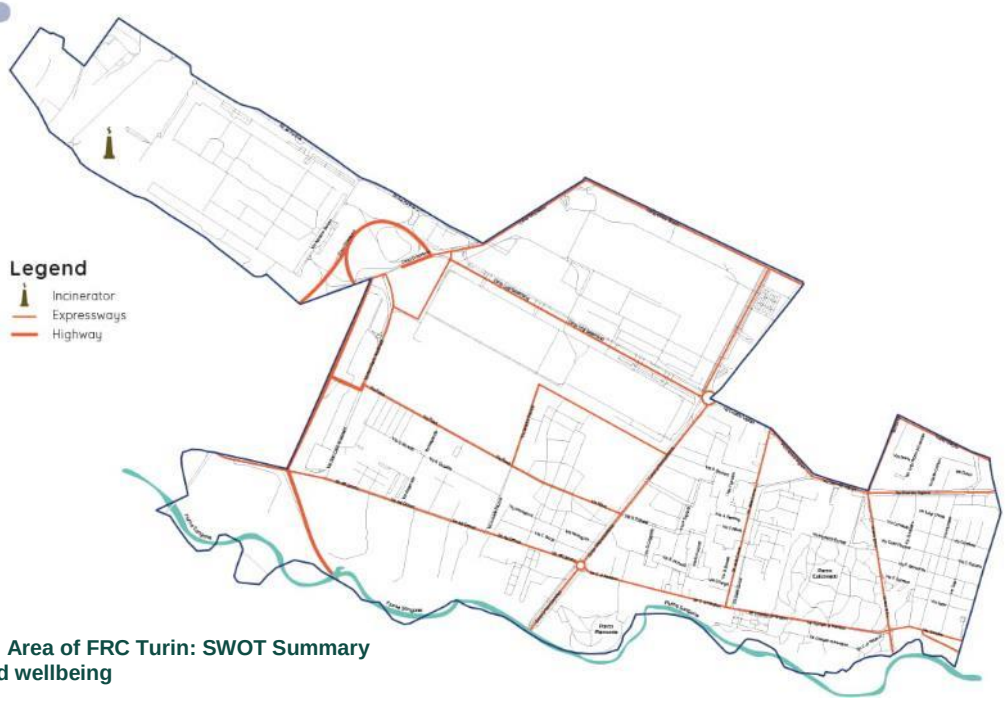
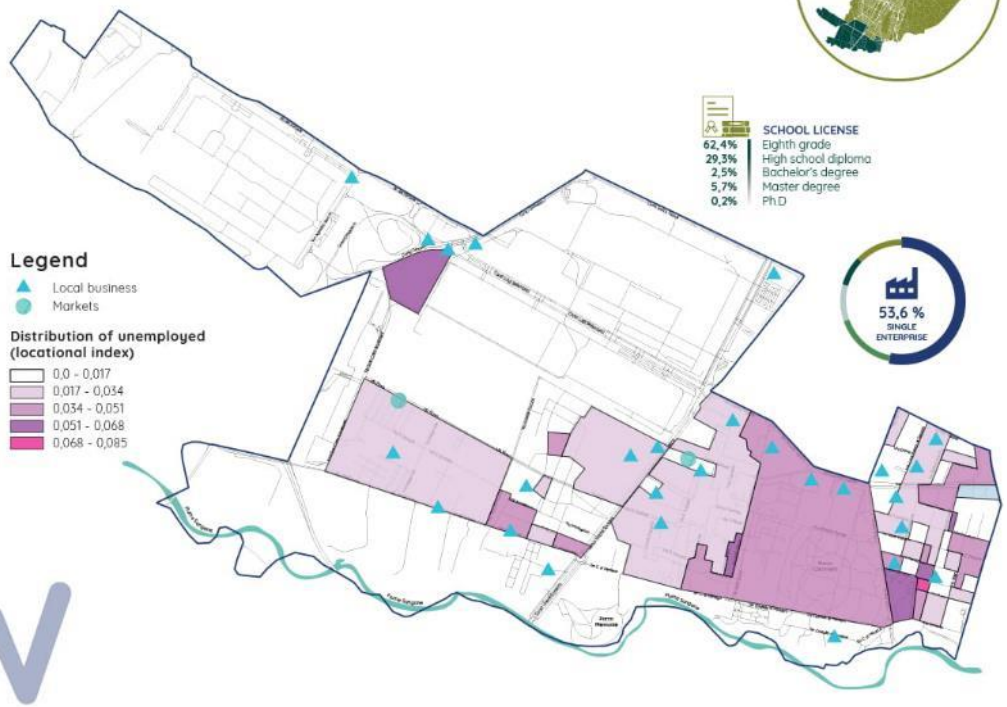


Figure 24 – Analysis Area of FRC Turin: SWOT Summary on human health and wellbeing



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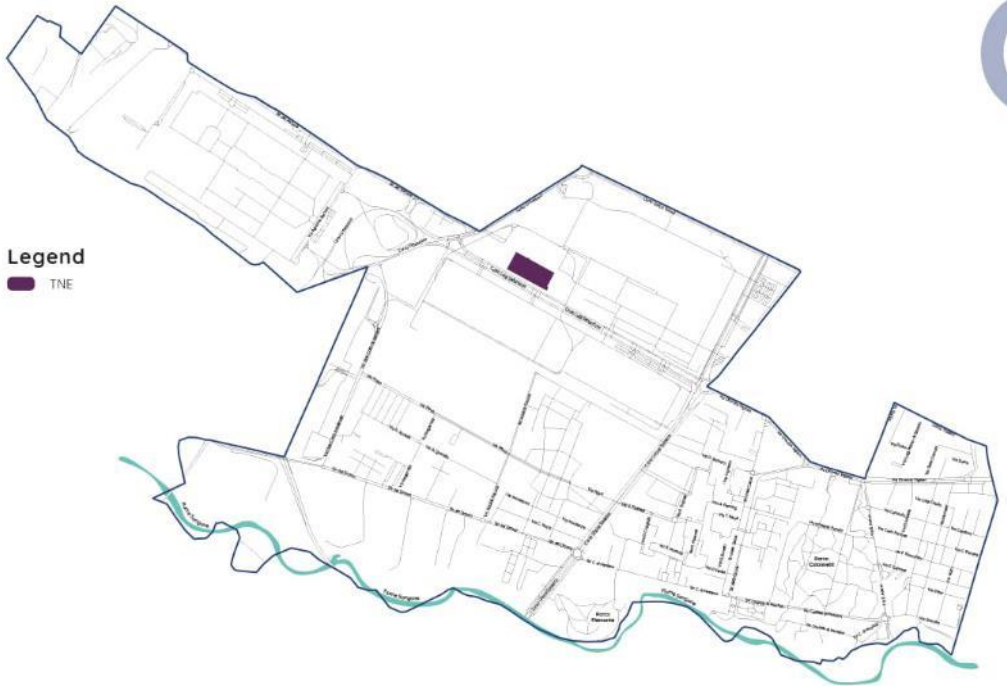

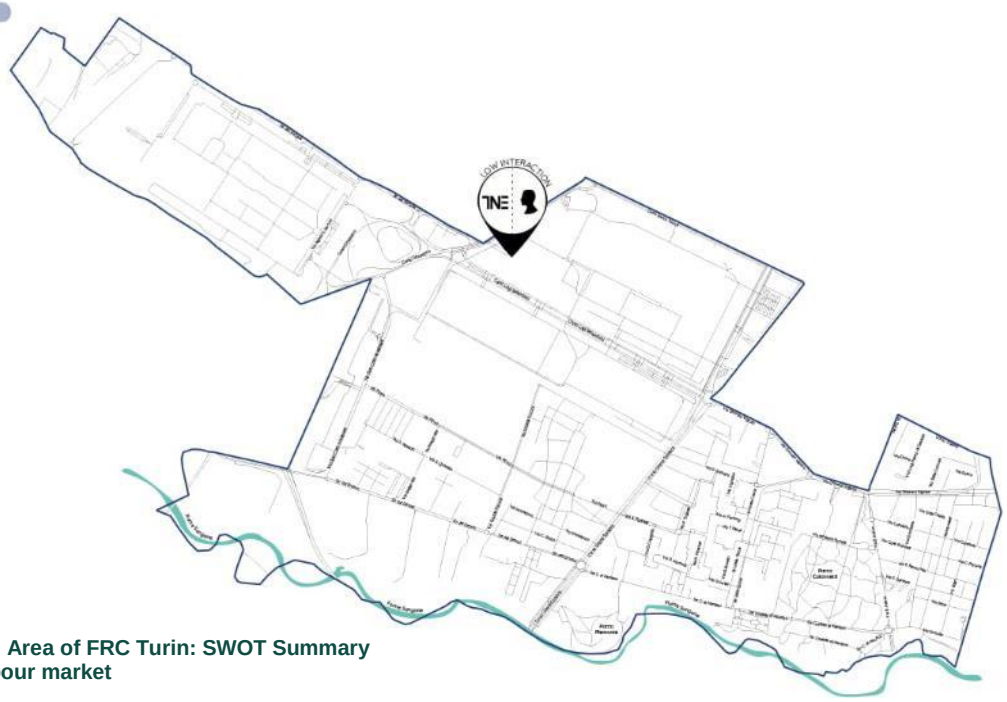

Figure 25 – Analysis Area of FRC Turin: SWOT Summary on economy and labour market

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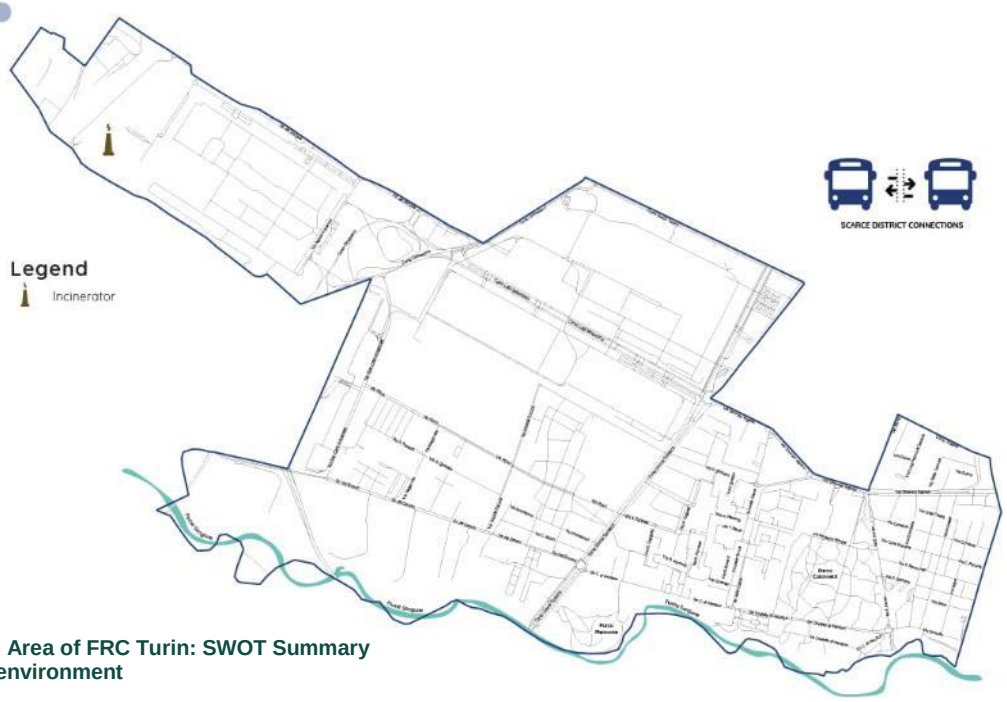


Figure 26 – Analysis Area of FRC Turin: SWOT Summary on ecology and the environment

5.3. SWOT analysis for Zagreb

The population of Zagreb together with the Zagreb metropolitan region, consisting of the larger area of influence with 690 towns and villages, measures to total of about 1.1 million inhabitants. In recent years, the suburban population has grown, while the city of Zagreb, especially its historical centre, and witnesses a decline in population. Zagreb keeps incorporating its former suburbs into its urban tissue.

As the national capital and regional centre, Zagreb is well equipped with social, cultural, economic, commercial and other amenities. Most of the city is well connected by traffic and communal infrastructure. There is an abundance of green and natural spaces in and around the city, natural, historical and cultural monuments, and well-preserved built heritage. Population is above national average in terms of education and skills. There is a complex and comprehensive educational system including the largest university in Croatia.

City Level

Socio-cultural inclusiveness:

- Increasing poverty and social stratification
- Lack of working programmes initiatives for youngs

Human health and wellbeing:

- and awareness of health and ecology issues
- Higher incidence of vandalism and unhealthy lifestyles
- Underused Public transport and sustainable means of transportation
- Outdated communal infrastructure network

Ecological and environmental restoration:

- Existing geothermal energy is not being used

Economy and the labour market:

- Legal and property-related matters are resolved in a time-consuming manner, slowing down economic activity
- Reduction of public funding in all the sectors from medical and health, to cultural and independent activities (entrepreneurship)
- Centralization and administrative barriers obstruct economic growth

The use of European funding presents a great potential in development of the city, both for infrastructural and for large-scale urban projects and the City is actively working to use this opportunity. The global trend of advanced technology in all sectors of life and energy efficiency as an obligation can lead to smarter buildings with fewer energy losses and overall better functionality. Cooperation with other Croatian and European municipalities and international networks can have positive influence on policies, plans and practices.

With all this in mind, the City has undertaken numerous activities, EU-funded, public and private-funded, to ensure that the city potentials will be used adequately and to ensure development envisioned in the Zagreb development strategy. Energy efficiency, clean energy and similar topics have been in public focus lately.

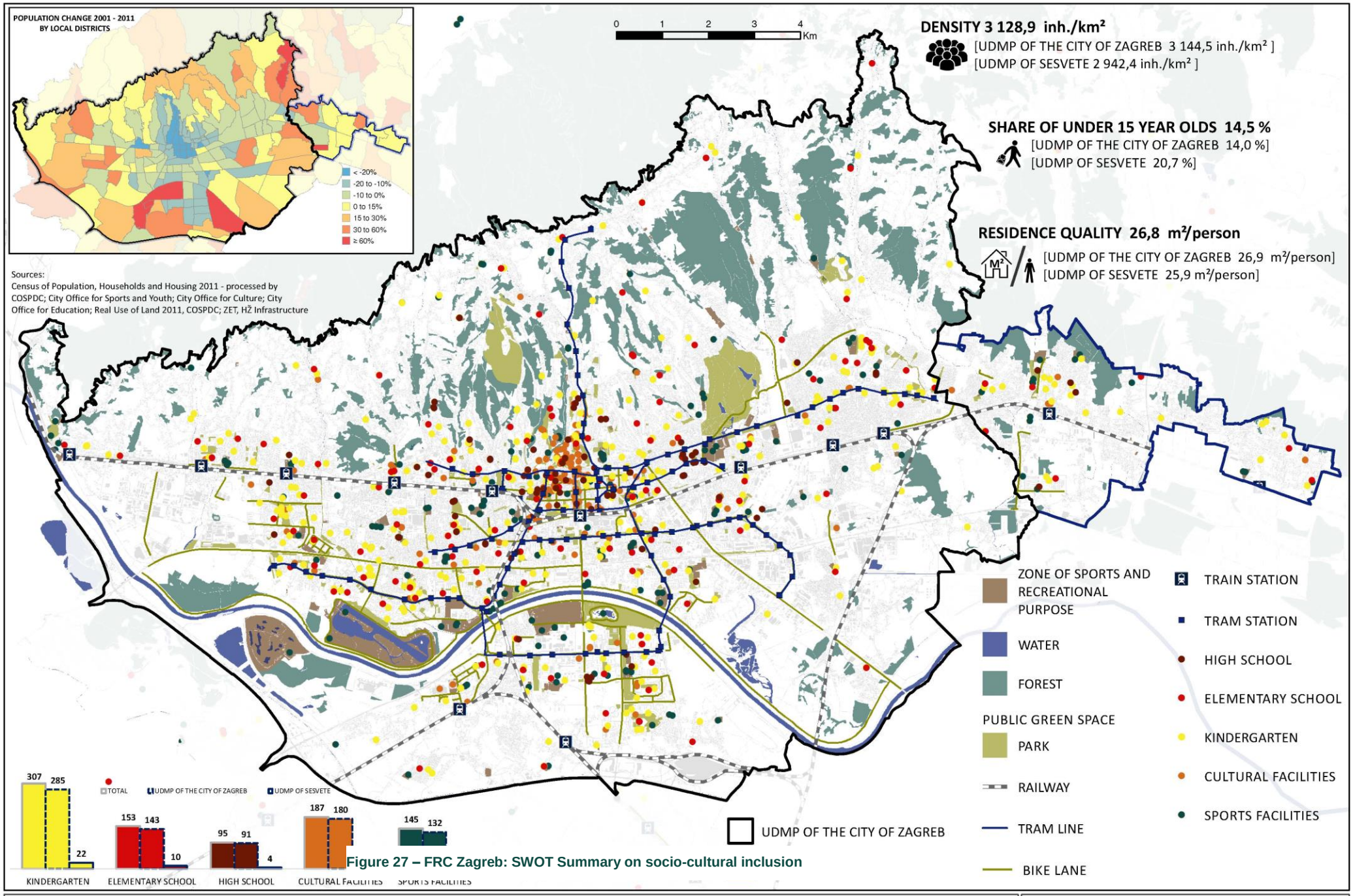


Figure 27 – FRC Zagreb: SWOT Summary on socio-cultural inclusion

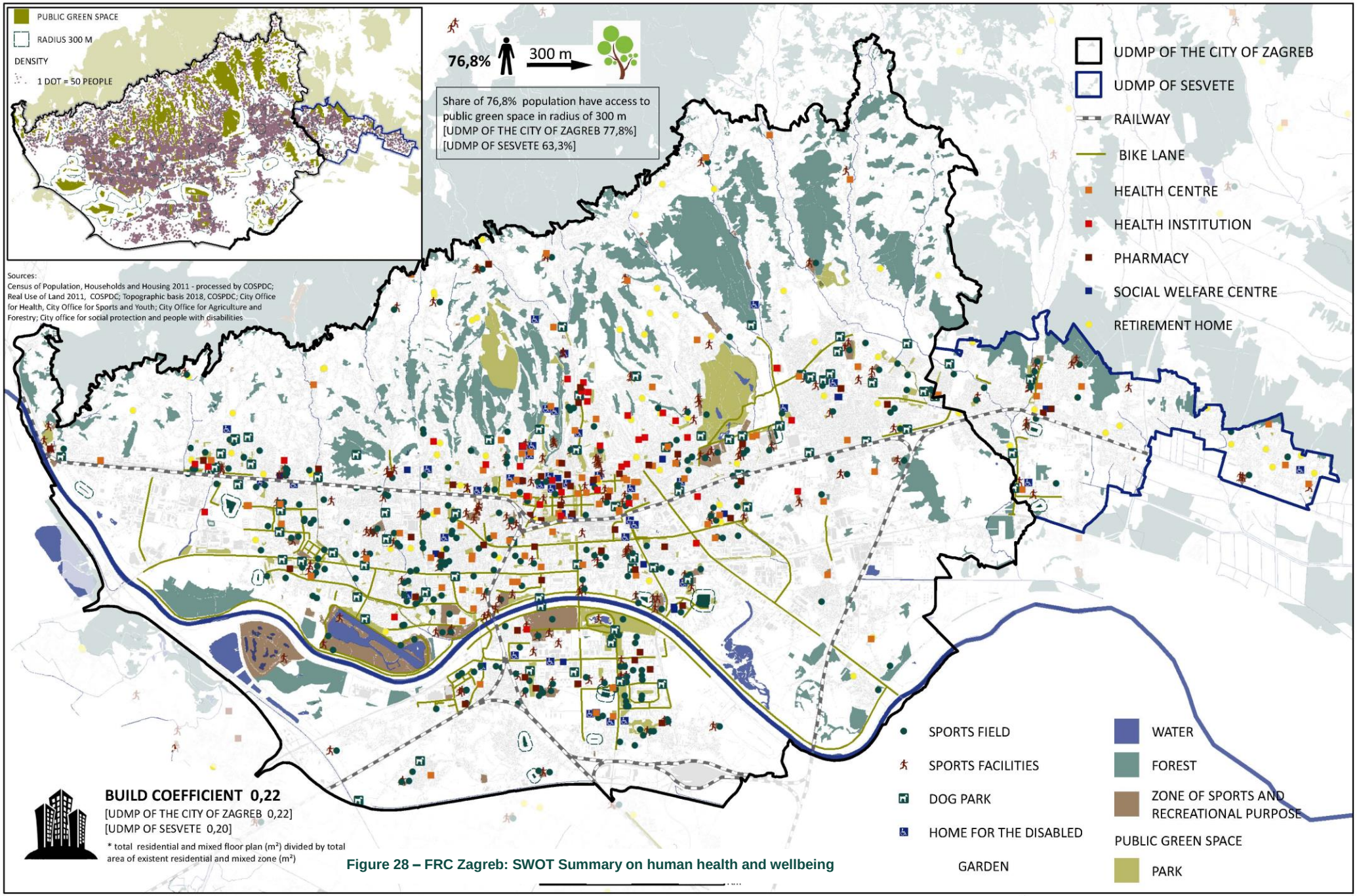
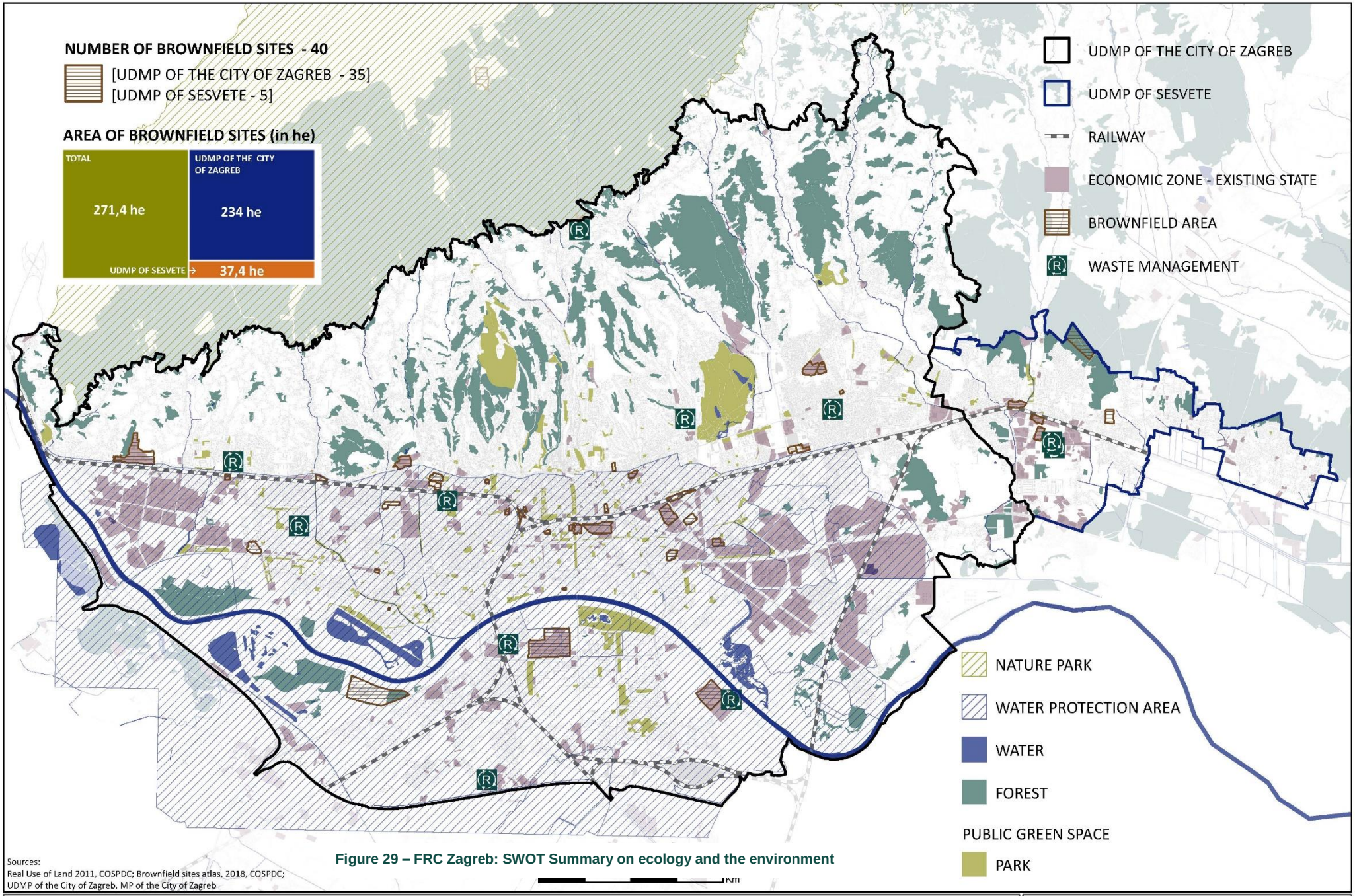


Figure 28 – FRC Zagreb: SWOT Summary on human health and wellbeing



Sources:
Real Use of Land 2011, COSPDC; Brownfield sites atlas, 2018, COSPDC;
UDMP of the City of Zagreb, MP of the City of Zagreb

Figure 29 – FRC Zagreb: SWOT Summary on ecology and the environment

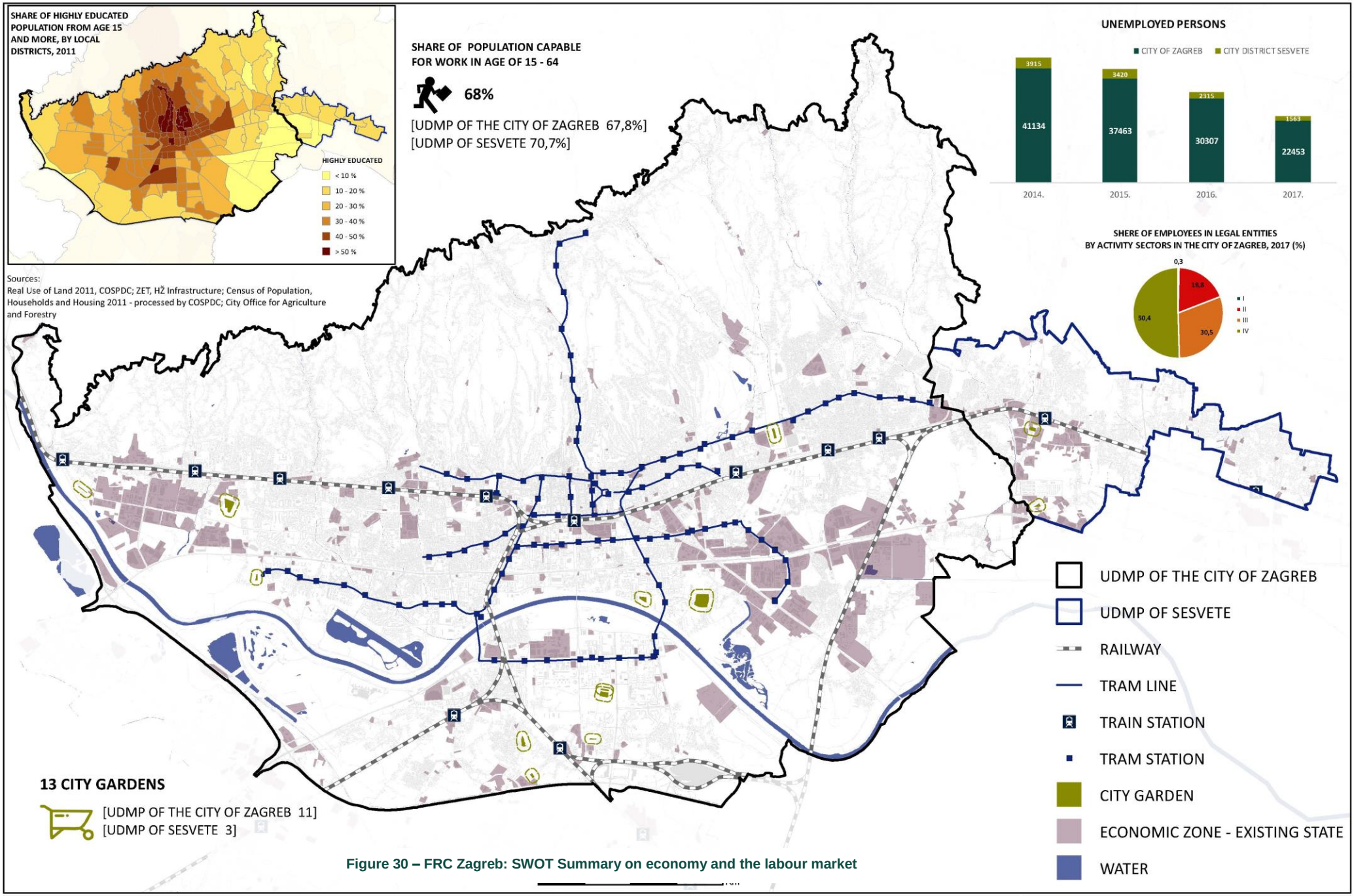


Figure 30 – FRC Zagreb: SWOT Summary on economy and the labour market

Living Lab level

Sesvete is a municipality of the City of Zagreb and a part of the Zagreb urban agglomeration, in its easternmost side, covering a little under 20% of the overall surface area of Zagreb. Sesvete has the youngest population in Croatia.

Socio-cultural inclusiveness:

- Young population
- Unparalleled demographic growth of the last years that have both intensified social and environmental pressures and problems

Human health and wellbeing:

- Wide urban gardens and rural tradition
- Good connections to the city centre by railway
- city roads not sufficient for the existing E-W transit traffic
- Public accessibility issues to some of the green areas
- Lack of a human scale centre of the neighbourhood due to its intense growth, a central urban park, a suburban landscaped park, cycling tracks, sports fields and many other facilities like a music school, buildings for culture and a large city square, a municipal court, a farmer's market, a police and fire service building, and other similar facilities

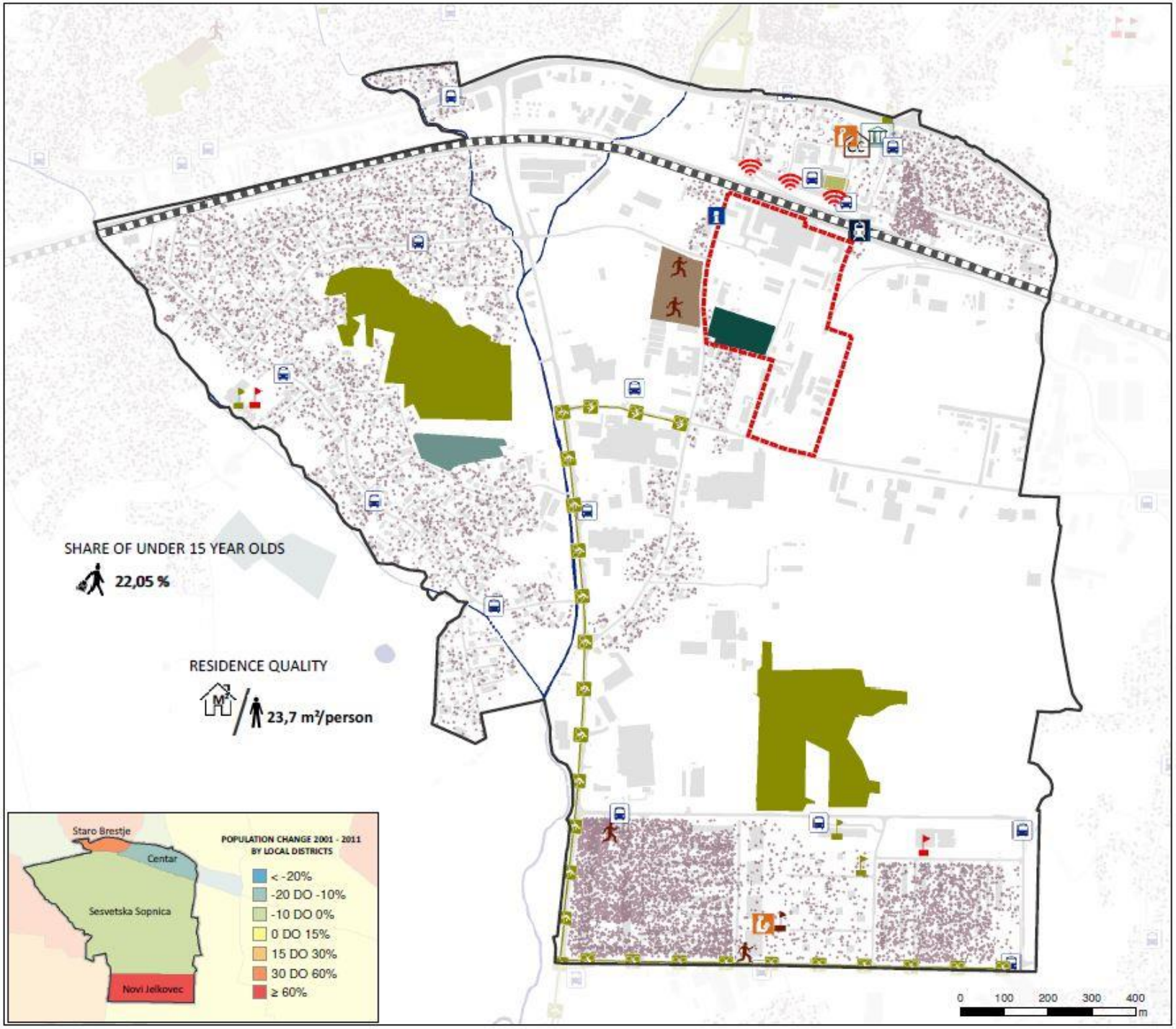
Ecological and environmental restoration:

- Richness of natural green areas

Economy and the labour market:

- Increased commercial/industrial traffic at the heart of the district from the development of the commercial/industrial zone - overload of transport infrastructure at the expense of residents

The residents of Sesvete are unhappy with the current planning documents, which envision a large monofunctional commercial/industrial zone, which they fear would prevent the desired spatial integration of the district centre with its parts south of the railroad. The LL area is partly within this large zone. Therefore, the civil society organizations are working on changes to the Urban Development Master Plan of Sesvete, in order to introduce other purposes in area south of the railroad. This aspect is especially important to the implementation of future activities in the LL, more specifically the co-design processes under Task 2.2 – the pre-conditions and openness of an already activated local community can fuel the development and implementation of the LL at local level, ensure local rooting and ownership, and foster sustainability of proGIreg.



LIVING LAB DISTRICT
LIVING LAB - SLJEME SESVETE
RAILWAY
BIKE LANE
TRAIN STATION
BUS STOP
HIGH SCHOOL
ELEMENTARY SCHOOL
KINDERGARTEN
CULTURE CENTER
LIBRARY
MUSEUM
SPORTS FACILITIES
FREE WI-FI SPOT
INFO POINT
ZONE OF SPORTS AND RECREATIONAL PURPOSE
CITY GARDEN
FOREST - PRIVATE PROPERTY
FOREST
PUBLIC GREEN SPACE
PARK
DENSITY
1 DOT = 1 PERSON

Sources:
Census of Population, Households and Housing 2011 - processed by COSPDC; City Office for Sports and Youth; City Office for Culture; Real Use of Land 2011, COSPDC; ZET, HŽ Infrastructure

proGIreg

2.1 SPATIAL ANALYSIS 1) SOCIO - CULTURAL INCLUSIVENESS

CITY OF ZAGREB
CITY OFFICE FOR THE STRATEGIC PLANNING AND DEVELOPMENT OF THE CITY, January 2019

Figure 31 – Analysis Area of FRC Zagreb: SWOT Summary on socio-cultural inclusion

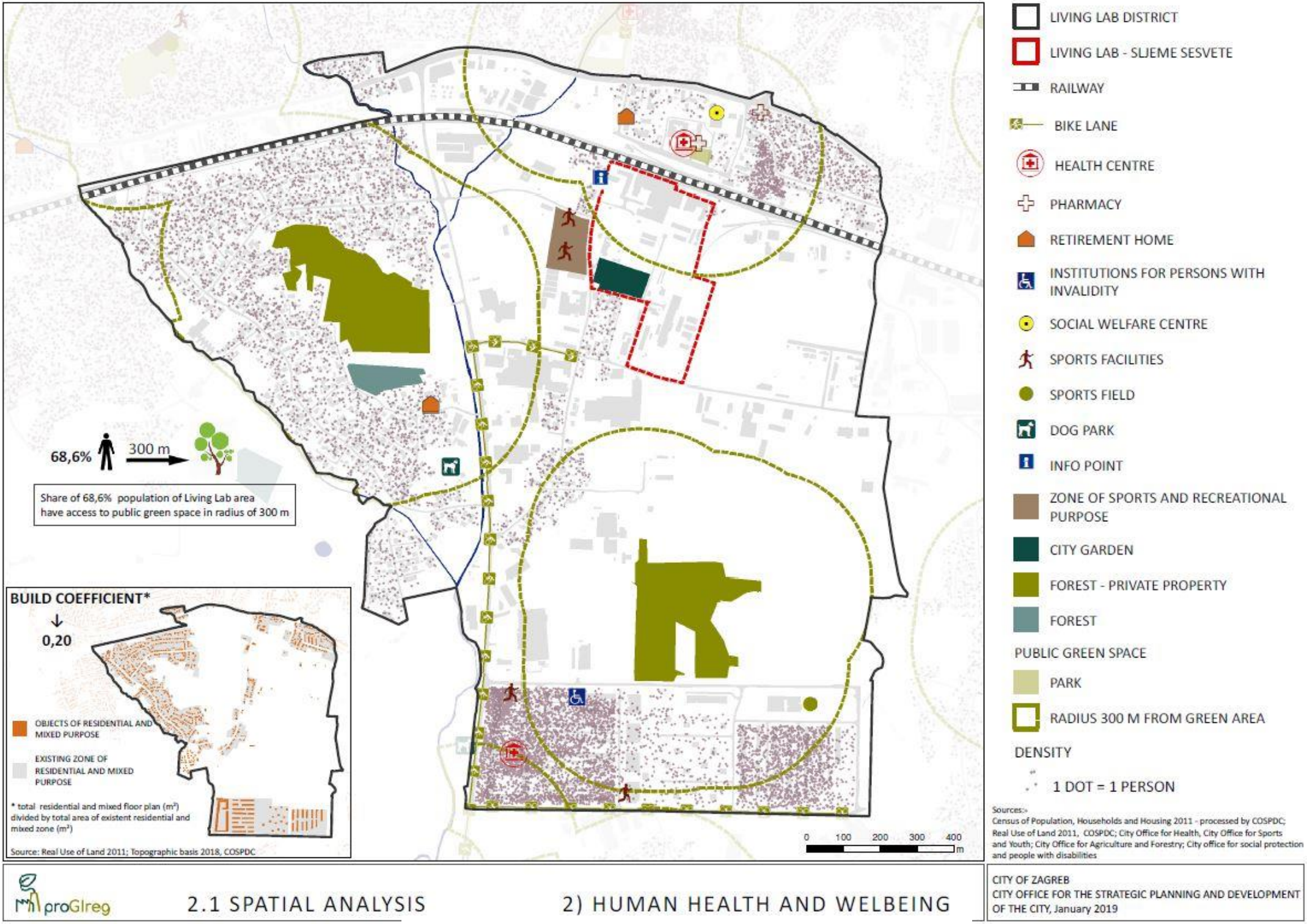
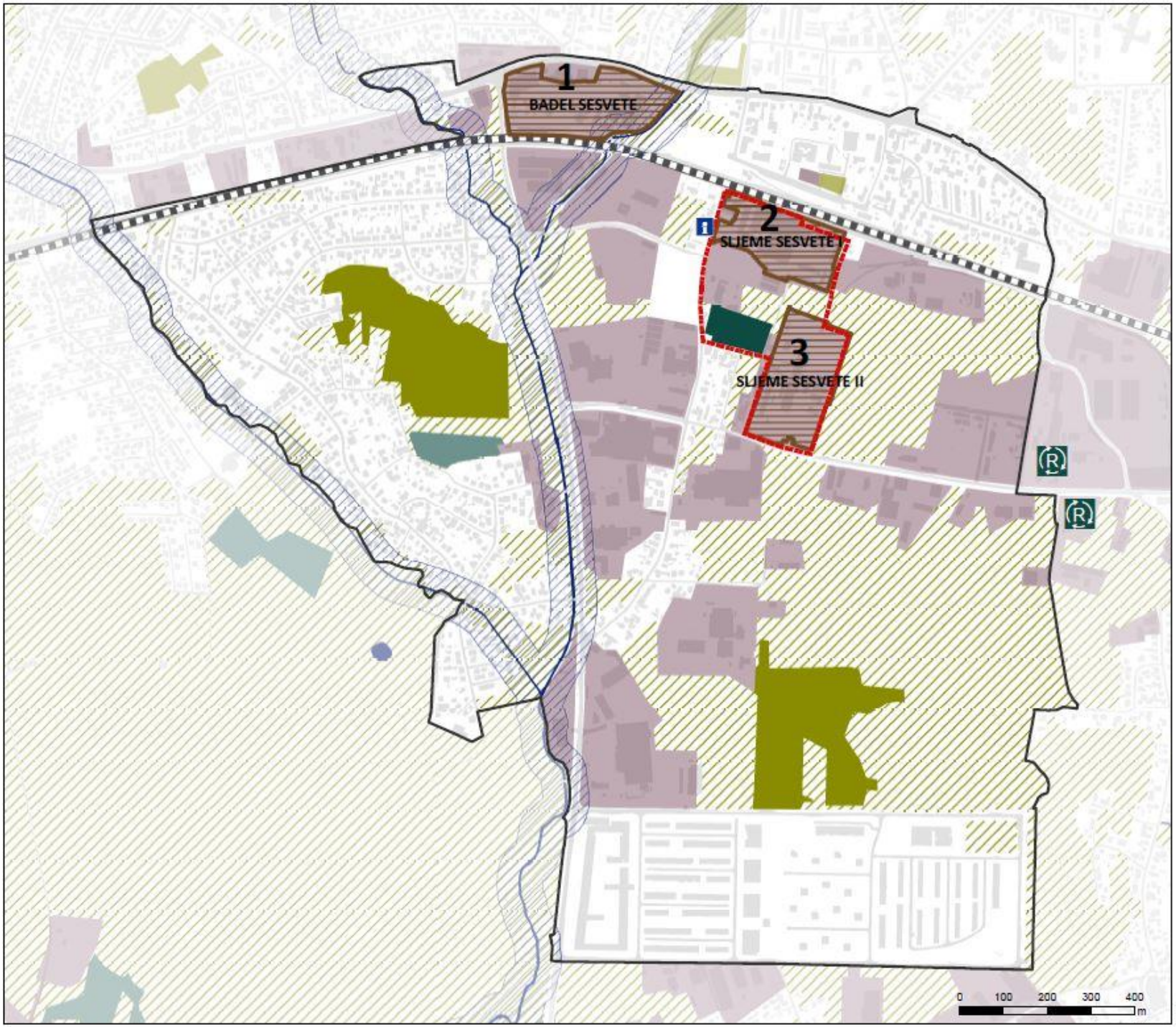


Figure 32 – Analysis Area of FRC Zagreb: SWOT Summary on human health and wellbeing



LIVING LAB DISTRICT

LIVING LAB - SLJEME SESVETE

RAILWAY

ECONOMIC ZONE - EXISTING STATE

STREAM

WASTE MANAGEMENT

INFO POINT

CITY GARDEN

FOREST - PRIVATE PROPERTY

FOREST

UNDEVELOPED GREEN AREA

PUBLIC GREEN SPACE

PARK

BROWNFIELD AREA

LOCATION NAME:
1 BADEL SESVETE
2 SLJEME SESVETE I
3 SLJEME SESVETE II

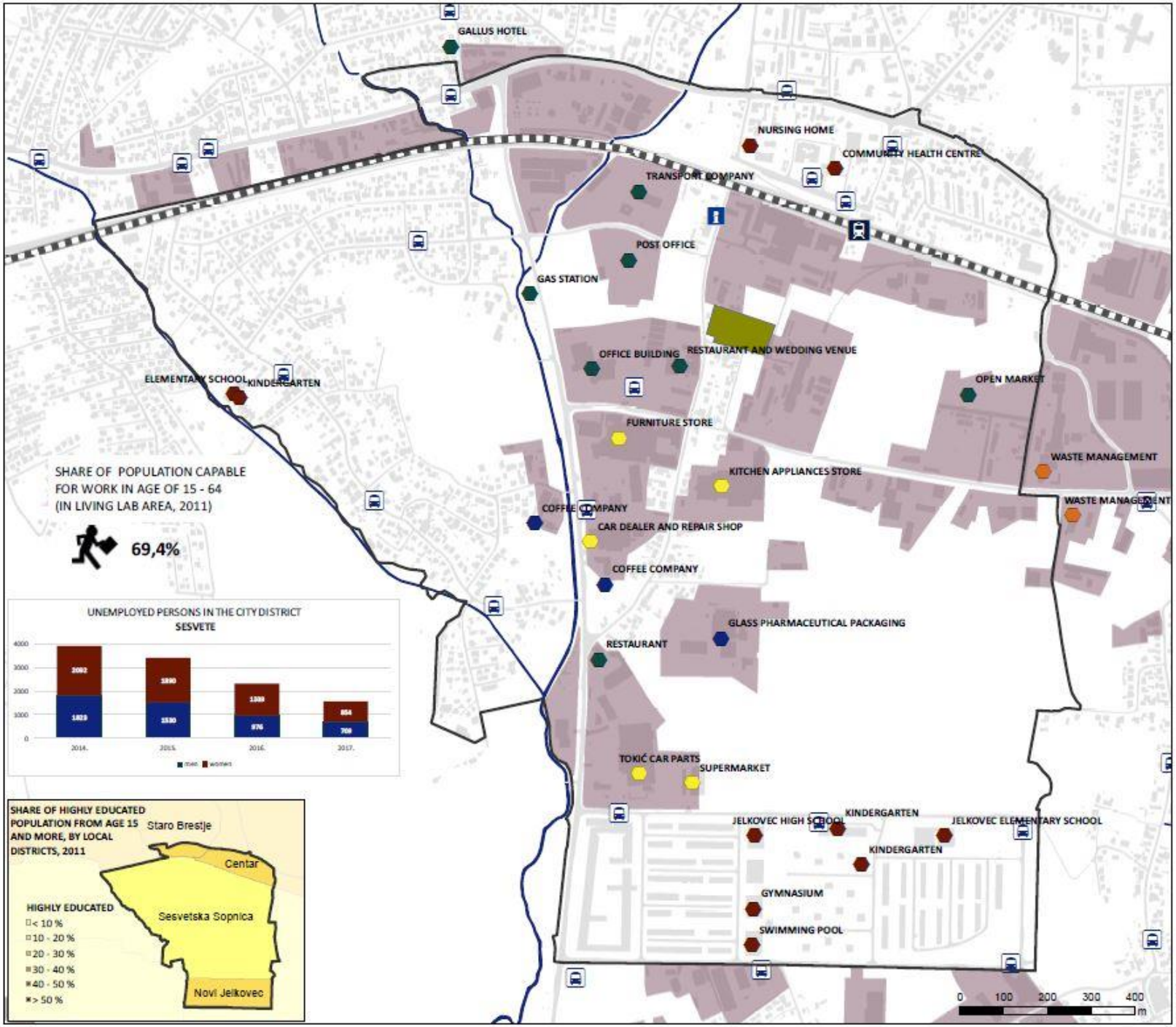
Sources:
Real Use of Land 2011, COSPDC

proGIreg

2.1 SPATIAL ANALYSIS 3) ECOLOGICAL AND ENVIRONMENTAL RESTORATION

CITY OF ZAGREB
CITY OFFICE FOR THE STRATEGIC PLANNING AND DEVELOPMENT OF THE CITY, January 2019

Figure 33 – Analysis Area of FRC Zagreb: SWOT Summary on ecology and the environment



Sources:
Real Use of Land 2011, COSPDC; ZET, HŽ Infrastructure; Census of Population, Households and Housing 2011 - processed by COSPDC; City Office for Agriculture and Forestry

proGireg

2.1 SPATIAL ANALYSIS

4) ECONOMY AND LABOR MARKET

CITY OF ZAGREB
CITY OFFICE FOR THE STRATEGIC PLANNING AND DEVELOPMENT OF THE CITY, January 2019

Figure 34 – Analysis Area of FRC Zagreb: SWOT Summary on economy and labour market

5.4. SWOT analysis for Ningbo

The Haishu District's main objective within the proGIreg project regards the regeneration of its blue areas ecological structure. The selected area (see annex 1.4) represents a key area of water scarcity in which the economy is developed and the population is concentrated. In fact, it had a large population density and a declining population before the adjustment of administrative divisions in 2016. After the adjustment of administrative divisions, the population has more than doubled, but the population density has significantly decreased.

City District Level

Socio-cultural inclusiveness:

- Increasing population
- Decreasing of population density
- Important increase of rate employment (98.52%)
- Low rate of social welfare assistance- the annual average social welfare benefit rate in Haishu District in 2008-2017 is only 0.768%.
- Uneven economic and population distribution – population, districts and economy concentrated in the eastern part of Haishu District

Human health and wellbeing:

- Increasing life expectancy trend, reaching 81.5 years in 2016
- Uneven distribution of green spaces, big amount of greenery for small population and vice versa
- Crowded medical treatment
- Lack of effective management of green areas

Ecological and environmental restoration:

- Proportion of forest land of total green space exceeded the percentage of 50% in 2018

- Unsatisfactory air quality - in recent years, PM2.5 concentration is 41.75 μg/m^3; PM10 is 68.8 μg/m^3; ozone concentration is 150 μg/m^3; nitrogen oxide concentration is 43.78 μg/m^3
- Upward trend in temperature

Economy and the labour market:

- Low unemployment rate
- Growth of local retail sales, with sales increasing by 2.8 times in 2008-2017
- Increase of Per capita tax revenue
- Increase in water, environment and public facilities management increased
- As a seaport city based on foreign trade, Ningbo has a slow economic growth.

The attractiveness of the area, demonstrated by the increasing average annual migration, is an opportunity for the city of Ningbo that could exploit this characteristic and improve it within proGIreg. Furthermore, after the adjustment of the administrative division in 2016, the green space in Haishu District has increased, thus making the area of the vast forest land in the western region and its benefits available for the overall Haitang District.

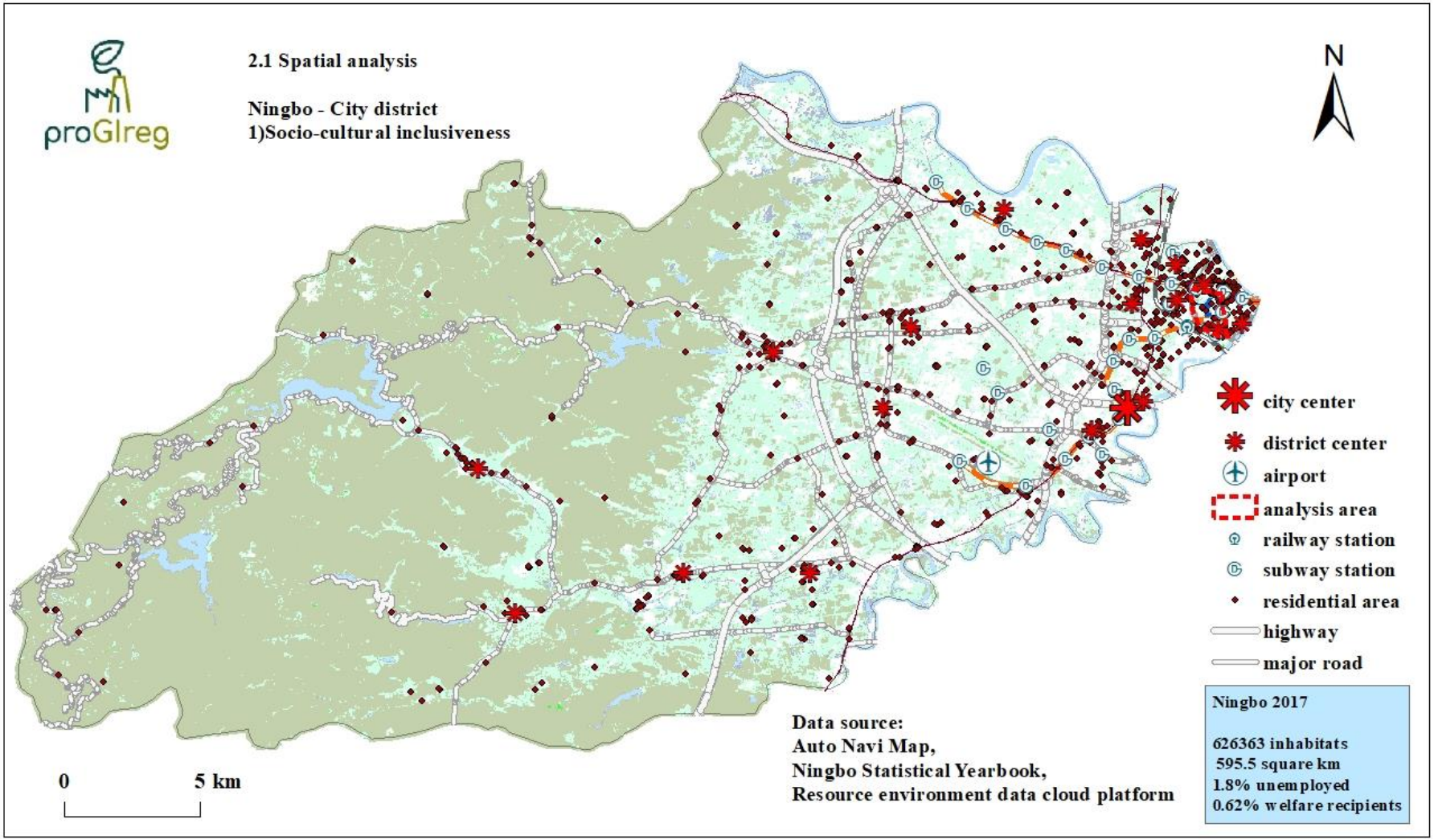


Figure 35 - FRC Ningbo: SWOT Summary on socio-cultural inclusion. Source: IUE-CAS

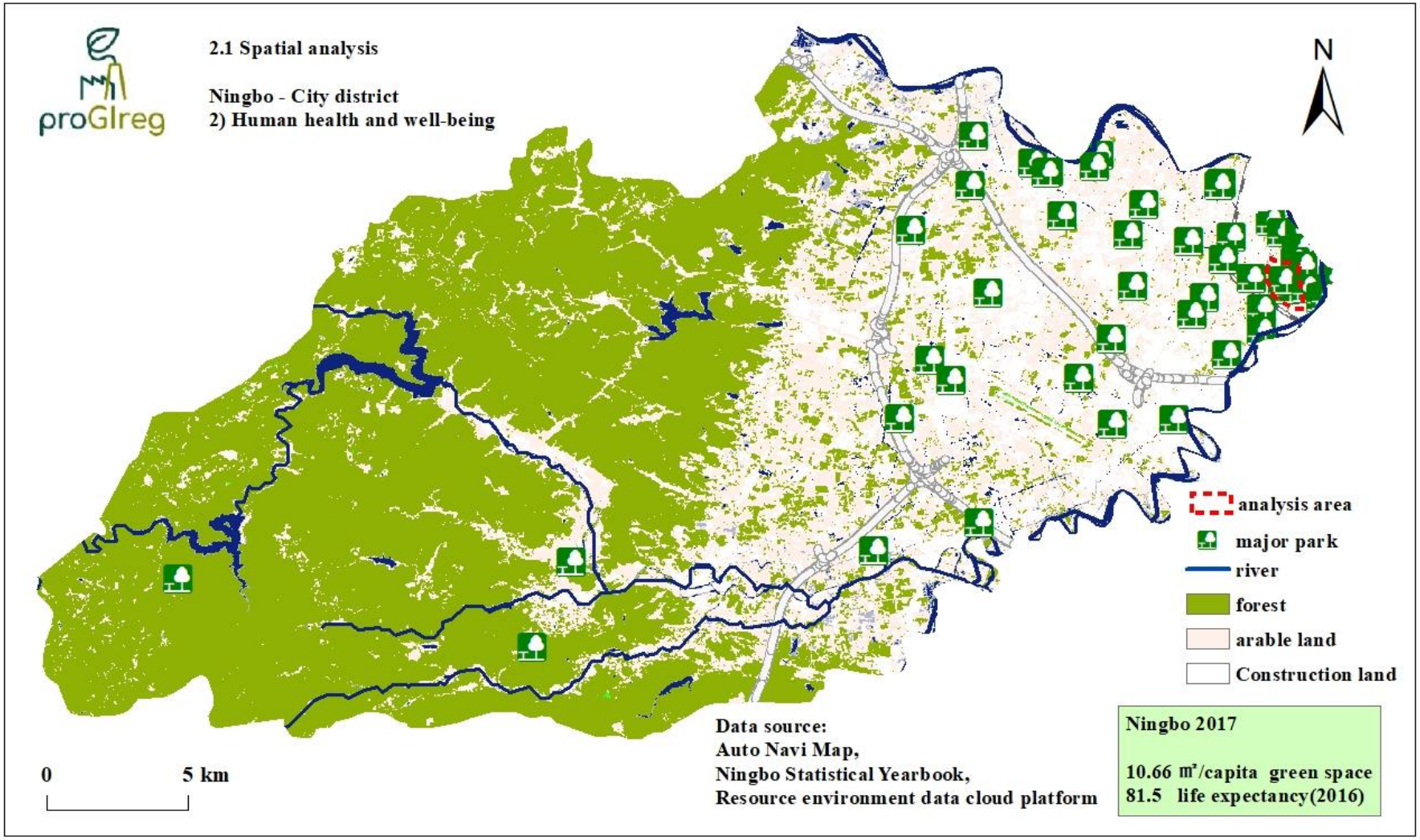


Figure 36 - FRC Ningbo: SWOT Summary on human health and wellbeing. Source: IUE-CAS

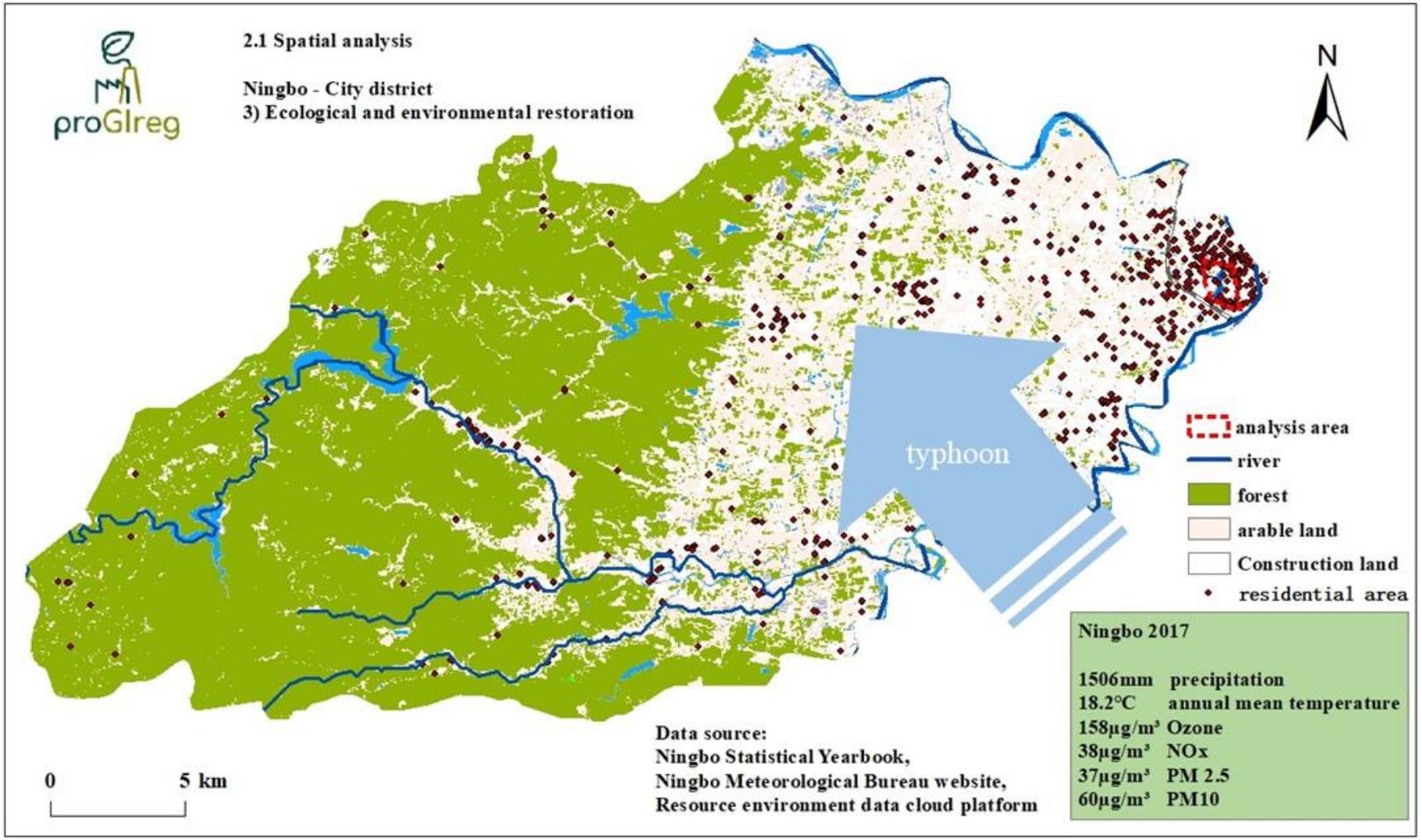


Figure 37 - FRC Ningbo: SWOT Summary on ecological and environmental restoration. Source: IUE-CAS

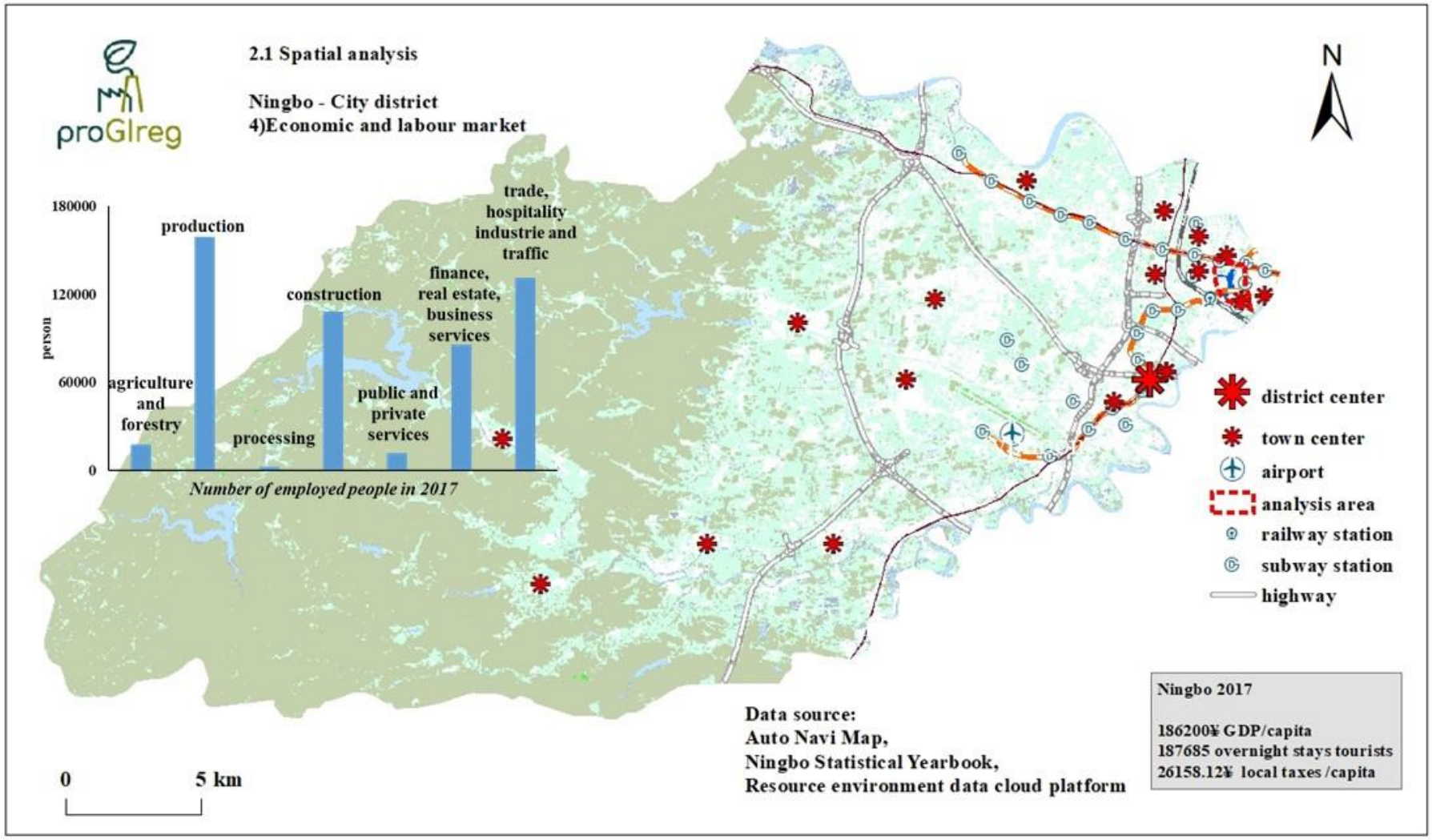


Figure 38 - FRC Ningbo: SWOT Summary on Economy and labour market. Source: IUE-CAS

Analysis Area level for the Ningbo LL

Despite decreasing population of Moon Lake Street and its 7 communities, it is still very dense – considering that the Street also accommodates the 28-hectare park, its density of over 12,400 inhabitants / km^2 (2017) represents an important defining characteristic, and providing environmental services and NBS to ensure quality of life is a challenge which proGIreg will have to address. However, there are also many primary and secondary schools, theatres, large leisure sports venues and museums, with the Analysis Area being an attractor at district level. The area is very accessible via subway, meeting people's needs for education and culture.

Moon Lake Park is located in the center of Moon Lake Street. It covers an area of 28 hectares, and it is a municipal conservation zone for history and culture in Ningbo. There are a large number of attractions and leisure facilities around, and residents of 7 communities can easily access the green space for walking and entertainment.

The “Shi qing hu xi” reconstruction project on Moon Lake Street is located on the west side of the lake, north to Zhongshan Road, west along Changchun Road, east to Haoyue Street, Gongqing Road, and south to Guijing Street. The construction scale of the "Shi qing hu xi " project is about 0.2 km2, and the buildable area represents around 0.163km2. The Chinese-protected area is about 0.027km2, and the historic building is 0.039km2. However, Moon Lake Park is located in the urban area, surrounded by many old neighbourhoods with high land prices and large transformation costs.

Socio-cultural inclusiveness:

- Slow decreasing of population density to more manageable levels but still very high, reaching 12,440 inh. /km2
- Very well served, in terms of facilities and connections with other areas
- Statistically insignificant migration rate (0.04%)
- Population decrease

Human health and wellbeing:

- Health benefits due to the presence of the Moon Lake Park, easily accessible to citizens for walking and entertainment
- High rate of accessibility and connectivity with adjoining areas and with green areas
- Excessive touristic flows, affecting the living environment
- Insufficient medical services

Ecological and environmental restoration:

- Moon Lake Street has a large green space and represents a beautiful scenery
- “Shi qing hu xi” construction project (see annex 1.4)
- Moon lake blooms aggravated by hot weather caused by climate change
- Old neighbourhoods have high land prices and large transformation costs of the surrounding areas

Economy and the labour market:

- Important touristic asset providing a large number of jobs for the labour force
- Simple industrial structure that makes it vulnerable to market shocks.

Given that Ningbo has already implemented the NBS measures for improving the water quality of the man-made Moon Lake, they are currently only being monitored. Further LL implementation will need to be contextualized within the already-performed implementation (aquatic filtering plants, fry fish, pumps for oxygenizing the water, water filter, new bamboo plantings) and to support the past and ongoing initiatives with complementary NBS 2, 3 and 7 of proGIreg

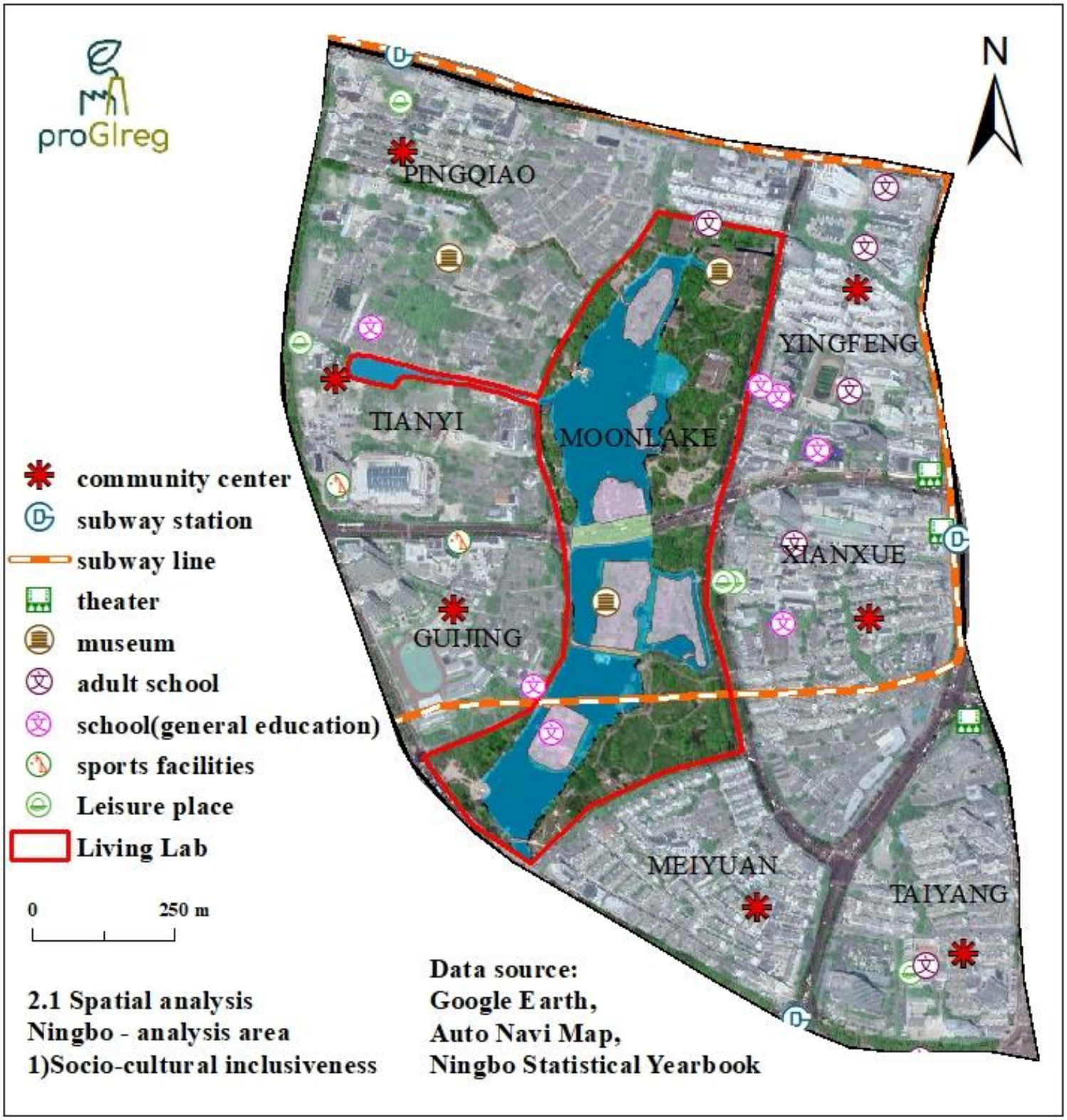


Figure 39 - Analysis Area of FRC Ningbo: SWOT Summary on socio-cultural inclusion. Source: IUE-CAS

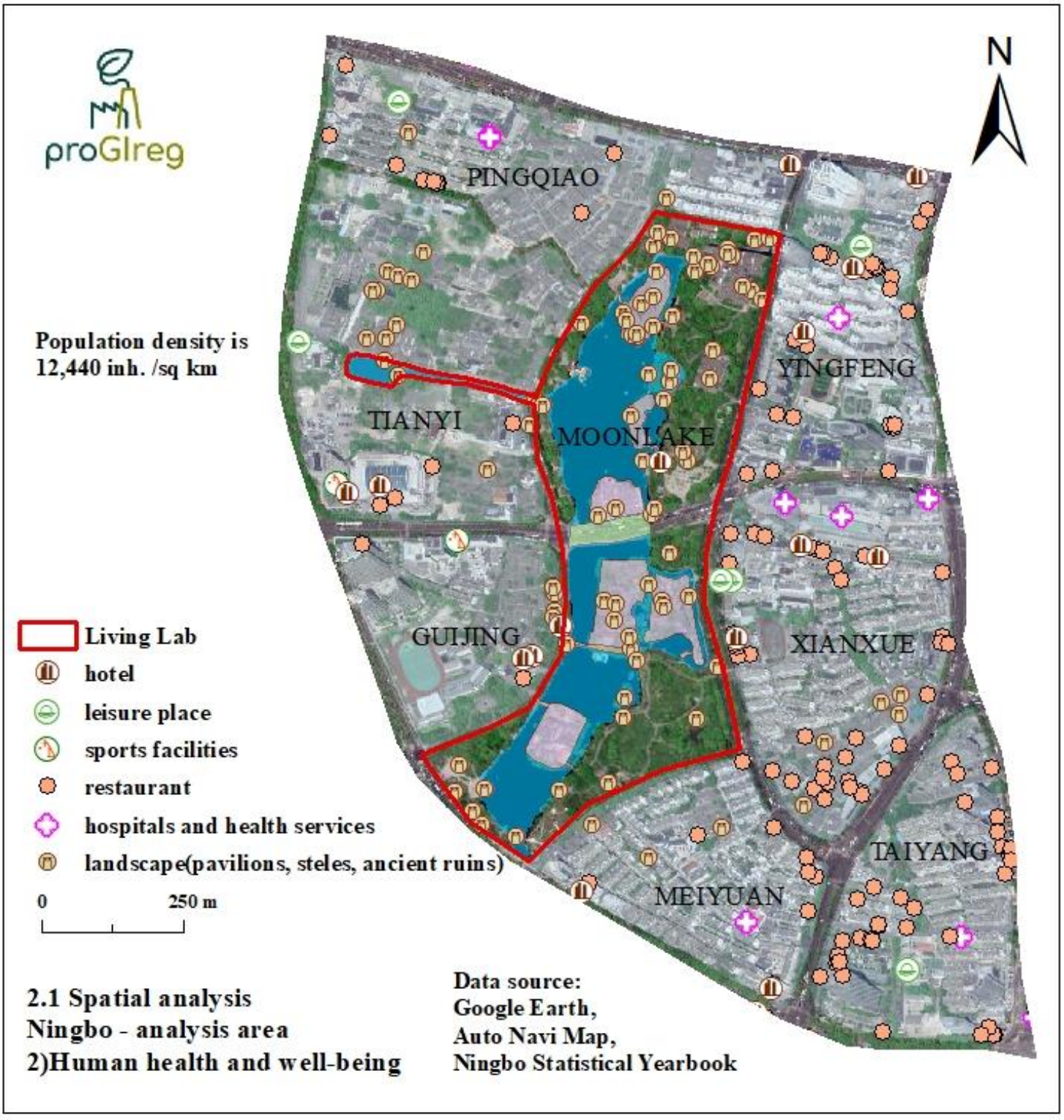


Figure 40 - Analysis Area of FRC Ningbo: SWOT Summary on human health and wellbeing. Source: IUE-CAS

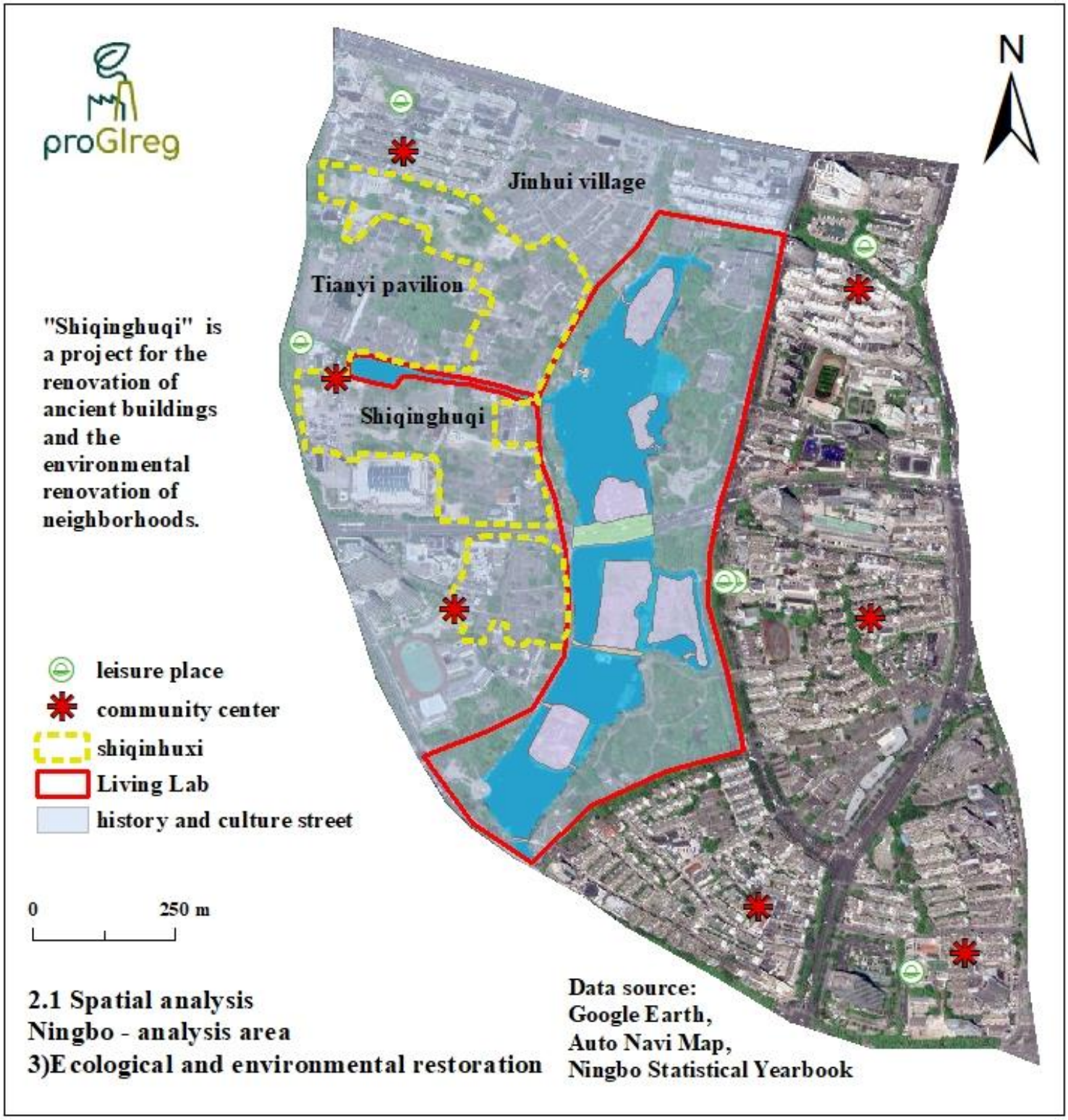


Figure 41 - Analysis Area of FRC Ningbo: SWOT Summary on ecology and environment. Source: IUE-CAS

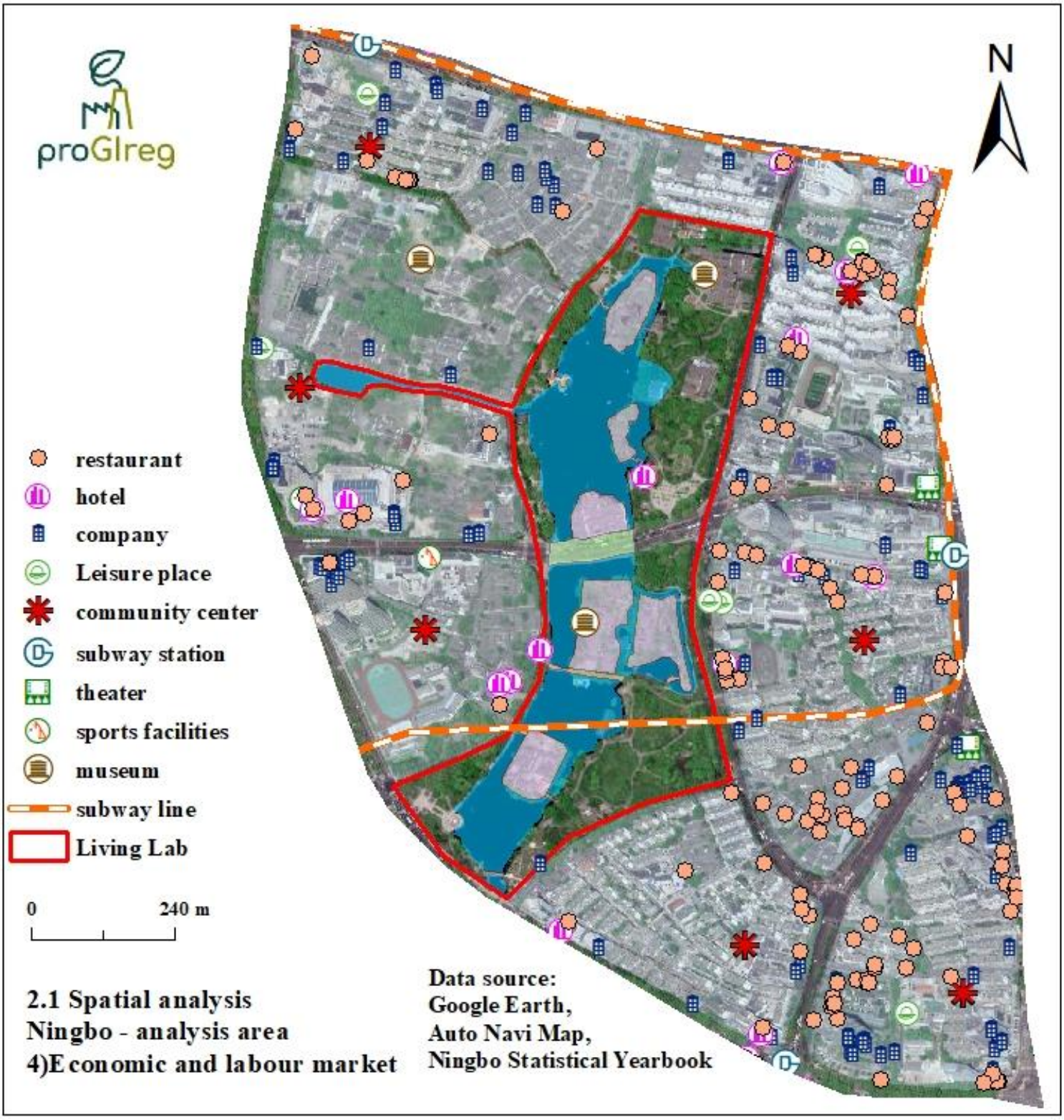


Figure 42 - Analysis Area of FRC Dortmund: SWOT Summary on economy and labour market. Source: IUE-CAS

5.5. SWOT analysis for Cascais

The coastal municipality of Cascais is experiencing high demographic growth to which the city has tried to respond through a fragmented urban growth, to the detriment of green areas. The municipality is already active in the territory with a series of programmes, sustaining the citizens and the sustainable urban development of the city.

City Level

Socio-cultural inclusion:

- Cascais social network, a programme with the main objectives of fighting poverty and social exclusion and promoting social development
- Participatory budget programme
- Low rate of criminality
- Issues related to migratory movements and migrants

Human health and wellbeing:

- The city is at the 3rd place for good quality of life of the 308 Portuguese municipalities
- Good existing local public health infrastructures (1 public general hospital, 2 specialist hospitals, 6 health centres)
- Weak pedestrian accessibilities
- Low availability of urban green areas

Ecological and Environmental situation:

- Mild climate (supporting year-round cultures; 12º C Winter mean temperature)
- Application of the Local Land Bank (Banco de Terras)
- Lack of urban green space due to urban expansion process
- Pollution of local river
- Land use conflicts

Economy and labour market:

- Factor C – Local development programme
- Highly increasing trend for market vegetables and fruits
- CSA network – Citizens with economic capacity that may support Community Supported Agriculture
- Development of a Local Brand – Terras de Cascais for small scale local economy improvement
- Lack of public/private partnerships
- Lack of interest and entrepreneurship in favour of a local economic development in the primary sector
- Presence of Social and economic asymmetries

EU projects, like proGIreg and Milan pact represent a great opportunity for sustainable and integrated development, offering opportunities to implement and sustain local and national initiatives that

promote a better quality of life and green alternatives to the traditional daily routine (such as the organic vegetable gardens, which are an increasing trend)

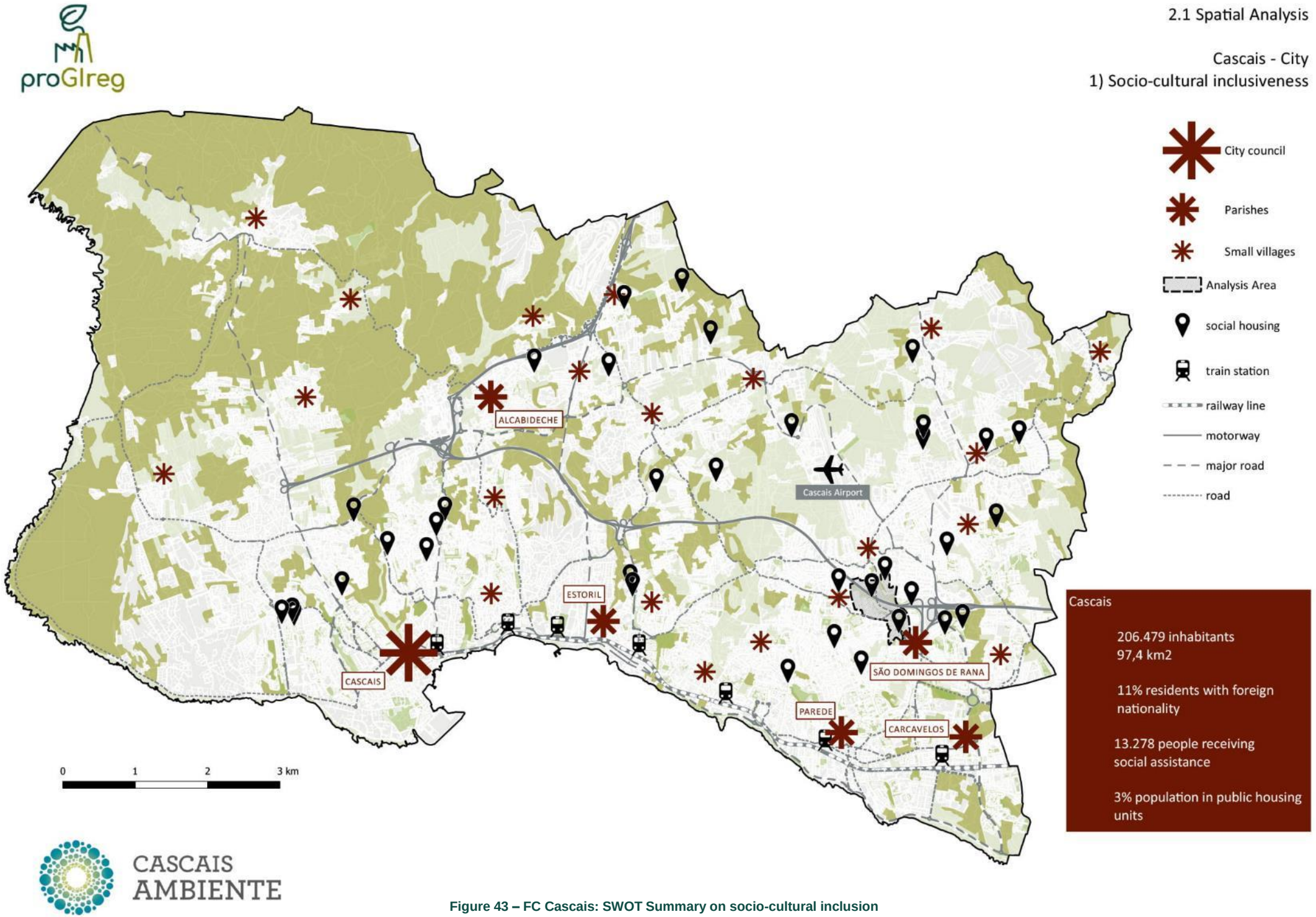


Figure 43 – FC Cascais: SWOT Summary on socio-cultural inclusion

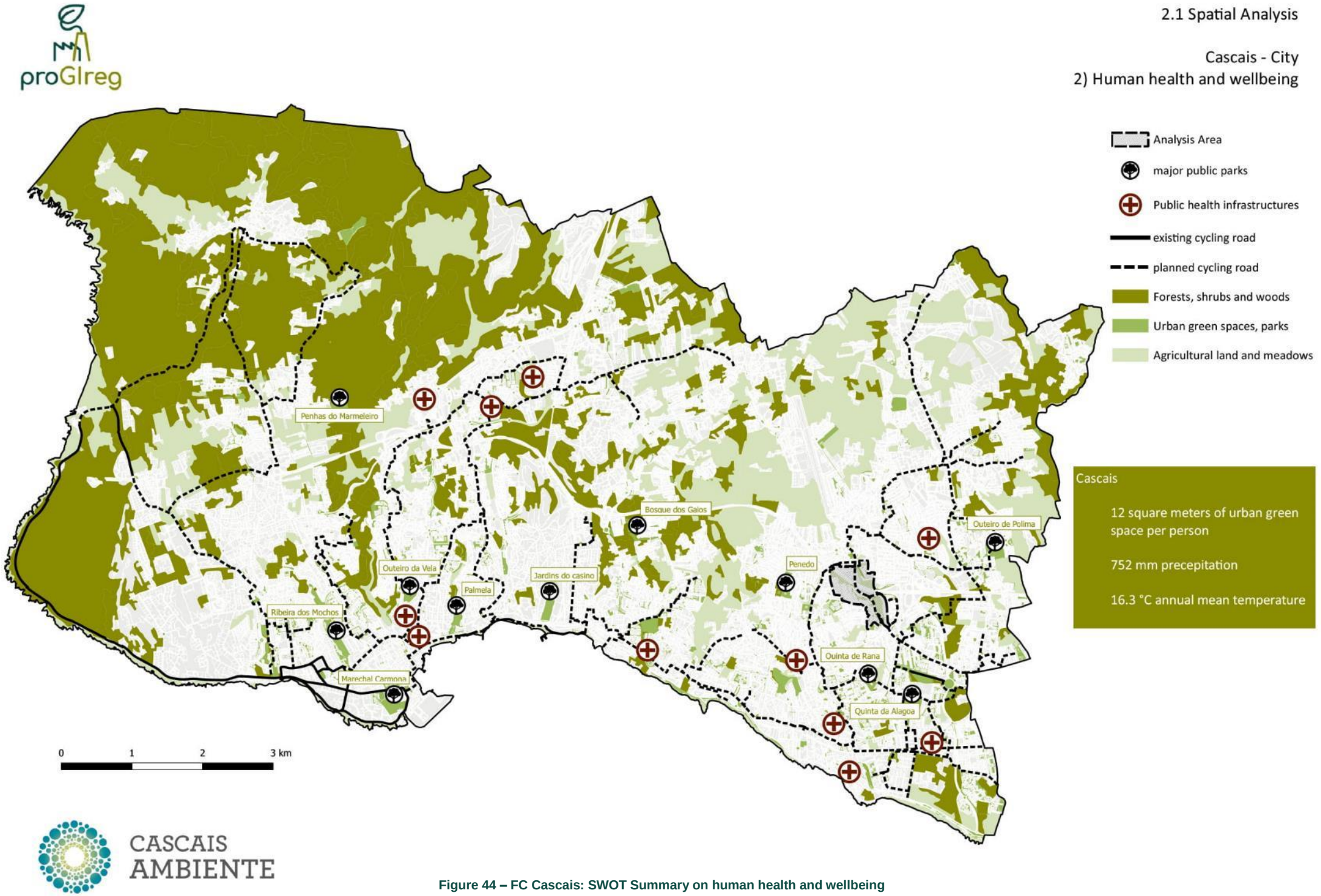


Figure 44 – FC Cascais: SWOT Summary on human health and wellbeing

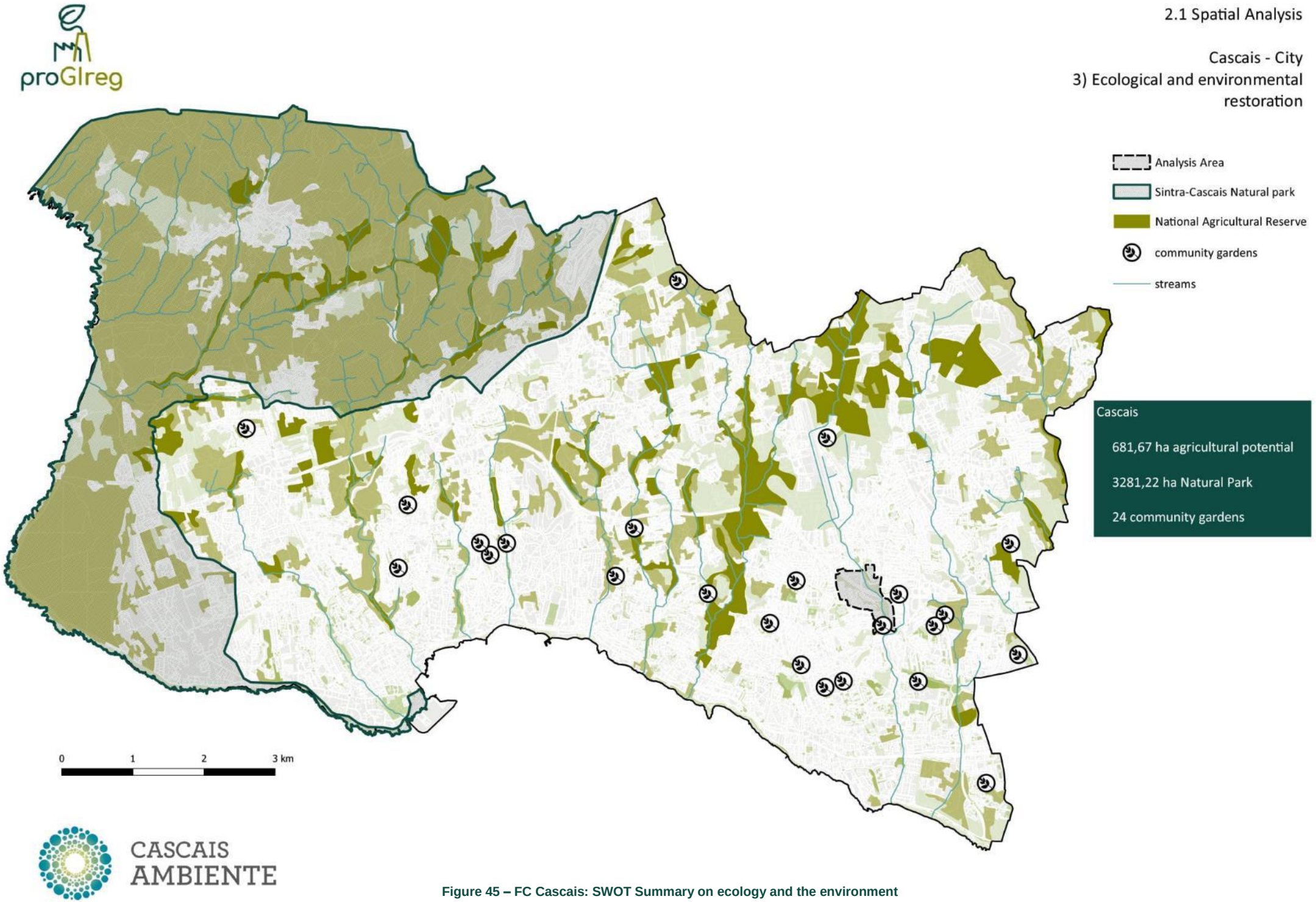


Figure 45 – FC Cascais: SWOT Summary on ecology and the environment

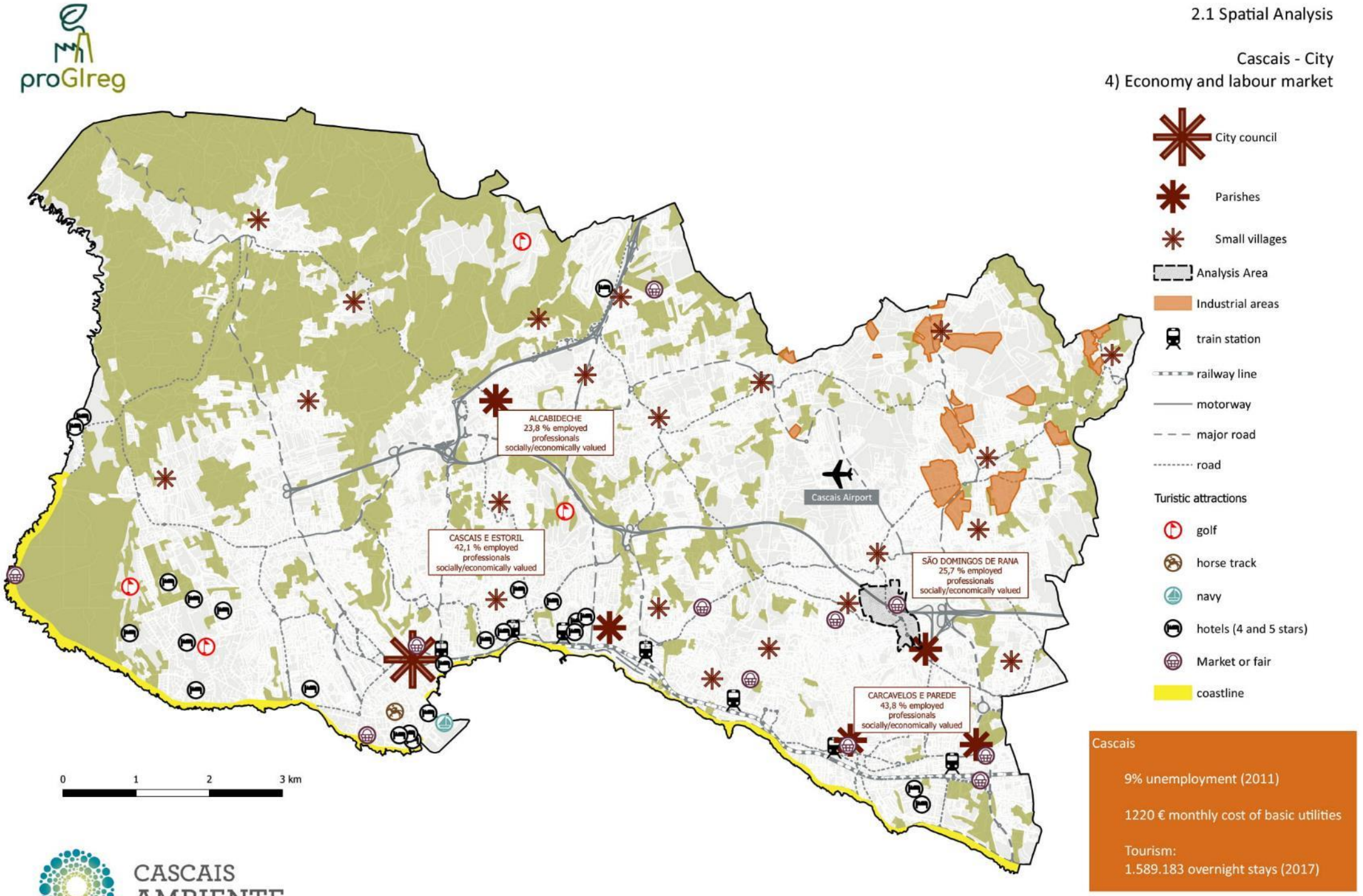


Figure 46 – FC Cascais: SWOT Summary on economy and the labour market

Analysis Urban Regeneration Area level for Cascais

The Urban regeneration area of Tires/ Brejos identified by Cascais is a peripheral neighbourhood of the city in need of an upgrading from a traditional use of the green areas for recreational purposes to a productive GI with the capacity of offering social and economic benefits.

Socio-cultural inclusion:

- Activation of the Municipal Social inclusiveness office
- Several local civil society associations, including Food Bank (FEBA) and church, sustaining local residents and promoting social initiatives
- Low education level of the resident
- Issues connected with migratory flows and relationship between local "original" citizens and immigrant communities

Human health and wellbeing:

- Mental benefits from the contact with nature and outdoor living
- Difficult accessibility
- High amount of addictions

Ecological and Environmental situation:

- Naturalization of river banks
- Increasing local interest in urban agriculture
- Risk of flooding, which, at the same time, improve the richness of the soils in the flood areas
- Land use irregularities and lack of regulations
- Presence of the Local Land Bank

Economy and labour market:

- Existing local open-air market and small local grocery shops, supporting local products
- General low income of residents
- Lack of entrepreneurship and education or training of the communities.

Despite the several issues that the area can present in terms of soils, land use regulations and population homogeneity, the municipality offers different opportunities that can be integrated and exploited during the implementation of proGIreg project, such as the CSA- Community-Supported Agriculture, the Local Land Bank (Banco de Terras), the development of a Local Brand and the DNA – Municipal start-up incubator.

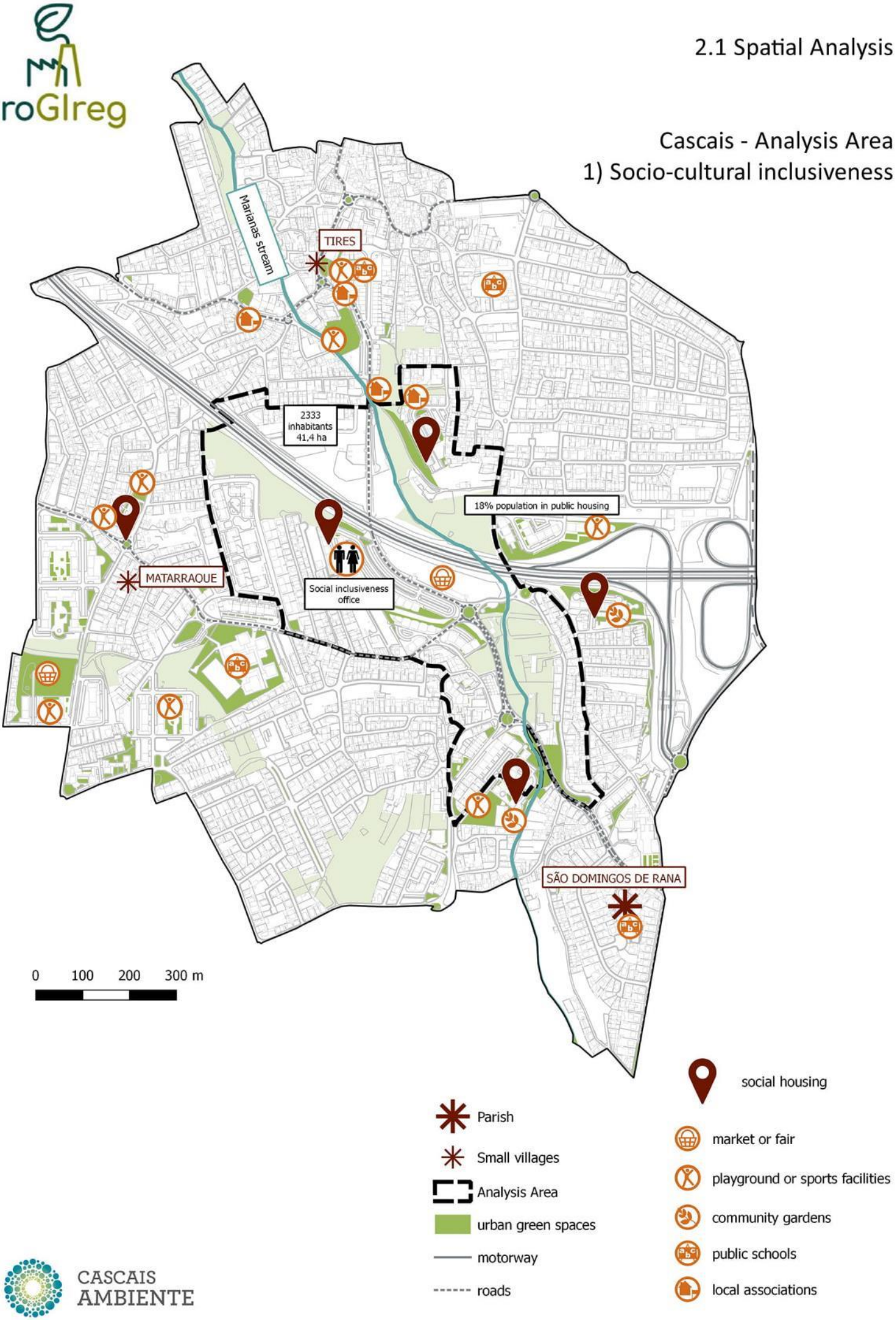


Figure 47 - Analysis Area of FC Cascais: SWOT Summary on socio-cultural inclusion

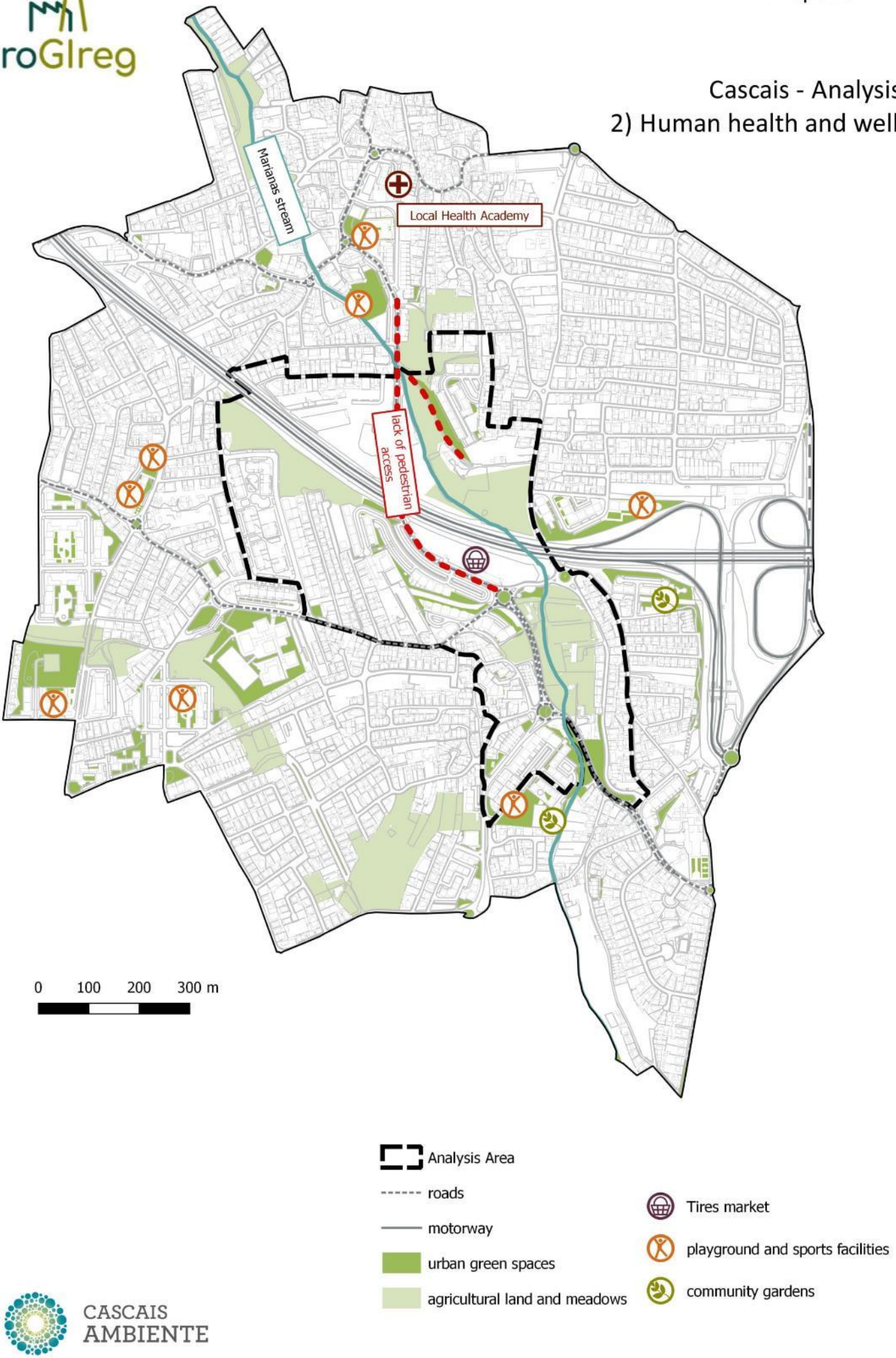


Figure 48 - Analysis Area of FC Cascais: SWOT Summary on human health and wellbeing

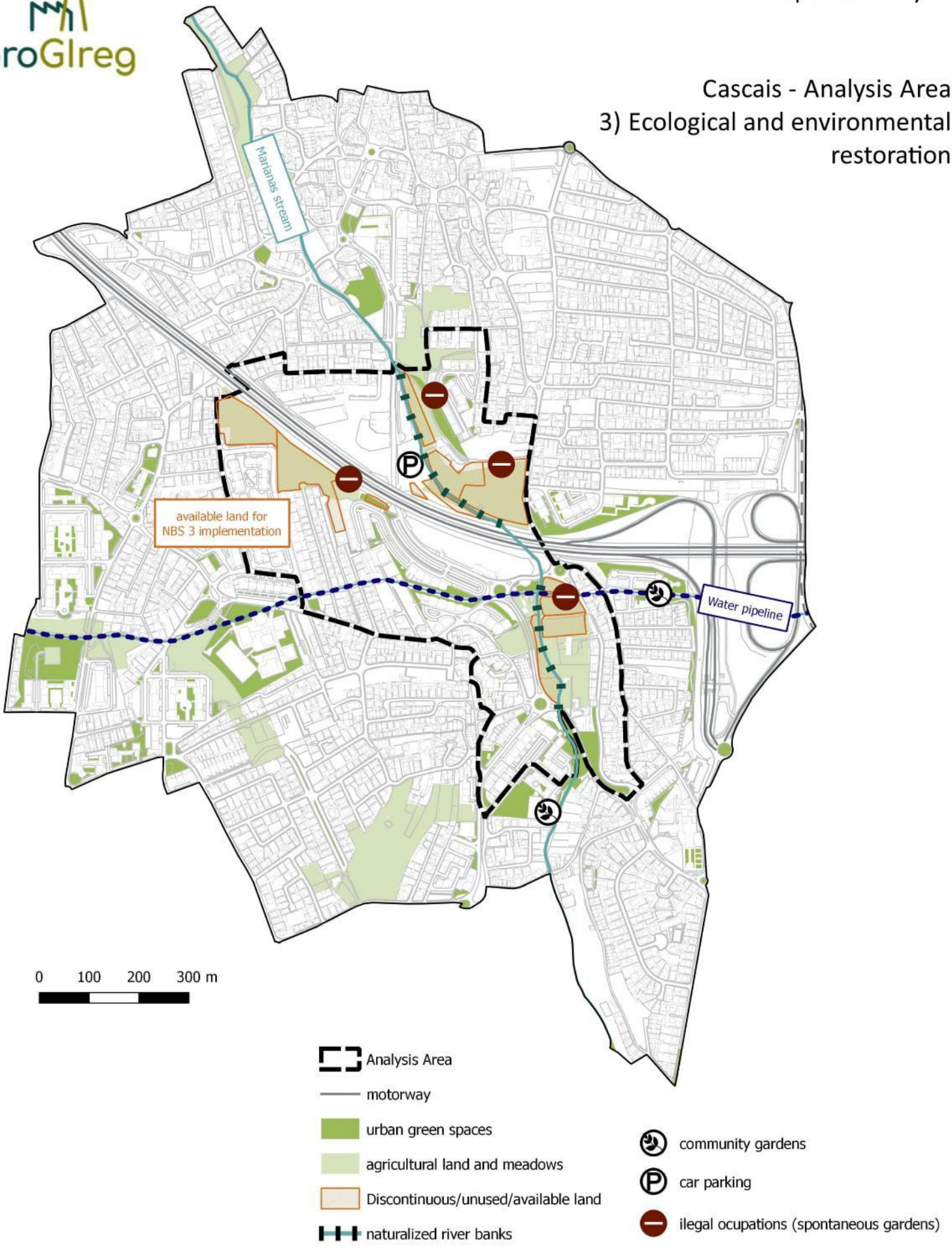


Figure 49 - Analysis Area of FC Cascais: SWOT Summary on ecology and the environment

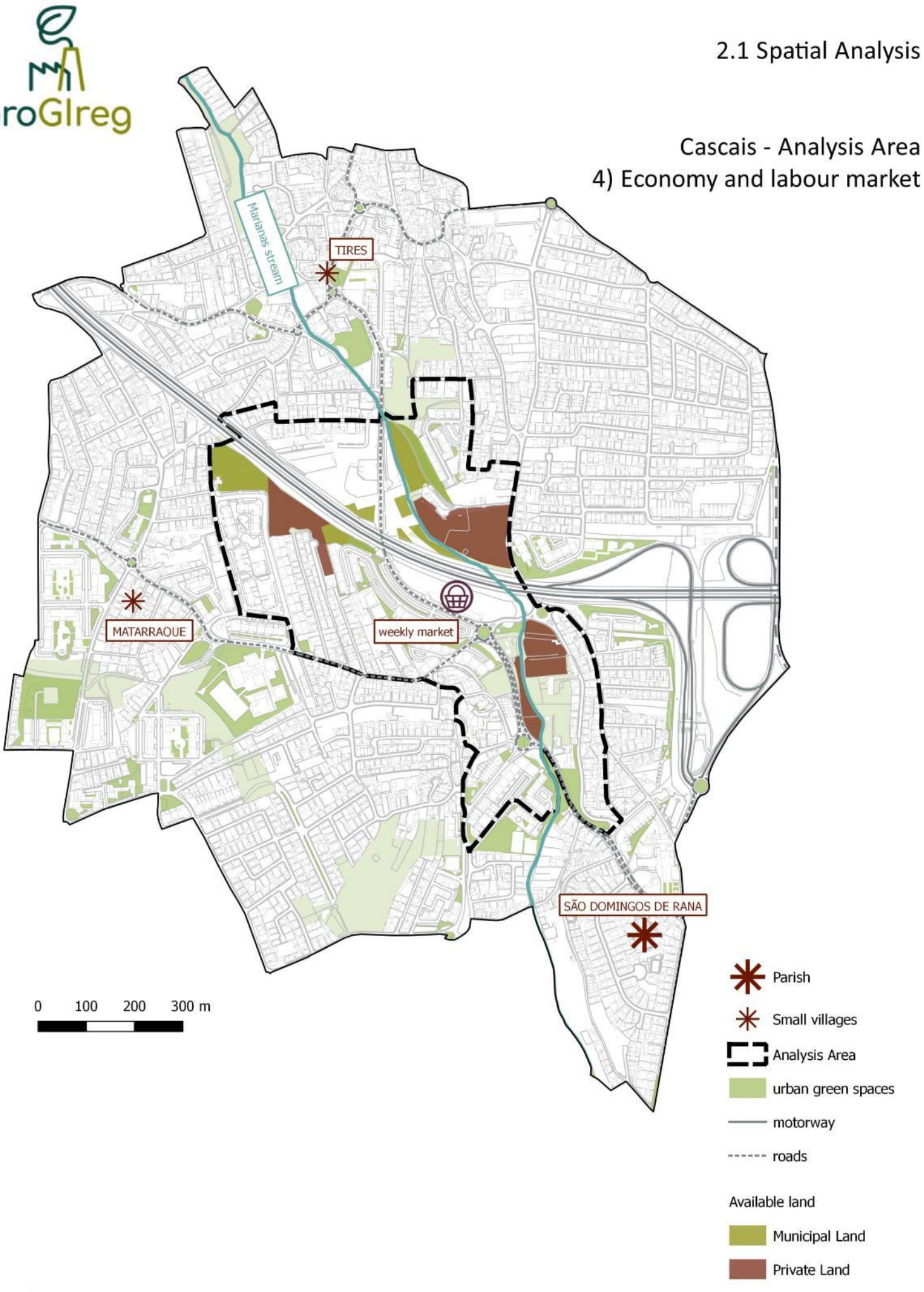


Figure 50 - Analysis Area of FC Cascais: SWOT Summary on economy and labour market

5.6. SWOT analysis for Cluj-Napoca

The Cluj-Napoca Metropolitan Area (CMA) represents a great heterogeneity of environments: industrial axis with large brownfields sites that intersects the blue-green axis of the Somes River, the Faget Forest and vast urban but also rural areas.

Metropolitan level

Socio-cultural inclusion:

- Population growing (with a rate of 1.38%) and a decrease in migration flows (41% decreasing from 2013 to 2017)
- High rate of young people
- Considerably decreasing of the material deprivation rate
- Underdeveloped ambulatory social services for the elderly and people with disabilities, home care, and daily care centres, especially in rural areas
- Increasing dependency of the rural areas for specialized services and facilities offered by Cluj-Napoca
- Suburbanisation
- Low dwelling and amenity quality in the peripheral areas of the CMA

Human health and wellbeing:

- High living standards in the Functional Urban Area
- A well-consolidated East - West urbanisation axis, with dwellings having amenities and utilities over national averages, with still areas in which the urban expansion is uncontrolled in the Functional area, due to administrative passivity and commercial interests
- Good quality of medical and sanitation services at county level
- Air quality degradation
- Lack of water supply networks in 47 localities out of the 98 of the metropolitan area
- Diffuse poverty in rural areas

Ecological and environmental situation:

- Many natural protected areas at community (9), national (10) and county (7) level
- Potentiality represented by the green corridor along the Somesul Mic valley
- Fragmented urban expansion that has created monofunctional residential areas of poor quality, impacting on the natural framework
- Uncontrolled waste disposal along the valley, with significant impacts on water and soils quality

Economic and labour market benefits:

- Very good industrial investment support network, and availability of industrial parks with special status (TETAROM I-IV, ca. 283 hectares in total) in the FUA of Cluj-Napoca
- 1st place in percentage of workers employed in specialized sectors – Research and innovation (25,87% in 2016)
- Lack of harmonization between labour market qualifications and the requirements and trends of development of the local business environment

- Cluj-Napoca is one of the main research, economic and development centres in Romania, this makes it an attraction pole facilitating the access to funds for investments. The city offers a vast number of opportunities such as National support programmes for social housing and infrastructures construction, organized partnerships between communities to solve various social problems, punctual interventions under the environmental and climate measures etc. making it suitable to the experimentation of new model of urban regeneration using NBS.

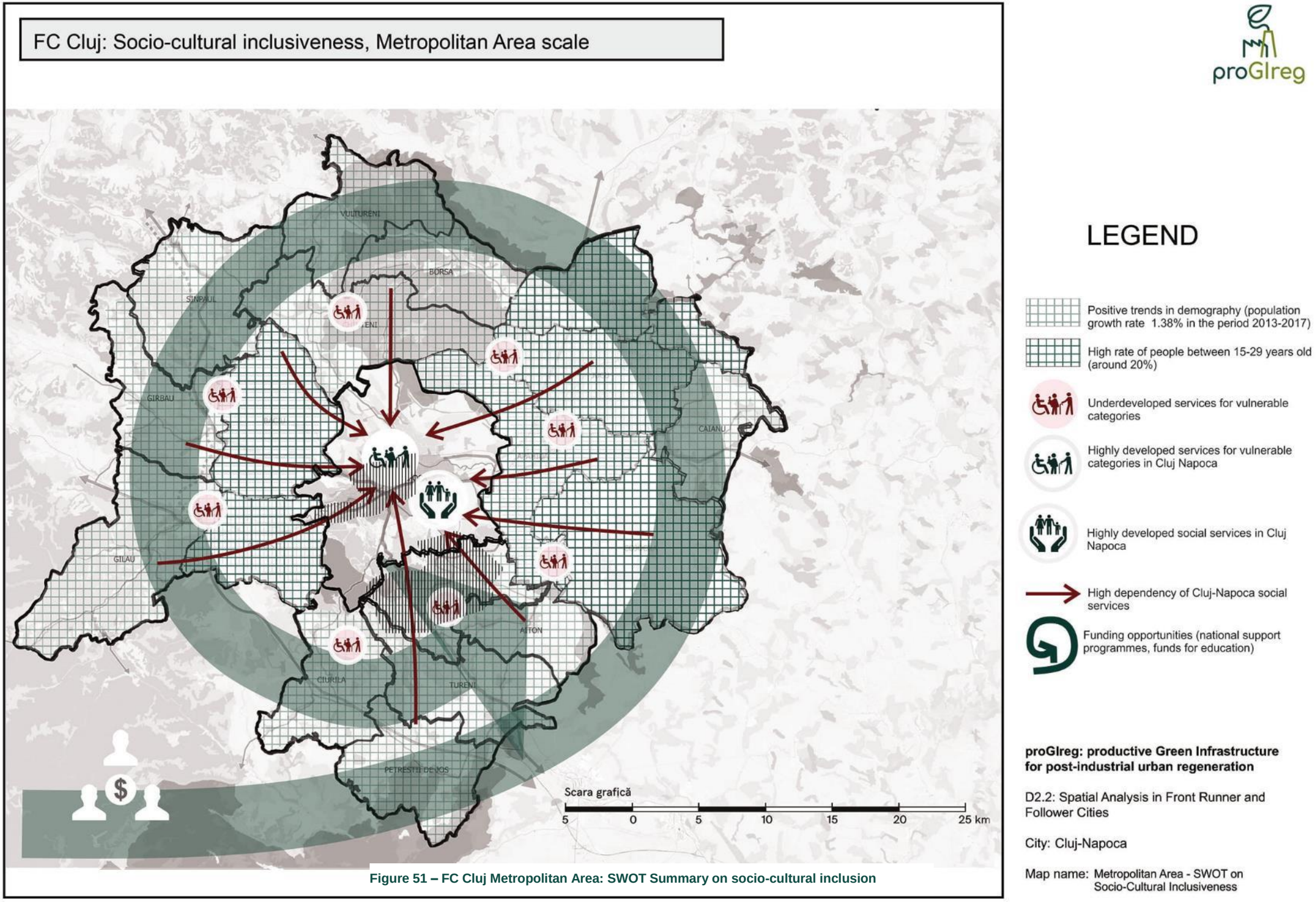


Figure 51 – FC Cluj Metropolitan Area: SWOT Summary on socio-cultural inclusion

FC Cluj: Human health and wellbeing, Metropolitan Area scale

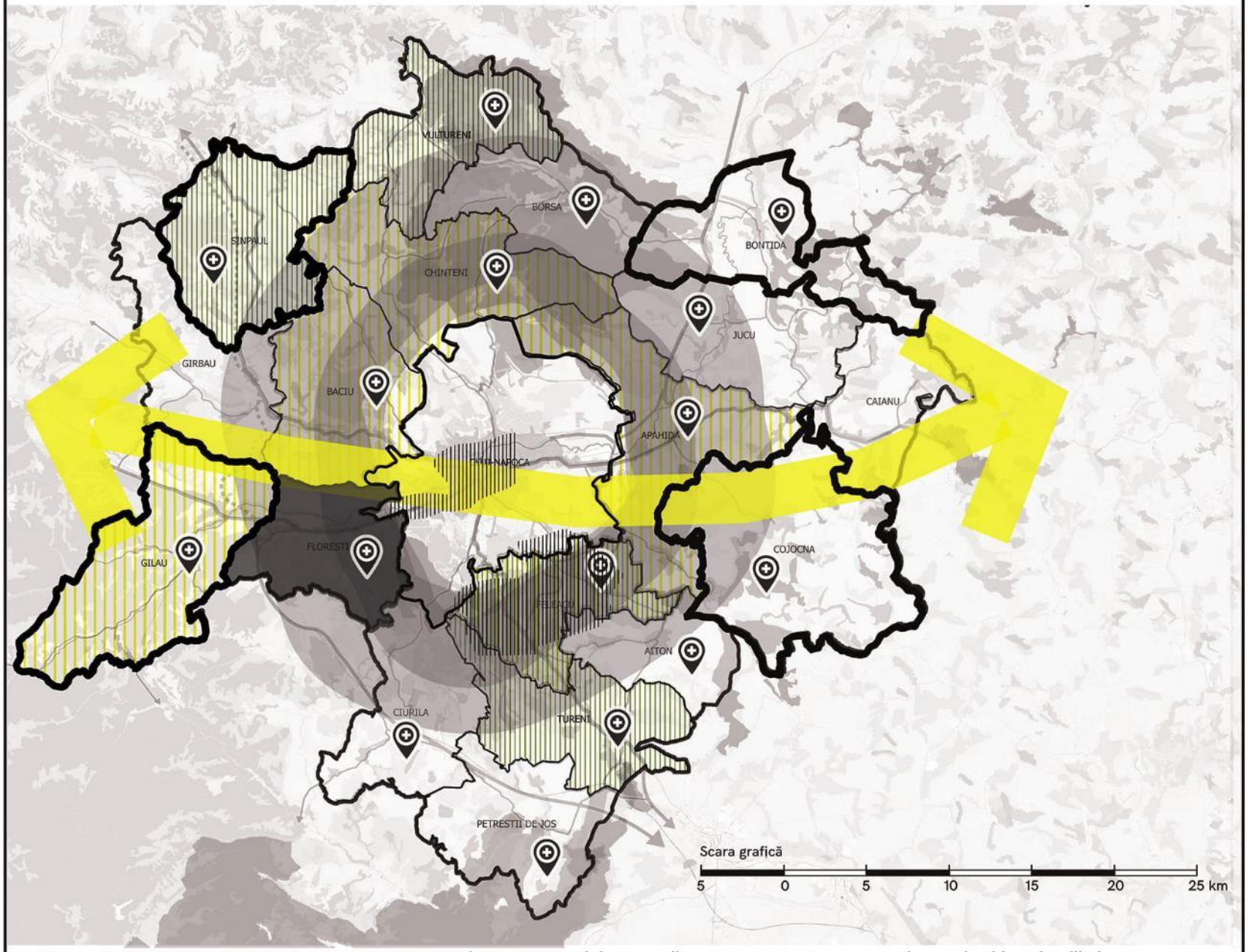


Figure 52 – FC Cluj Metropolitan Area: SWOT Summary on human health and wellbeing

proGIreg

LEGEND

- High living standards (> 50sqm/house)
- Residential areas with natural potential
- Medical facilities
- East-west development axis: urban expansion trend corroborated with a high dwelling quality
- Underdeveloped / poor rural areas (as per the rural development index classification)
- High traffic pollution, with a relevant impact on human health - congestio in Cluj-Napoca
- Florești commune: suburban very high density and low amenity area
- High living standard neighbourhoods

proGIreg: productive Green Infrastructure for post-industrial urban regeneration

D2.2: Spatial Analysis in Front Runner and Follower Cities

City:

Map name: Metropolitan Area - SWOT on Human health and wellbeing

FC Cluj: Ecological and environmental restoration, Metropolitan Area scale

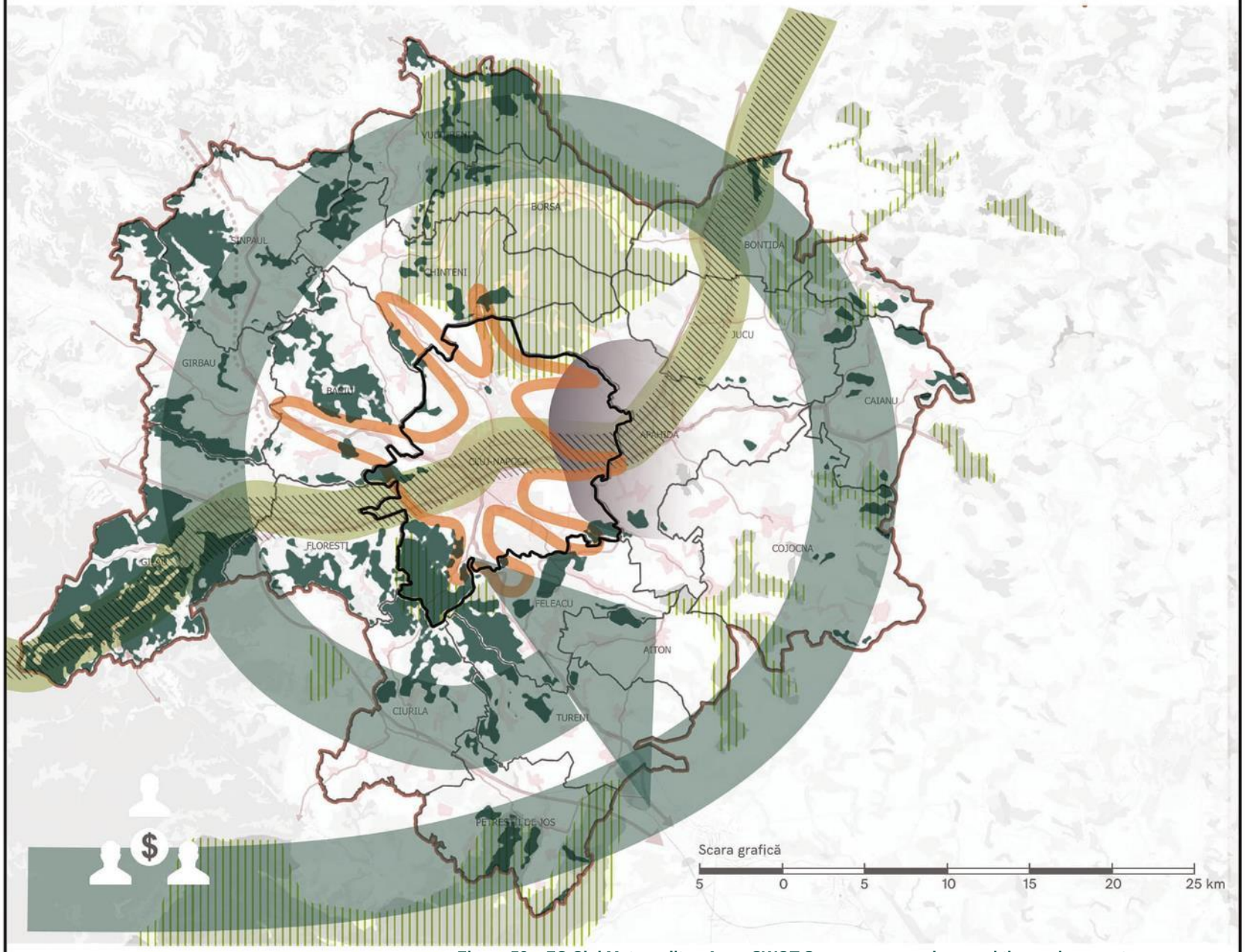


Figure 53 – FC Cluj Metropolitan Area: SWOT Summary on ecology and the environment

proGIreg

LEGEND

- Natural protected areas
- Green corridor on Someșul Mic Valley
- Forests in the metropolitan areas
- Uncontrolled waste disposal
- Axial urban development along the main transport corridors
- Area vulnerable to nitrate pollution
- Funding/Partnerships opportunities - POR projects (Axis 4) and POIM (Axes 3, 4 and 5) in the 2014-2020 period and also NRDP 2014-2020 for environmental and climate measures

proGIreg: productive Green Infrastructure for post-industrial urban regeneration

D2.2: Spatial Analysis in Front Runner and Follower Cities

City:

Map name: Metropolitan Area - SWOT on Ecological and Environmental Restoration

FC Cluj: Economic and labor market benefits, Metropolitan Area scale

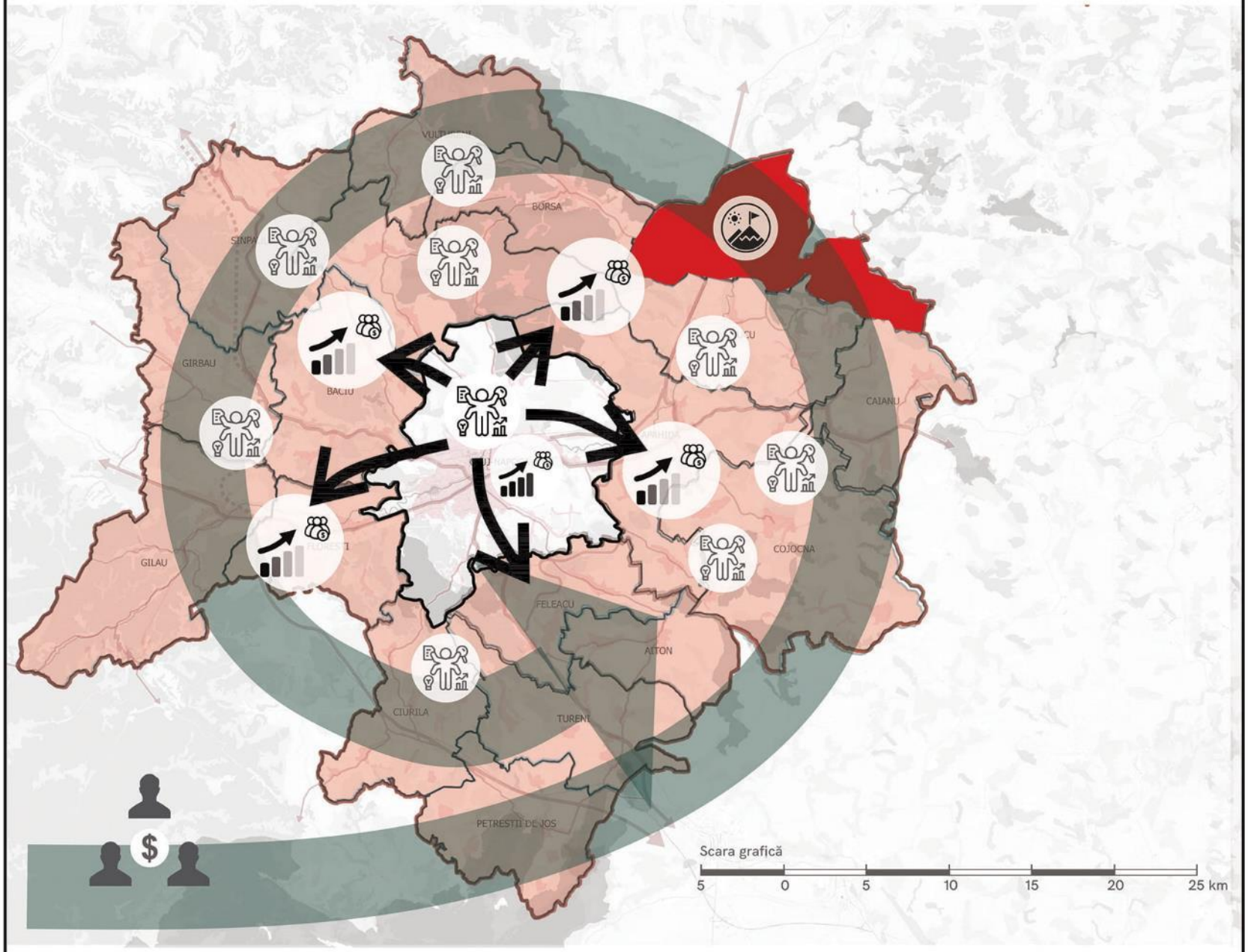


Figure 54 – FC Cluj Metropolitan Area: SWOT Summary on economy and labour market

proGIreg

LEGEND

- High economic potential (tourism)
- Economic potential in CNMA
- Poorly developed entrepreneurial environment
- Poorly developed skills related to local development trends
- High dependency for Cluj-Napoca workforce
- Funding/Partnerships opportunities (European funding to support the business environment)

proGIreg: productive Green Infrastructure for post-industrial urban regeneration

D2.2: Spatial Analysis in Front Runner and Follower Cities

City:

Map name: Metropolitan Area - SWOT on Economic and labour market and benefits

Analysis Regeneration Area Level for Cluj-Napoca Metropolitan area

At this stage, three potential Regeneration Areas have been identified in the Cluj-Napoca Municipality, including rail and industrial corridor, Somes river blue corridor which is going to be re-integrated into the overall environmental system and finally the Faget forest as leisure opportunity / green ecological corridor. These three main development and reintegration assets are strictly connected to the socio-cultural and economic features not only of the interested areas but also of the overall municipality, offering benefits to the entire context.

Socio-cultural inclusiveness:

- Historically interethnic community (Romanian and Hungarian nationality citizens)
- Great education system, second in Romania, which implies a high education rate (35% of the total population finished tertiary education)
- Presence of specialized social services
- High rate of young people (17.4%)
- Increasing amount of public housing units
- High density
- Very high property costs comparative with other cities at national level and low percentage of dwellings performing in terms of energy efficiency and refurbishing
- Collective houses with degraded, poorly districts in contraposition with new constructed districts, which present accessibility problems

Human health and wellbeing:

- Performing health system with large and qualified medical stuff
- Increasing life expectancy (almost a year over the last 5 years)
- Slightly growing incidence of cardiopathies, hypertension, cerebro-vascular diseases, chronic pulmonary diseases, respiratory and cardiac anomalies
- Increased green space per capita

Ecological and environmental restoration:

- High ecological and provisioning services potential of the Someș river, the „blue-green spine" of the city
- Valuable protected natural areas
- Area prone to landslides and floods, and hosts 23 geological and geomorphological hazard zones

Economy and the labour market:

- Key role at national level: one of the 7 growth poles where priority is given to community and national investments, and the second largest city in the country
- Diversified business environment
- Initiatives to support entrepreneurs and stimulate innovation
- Dynamics of cluster structures, with an increasingly diversified offer of support services for the industries
- High costs for living in Cluj-Napoca comparing to income
- City with the most expensive dwelling rent and selling prices on average.

ProGireg represents the opportunity of planning the interconnection of the small green spaces present in the territory, harnessing their environmental, economic and social potential, while regenerating former industrial sites and reusing abandoned industrial buildings.

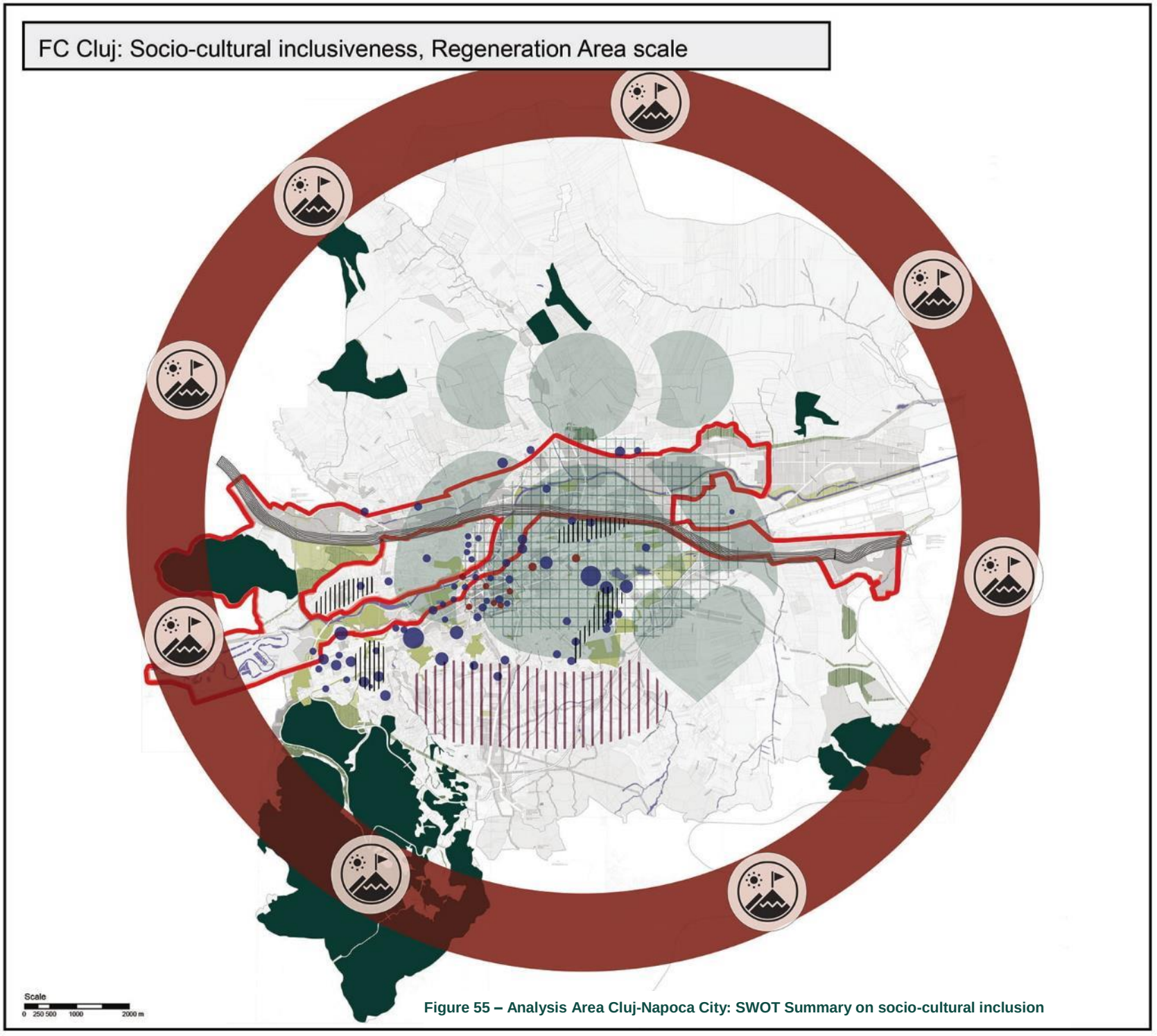
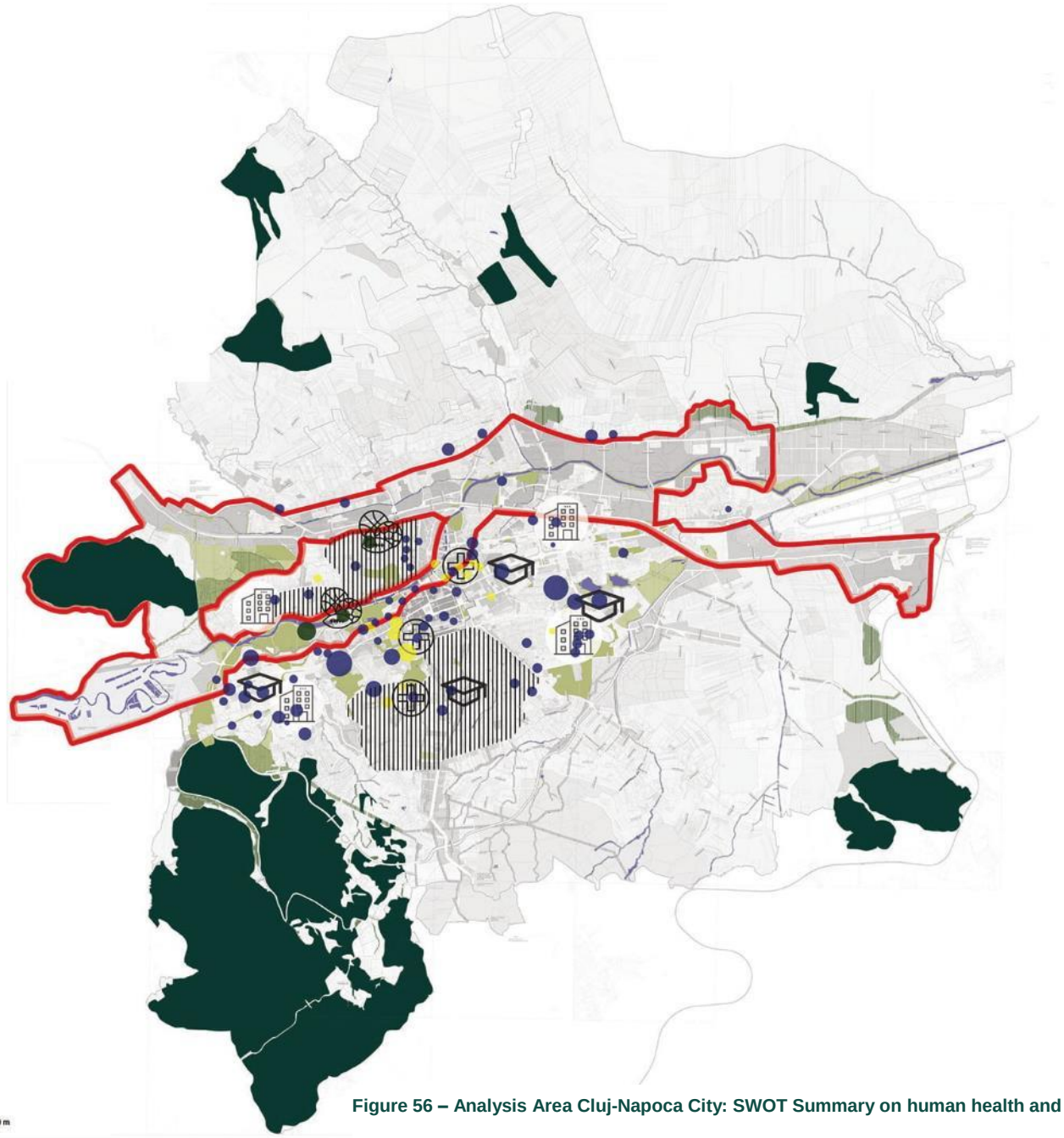


Figure 55 – Analysis Area Cluj-Napoca City: SWOT Summary on socio-cultural inclusion

FC Cluj: Human health and wellbeing, Regeneration Area scale



LEGEND

- Limit of the Regeneration Plan Area
- High living standard neighbourhoods
- Municipal green space
- Forests
- High density of poorly equiped collective housing
- Educational units (schools and universities)
- Sport units
- Medical units

proGIreg: productive Green Infrastructure for post-industrial urban regeneration

D2.2: Spatial Analysis in Front Runner and Follower Cities

City: Cluj-Napoca

Map name: City of Cluj Napoca - SWOT on Human health and wellbeing

Figure 56 – Analysis Area Cluj-Napoca City: SWOT Summary on human health and wellbeing

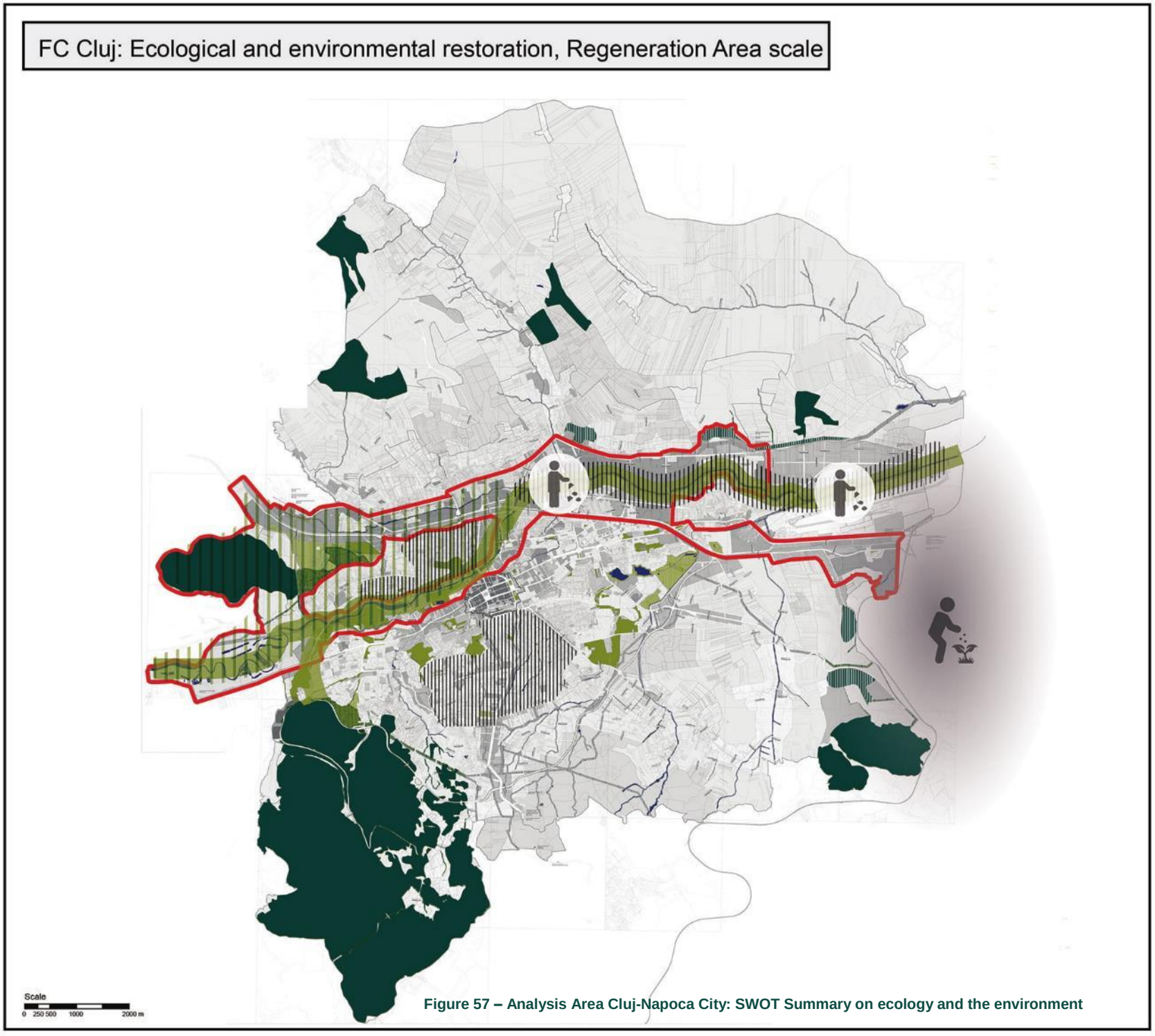


Figure 57 – Analysis Area Cluj-Napoca City: SWOT Summary on ecology and the environment

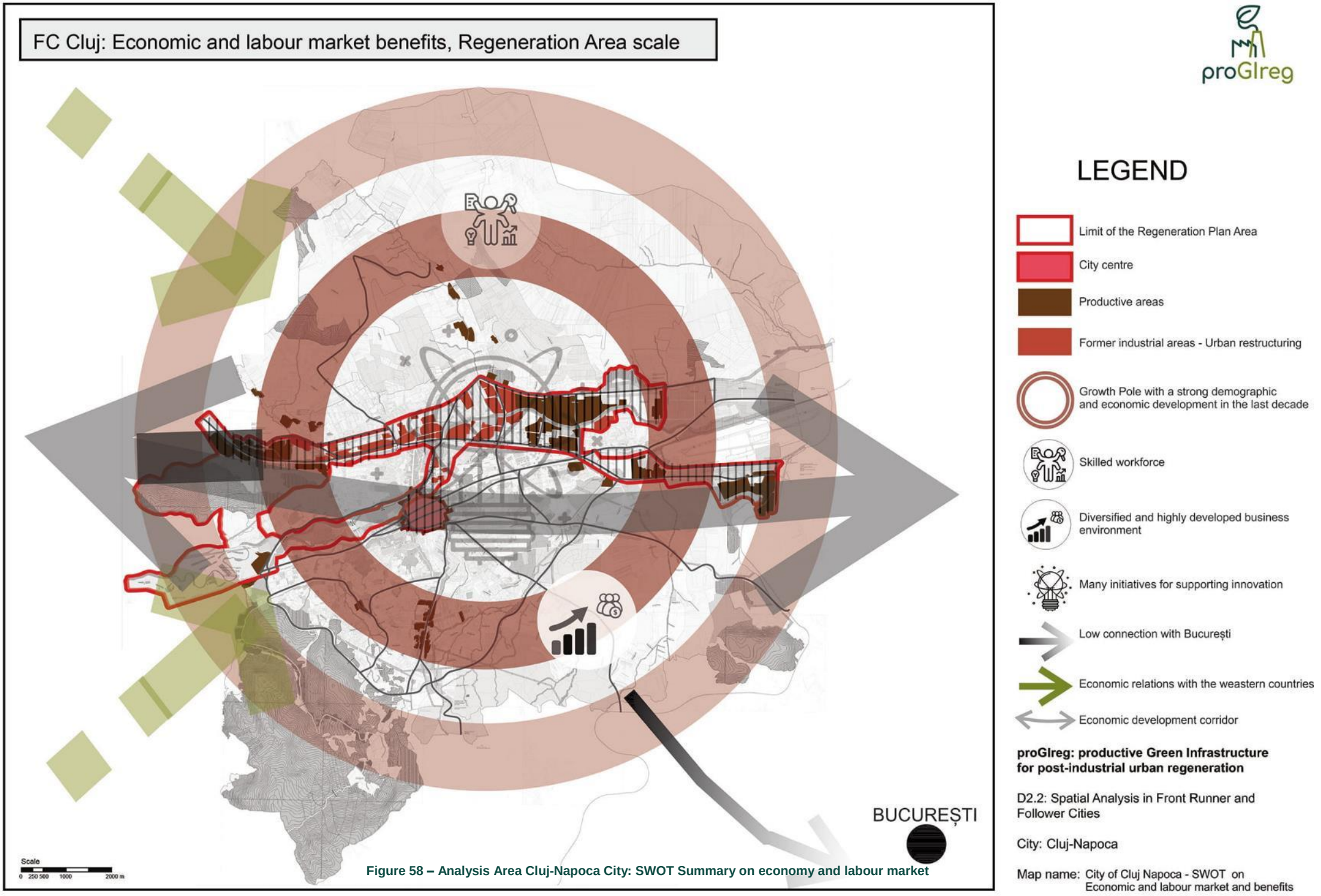


Figure 58 – Analysis Area Cluj-Napoca City: SWOT Summary on economy and labour market

5.7. SWOT analysis for Piraeus

Piraues is one of the biggest municipality of Greece, whose economy still revolves around the presence of the port. In recent years, the city was affected by the impact of the previous crisis being subjected to deindustrialisation and shrinking of the trade activity with, as a result of this, an increasing unemployment rate. The lack of open green spaces and parks, the presence of a high density of buildings, the lack of infrastructure and air pollution (mainly due to the emissions of ships) are all considered to be the major environmental challenges for Piraeus.

Socio-cultural inclusiveness:

- Valuable cultural assets (churches, archeologial sites located through the city etc.)
- Access to all form of transport (tram, urban and suburban rail, metro)
- High rate of employment
- Uneven population educational attainment
- High density of population
- Depopulation ad out-migration

Human health and wellbeing:

- Vicinity to the sea
- Decreasing of criminality and accidents
- Degradation of air quality due to the port's related activities
- Limited green space availability
- Intense port and car traffic

Ecological and environmental restoration

- Low share of green space (about 1%, excluding tree avenues)
- Presence of potentially contaminated sites
- Increase of pollution
- Private ownership of derelict sites
- Regeneration of former industrial sites

Economy and the labour market

- Intense port trade activity
- Relatively high number of industrial, commercial and office businesses
- Increase of tourism
- Decrease of average local taxes
- Increasing in partnership possibilities
- Increased development costs

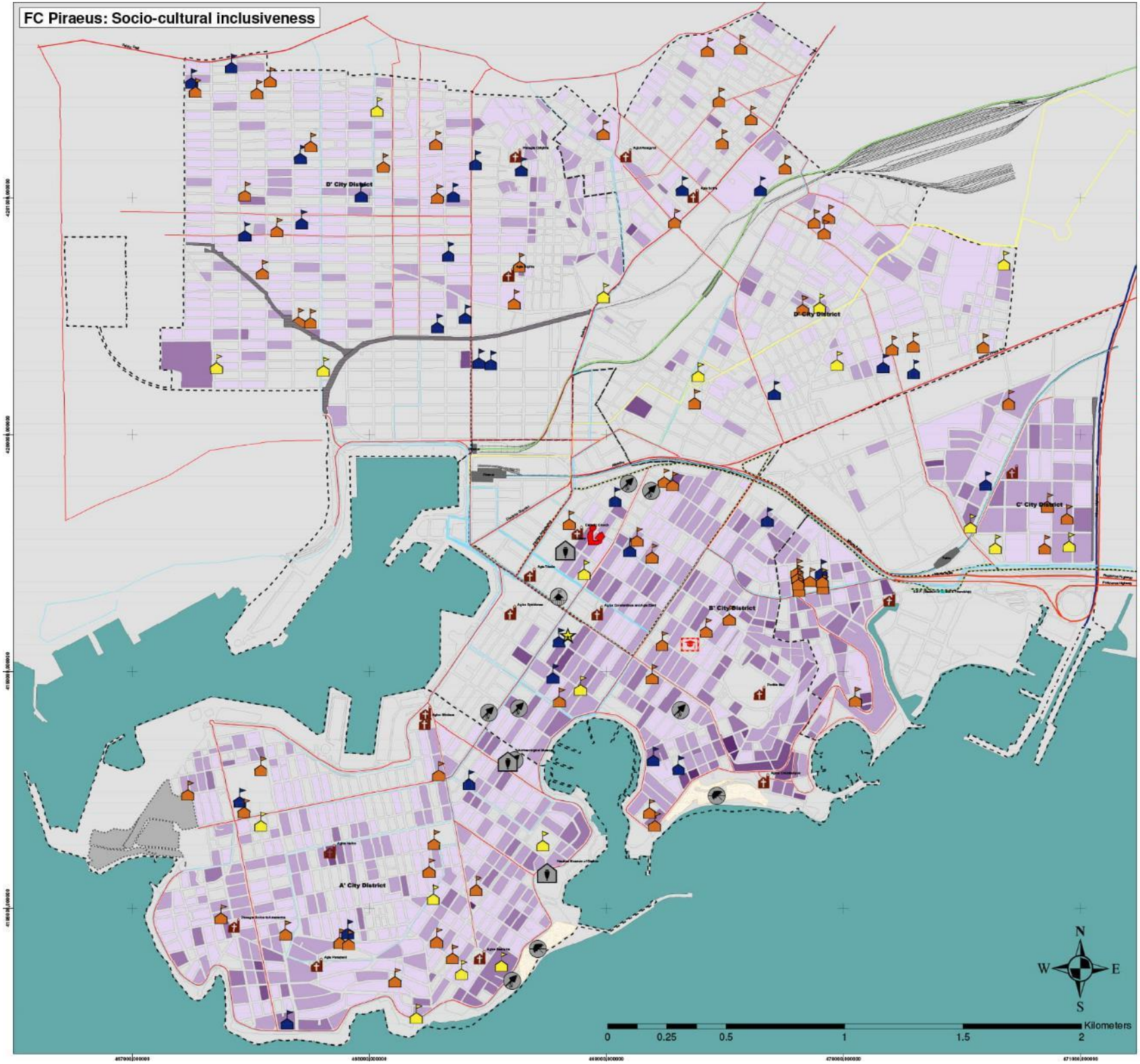


Figure 59 – FC Piraeus: SWOT Summary on socio-cultural inclusion (1)

D 2.2: Spatial Analysis

City: Piraeus

Map Name: Socio-cultural inclusiveness

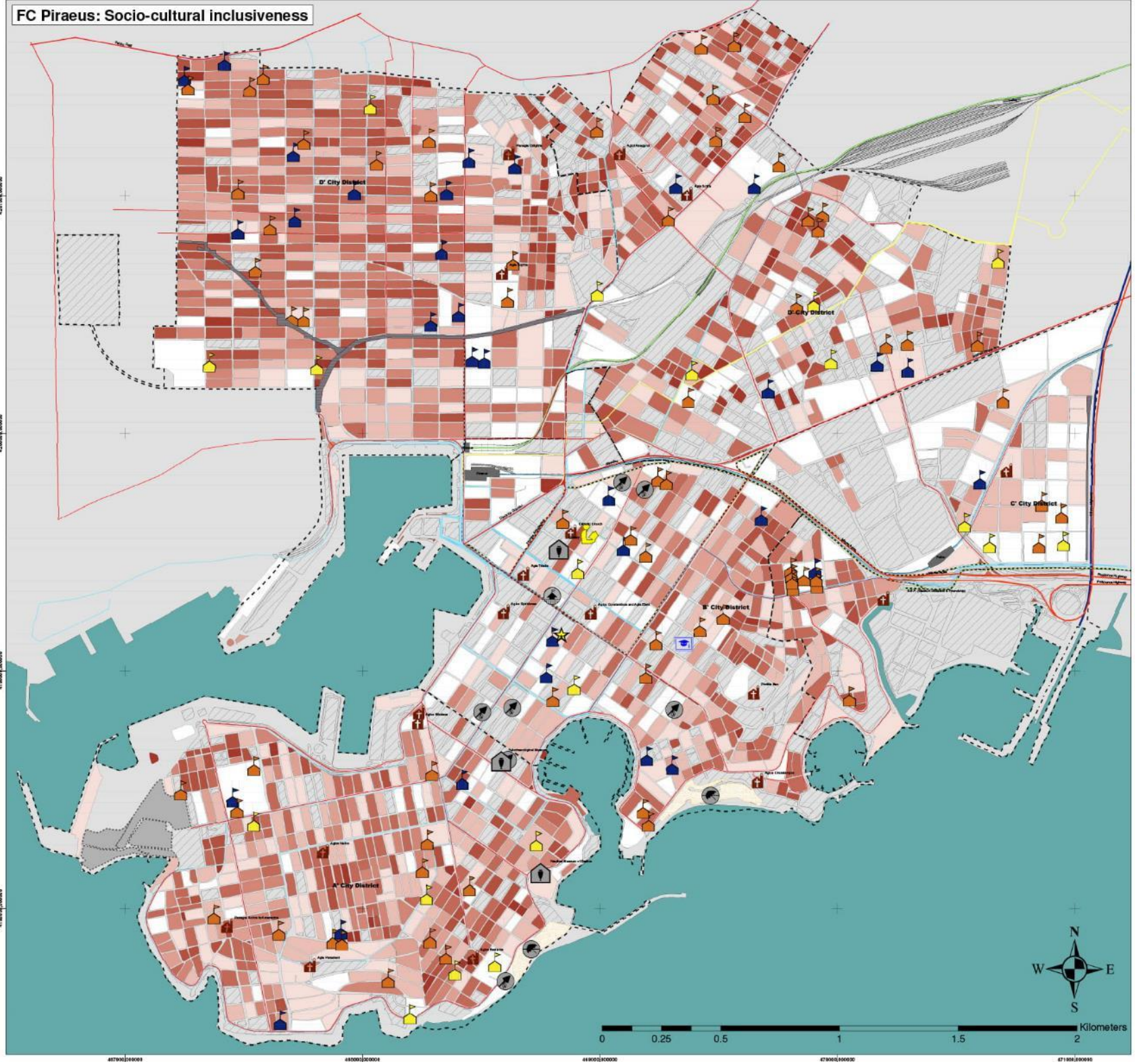
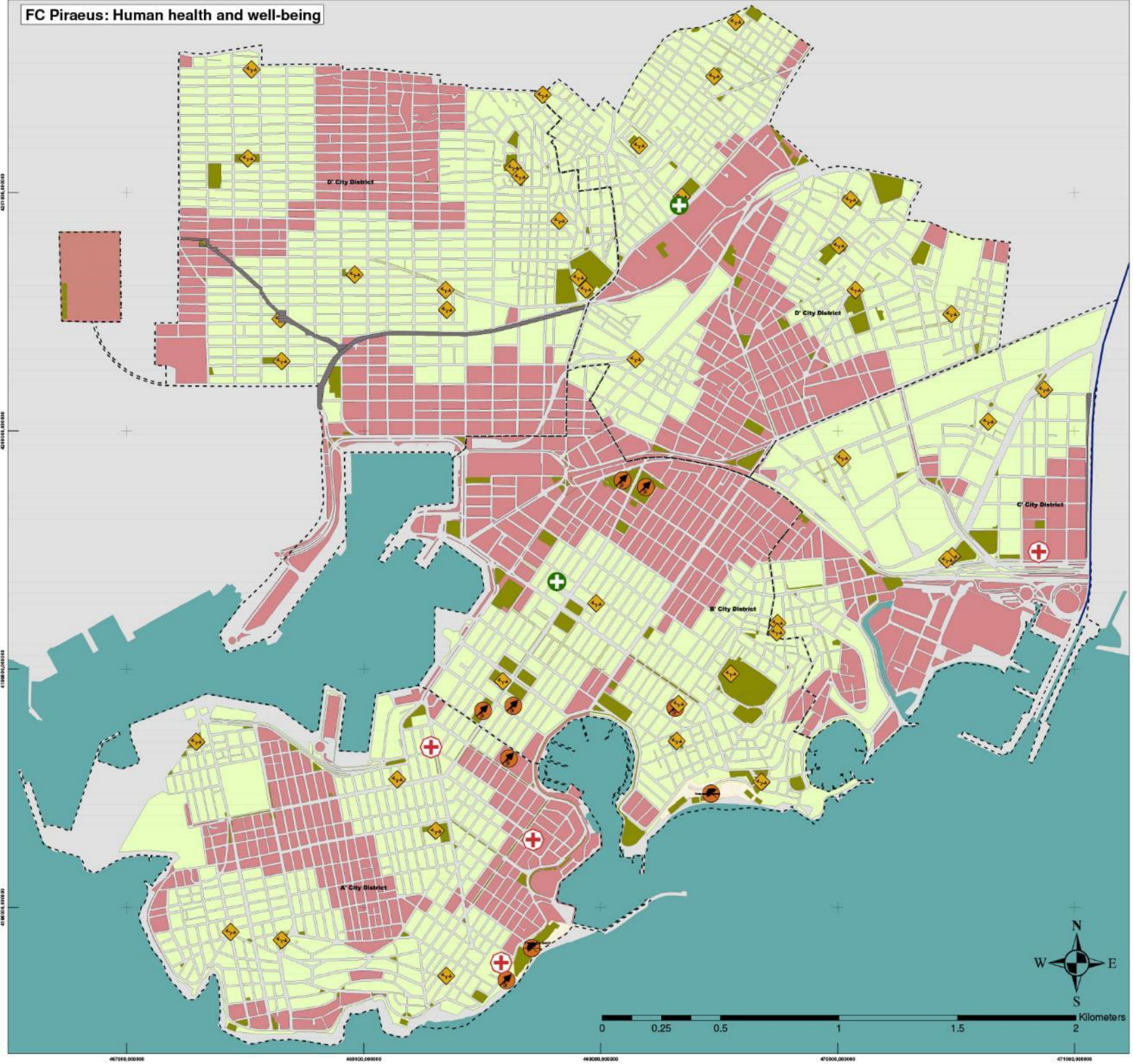


Figure 60 – FC Piraeus: SWOT Summary on socio-cultural inclusion (2)

D 2.2: Spatial Analysis

City: Piraeus

Map Name: Socio-cultural inclusiveness



proGIreg

Figure 61 – FC Piraeus: SWOT Summary on human health and wellbeing

D 2.2: Spatial Analysis

City: Piraeus

Map Name: Human health and well-being

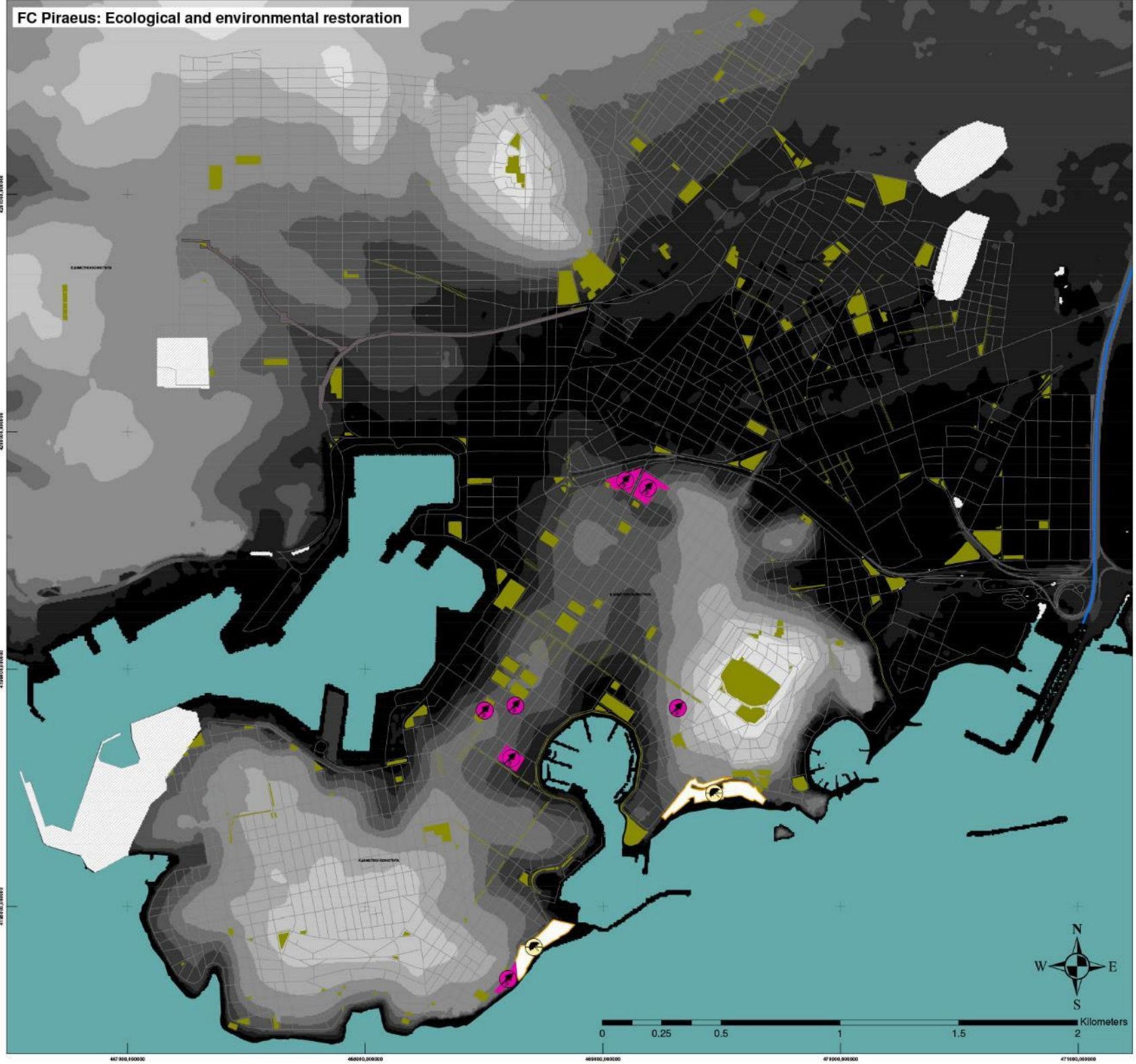


Figure 62 – FC Piraeus: SWOT Summary on ecological and environmental restoration

D 2.2: Spatial Analysis

City: Piraeus

Map Name: Ecological and environmental restoration

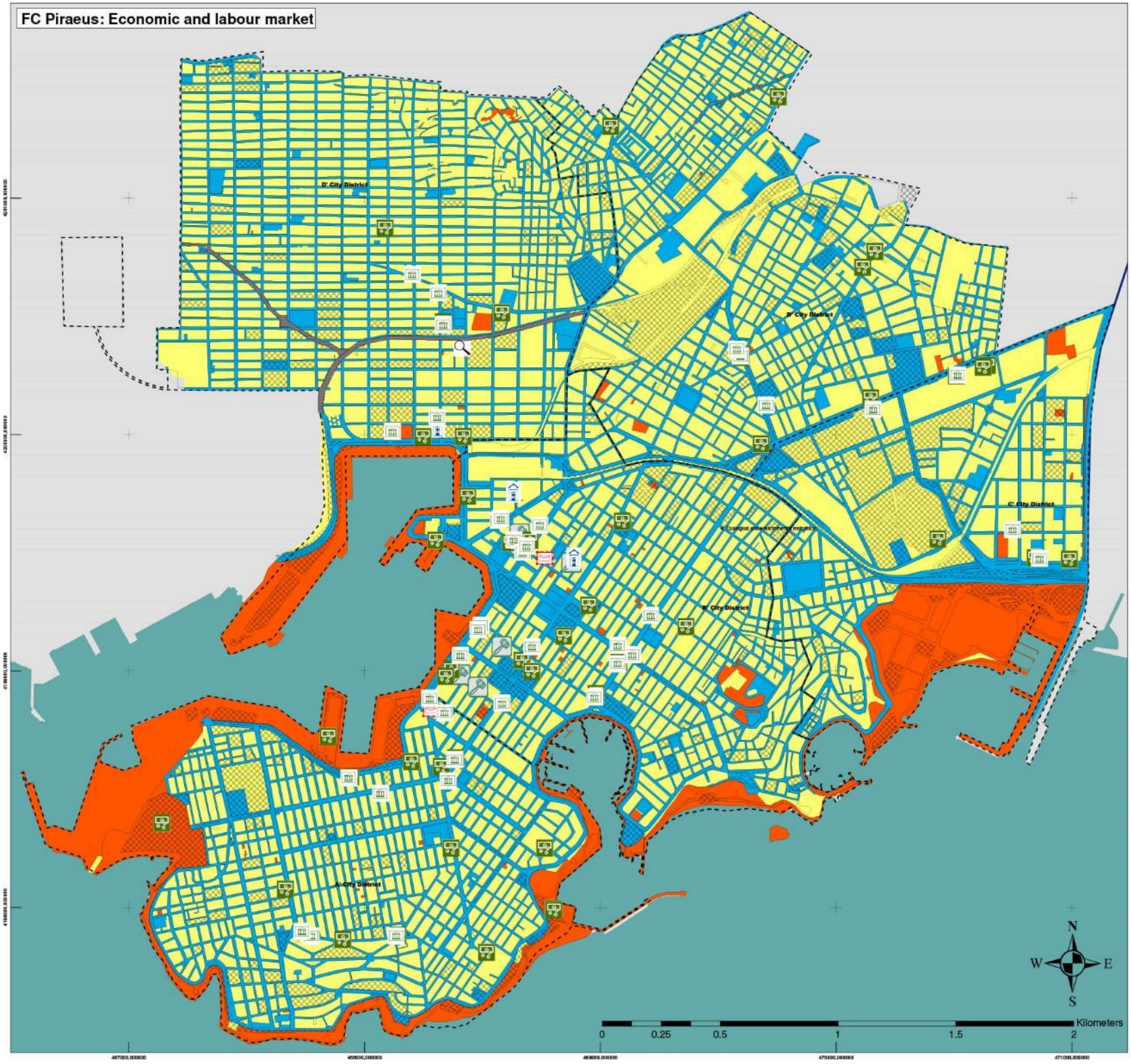


Figure 63 – FC Piraeus: SWOT Summary on economy and labour market (1)

D 2.2: Spatial Analysis

City: Piraeus

Map Name: Economic and labour market

Figure 64 – FC Piraeus: SWOT Summary on economy and labour market (2)

D 2.2: Spatial Analysis

City: Piraeus

Map Name: Economic and labour market

Analysis Regeneration Area Level for Piraeus

The actions and GI and NBS investments will focus specifically on the area of two districts: C' and E'.

Distric C'

The C' City District is the smallest district area of the Municipality of Piraeus (1,770,164 m²) and is mainly residential with small local neighbourhood commercial areas. The east boundary runs along Kifissos River (ground level) and Kifissos highway (above).

Socio-cultural inclusiveness:

- Hosts many children services (3 child day care centres, 2 nurseries, 6 primary schools, 3 gymnasiums, 2 lyceums and 1 public vocational training school, 6 playgrounds)
- Has various entertainement opportunities (2 important stadiums, Athina marine etc, the Kiffisos river itselfe.)
- Well-organized but poor transport system
- No cycle routes and no cycle shops but they are planned
- Presence of many abandoned industrial sites
- Private ownership of the soils

Ecological and environmental restoration:

- Current use of Kifissos river is mainly functional to avoid floods but represents an opportunity to develop a green network
- The main threats identified is the potential soil contamination of industrial sites
- 14,050 m² of total green space with very few moderate size green spaces (1,200- 4,500 m²) and many smaller in size (≤ 900 m²) - squares, urban gardens, playgrounds, planting beds on roads and pedestrian areas and islets

Human health and wellbeing:

- Within the C' City District is located one private hospital (Metropolitan Hospital)

Economy and the labour market:

- Limited economic and labour market elements are located in the south region of the C' City District (near the Peace and Friendship Stadium, Karaiskaki Stadium and marine)
- The north boundary runs along the National Highway connecting Piraeus with Athens is scheduled for regeneration where several industries are located such as Xropei (paint), Elais (olive oil), and Ion (chocholate).

Distric E'

The E' City District is the largest district area of the Municipality of Piraeus (2,769,769 m²). With the exception of the passenger port, located on the south boundary, the remaining district is located on the mainland. It is mainly residential with small local neighbourhood commercial areas. There are two facilities of former industries inside the area, one of which, a former brick factory, have been converted into a park, preserving some physical components preserved as landmarks and some of the buildings

Have been allocated new use.

Socio-cultural inclusiveness:

- Hosts many children services (4 child day care centres, 15 nurseries, 11 primary schools, 7 gymnasiums, 8 lyceums and 1 public vocational training school, 6 playgrounds)
- Well-distributed bus lines
- It possesses the only cemetery of Piraeus
- No cycle paths and no cycle shops

Ecological and environmental restoration:

- The District possesses 18,605 m² of green space comprised mainly of moderate sized parks and squares, ranging between 1,200- 5,000 m²
- The cemetery also has a moderate size green space (1,650 m²)
- Smaller sized green spaces (<1,000 m²) include mainly urban gardens and planting beds located in pedestrian areas
- Citizen's initiatives of planting ornamental plants in the planting beds of the pedestrian areas that are used also to provide shelter to animals, maily cats
- Potential soil contamination

Human health and wellbeing:

- Health benefits from the vicinity of the sea
- Opportunities of developing cycle paths that can connect the district to the sea an the tramline and metro stations located in the B' City District

Economy and the labour market:

- Activities mainly localized near the passenger port
- The main weakness within the distric is constituted by the remaining industrial sites
- Opportunities for regeneration are offered by the former industrial sites
- Main threaths: private ownership of the industrial sites and potential soil contamination

5.8. SWOT analysis for Zenica

The follower city of Zenica is still an industrial city continuously polluted by the presence of heavy industry. This, along with the limited availability of the land, represent major urban regeneration challenges. In the case of the Follower City of Zenica, it was difficult to provide for a spatial representation due to difficulties occurred at local level connected to lack of proper digital support for the elaboration of the maps at the level required and limited local capacity. Furthermore, the planning documentations are outdated, with the Urban Plan in use dating 1985 and a New Urban plan under development. The assessment has been done basing on the Master Plan adopted in 2017, on the Traffic study of the city and different other initiatives at local level.

Socio-cultural inclusiveness:

- Low rate of Material deprivation
- Negative population growth rat
- Relatively low Housing quality
- Immigration issues
- From the connectivity point of view, it has a good connection to Sarajevo, the regeneration area hs a good level of accessibility and the citizens can enjoy free access to all sport fields and playgrounds.

Human health and wellbeing:

- Plenty of recreational and cultural facilities, including the use of adjacent hills of Zenica
- Accessible green spaces
- High number of crimes
- High number of respiratory diseases
- Bike sharing system in place but limited cycling paths.

Ecological and environmental restoration:

- High quality water for drinking
- High level of pollution due to heavy metals industries and the influence of topography
- Rehabilitation initiative of contaminated sites and potential for further regulation of river Bosna's riverbanks
- Inclusion of green roofs in Regulation plans of two urban city zones (in development process) and approval and installation of green roofs on existing bus stops throughout the city (in process)
- Implementation of sustainable solutions and alternatives to the traditional ways of energy production: smart bus stops, use of water for energy production, solar trees, solar lamps for playgrounds and new source of energy for district heating (100 milion euros investment)
- Energy efficiency project in buildings
- Construction of urban wastewater treatment plant
- Expansion of public lighting (4.221 new LED lamps) with remote control management and reconstruction of existing one (8.500 LED lamps)

Economy and the labour market:

- Low local taxes
- Plenty of property for living
- Existence of agricultural small businesses

- Creation of green funds to compensate the low number of green jobs
- Low GDP per capita
- Industry prevailing companies
- Low employment rate
- Low number of tourists and foreign students
- Green tourism and leisure facilities usage
- Use of rehabilitated soil for agriculture
- Fair tourism building expansion
- Lack of development plans and detail plans
- Lack of political support.

6. Conclusions and lessons learned

6.1. Conclusions of the Spatial Analysis

The Spatial Analysis in Front Runner and Follower Cities aimed at developing a common spatial framework based on existing data, information on the stakeholder as well as plan and policy landscape in each city. It prepares the co-design process (Task 2.2) and NBS implementation in FRC in WP3. This grounding work will be further supplemented through the WP4 assessment of the key domains. In the process, the spatial analysis offered the opportunity to fine tune the Living Lab in the FRC beyond the areas identified in the project proposal stage and for FC to establish a first area-based approach to the Urban Regeneration Plans and potential NBS, to be detailed in Task 2.3 in order to better capitalize on the knowledge transfer process from the FRC to the FC. In a later stage (starting January 2021), this analysis will serve as a basis for the deployment of the Urban Regeneration Plans co-design at local level.

The contexts of the cities differ widely, posing a major challenge of producing a homogenous overview of the eight cities analysed, while considering their differences in their approach to proGIreg interventions (FRC versus FC, area delineation and NBS selection), plan and policy framework, data availability, data interpretation.

In the FRC, the NBS will principally support renewal and redevelopment of post-industrial neighbourhoods / districts, aiming at revitalizing existing cultural assets while, at the same time, increasing the nature's potential of offering socio-economic and health benefits to citizens. For the FRC of Ningbo, that has joined the proGIreg team in a later stage, the project will be an opportunity of exploiting the potential of a project in the Moon Lake Park, giving a new significance to the heart of the city. Ulike the former, the FC have adopted very different approaches, in terms of the size of the identified area for the implementation of the potential Urban Regeneration Plan (some opted for a very local-based intervention around the rivers that cross the interested areas, some others had the ambition of covering main development axis) and in terms of the area's characteristics. In this case, despite the differences between the cities, the selection of NBS has highlighted a focus around specific NBS typologies that, as explained in the conclusions to the Chapter 3, could be the result of an analysis and of intervention plans that are still at an incipient phase. More preparation work is needed in order to lay the groundwork for, and properly focus the Task 2.3 implementation.

The plans and policy framework (normative and strategic) in FRC is in coherence with the proGIreg LL implementation proposals on one hand, as well as other actions either in implementation or planned. Horizontal and vertical integration with the current framework is ensured in all three cities, with Dortmund leveraging the most on the existence of an overarching GI and NBS development concept. Ningbo articulates the ambition of its proGIreg LL implementation very well with the overarching plan and policy framework, with the former fitting within a very ample regional (Zheijang), city (Ningbo) and district (Haishu) strategy and action to mitigate low water quality and ecologically restore the Moon Lake blue-green infrastructure. This is being corroborated with measures of urban renewal in the area, addressing urban renewal of old residential and factory areas and demolition of illegal buildings.

FC present different contexts, and while some of them have previous experience with NBS (e.g. urban community gardening in Cascais), others are newcomers to the topic, and the development of the Urban Regeneration Plans can provide a great opportunity to embed NBS in their plans and

policies. There have already been opportunities identified in this sense (e.g. the updating of the Cluj county and Metropolitan Area Plan in the following ca. two years).

Stakeholder identification

At this stage, stakeholder groups of the FRC are well-rounded, representing the quadruple-helix approach, but also the different ambitions and contexts of the cities. Linking proGIreg implementation to real needs in the territory is reflected well in the different foci of the cities: from social inclusion in Mirafiori, Turin, to ownership creation and social entrepreneurship in Zagreb, as well as economic valorisation of NBS value chains and neighbourhood quality improvement in Dortmund and lastly, supporting the sustainable regeneration of the Moon Lake Street in Ningbo, engaging the communities while raising awareness about the importance of the Living Lab and the Moon Lake as a landmark and multi/functional green space.

In FC, stakeholder identification is in its exploratory phase, and some of the cities rely on recovering stakeholders from previous initiatives. For successful implementation of specific NBS, replication will require refinement of initial stakeholder lists, as is the case in Cascais and – to a certain extent – Cluj-Napoca. As the understanding of the "best fit" approach in proGIreg will take shape in the future, it is expected that the stakeholder lists will expand and become more specific to the particular solutions to be included in the Regeneration Plans. There is evidence of a multi-stakeholder approach in all proGIreg cities, which has the potential of co-developing Regeneration Plans (and possibly of implementing them, after the project lifetime).

Data collection

Key challenge of data collection was ensuring a critical mass of (existing, already collected) spatial data, as a basis of the Spatial Analysis. Starting with a very extensive list, the cities ultimately picked the spatial data for which data was available. This approach has produced at least 1-2 valid statistical spatial data or indicator per sub-domain for each city but has challenged the possibility of ensuring comparability between them.

Data for FRC has been limited, especially for health (as information are collected by other entities than the municipalities) and the environmental quality (air, water, soil). These are key pieces of information for the project, and in lieu of available data for the baseline, cities will need to get creative with data collection in WP 4 tasks (i.e. overcome the lack of health data with the use of questionnaires).

Despite the European FRCs' different contexts, cultures and histories, the SWOT analysis confirmed cross-cutting issues characteristic of post-industrial and socially-deprived areas such depopulation, economic stagnation, social segregation and disconnection:

- The LL areas have a **negative image** within the city context (Huckarde, Dortmund; Mirafiori, Turin) or are generally unknown and marginalised (Sesvete, Zagreb). The population base in the areas of Dortmund and Turin is characterised by a strong presence of welfare recipients and lower education, while the LL area in Zagreb faces a dramatic population increase creating a disparate community, lacking a local identity.
- **Lack of public services** and social facilities in the LL areas generates significant local pressures, in particular when corroborated with lower housing standards (Huckarde), a decline in the capacity of existing social support structures (Mirafiori) or an excessive population densification not served by such public services and urban functions (Sesvete).

- In terms of infrastructure, all three LLs struggle with **low urban fabric permeability, low accessibility of urban green spaces and severed connections** between points of interest in the areas, due to the barrier effect of transport infrastructure. Lack of connections and paths (Huckarde), low permeability which leads to urban green spaces being abandoned (Mirafiori and Sesvete), the fracture in the territory caused by infrastructure, cutting off communities (Sesvete).
- While health data is not available except for Turin (which an indication of **a higher incidence of several diseases** in the Mirafiori area compared to the city), **urban safety** and low availability of good-quality green space is perceived as an issue.
- **Pollution** is also an important issue. Albeit soil data is very limited, brownfields and anthropogenically influenced soils are present in all FRC, including soils polluted by fuels (Mirafiori).
- Lastly, **unemployment** (Huckarde; Mirafiori – especially youth) and a **low number of businesses and entrepreneurship opportunities** (Mirafiori), as well as a generally inert economic landscape where potential is not harnessed (Sesvete) are present.

This is not the case of the Ningbo LL Analysis Area, which offers the possibility of testing proGIreg NBS in a **central historic park of** heritage and cultural relevance to the city but struggling with a very high density and limited economic profile oriented towards the service and hotel industry. Recent action plans such as the management project of the Moon Lake water ecological environment and the implementation of the lake management PPP, together with the development of the Moon Lake Historical and Cultural Street protection plan and the „three reforms and one demolition" offer a background of full-scale urban renewal for any of the proGIreg LL actions to be implemented through the project, but also potentially a solid base to further contextualize urban regeneration through nature based solutions in the Ningbo LL area and beyond.

ProGIreg NBS are designed to tackle post-industrial challenges, by, for example, fostering social inclusiveness, enhancing quality of life and improving environmental condition via access to GI and regeneration of polluted areas, as well as providing business opportunities. The FRC can leverage strengths and opportunities for NBS implementation:

→ Presence of available land for re-development (all cities)
→ A generally young, active population (Sesvete) or possibilities of attracting it with sports equipment (Huckarde)
→ A high density of urban green spaces (all cities) with possibility to create a GI network.
→ Comparatively lower costs of real estate and land in all three areas are a competitive advantage for attracting businesses and inhabitants and raising the profile of the neighbourhoods,

However, the effect of these actions needs careful assessment in conjunction with potential future gentrification – especially since all three areas are now highly diverse neighbourhoods, socially and culturally.

The challenges and contexts of the FC are more diverse – nevertheless, there are still commonalities between the four cities:

→ Deficient pedestrian and bicycle accessibility represent a problem identified throughout the four cities.
→ High level of air pollution, partly due to traffic, is present in Zenica, Cluj-Napoca as well as Piraeus.
→ Very high population density, private ownership of brownfields, overcrowding and lack of urban connections / relationship with the green areas are issues characteristic of both Cluj and Zenica,

→ Lower-income social situation, low education, discrimination, as well as illegal soil occupation in Cascais, similar to Turin / Mirafiori and Dortmund / Huckarde

Other issues are more unique to each FC:

→ Cluj has the opposite problem of FRC with respect to the economic component: here, property costs are high with the city spearheading the upwards rent and land / construction costs at national level.

→ Zenica is strongly depopulating.

These drivers need further consideration in developing the Urban Planning processes in FC, the diversity ultimately representing an opportunity for proGIreg to test and explore embedding of NBS in different settings.

For both FRC and FC alike, the present analysis represents a first building block framing the local challenges and priorities, depending mainly on data availability in the cities. There have been a few factors and limitations to the spatial analysis, namely:

1) Aligning the Spatial Analysis with further requirements in the project, and incorporating data requests has generated delays; however, parallelizing the work has been crucial in ensuring that the project progresses in an integrated, holistic manner.

2) Data requests placed by the cities to external institutions or other municipal departments (i.e. statistics offices) took up a long time to be resolved, an aspect which should be considered in subsequent data collection under the already-developed framework.

3) A significant amount of data, especially in FC, has not been available. The analysis at a sub-municipal Regeneration Area level was only possible to conduct in Cascais, while the rest of the FCs only have available data at municipality level – in the case of Piraeus, strictly for the census year 2011 for most spatial data.

Despite the above limitations of the Spatial Analysis process, the results and analysis work carried out by the partners has produced a relevant baseline database and set of analyses, both textual as well as graphical to assist understanding of the local context in the FRC to support identification of relevant project-attributable changes over the next years of project lifetime, and to foster transfer of NBS into the planning processes in FC of proGIreg. The spatial data, albeit not all available for the cities (making cross-comparison difficult), are sufficiently compact and clearly related to the societal needs which the proGIreg NBS aim to address. Work to be carried out in WP4 will target specific data gaps in their surveys.

The proGIreg LL in FRC and Urban Regeneration Plans in FC will be, ultimately, demonstrators of how NBS can be embedded in local level spatial planning and decision-making; new forms of planning and implementation can be demonstrated with the citizens in real-life contexts, and solutions can afterwards be upscaled, translated and adapted to the long-term local needs.

Analysing the effectiveness of NBS in the different contexts generates evidence for a feedback loop into plans and policies, both within the FRC, and as a methodological transfer to the four FC. These potential changes in policy, legislation and spatial planning can further support and influence the uptake of nature-based solutions at local, regional or national level, or inspire other like-minded cities to adopt proGIreg NBS.

6.2. Lessons learned and recommendations for future use of the spatial analysis methods with cities

There have been several significant obstacles to overcome during the preparation of both the methodology, as well as the spatial analysis in FRC and FC. Identifying the underlying causes for these obstacles and analysing the outcome has assisted us in developing a few lessons learned and recommendations, for the future replication of the spatial analysis methodology.

→ **Allot sufficient resources and time to the methodology development and involve the right partners**

When developing the methodology for a spatial analysis which will support the future implementation of several tasks, it is important to involve early and systematically the partners which will coordinate those tasks. In proGIreg, a better integration between T.2.1 and T.2.2, specifically in what concerns 1) the use of spatial SWOT maps and conclusions in generating the co-design approach, and 2) the use of results of the stakeholder identification process would have been desirable. Aligning priorities and approaches increases the usability and usefulness of results, while ensuring that work is not duplicated.

The ambition of the spatial analysis to contribute to the baseline of the project can furthermore be supported by its parallelization with the project's overall monitoring plan. This joint development can ensure more clarity with respect to the future use and purpose of spatial data in the project, beyond WP2.

→ **Plan for an adequate timeframe for spatial data scoping and collection.**

Spatial data collection represents a task in itself. While some data is available at European level (for example, via Eurostat, the Urban Atlas, EO platforms), access high-resolution spatial layers at city and LL / URP analysis area depends on the cities, or in some cases, on third parties at local level, which adds to the time necessary to source and collect this data.

Furthermore, for the compilation of the long list of statistical spatial data and indicators, the FRC and FC have also relied on existing administrative databases: municipal, but also regional or even national, via Statistics Offices or Bureaus, regional environmental offices, and others. We found that, especially in countries in South-East Europe, receiving this data from higher administrative levels implies sending out official data requests and a significant waiting time. While these requests can be solved, depending on national rules, in up to a month, the experience in proGIreg shows that this timeframe can even be prolonged.

Ideally, spatial data scoping and collection should be parallelized with developing and adapting the methodology (the scoping part) and should be allotted sufficient time so that, in the event of too little data overlap, corrective measures or alternative datasets can be produced to enable a comparative assessment of cities.

→ **Understand and address the differences between front-runners and followers: purpose, calendar and data availability**

There are significant data availability, knowledge and interest differences between the FRC and FC. A unitary spatial analysis does not account for these differences. First of all, the scope of the analysis is different: some cities (FRC) plan to implement NBS in their LL, while FC will use this analysis to ground the development of Urban Regeneration Plans, integrating NBS and planning for their future implementation, after the project lifetime. The FRC need to establish a baseline at the beginning of the project, while the FC will need to re-assess the pre-conditions for developing the participatory URP closer to the start of this task (T.2.3), almost two years after the initial spatial analysis.

This time gap can be transformed into an opportunity, planning more time for the spatial analysis so that FC can provide a more in-depth analysis. This kind of two-stage update of the spatial analysis can help FC to make an informed decision regarding the Urban Regeneration Area, a task which has proven difficult at the very beginning of the project, and to collect the necessary data.

→ **Standardize the approach to spatial analysis development and leverage on scientific partner expertise**

Beyond data availability, the most significant disparity in the spatial analysis has been the heterogeneity in the level of development of the textual and spatial SWOT maps. This is due to the limited experience with urban and spatial analysis of the cities, especially FC. Understanding and considering these limitations implies either transferring the responsibility for the actual per-partner spatial analysis to more experienced partners, or scaling down ambitions of the spatial analysis.

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ISTAT – National Statistics Institute – **www.istat.it**

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Andrija Stampar Teaching Institute of Public Health: http://www.stampar.hr/en

City of Zagreb Geoportal: https://geoportal.zagreb.hr/Novost.aspx?id=25

Ecological Map of Zagreb: https://ekokartazagreb.stampar.hr/

FRC NINGBO

Institute of Urban Environment, Chinese Academy of Sciences – **http://english.iue.cas.cn/**

Haishu District People's Government of Ningbo City – **http://www.haishu.gov.cn/**

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Social Security Services

Municipality of Cascais – **https://www.cascais.pt**

National Statistics Institute - Instituto Nacional de Estatística (INE) - **https://www.ine.pt**

PORDATA - **https://www.pordata.pt**

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EURODICAS - **https://www.eurodicas.com.br/morar-em-cascais/**

FC CLUJ METROPOLITAN AREA

General Urban Plan of Cluj-Napoca – **https://primariaclujnapoca.ro/strategii-urbane/plan-urbanistic-general/**

Integrated Development Strategy for the Metropolitan Area of Cluj, 2017-2023(2030) - **http://www.adizmc.ro/sidu.html**

National Statistics Institute - **http://statistici.insse.ro:8077/tempo-online/**

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FC ZENICA

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ANNEXES

Annex 1: Cities Identification Fiche

FRONT RUNNER CITIES

CITY OF DORMUNT (GERMANY)

DORTMUND IDENTIFICATION FICHE		
Localization of City	Federal State / NUTS 1	DEA (North Rhine-Westphalia)
	Region / NUTS 2	DEA5 (Arnsberg)
	Province / NUTS 3	DEA52 (Dortmund, Kreisfreie Stadt)
	Coordinates	51° 30′ 58″ N, 7° 28′ 05″ E
Information about the City	Population (2017)	601,780 inh.
	Surface Area	280.8 km²
	Density	2,143 inh./ km²
	Elevation	50 to 254 m NHN
	Climate	Cfb – Temperate oceanic climate (Köppen and Geiger classification)
	Average temperature in winter	3.1°C
	Average temperature in summer	17.9°C
LL area	Population	56,812 inh.
	Surface Area	22.8 km²
	Density	2,496 inh./ km²

Contact and Information from the Municipality	Municipal website	www.dortmund.de
	Data sources	see Chapter 7

City plan (map)

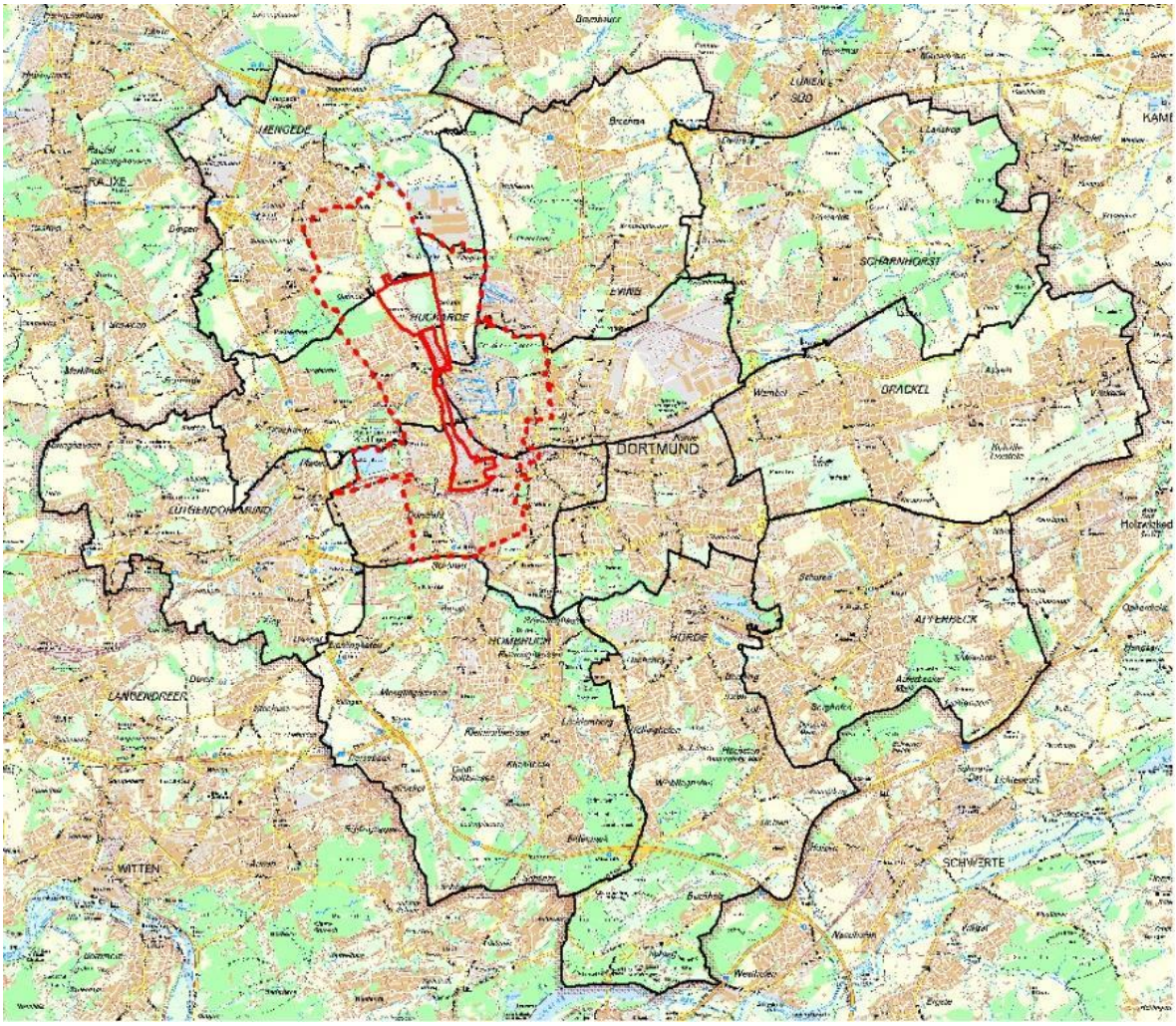

Figure 65 - Dortmund City plan with outer lines of Living Lab (red continuous line), Analysis Area (red dotted line) and City Level (outer black line). The inner black lines show borders of Dortmund´s twelve city districts. Source: City of Dortmund

Living Lab Area Map

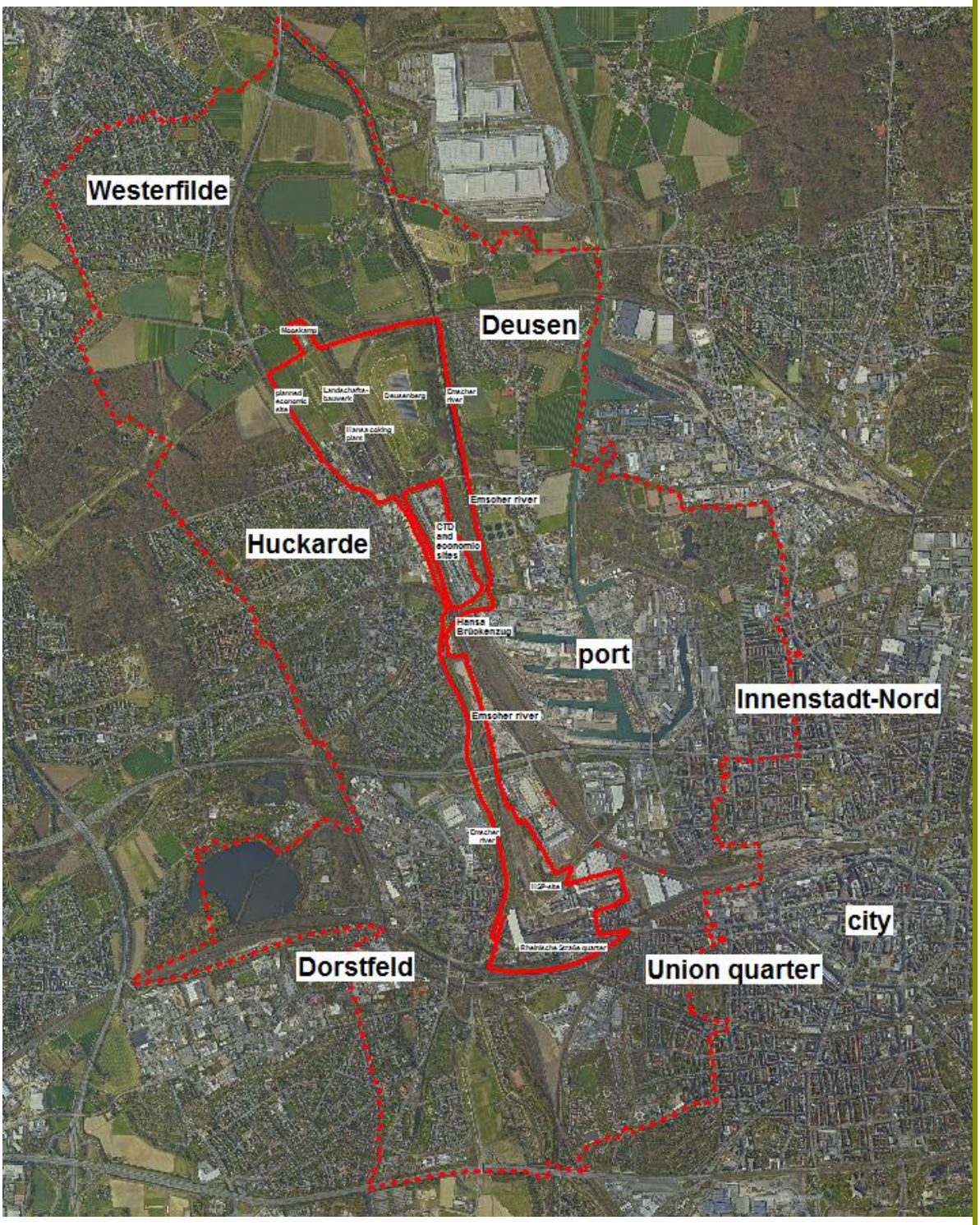

Figure 66 - LL Area of Dortmund. Settlements and location of port within Regeneration Area (Source: City of Dortmund)

Context and description

Being the fifth largest metropolitan area in Europe, the Ruhr region is an area with a high density of population, work places, and traffic. With coal and steel production and its ancillary industries as the dominant forces for urban and environmental development since 19th century, the cities in the Ruhr region predominantly grew quickly around coalmines and steel mills. The decline of the coal and steel industries started in the 1960´s and ended in Dortmund with closing the last coal mine in 1987 respectively with the closedown of the last blast furnace in 2001.

With structural change towards a modern service-oriented region its infrastructure and appearance has gone and still is going through severe changes. Environmental aspects have gained more importance compared to former times. Manifold small improvements over the past decades have helped flora and fauna to regain better conditions. In addition, living conditions and quality of life have improved thus helping to attract also well-educated workforce from outside the Ruhr region.

Within the Dortmund Living Lab, the historic land use as well as structural changes can clearly be recognized, thus showing a typical section of the Ruhr region in what concerns the urban landscape.

During the past 200 years, the 89 km long Emscher river has been considerably changed by construction. Originally, the river was characterised by a manifold flora and fauna that disappear almost completely during the 19th century because of the use of the Emscher as a wastewater sewage for cities, mining companies, and industry. Land subsidence caused by mining activities led to changes in drainage of the Emscher. Especially during flooding, the polluted water remained longer in its floodplains thus yielding to more epidemics. The technical corrective development of the Emscher started at the beginning of the 20th century in order to bring the wastewater out of the densely populated region in an open concrete canal.

Nowadays, mining activities are no longer taking place and land subsidence has slowed down considerably. This made it possible to renaturalise the Emscher River and its confluences, and to finally construct a regional sewer and treatment plant system for wastewater.

The concept of **The Emscher Landschaftspark (ELP)** was realized during the *Internationale Bauausstellung Emscher Park* (International Construction Exhibition, 1989-1999). It connected seven regional green corridors with existing parks ("*Revierpark*") by covering an area of 450 km². In addition, various industrial heritage monuments were restored and opened to the public ("Industrial Heritage Trail"/ *Route der Industriekultur*).

During the second decade of the park's development, strategic development guidelines were formulated in the "Masterplan Emscher Landschaftspark 2010" and enacted regionally.

In 2005, the third decade program "Position Emscher Landschaftspark 2020+" started and focuses on "guidelines for park development" which are categorized into aspects of:

- Climate protection and climate adaption
- Integrated urban development
- Nature for all people
- Productive park.

Today, the Emscher Landschaftspark is the green corridor throughout the Ruhr region contributing to an increase of quality of life and to the enforcement of the former industrial agglomeration into a new urban cultural landscape. The Ruhr region was appointed as a "cultural capital of Europe" in 2010 (Kulturhauptstadt Europas RUHR.2010) and in 2016, it applied to the UNESCO for the recognition of the industrial cultural landscape in the Ruhr region as a world cultural heritage – the examination is still ongoing.

CITY OF TURIN (ITALY)

TURIN IDENTIFICATION FICHE		
Localization of City	**Region (NUTS 2)**	ITC1 (Piemonte)
	Sub-region (NUTS 3)	ITC11 (Torino)
	Coordinates	Latitude 45° 03' 00" Nord; Longitude 7° 40' 00" East
Information about the city	Population (2017)	884,733 inh.
	Surface area	129.99 km²
	Density	6,805.690 inh./km²
	Average elevation	250 m
	Climate	Cfa – mild temperate climate (Köppen and Geiger classification)
	Average temperature in winter	1.4 °C
	Average temperature in summer	23.6 °C
LL area	Population	34,659 inh.
	Surface area	11,491 km²
	Density	3,016 inh./km²
Contact and Information from the Municipality	Municipal website	http://www.comune.torino.it
	Data sources	http://geoportale.comune.torino.it/web/
Description of context	Specific objective for proGIreg implementation	- The LL methodology applied to NBS; - Education in schools; - inclusion for disadvantaged social groups (social housing inhabitants; refugees; - Support to new entrepreneurship and new green jobs; - Common goods regulation to apply on NBS

	Past intervention	Living Labs on other topics, common goods regulation, educational environmental lab in school

City plan (map)

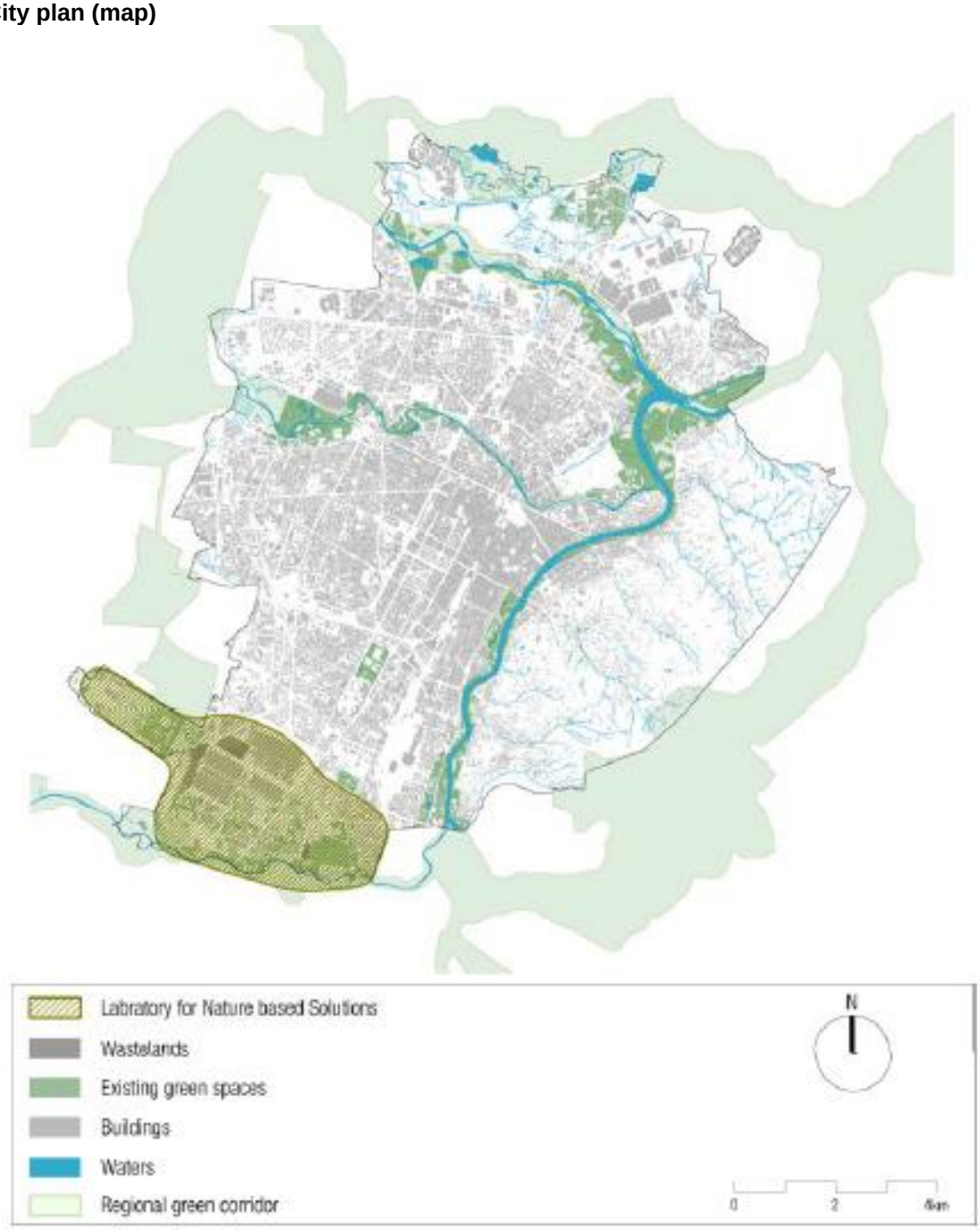

Figure 67 - City of Turin with areas with main GI, urban regeneration areas and proGIreg LL area. Source: proGIreg AF

Living Lab Area Map

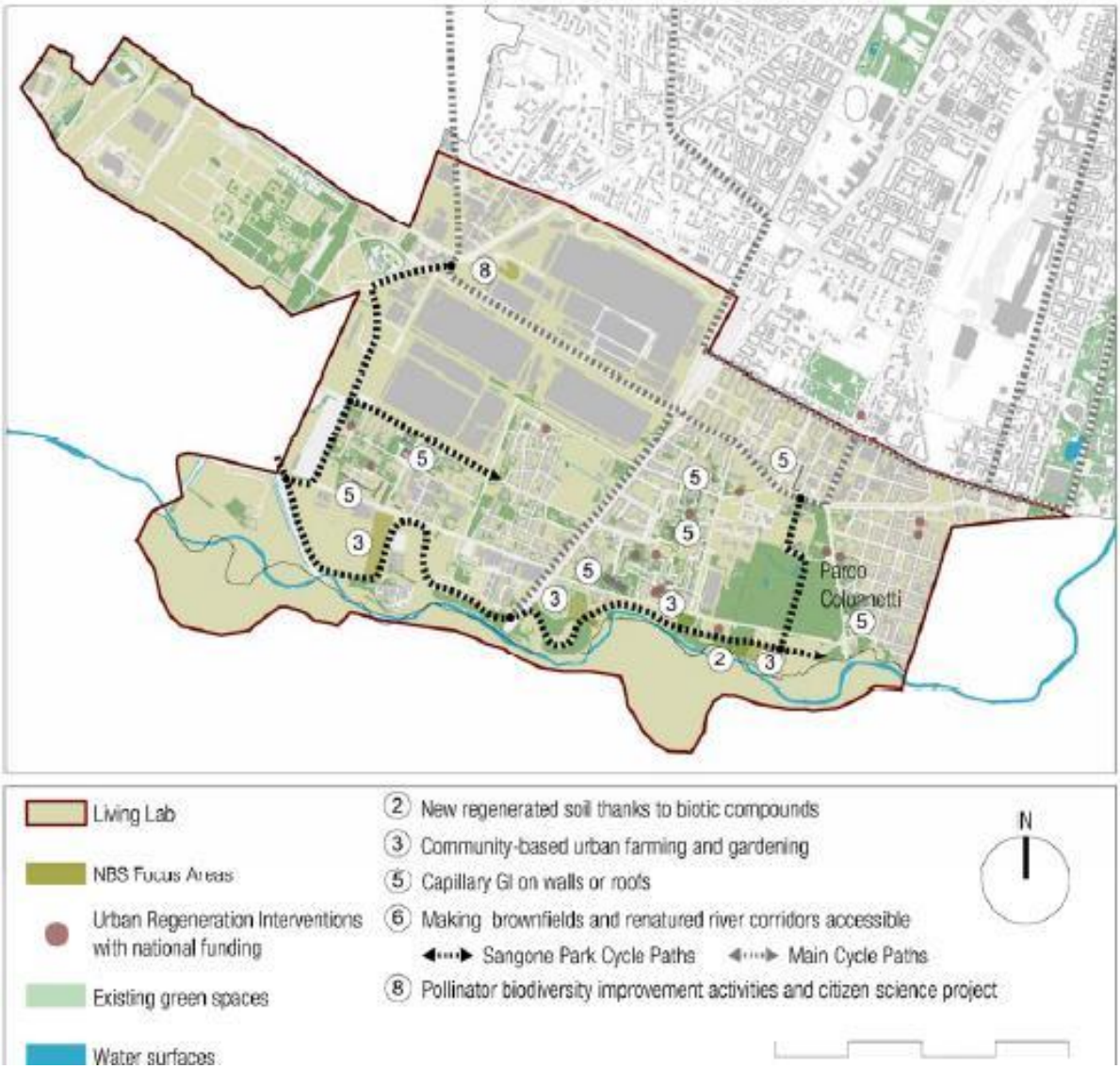

Figure 68 - Living Lab in Turin. Source: proGIreg AF

Context and description

The Municipality of Turin is the capital of the Piedmont region (North- West Italy). With 884,733 inhabitants, 130 km² territorial extension and a GDP of 55 billion euros (which is 4.5% of the national GDP) it is one of the most important cities in Italy. The administration, with about 9.000 civil servants, deals with the overall management of municipal assets and public services. Since the 1990's, Torino has been transformed from an industrial capital (predominantly in the automotive sector) into a centre of innovation and culture.

In 2009, Turin officially kick-started its path to become a „Smart City" when the City Council decided to take part in the "Covenant of Mayor" initiative of the European Commission. As one of the first Italian cities, it developed an Action Plan for Energy in order to reduce its CO_2 emissions more than 20% by 2020. In 2016, the City won the second prize as "European Capital of Innovation" for open innovation models supporting social innovation start-ups and creating new market opportunities for urban innovations.

The Turin Living Lab (LL) will test and develop models for participatory urban regeneration whilst implementing the new municipal regulation on common goods. The LL area is the post-industrial "Mirafiori Sud" district (34,659 inhabitants on 11.5 km^2) which is located along the river Sangone. The former working-class district is characterised by poor quality of the urban environment (green and grey infrastructure) accompanied by social segregation, poverty and security problems.

CITY OF ZAGREB (CROATIA)

ZAGREB IDENTIFICATION FICHE		
Localization of City	**Region (NUTS 2)**	HR04 (Continental Croatia)
	Sub-region (NUTS 3)	HR041 (Grad Zagreb)
	Coordinates	Latitude: 45° 48' 54" N; Longitude: 15° 58' 55" E
Information about the city	Population	790,017 inh.
	Surface area	641 km^2
	Density	1232.45 inh./km^2
	Average elevation	158 m
	Climate	Cfb – temperate / marine west coast climate (Köppen and Geiger classification)
	Average temperature in winter	1 °C
	Average temperature in summer	22 °C
LL area	Population	9,150 inh.
	Surface area	3.0 km^2
	Density	3,050 inh./km^2

Contact and Information from the Municipality	Municipal website	https://www.zagreb.hr/en
	Data sources	Municipality data Public Health Institute
Description of context	Specific objective for proGIreg implementation	- inclusion for marginalized social groups - Support to new entrepreneurship and new green jobs - Introduction of NBS as catalyst in re-claiming of the former industrial zone
	Past intervention	- Temporary uses, allotment gardens, “Green and Blue Sesvete” conceptual study
City plan map		

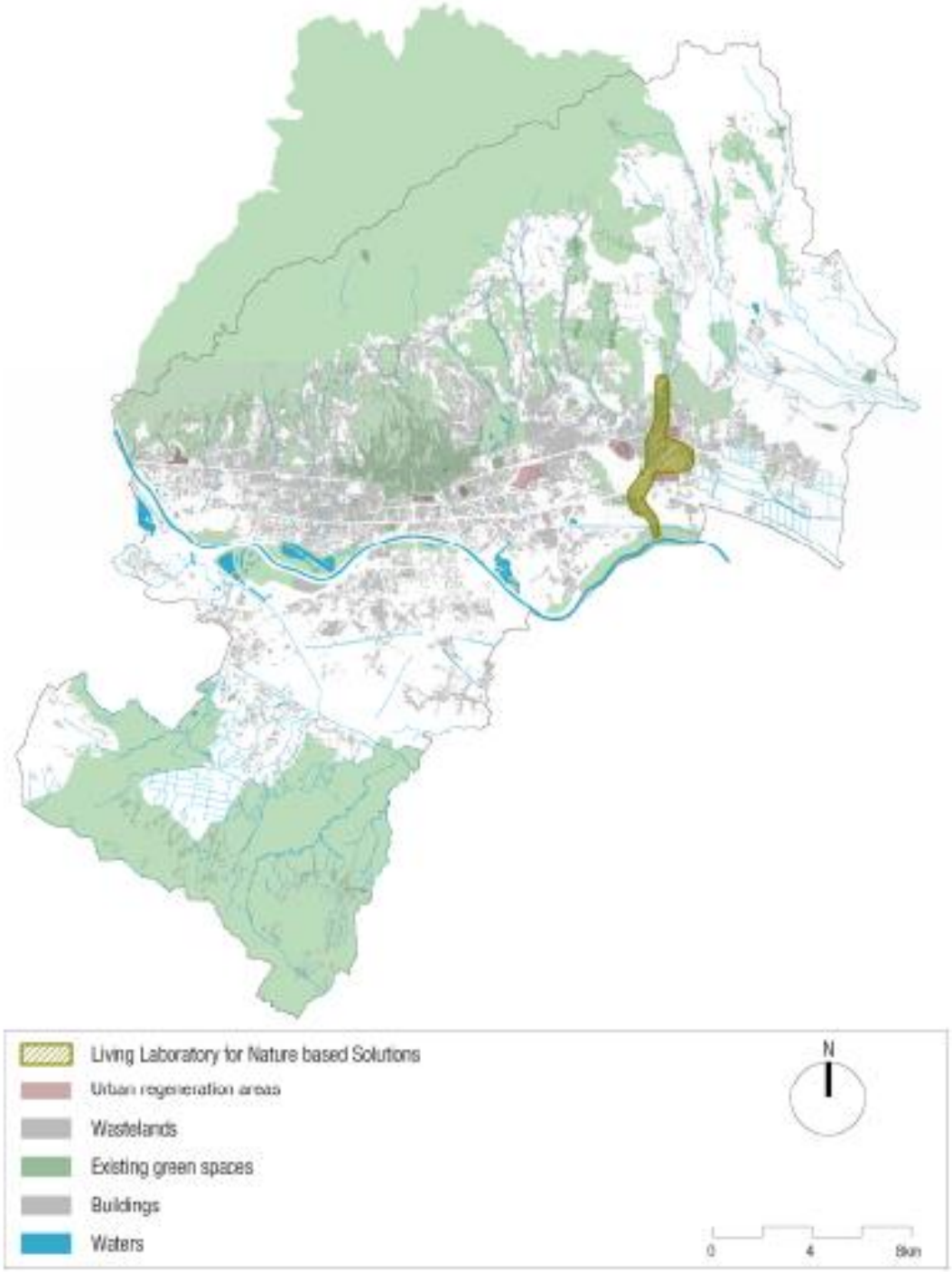

Figure 69 - City of Zagreb with areas with main GI, urban regeneration areas and proGIreg LL area. Source: ZZPUGZ, proGIreg AF

Living Lab Area Map

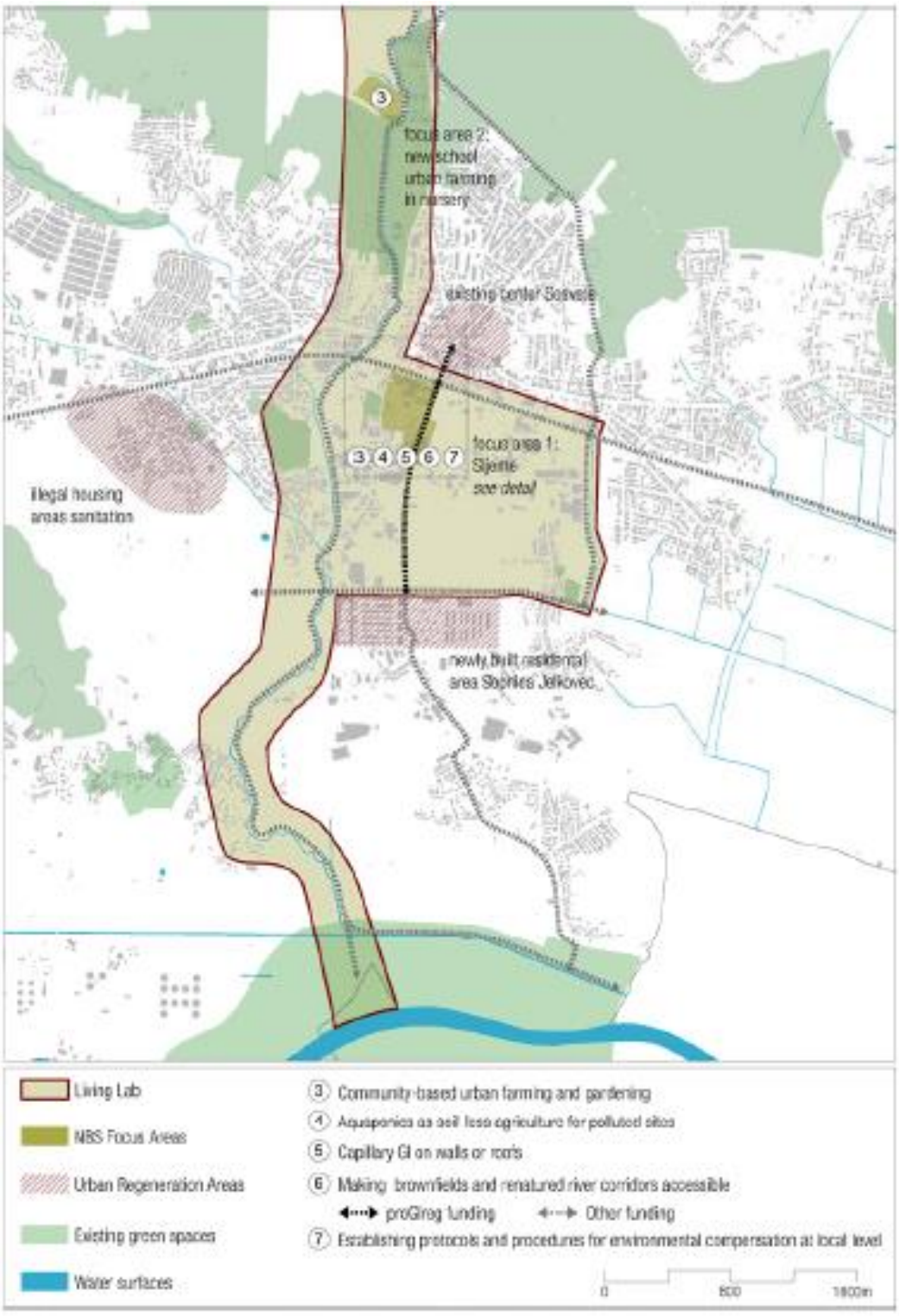

Figure 70 - Living Lab in Zagreb. Source: ZZPUGZ, proGIreg AF

Context and description

Zagreb is the capital of Croatia, covering 641 km². It has 17 districts and 790,017 inhabitants (2011 census). The Zagreb metropolitan region, consisting of 690 municipalities counts around 1.1 million inhabitants. Its two neighbouring counties provide a portion of its natural resources and food, as well as providing residential space for commuters who including many workers, students and others. 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. The surrounding area meets Zagreb citizens' needs for recreation, nature and housing, thus creating further demand for commuting, suburbanisation and the growth of towns in the area. 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.

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.

It is connected to the city centre by railway and several important city roads (Zagrebačka, Branimirova, Slavonska 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.

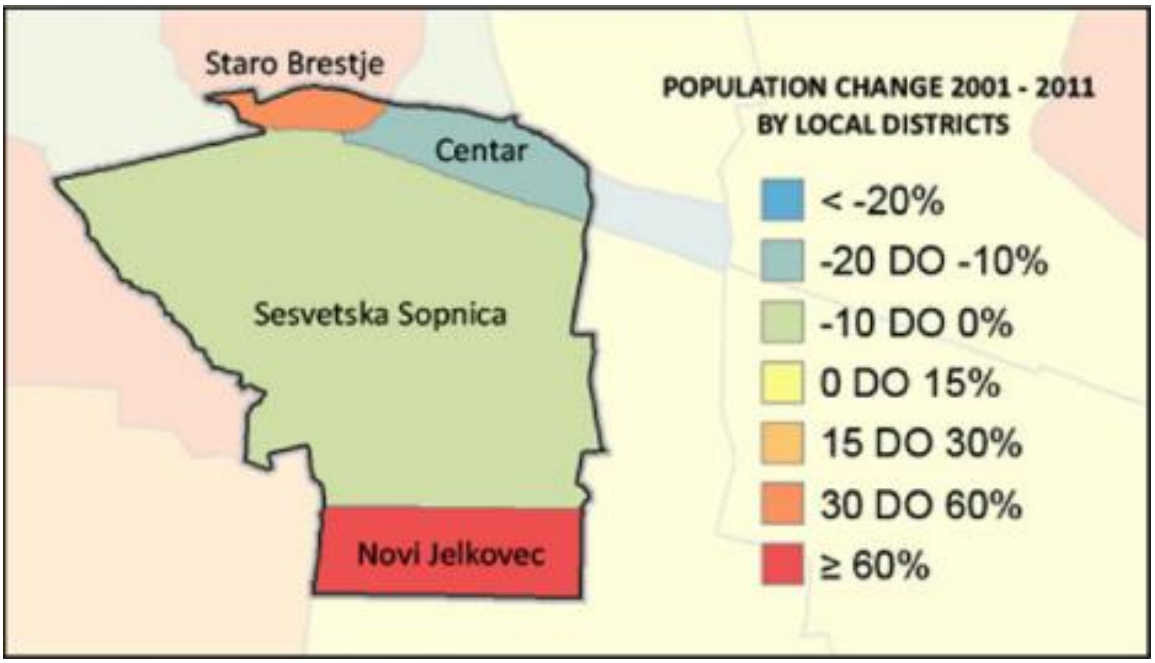

Figure 71 - Analysis Area of the Zagreb LL. Source: Zagreb Municipality, SWOT Maps (Chapter 5)

The Analysis Area of the LL Zagreb considers both the Sljeme Factory and service/industrial area Sesvetska Sopnica, as well as the immediately adjacent Novi Jelcovec, one of the most dynamic residential areas in Zagreb.

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.

CITY OF NINGBO (CHINA)

NINGBO IDENTIFICATION FICHE		
Localization of Haishu District	**Province**	Zhejiang
	City	Ningbo
	District	Haishu
	Coordinates	Latitude 29° 52′ 3″ N, Longitude 121° 32′ 36″ E.
Information about the district	Population (2017)	626.363 inh.
	Surface area	595.5 km²
	Density	1,052.00 inh./km²
	Average elevation	4-5.8 m
	Climate	Cfa – humid subtropical climate (Köppen and Geiger classification)
	Average temperature in winter	5.4 °C
	Average temperature in summer	28 °C
LL Analysis area – Moon Lake Street	Population (2017)	25,750 inh.
	Surface area	2.07 km²
	Density	12,440 inh./km²
	Municipal website	http://www.haishu.gov.cn/

Contact and Information from the Municipality	Data sources	Ningbo Statistical Yearbook
Description of context	Specific objective for proGIreg implementation	- Regenerate the ecological structure of blue areas by employing sediment dredging equipment to remove the endogenous pollution sources within a contaminated urban lake - Foster private enterprises to engage in financial investment on the regeneration, maintenance and management of common goods in practice with the transfer of innovation knowledge created by science communities and the employment of protocols and standards guided by governmental agencies
	Past intervention	Due to rapid urbanisation challenges pertaining to the contamination level and risk of blue-green network reduction in favour of grey infrastructure, Ningbo has been listed as one of the pilot cities participating in a series of Action Plans for soil and water challenges. The „Five water treatment" special action (2017) and the 10-year comprehensive PPP management project of the Moon Lake water ecological environment, launched also in 2017, represent starting points for the proGIreg LL actions.

City plan (map)

Figure 72 - Haishu district plan with outer lines of Living Lab (red continuous line), Analysis Area (red dotted line) and City district Level (outer black line). The inner grey lines show borders of Haishu´s towns.

Living Lab Analysis Area Map

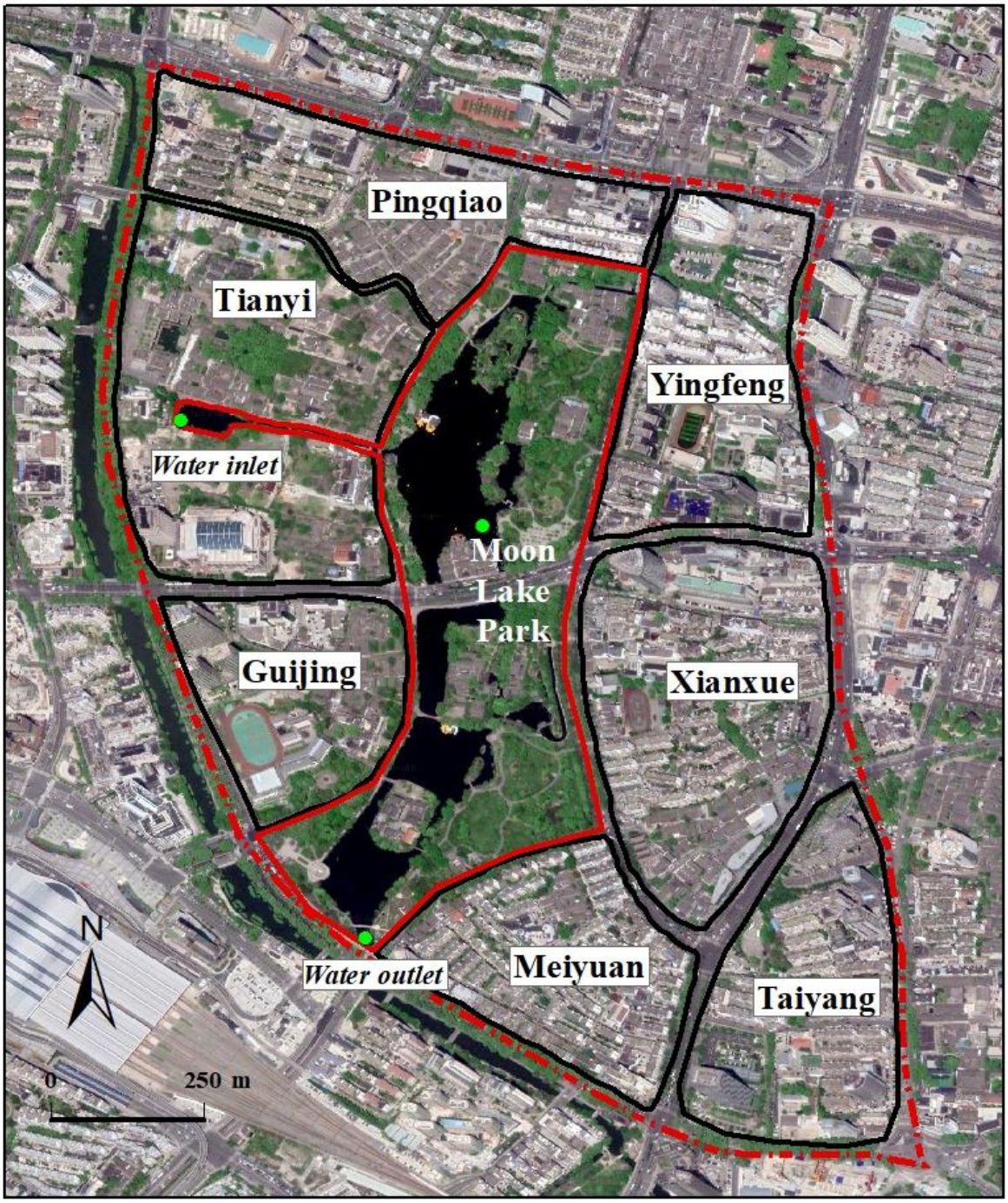

Figure 73 - Living Lab (red continuous line), Analysis Area (red dotted line) and 7 communities (black continuous line) of Haishu, Ningbo.

Source: City of Ningbo

Context and description

According to the 2013 Zhejiang Provincial Water Resources Census, the annual per capita water resource in Zhejiang Province is only 1,760 m^3, very close to the world-recognized warning line of

1,700 m^3. Although Zhejiang's water resources per unit area can rank fourth in China, 80% of water resources are distributed in mountainous areas, so eastern Zhejiang (including Ningbo), where the population is concentrated and the economy is developed, is a key area of water scarcity including the large gap between supply and demand, prominent structural contradictions, serious pollution, and low effective utilization. Therefore, in 2013, the Zhejiang Provincial Party Committee proposed the introduction of the „Five Water Treatment" to transform and upgrade water management by controlling sewage, preventing flood, draining flooded fields, guaranteeing water supply and emphasizing water conservation.

The Regional river length and water area increased significantly after the administrative division of Haishu was adjusted, in 2017. The "Five Water Treatment" special action put forward by the local government with the goal of "struggling for 200 days, destroying inferior V water class[2], focusing on solving problems such as river dredging, river regulation, sewage interception, river beautification and agricultural non-point source pollution. Meanwhile, the government promoted the reconstruction of the rainwater and sewage diversion and pipe network of 310 houses in 28 old districts (Jiangxia Street, Moon Lake Street, Gulou Street, respectively) of the first batch of "Sewage Zero Direct Area" Dredge renovation. After the comprehensively tacking the activities of "1+2+96" (1 municipal control section, 2 district control sections, 96 small micro water bodies), three tasks have been basically completed. The results are as follows:

1. The Nanxintang section of city control meets the V class water quality standard, which could be applied to agricultural irrigation and general landscape requirements. Besides, it passed provincial approval and was cleared of pollution record by government.

2. The district control of the moat Mayuanqiao section and the Zhongtang River bridge head section of and the Zhongtang River bridge head section reached the V class water quality standard.

3. The 96 inferior V class small micro-water bodies were all annihilated. In addition, it passed municipal inspections and eliminated the government's record of contamination.

In the same year, the government of Haishu district organized relevant personnel to conduct a comprehensive investigation and took a series of measures, after which a total of six projects were completed to improve the planting of crops on land, within a 100,000 m^2 stretch of land along the river, including removing 590,000 m^3 of silt in the river and demolishing 1,200 m^2 of illegal construction in wading (waterside or in the water).

The water body of the **Moon Lake Scenic Area** in Ningbo accounts for 31.5% of the total area. The waters of the entire scenic spot have been intercepted, dredged and drained, during the construction of the scenic spot, and the water quality has been greatly improved. However, the phenomenon of eutrophication of the water has not changed fundamentally, and there are still hidden dangers in the quality of the waters. The self-purification capacity of the water body was improved by the method of placing fry fish (which feed on algae and can effectively remove the amount of cyanobacteria in the lake).

In 2017, the first lake management PPP (Public-Private Partnership) project in the province was launched, the **Moon Lake water ecological environment**, with a contract period of 10 years. During the renovation period, the measures below were implemented:

4. **Desilting and sludge disposal**: The sediments at the bottom of the lake are cleaned and the sludge is treated to make fertilizer for planting. *(Please note: recent research in WP4 has revealed that high levels of heavy metals concentration in Ningbo Moon Lake sediments hamper*

[2] In China, water quality is divided into five levels from good to bad: I, II, III, IV and V. If the water quality is worse than the V class, it is called inferior V class water

their use as regenerated soil. As a consequence, NBS 2 will neither be realized nor monitored – see also D4.3_amendment_01)

5. **Improving water quality and water ecological building**: Spraying biological improvement reagents, planting aquatic plants and breeding algae-eating fry.

6. **Greening upgrade**: Increase the number and quality of plants planted around/in the lake.

7. **Sponge repair**: “The Sponge City” is a rainwater management strategy, the city “sponge body” includes water systems such as rivers, lakes and ponds, as well as urban supporting facilities such as green spaces, gardens and permeable road surfaces. Moon Lake repairs the sponge, in order to improve the filtration capacity of the sponge to the rainwater flowing into the lake.

8. **Intelligent management:** Through high-tech methods, more real-time monitoring points are set up in Moon Lake, so that the water purification and water flow of the lake are under the control of artificial intelligence.

Consequently, the substandard V-class water indicators for Moon Lake have been gradually ascending to III-class (suitable for centralized surface water level protection zones for domestic and drinking water, wintering grounds and migration channels of fish and shrimp class, aquaculture and other fishing areas and area), and currently shallow water is especially clear.

Moon Lake Historical and Cultural District has a total area of about 1 km2, with more than 50 cultural relics protection units and 3 national-level key cultural relics protection units. It is a cultural and academic center in eastern Zhejiang. Tianyi Pavilion Museum on the west bank of Moon Lake is the oldest library in Asia and one of the three largest family libraries in the world.

FOLLOWER CITIES

CITY OF CASCAIS (PORTUGAL)

CASCAIS IDENTIFICATION FICHE		
Localization of City	Region / NUTS 2*	PT17 (Lisbon Metropolitan Area)
	Province / NUTS 3*	PT170 (Lisbon Metropolitan Area)
	Coordinates	38° 41' 54" N; 9° 25' 20" E
Information about the city	Population (2011)	206,479 inh.
	Surface Area	97 km²
	Density	2,120 inh./ km²
	Average elevation	Min. elevation 0m; max. elevation 475m
	Climate	Csa – Hot summer Mediterranean climate (Köppen and Geiger classification)
	Average temperature in winter	Avg. High °C 11.7
		Avg. Low °C 8.1
	Average temperature in summer	Avg. High °C 24.8
		Avg. Low °C 14.9
Information about the potential regeneration area	Population (Census 2011)	2,333 inh.
	Surface Area	0.42 km²
	Density	5,568 inh./ km²
Contact and information from the municipality	Municipal website	https://www.cascais.pt
	Data sources	https://www.cascais.pt/ https://geocascais.cascais.pt/

Description of context	Objective(s) for proGIreg Urban Regeneration Plan	Upgrade from traditional public green recreational areas to productive GI with social and economic benefits

City plan (map)

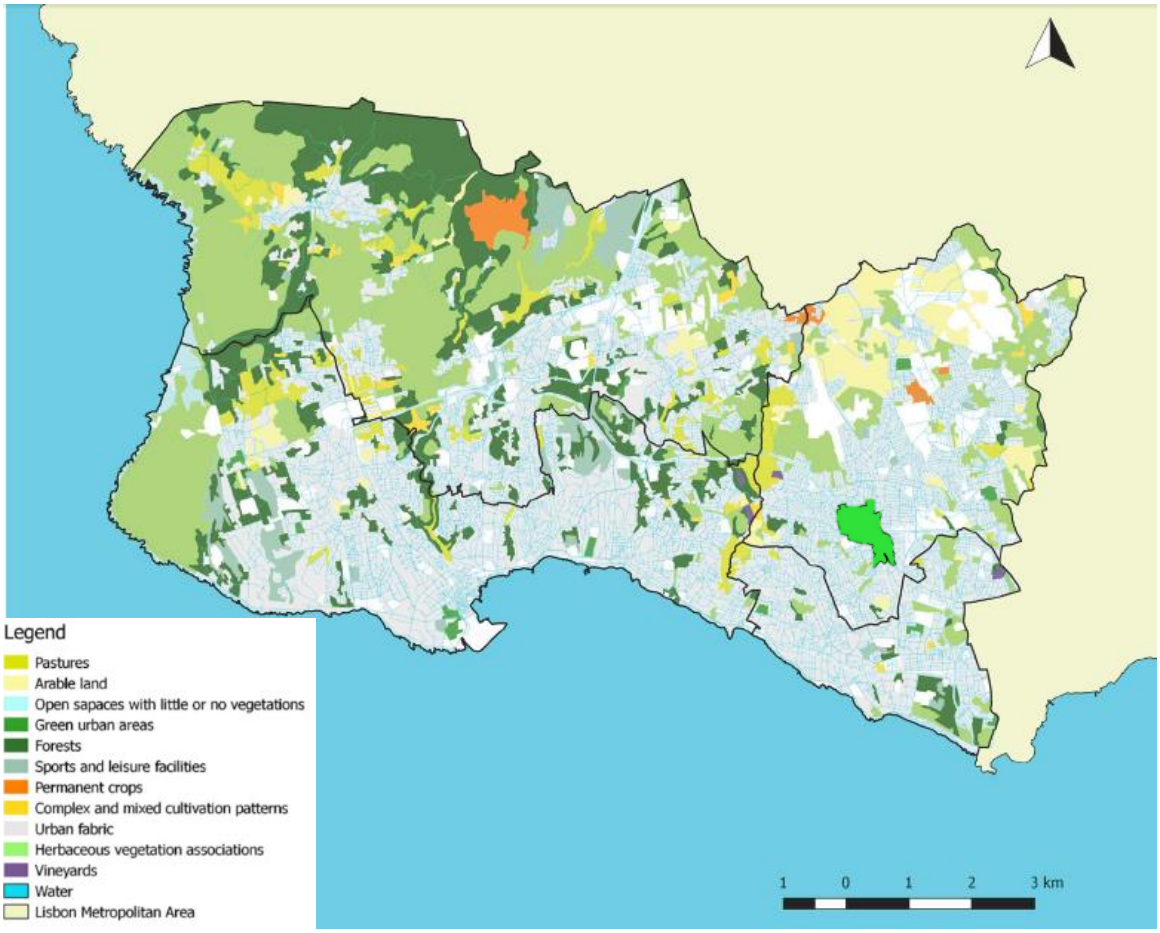

Figure 74 - Cascais Municipality zoning plan, with the identification of Regeneration Area (red). Source: RWTH Aachen based on Urban Atlas

Regeneration Area (map)

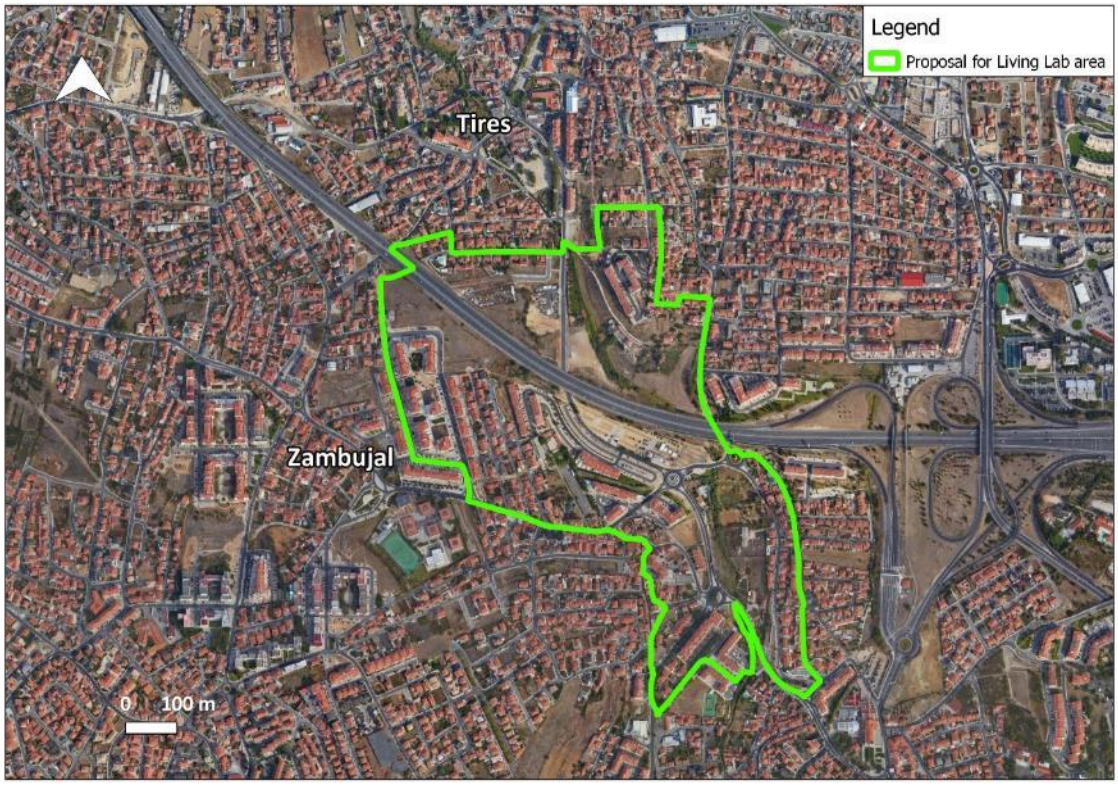

Figure 75 - Proposal for the Cascais Regeneration Area. Source: Cascais Ambiente

Context and description

Cascais is a coastal municipality in the Lisbon Metropolitan Area. With an area of 97 km² and over 30 km of coastline, a third (33%) of which is protected as the Sintra-Cascais Natural Park, a UNESCO Reserve.

Over the last 40 years, Cascais has experienced high demographic and urban growth. As the increase in construction occurred in an uncoordinated way, the result was a fragmentation of urban center as well as an excessive and inappropriate use of key ecological areas. Therefore, Cascais might not face post-industrial challenges, but instead rather chances to upgrade GI areas of potential by means of NBS.

Through urban agriculture projects, it has already been possible to regenerate some land with agricultural potential, which had not been used as such, thus promoting the recovery of the GI. The work carried out helps to develop land in terms of wealth creation, entrepreneurship and social cohesion. The production of income through these areas is central to effective soil protection; the soil resource being non-renewable and under great pressure from real estate interests.

METROPOLITAN AREA OF CLUJ-NAPOCA (ROMANIA)

CLUJ METROPOLITAN AREA IDENTIFICATION FICHE		
Localization of Metropolitan Area	Region / NUTS 2*	RO11 (North-West)
	Province / NUTS 3*	RO113 (Cluj County)
	Coordinates	46° 46' 0.12" N; 23° 36' 00" E
Information about the Metropolitan Area	Population (2017)	427,681 inh.
	Surface Area	1,603 km²
	Density	266 inh./ km²
	Average elevation	410 m
	Climate	Dfb - Warm Summer Continental Climate (Köppen Climate Classification)
	Average temperature in winter	Avg. High °C 0.3
		Avg. Low °C -6.5
	Average temperature in summer	Avg. High °C 24.5
		Avg. Low °C 12.7
Information about the potential regeneration area	Population (National statistics, 2017)	322,595 inh.
	Surface Area	179.5 km²
	Density	1,797 inh./ km²
Contact and information from the Metropolitan Area	MA website	http://www.adizmc.ro/
	Data sources	http://www.adizmc.ro/ https://primariaclujnapoca.ro/ http://statistici.insse.ro

Description of context	Objective(s) for proGIreg Urban Regeneration Plan	Address three key challenge areas within the Cluj-Napoca Municipality, through an integrated approach in which GI provides the backbone for testing new models of urban regeneration using NBS
	Priorities to be addressed through the Urban Regeneration Plan	- regenerate the rail and industrial corridor, - re-integrate the Somes River Corridor, - connect to the Faget forest as leisure opportunity / green ecological corridor
City plan (map)		

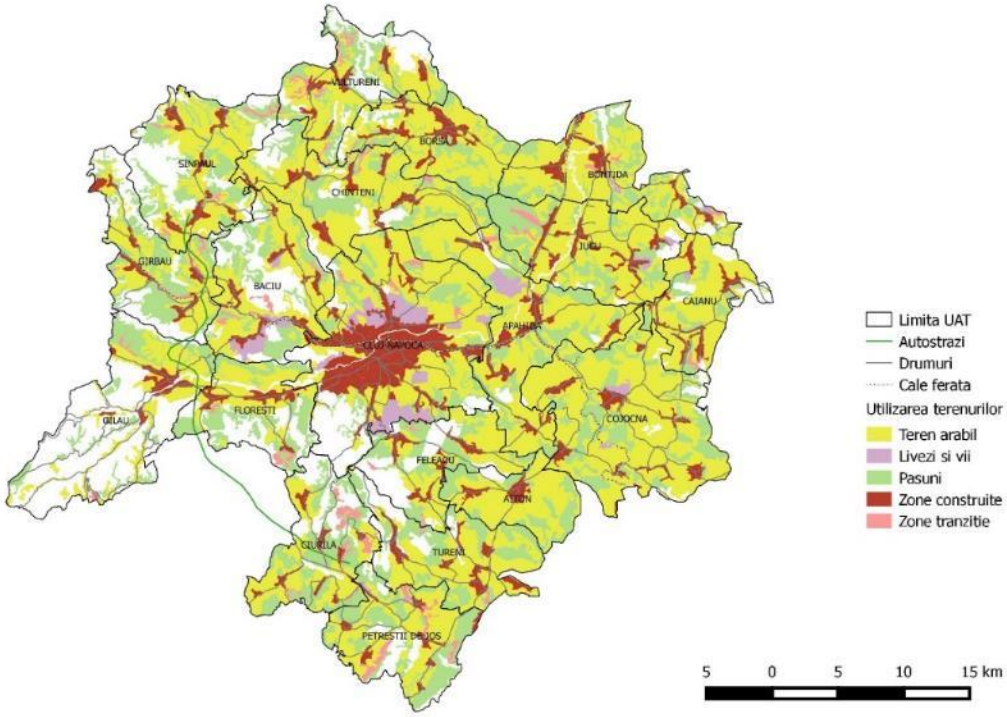

Figure 76 – Cluj Napoca Metropolitan Area zoning plan. Source: URBASOFIA, CMA Integrated Strategy (2015)

Urban Regeneration Area (map)

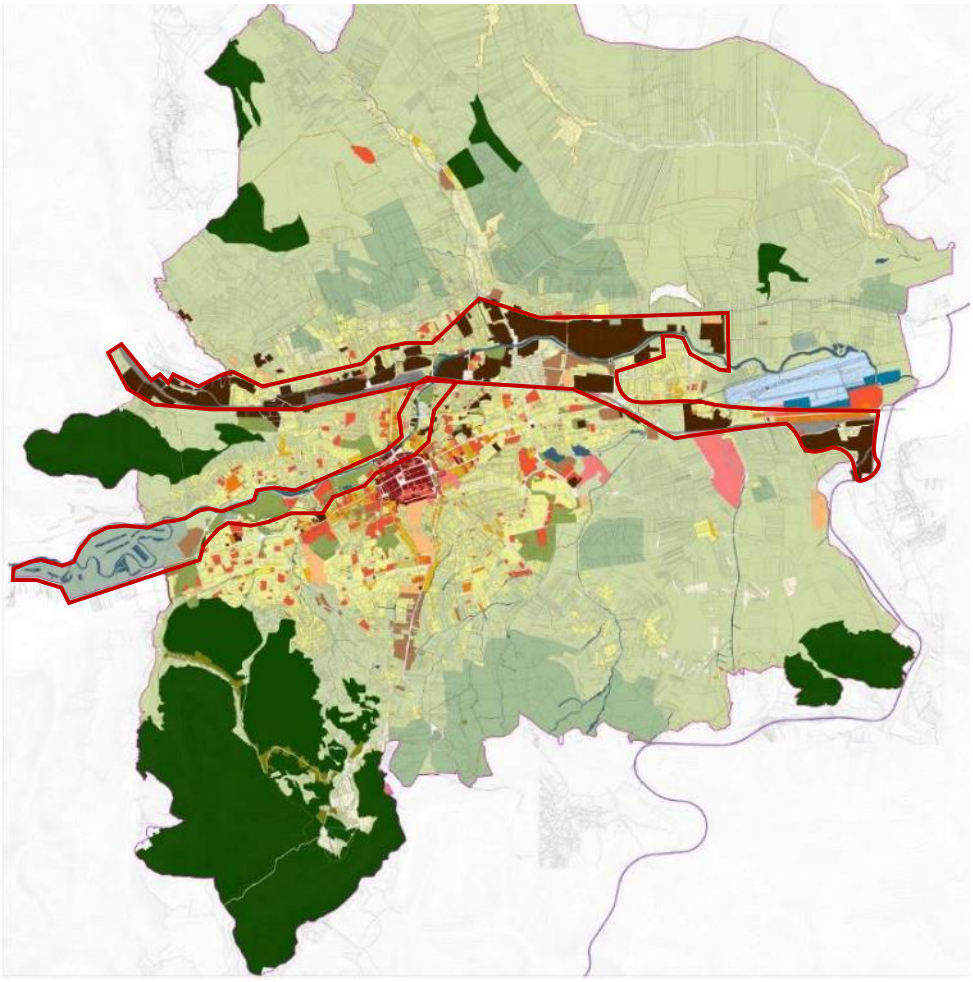

Figure 77 – The three potential Regeneration Areas (marked in red) in the Cluj-Napoca Municipality. Source: GUP Cluj-Napoca

Context and description

The Cluj Metropolitan Area (CMA) is located in the Northwestern Region of Romania, in the Cluj County, as a cooperative territory between the Cluj-Napoca Municipality and 18 communes surrounding it, formalized as an Intercommunity Development Association (ADI) for metropolitan cooperation. The area of the CMA accounts for 24% of Cluj County territory but concentrates 60% of its population, and 80% of the economic activities.

The Municipality of Cluj-Napoca (322,572 inhabitants) is the second largest city in Romania. Built upon the success of its university tradition and its strong urban development ambitions, the city has seen a continuous transformation process towards development of a new urban identity in the past decade, at the regional and national level, as a city of innovation, business development, youth and culture.

The Cluj-Napoca city faces three significant challenges, due to three structural development zones, of which two bisect the city in the East-West direction:

1. The City is crossed by the industrial and rail axis with large brownfield sites, comprising highly degraded areas, abandoned railway structures and derelict industrial land. These now create a strong division within the urban fabric and form a barrier towards the North, creating housing enclaves which need improvement.

2. The blue-green axis of the Someș River intersects the industrial and rail axis, creating challenges in terms of pollution hazards, low quality waterfront areas and difficulties for creating new public green areas towards the North of the City.

Făget Forest located in the South Western part of the city with large green areas extending along the entire Southern administrative border offer opportunities. The expansion of the built environment towards these natural areas creates challenges in terms of sustainable growth of the city.

CITY OF PIRAEUS (GREECE)

PIRAEUS IDENTIFICATION FICHE		
Localization of City	Region / NUTS 2*	EL30 (Attiki)
	Province / NUTS 3*	EL307 (Peiraias, Nisoi)
	Coordinates	37° 56' 50.82" N, 23° 38' 13.49" E
Information about the city	Population (2011)	163,688 inh.
	Surface Area	11.193 km²
	Density	14,624.14 inh./km²
	Average elevation	12 m
	Climate	Csa – Hot summer Mediterranean climate (Köppen Climate Classification)
	Average temperature in winter	Avg. High °C 14.3
		Avg. Low °C 7.6
	Average temperature in summer	Avg. High °C 30.7
		Avg. Low °C 21.9

Contact and information from the municipality	Municipal website	http://piraeus.gov.gr/
	Data sources	Hellenic Statistical Authority Municipality of Piraeus Hellenic National Meteorological Service
Description of context	Objective(s) for proGIreg Urban Regeneration Plan	Introduce NBS at selected locations within the Municipality of Piraeus

City plan (map) with districts and regeneration areas, delineated

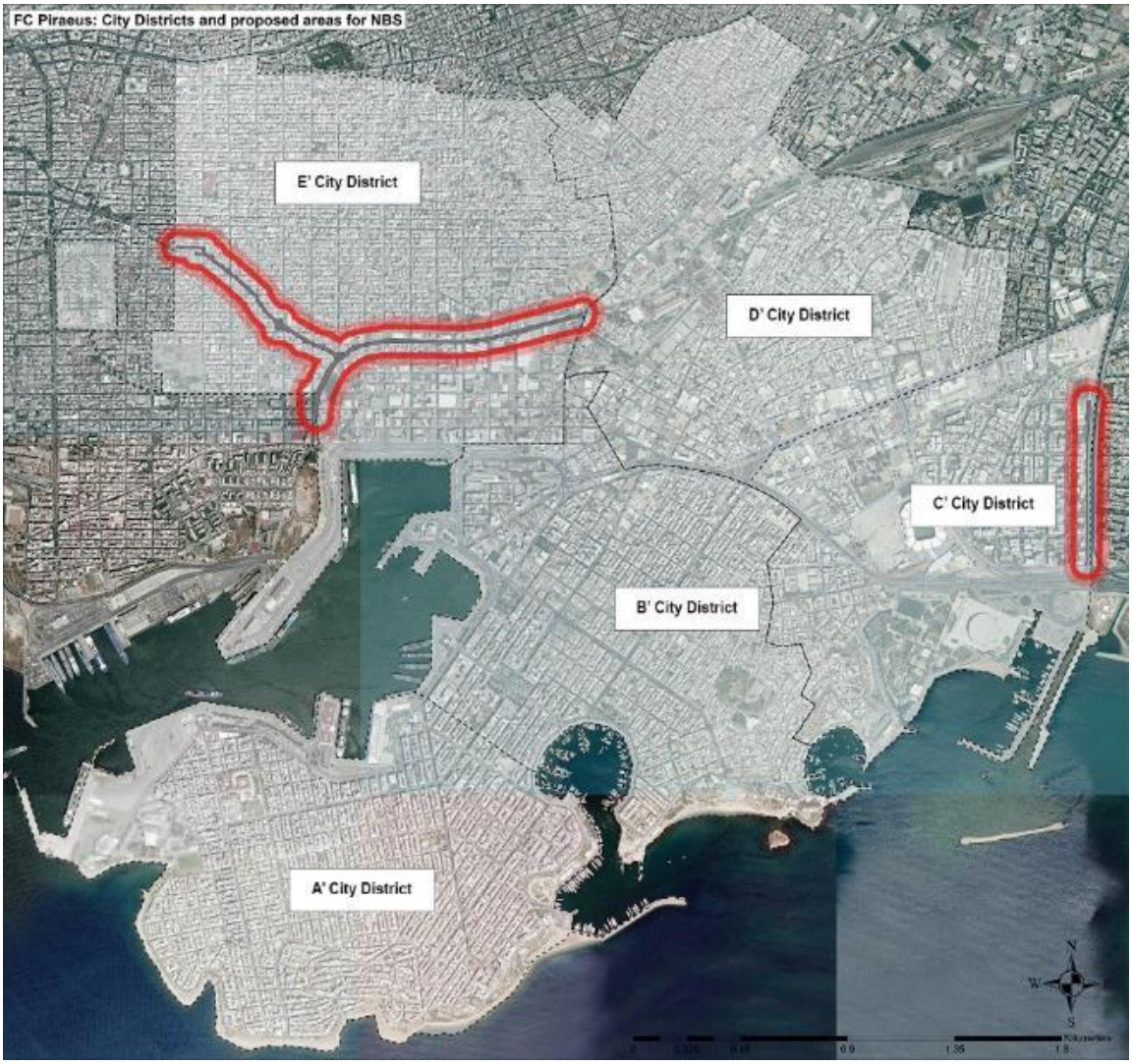

Figure 78 - City Plan of Piraeus and its 5 districts; delineation of the potential regeneration areas. Source: Municipality of Piraeus, Urbasofia.

Orthoimagery Source: Mapping & Cadastral Organisation of Greece (OKXE)

Context and description
Piraeus, with a population of 163,688 and surface area of about 11 km² (Hellenic Statistical Authority, 2011a), constitutes the third largest city and municipality of Greece located 12 km southwest from the centre of the capital city Athens (Municipality of Piraeus, 2018). The city has a rich history tracing back to 2,600 B.C benefiting from the relocation of the capital of Greece to Athens. The economic development of Piraeus and the development of the Athens-Piraeus railway line in 1869 lead to a rapid population increase after the mid-1960s. The development of the railway link between Piraeus and the Peloponnese and northern Greece, as well as the development of the Corinth Canal in 1893 contributed in increasing the Piraeus port trade initiated industrial development (Malikouti, 2004a). Today, the port of Piraeus constitutes the most significant port in Greece as well one of the most significant in the east Mediterranean region (Municipality of Piraeus, 2018). However, in recent decades Piraeus, like many other influential metropolitan areas in Europe, has been subjected to de-industrialisation and shrinking of the trade activity, forcing many wholesale companies to close and unemployment to increase even before the beginning of the financial crisis. The estimated population in Piraeus shows has reduced by approx. 20% reduction in the last three decades, but remains one of the most densely populated municipalities in Europe. The urbanisation process of the last decades in Piraeus shaped the conditions for the environmental degradation of the city: ● Lack of open green spaces and parks ● Presence of a high density of buildings ● Lack of infrastructure ● Air pollution (mainly due to the emissions of ships) The economic activity of the city shows strong recessional tendencies. The decrease in the volume of passengers using the port, the shrinking of production, the steep fall in construction activity and a wave of commercial store shutdowns are aspects of the economic degradation that the city has faced in recent years. However, the port remains the major economic factor for Piraeus. The passenger port of Piraeus is among the five biggest in Europe. It received approximately 10 million passengers and 711 cruise ships in 2014 (cruise statistics, GreekCruise.gr). Piraeus, like any other urban region in Greece, experiences severe social problems due to the ongoing economic crisis. The social cohesion of Piraeus has been negatively impacted from high unemployment rate, increased economically non-active population, reduced household and individual incomes and lack of substantial welfare structures.

CITY OF ZENICA (BOSNIA AND HERZEGOVINA)

ZENICA IDENTIFICATION FICHE		
Localization of City	Region/NUTS2*	FBiH – Federation of Bosnia and Herzegovina
	Province/NUTS3*	Zenica – Doboj Canton
	Coordinates	44°12′12.8″N, 17°54′28.2″E

Information about the city	Population	110,663 inh.
	Surface Area	550.3 km²
	Density	198.1 persons/ km²
	Average elevation	316 m
	Climate	Cfb – Temperate oceanic climate (Köppen and Geiger classification)
	Average temperature in winter	Avg. High °C 3.8
		Avg. Low °C -3.0
	Average temperature in summer	Avg. High °C 27.8
		Avg. Low °C 14.5
Contact and information from the municipality	Municipal website	http://www.zenica.ba/
	Data sources	http://www.zenzen.ba/ Zeničkodobojskikanton u brojkama
Description of context	Objective(s) for proGIreg Urban Regeneration Plan	Mitigating the historic pollution and recovering the LL area

City plan (map)

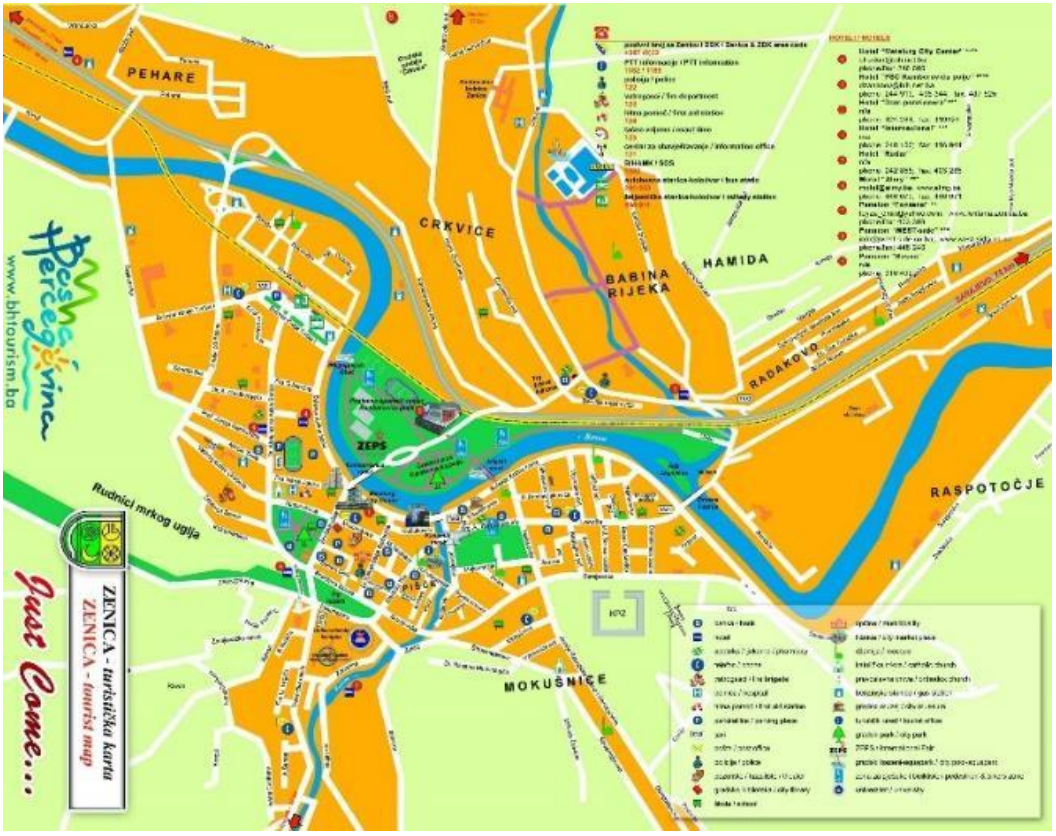

Figure 79 - Zenica city map. Source: www.zenica.ba

Regeneration Area (map)

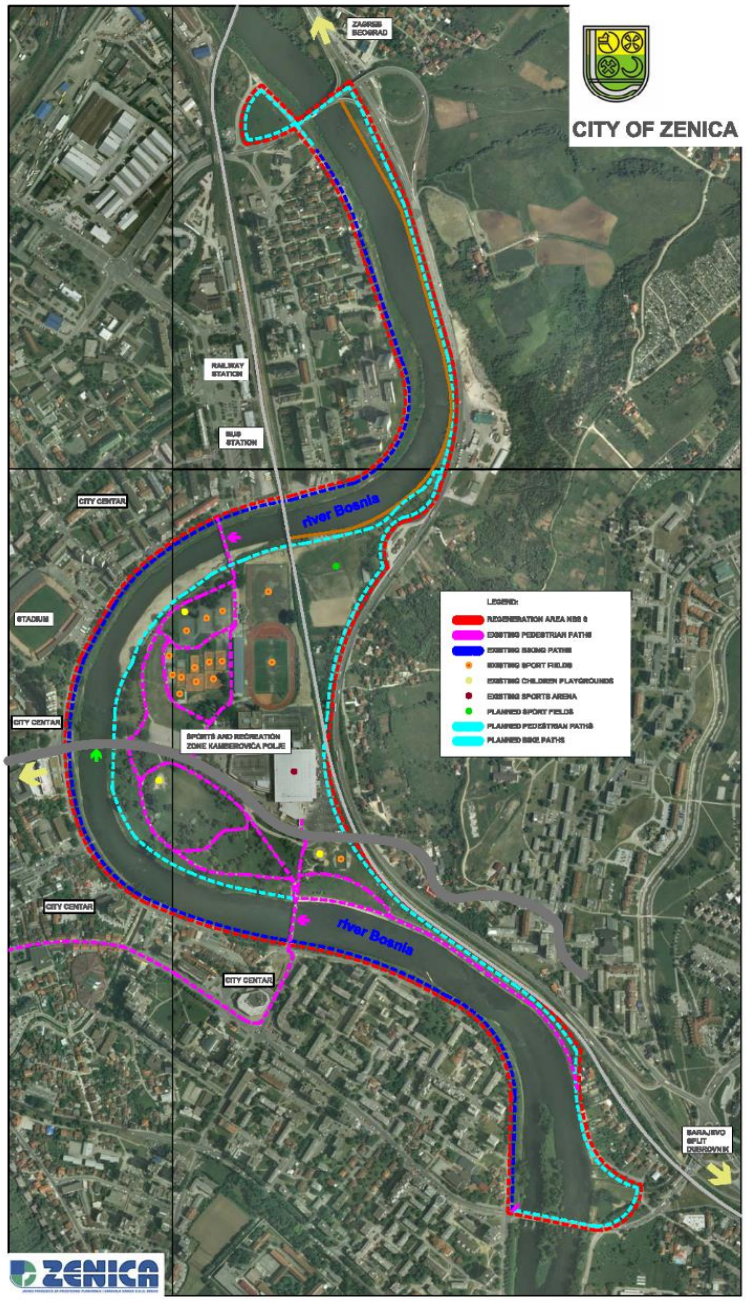

Figure 80 – Delineation of the Regeneration Area of Zenica.
Source: Zenica Municipality, on orthophotoplan

Context and description

The city of Zenica has an area of 558.5 km². It is located in the River Bosna valley at the altitude of 316 m. Its mountains reach the height of 1,304 m with Tvrtkovac as the highest mountain peak. Zenica is situated 70 km north from Sarajevo. The city is located in a basin of river Bosna and surrounded by hills and small mountains. Configuration of the land does not go into the favour of the city expansion. Zenica has very limited land resources for any major makeovers.

The city is an administrative, political, economic, cultural and sports seat of Zenica-Doboj Canton, composed of 12 municipalities, estimated population of around 115,000 composed of various ethnic groups, cultures, faiths and traditions interwoven with the long-standing tradition of a community spirit in former Yugoslavia.

Zenica was called a steel metropolis, the capital of mining and metal processing industry. It is still an industrial city with high levels of pollution; steel and coal, as well as metal processing remain its main industries. The steel production is organized as a manufacturing unit of the world largest steel producer ArcelorMittal, occupying 184 ha of the city's territory. The main business zone is located only a few kilometres from the center and takes up 33.64 ha of land. The garrison takes up 16.24 ha of land, and the prison about 17 ha of land, respectively. The presence of heavy industry continuously pollutes the city and limited availability of the land represent major urban regeneration challenges. However, other industries are developing as a result of the process of setting up a number of small and medium-sized companies.

Annex 2.1: Additional information for FRC Dormunt

For the LL area, the following formal plans enforced by the City of Dortmund are of importance:

Flächennutzungsplan der Stadt Dortmund (Zoning Plan, City of Dortmund)
The zoning plan was adopted in 2004 by Dortmund´s city council. The plan (1:20,000) and its explanatory report point out development goals for future land use in Dortmund. The area north of former Hansa coking plant is planned as an economic site.

Since 2004, the “Landschaftsbauwerk” (landscaping of landfill site Deusenberg) has been built and the polluted soils of the eastern half have been rehabilitated. Against plan declaration, this part will be used as green space. Only the western part will be developed as an economic site. Plans are in process of substantiation. The zoning plan will be changed once the corresponding development plan for the economic site will be legalized.

As per its provisions, Deusenberg landfill is supposed to be developed as an open space with empha- sis on nature-oriented measures and as a park. Surrounding areas in the north and west shall be de- veloped as a forest. Former Hansa coking plant will target on the development of office space, as a museum and a place for leisure facilities. The Emscher river and its adjacent banks will serve as wa- ter management sites, also with focus on water retention.

The HSP-site is still presented as an industrial site, which shows the land use at time of plan adoption. Here, the zoning plan will be changed towards housing, green spaces and economic sites once development plans are worked out.

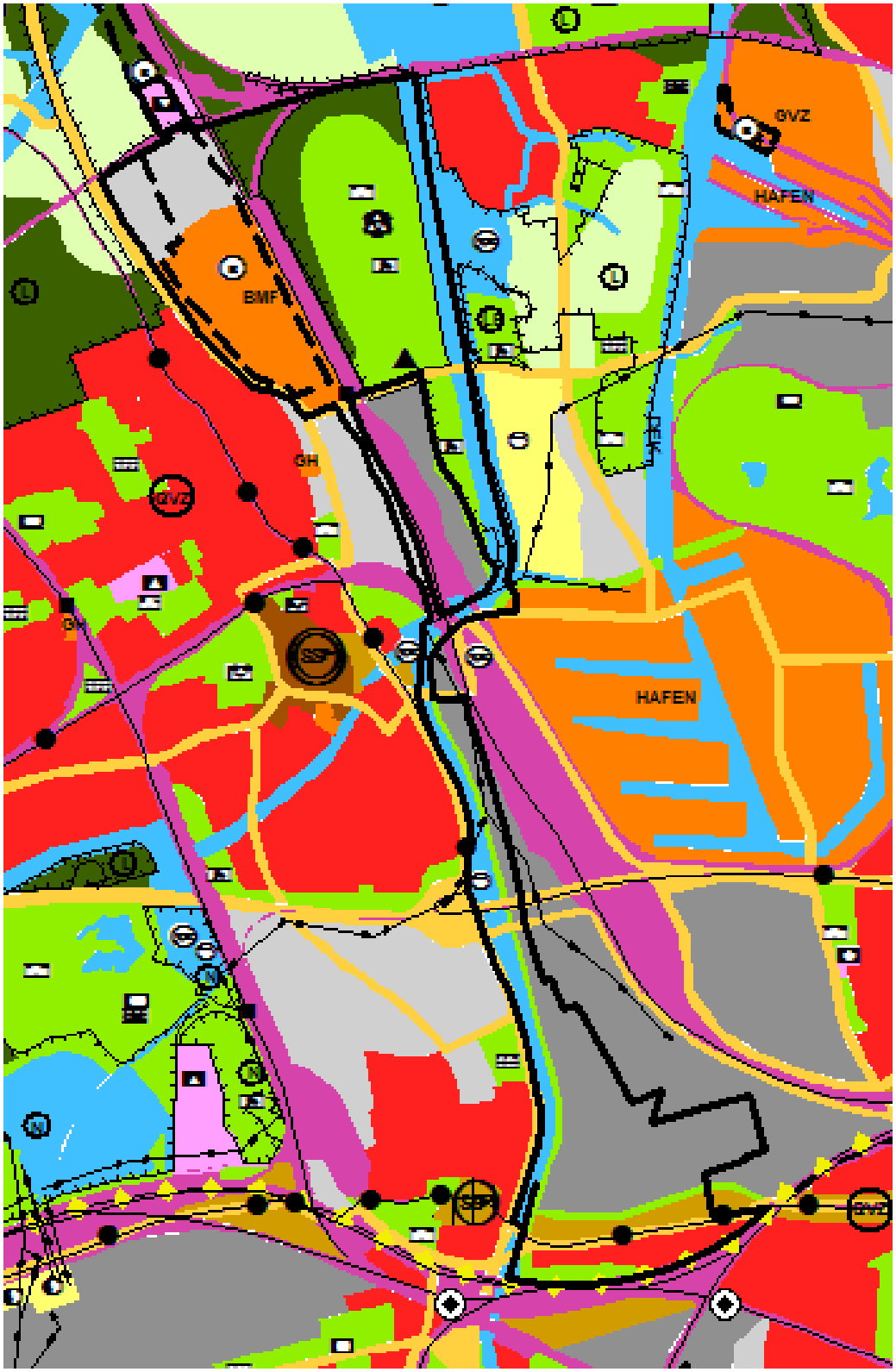

Figura 81 - Extract of Zoning Plan featuring boundary of LL in black (Source: City of Dortmund)

Development Plans (Bebauungspläne)

Development plans (1:1,000) substantiate qualitative requirements, which are binding for construction and defined parcels of land.

Within the Living Lab several development plans are effective:

- **Bebauungsplan InW 217 Rheinische Straße, Teilbereich West** (effective since 2009): This plan excludes retail within its area of application. Statements regarding urban quality are not fixed.

The following development plans qualify streets or crossings:

- **Bebauungsplan InW 210 Unterdorstfeld** (effective since 1997): This plan includes qualitative regulations for adjacent settlement Unterdorstfeld west of Living Lab, but also qualifies the cross-road of Emscherallee and Rheinische Straße in the southern part of the Living Lab.
- **Bebauungsplan InN 204 verlängerte Mallinckrodtstraße/ Hafenbrücke** (effective since 1989): Qualitative requirements are defined for the bridge crossing the Living Lab (Mallinck- rodtstraße) and the crossroad Mallinckrodtstraße/ Emscherallee.
- **Bebauungsplan Hu 124 Huckarder Straße, 1. Änderung** (effective since 1990): The plan includes qualitative statements for the crossroad Huckarder Straße/ Franziusstraße.
- **Bebauungsplan Hu 126/1 Gewerbepark Hansa.** The southeastern edge of the Bebauungsplan is part of the Living Lab where parking space is planned. South of former Hansa coking plant and north of Parsevalstraße an economic site is assigned[3].

As the mentioned development plans mostly qualify streets or exclude retail there are only few bind- ing regulations regarding lots with green infrastructure within Dortmund Living Lab.

The development plan for the economic site “Kokerei Hansa Nord” will start in 2019.

Informal Plans

The informal thematic plans mentioned below should be considered as parts of an integrated development process on different spatial levels with specific planning focuses, supporting and guiding development of the NBS implementation in proGIreg:

Position Emscher Landschaftspark 2020+ (2013)

The development of green infrastructure will remain in focus during the current third planning decade of the Emscher Landschaftspark (ELP), a green space network for the whole Ruhr area. Moreover, new ideas evolved, among others the concepts of Productive Parks.

Productive Parks are characterised by active design and use of park areas by different players. They combine different uses like urban agriculture or environmental education and upgrade urban life in the Ruhr area in a social, cultural, ecologic, and economic way. Inhabitants and visitors of the ELP are regarded as temporary or permanent guests. Thus, it is intended to integrate people into park develop- ment more intensely via participation processes.

[3] As Hansa coking plant needs more parking space for its events, the economic site is now used as an un- paved parking lot. In order to support the further development of Hansa coking plant the site will not be used as an economic site in forseeable future.

ELP 2020+ focuses on several themes, among others:

- **climate protection**: the provision of areas for alternative energy production is one possibility to support this goal
- **Urban agriculture** is important for food production and at the same time contributes to maintenance and preservation of the landscape
- **green infrastructure** for leisure, recreation, sports and services: green spaces close to residential areas need to be developed regarding specific needs of local residents and with up-do-date infrastructure like installation of trend sports infrastructure or barrier-free access
- **economic power of the park supports structural change**: the green infrastructure of the ELP increases quality of life. “Working in the Park” (Arbeiten im Park) is a qualitative goal for the development of economic sites within ELP

Having secured the beacon projects during the past two decades, the ELP currently concentrates more and more on designing and upgrading the green infrastructure in between. Essential parts within the realisation process are among others:

- the integration of inhabitants of the Ruhr region
- environmental education
- improvement of existing institutional and infrastructure networks

To realize these goals, ELP projects will be financed by the EU, the state of North-Rhine Westphalia, the Regionalverband Ruhr, and the respective cities.

nordwärts/ “going north” (2015-2025) and Emscher nordwärts Dortmund

In 2015, the city council approved “nordwärts” as a local initiative and decade-project. Its area covers seven northern districts of Dortmund. Via dialogue und participation processes and evolving projects, quality of life is intended to be harmonized within all twelve districts in Dortmund.

Currently, 234 projects are involved in nordwärts – some already in realisation, others in early planning stages.

During “**Nordforum Huckarde**” (July 2015) the following proposals – among others – were given for the area of the LL area:

- development of Hansa coking plant with functions for culture, leisure, sport and potentiall
- commercial activities;
- improvement of access to Hansa coking plant at crossroad Emscherallee
- a connecting path between Huckarde, Hansa coking plant and Deusenberg
- preservation of green infrastructure
- intensification of education partnerships, e.g. with Hansa coking plant
- establishing a green network by connecting existing green infrastructure and creation of new parks

The following projects within the LL area are currently listed:

- **Vision: Creation of a beacon on Deusenberg (number 032)**
- **Hansa Brückenzug: integration in local path network (number 521)**
- **Restoration of Hansa coking plant´s Salzlager (number 713)**

- **Integrated Action Plan Huckarde-Nord (number 752)**
- **Development of HSP-site/ Rheinische Straße (numbers 497, 843)**
- **Emscher nordwärts/ IGA Ruhr 2027 (number 928)**

Emscher nordwärts Dortmund as part of the nordwärts-project family has an identical project area as proGIreg Living Lab. Goal is to develop a green axis next to the Emscher, which combines traditional and modern elements as well as history of coal and steel industry with forward-looking living environments. Thus, an attractive green corridor shall be realized which helps to improve the general living conditions for the citizens of the neighboring residential areas and beyond as the Emscher path is an important bicycle route for Dortmund and the region.

The development of the Emscher green corridor offers the unique chance to improve connections to adjacent areas as well as the quality and attractiveness of its area. Integrative planning is essential for the realisation process.

Similar to the Living Lab described above, the project area of “Emscher nordwärts” is divided into three parts. For each part, certain project goals have been established:

Subarea North (Hansa coking plant, Deusenberg, Mooskamp):

- bridge for pedestrians and bikers from Hansa coking plant to Deusenberg
- increase of attractiveness of Hansa coking plant as a place for events and meetings
- new business park as a supplement to Hansa coking plant
- supplement of sports and leisure infrastructure on Deusenberg and improvement of connectivity
- upgrade of Mooskamp infrastructure

Central Subarea (Emscher, Hansa Brückenzug):

- path connection along Emscher dam
- Mooskamp train connection via Hansa Brückenzug on existing tracks
- skywalk on existing blast furnace gas pipes and on top of Hansa Brückenzug
- extension of parks on brownfields as parks for International Garden Exhibition 2027

Subarea South (Union quarter, HSP-site)

- urban quarter for living, working, and leisure
- preservation of old characteristic buildings
- construction of an artificial lake
- train stop for Mooskamp train at local public transport station U43

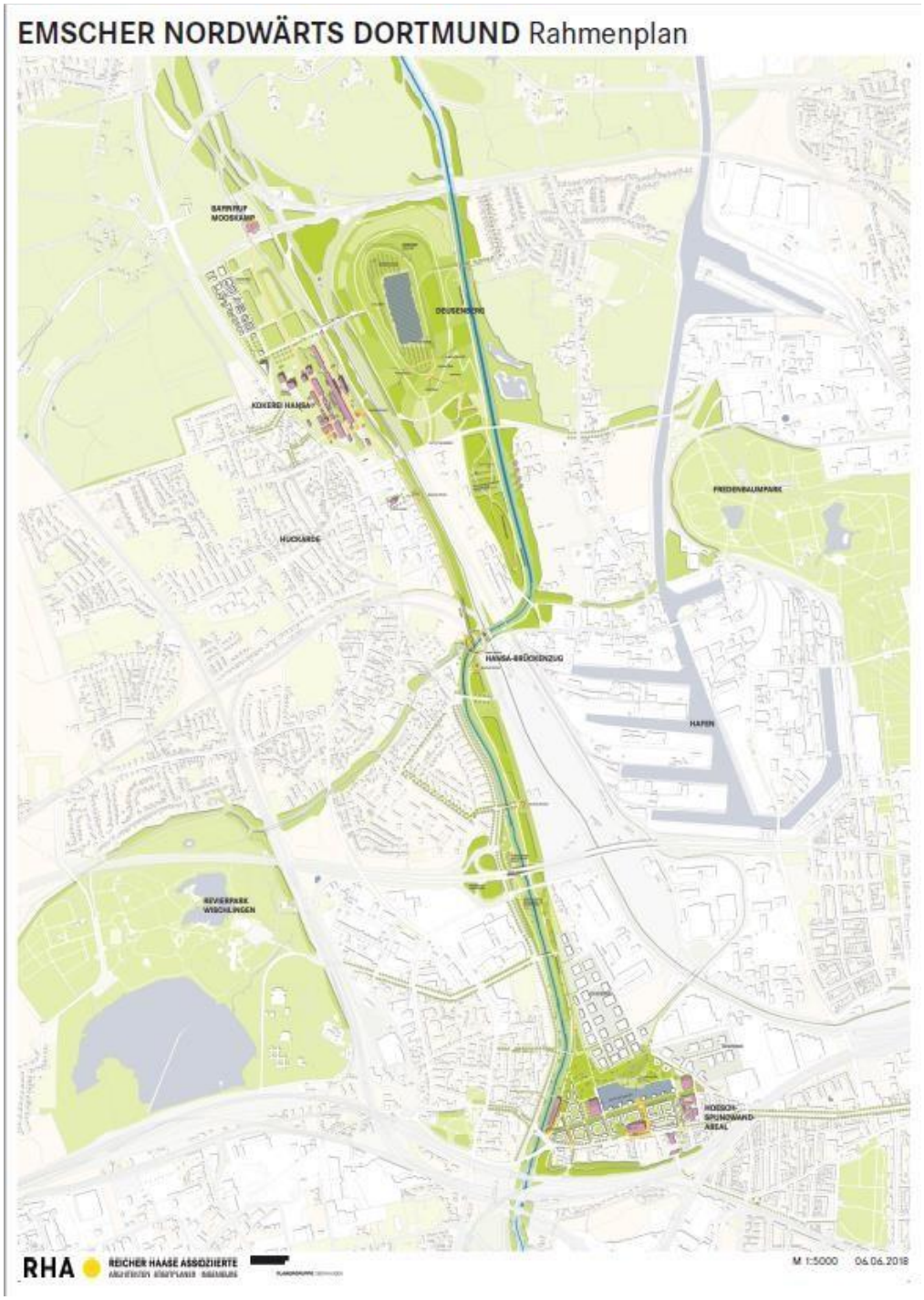

Figura 82 - Framework plan "Emscher nordwärts Dortmund" (Source: Reicher Haase Associates, 2018)

Next to improvements within its project area the framework plan „Emscher nordwärts Dortmund" also shows possible connections to adjacent green areas thus integrating the Emscher more intensely into the existing local green network.

To be able to estimate costs it is necessary to further substantiate plans for the mentioned projects

integrated into *Emscher nordwärts Dortmund*. A first estimation states public costs of about 50 million €.

International Garden Exhibition Ruhr 2027 (IGA Ruhr 2027)

Specific concepts for the International Garden Exhibition (IGA) Ruhr 2027 are in a early preparation phase.
Nevertheless, the planning results of *Emscher nordwärts Dortmund* have been an important and con- vincing basis for the IGA application process. Dortmund will be one of the three cities of the Ruhr re- gion with future gardens as main attractions of the IGA. Dortmund´s second future garden "Parkkreuz PHOENIX" is located in Dortmund´s south connecting and further enhancing the green spaces of PHOENIX Lake, PHOENIX West, Westfalenpark and Rombergpark.

Five "future gardens" focusing on the question "How do we want to live tomorrow?" will be the core of the IGA Ruhr 2027. Dortmund´s "future garden Emscher going north" (Zukunftsgarten Emscher nord- wärts) is supposed to cover the area of "Emscher nordwärts Dortmund" respectively of proGIreg Liv- ing Lab thus giving the realized NBS the chance to be proceeded after proGIreg project end in 2023 and to be presented in 2027 during IGA.

Stadtumbaugebiet „Huckarde-Nord" (2016)

As the settlement of Huckarde still is deprived, an urban renewal project for the area Huckarde-Nord has been determined in 2016 concentrating – among others – on the following goals:

- increase of quality of life and housing conditions for Huckarde inhabitants
- use of existing development potentials
- upgrading and development of "Hansa Revier Huckarde" (Hansa coking plant, Deusenberg, light train museum Mooskamp) and improvement of path connections towards Huckarde set- tlement west of it
- increase of image and overall strengthening of Huckarde district
- enhancing Huckarde-Nord by installing tourism infrastructure

To substantiate these goals an **Integrated Action Plan (Integriertes Handlungskonzept IHK**) has been worked out as a strategic instrument. Several analysis results are also substantial for the imple- mentation of NBS within proGIreg Living Lab:

For **Hansa coking plant** the following goals and projects have been identified:

- strengthening the coking plant for educational, cultural, social and gastronomic purposes
- improvement of surrounded foot and bike path network
- optimization of traffic situation (cars, parking, public transport)
- establishing the coking plant as a place for culture, leisure, and sports
- application for UNESCO world heritage (in combination with Hansa Brückenzug, already oc- curred for the industrial heritage of the Ruhr area in 2016/2017)
- opening a facility for children and teenagers at the coking plant (e.g. Schalthaus)
- supplement the existing climbing gym e.g. by installing a high ropes course, a fitness trail or a hotel

Overall, there is a focus on an increase of public access and use of existing buildings also to create additional reasons to visit Hansa coking plant thus supporting Huckarde to grow together.

The **green space north of Hansa coking plant** is planned to be used as

- an economic site for technology companies in the western part
- as public green space offering path connections between Huckarde settlement and green space north of it in the eastern part

For **train depot Mooskamp** expansion plans are existing:

- extension of usable train tracks as well as installation of further train stops

The **Deusenberg** still offers potential for improvement:

- increase of intensity of leisure use for population of Huckarde settlement and Huckarde dis- trict, e.g. by establishing further trend sport infrastructure
- integrated plan to increase environmental quality and quality of life by designing public green spaces close to settlements (also a nordwärts-project)

In addition, Huckarde´s green infrastructure is supposed to be upgraded within its settlement. Overall goal is to strengthen a green corridor in north-south-extension by combining already existing green spaces and by qualifying them via different uses. Moreover, connections towards adjacent local recre- ation areas like Rahmer Wald, Rossbachtal and Emscher green corridor are intended as well as im- proved opportunities to cross the Emscherallee. Currently a **green infrastructure plan** for Huckarde is in work.

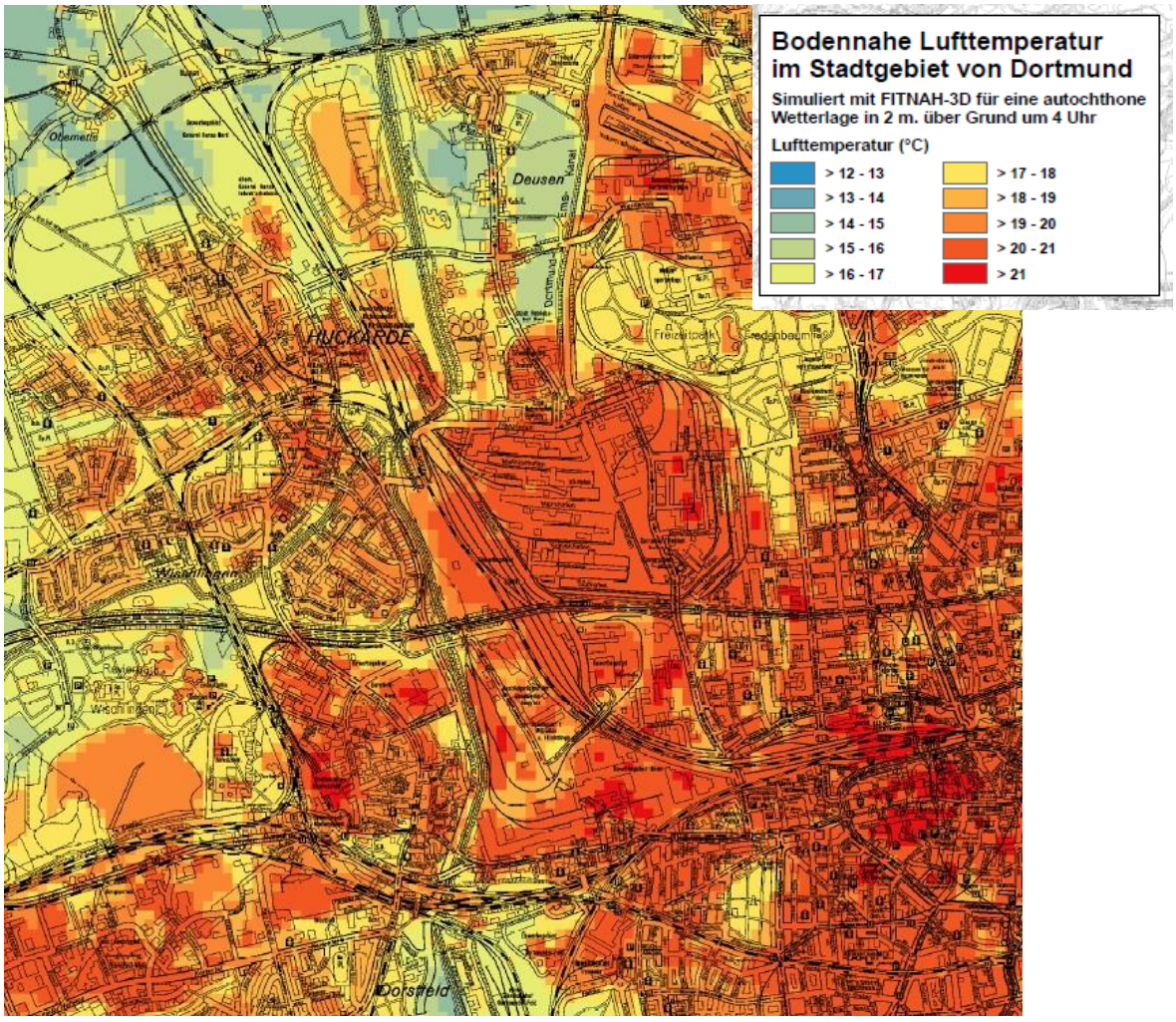

Figura 83 - Dortmund - Close-to-ground air temperature (Source: Regionalverband Ruhr)

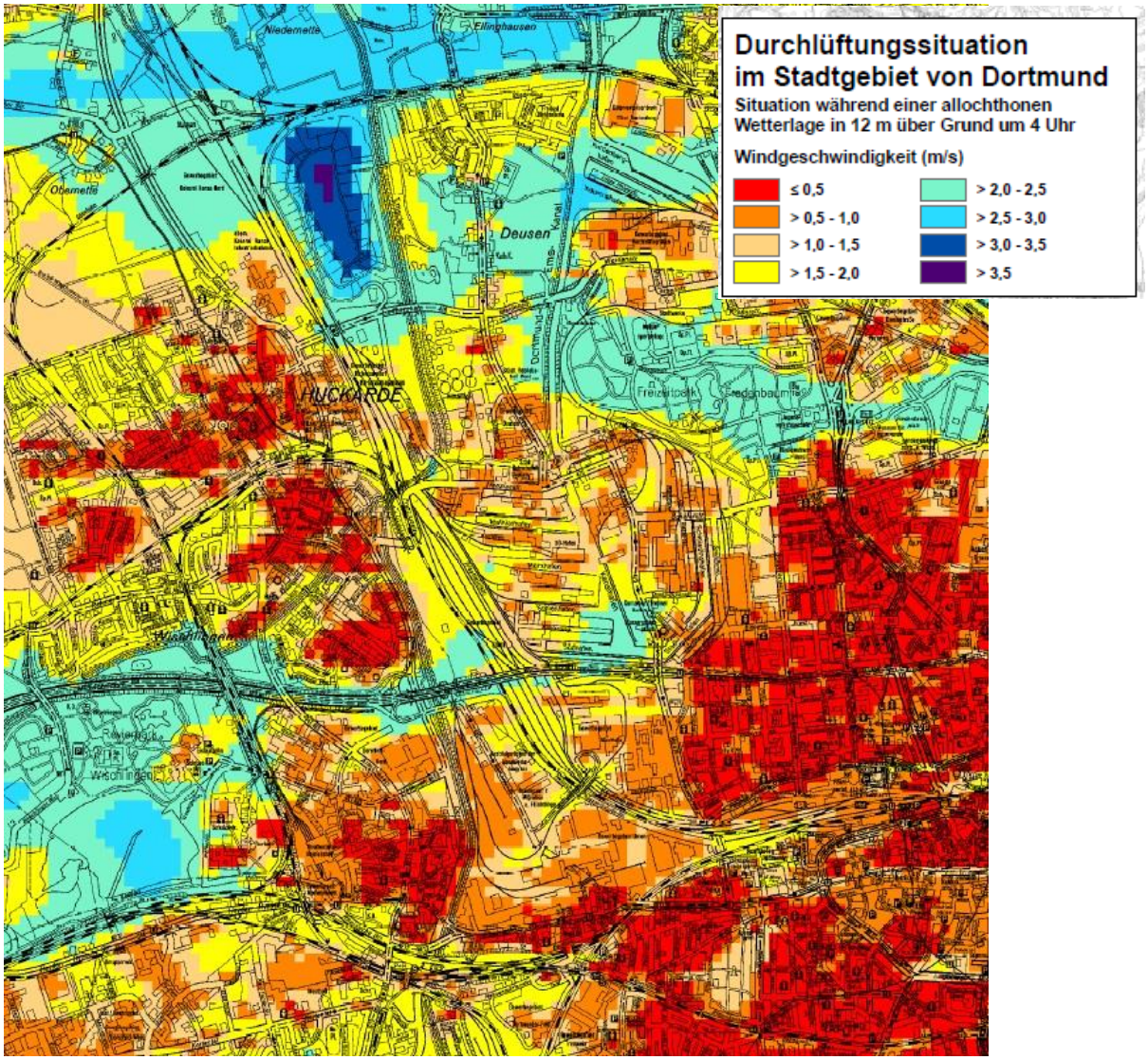

Figura 84 - Dortmund - Ventilation (Source: Regionalverband Ruhr)

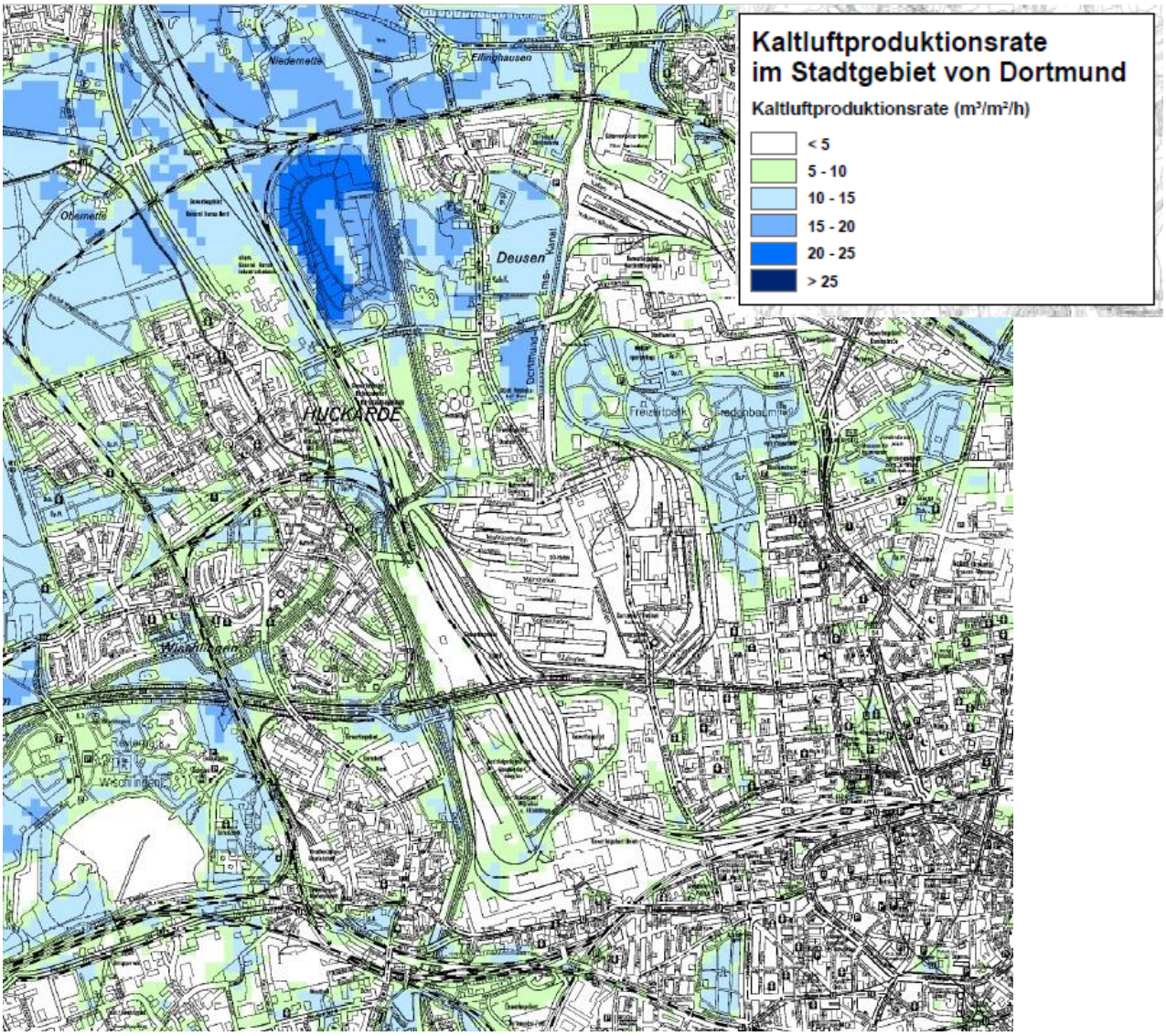

Figura 85 - Cold air production (Source: Regionalverband Ruhr)

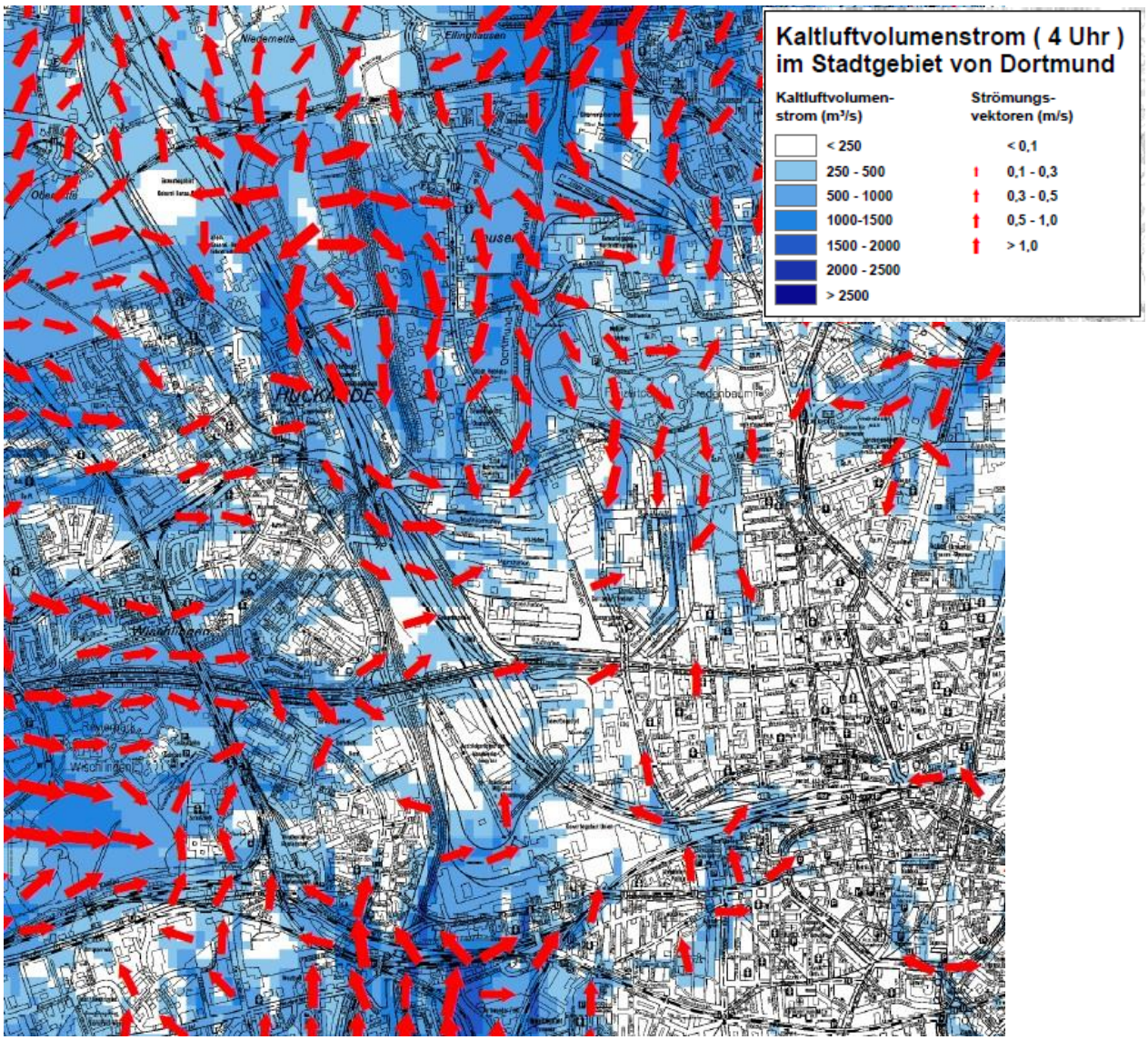

Figura 86 - Dortmund - Cold air production (Source: Regionalverband Ruhr)

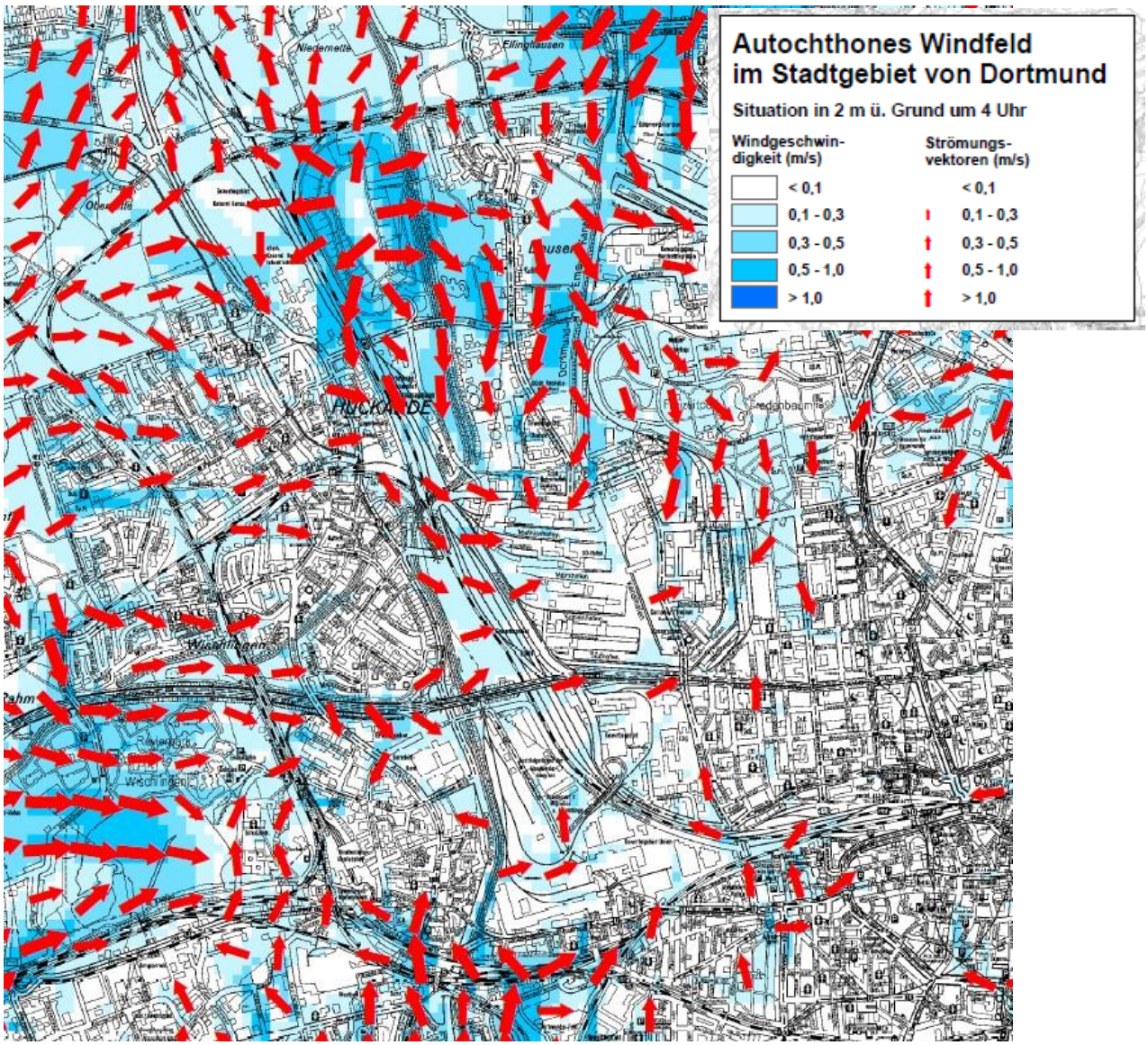

Figura 87 - Dortmund - local windfield (Source: Regionalverband Ruhr)

Annex 2.2: Additional information for FC Piraeus

Piraeus was inhabited since 2,600 B.C. by the Pelasgoi, Phynicians, Thraces, Kares, Leleges and Cretes (Hatzimanolakis, 2005). Originally, it was attached to the mainland through a narrow isthmus (6750–5550 B.C.), due to sea-level rise it evolved into an island in the centre of a wide, shallow marine bay (4850–3450 B.C.) (Goiran et al., 2011). Following, Piraeus gradually re-connected to the mainland (between 1050 B.C. – 6th century B.C.) as the deltaic fans of the Cephissus and Korydallos Rivers periodically filled in the bay (Goiran et al., 2011). In classical antiquity, Piraeus served as the seaport of Athens that hosted a powerful commercial and military fleet and fortified the city (Anagnos- topoulou and Bafouni, 2007). The defeat of Athens in the Peloponnesian war (404 B.C.), initiated the decline Piraeus through a series of attacks by the Romans (85 B.C), Goths (395), Francs (1205), Ot- tomans (1456) and Venetians (1687-1688) (Anagnostopoulou and Bafouni, 2007). The Venetian na- val commander Morosini bombarded the Parthenon and looted Piraeus port including the white mar- ble seated lion statue sculpted in 360 B.C. which was transferred to Venice and at present day consti- tutes one of the four lions in front of the Arsenal (Vermeule, 1972). The prominence of the lion at Pi- raeus port granted during medieval years its name "Porto Draco" and "Porto Leone" (Anagnostopou- lou and Bafouni, 2007). Following the liberation of Piraeus and Athens from the Ottomans in 1828 and the founding of the Greek State in 1830, the Municipality of Piraeus in 1833 was established (Hat- zimanolakis, 2005; Anagnostopoulou and Bafouni, 2007)

The relocation of the capital of Greece from Nafplio to Athens in 1834 played a pivotal role to its future development (Anagnostopoulou and Bafouni, 2007). Residents from the Peloponnese, Chios, Hydra, migrate to Piraeus in search for employment and a better life (Anagnostopoulou and Bafouni, 2007). The first urban plan of Piraeus was developed in 1834 by the architects Kleanthis and Schaubert, which was based on the “Hippodamian Plan” by Hippodamus of Miletus, ancient greek architect (498-408 B.C.) and “the father of European urban planning” (Malikouti, 2004a, 2004b ; Glaeser, 2011). Failure in the implementation land policy and unstable economy lead to many revisions and alterations of the original plan that included changes in the lay-out of land uses, the size of building plots and the proportion between building height and street width (Malikouti, 2004). The economic development of Piraeus and the development of the Athens-Piraeus railway line in 1869 lead to a rapid population increase after the mid-1960s. The development of the railway link between Piraeus and the Peloponnese and northern Greece, as well as the development of the Corinth Canal in 1893 contributed in increasing the Piraeus port traffic and initiated industrial development (Malikouti, 2004a).

The Municipality of Piraeus, which is a public body, has adopted a strategic plan for the forthcoming years and is committed to making Piraeus a competitive, sustainable and attractive European seaport city. The strategy is based upon robust, long-term planning principles, which combine effectively a dynamic business environment with the concern for social inclusion towards a new model of growth, job creation and quality of life for the citizens and the visitors to the city. The vision is to make the city of Piraeus an international business, touristic, cultural, maritime and commercial destination. Currently, the city is divided into the 5 districts – A’-E’. A brief overview of them is enclosed below.

A’ City District

The A’ City District (area 2,358,748 m²) is surrounded mainly by sea, containing a small section of the city centre along the north coast. It is mainly characterised by residential areas (the most affluent ones in Piraeus, along the S coast) and small neighbourhood commercial areas.

Regarding **socio-cultural inclusiveness,** the A' City District hosts four child day care centres, 11 nurseries, 14 primary schools, 6 gymnasiums and 4 lyceums. It also hosts 1 municipal library.

The three bays (Palaskas, Aphrodites, Louviari) and various facilities (Hellenic Naval Academy, Zeas Marine, the cruise terminals of the port, the Hellenic Maritime Museum, the exhibition centre of Piraeus Port Authority S.A. (PPA), Freattydos beach, as well as archaeological findings) constitute the main strengths of the district as they constitute a pole of attraction to both locals and visitors. Stations to the tramline, urban rail and future metro system are not located within this district, and that constitutes a weakness. There are no cycle routes located within this district and there is only one cycle shop, which could provide opportunity for development.

Regarding **human health and well-being**, within the A' City District, the two hospitals of Piraeus (Metaxa Cancer Hospital of Piraeus and Tzaneio Prefecture General Hospital of Piraeus) and two private clinics (In Vitro Fertilization Clinic Mitosis, Yagos General Clinic) are located.

Increased building density and limited in number and size green spaces have an impact on health and are identified as the main weaknesses. The presence of the sea and beaches contribute to recreation and human health thus they are considered as strengths.

Pertaining to **the ecological and environmental restoration**, the A' City District with approx. 14,722 m² total green space contains only one moderate size square 2,500 m² and a couple of moderate size pedestrian areas (2,200 - 4,000 m²) containing planting beds. Smaller size (≤ 500 m²) green spaces include squares, urban gardens and planting beds on roads and pedestrian areas.

B' City District

The B' City District (2,058,999 m²) constitutes Piraeus' city centre and contains the high street of Piraeus as well as the Piraeus Justice Court, Administrative Court of First Instance, Administrative Appeal Court, Magistrates' Court and County Court, the main theatres such as the Municipal Theatre, and Veakio theatre, the municipal gallery, 11 churches, and several archaeological findings located throughout the district. The city centre occupies nearly half of the surface area of the district; the remaining half is mainly residential with small local neighbourhood commercial areas. Only a small area along the north boundary is industrial, but not particularly obtrusive. Along the west coast are the terminals of the pas- senger port connecting Piraeus with other ports, Athens, the Airport, Corinth. Along the south coast there are two main marines (Zea and Microlimano), and Votsalakia beach.

Regarding **socio-cultural inclusiveness,** the B' City District hosts four child day care centres, 12 nurseries, 14 primary schools, 8 gymnasiums and 10 lyceums. It hosts also 1 municipal library, 10 playgrounds, and a main attraction (hill of Profitis Ilias, offering panoramic views of the Saronic golf).

Both the metro line and suburban railway system (proastiakos) terminate near the northwest boundary of the district. Bus lines constitute the main transport system and are distributed throughout most of the district's area. Works are underway to develop a tramline along the north boundary of the district. There are no cycle paths located within this district and there is only one cycle shop.

There are a few weaknesses, such as increased traffic during rush hours and a few abandoned industrial sites. Private ownership of the industrial sites impose a potential threat. The development of both the new tram and metro line are expected to mitigate the problem of increased traffic (identified also as a threat). Opportunities include the development of cycle routes that could be linked to the tramline, metro, urban and suburban railway and maritime system.

Regarding **human health and well-being**, District B' is confronted with the ubiquitous problem of

having a limited number of green spaces, with an impact on health.

Pertaining to **the ecological and environmental restoration,** this is the "greenest" district with approximately 56,405 m² of green space, and the largest in size green spaces and main squares throughout Piraeus, ranging between 27,000 – 1,000 m². The largest in size green space (27,000 m²) is located on a hill with prominent views of the city, planted mainly with pine trees and containing archaeological ruins.

The B' City District also contains several moderate sized green spaces ranging between <1,000 m² located mainly in pedestrian areas comprised mainly of planting beds as well as islets along main roads. In commercial pedestrian areas, some of the planting beds seem to have been destroyed deliberately.

Along some commercial roads, the planting beds have been used as small pocket gardens encouraging social interaction. The B' City District contains the second largest in number trees growing >10 m as well the second largest in number trees found in tree avenues. Furthermore, it contains the largest area of turf (18,480 m²).

The main economic and labour market of Piraeus is located mainly in B' City District.

C' City District – Regeneration area

The C' City District is the smallest district area of the Municipality of Piraeus (1,770,164 m²) and is mainly residential with small local neighbourhood commercial areas. The east boundary runs along Kifissos river (ground level) and Kifissos highway (above).

Pertaining to **socio-cultural inclusiveness,** The C' City District hosts three child day care centres, 2 nurseries, 6 primary schools, 3 gymnasiums, 2 lyceums and 1 public vocational training school. Both stadiums (Karaiskaki and Peace and Friendship Stadium) have local, regional and national significance; there is also the Athina marine, 3 churches and 6 playgrounds.

The metro line and bus lines constitute the main transport system. Currently the metro line serves the district with one station and the bus lines are limited along the main roads. Work is underway to develop also a tram line. Currently there are no cycle routes located within the district and no cycle shops (shown in OpenStreetMap).

The main weakness identified within the district are the abandoned industrial sites. The current use of Kifissos river is mainly functional to avoid floods and provides opportunities for recreation and the de- velopment of a green network. The development of cycle routes also creates opportunities. The main threats identified include private ownership and potential soil contamination of industrial sites.

For the **human health and wellbeing component**, within the C' City District is located one private hospital (Metropolitan Hospital).

As far as **the ecological and environmental restoration** component goes, the C' City District possesses approx. 14,050 m² total green space and contains very few moderate size green spaces (1,200-4,500 m²) and many smaller in size (≤ 900 m²). The latter green spaces include squares, urban gardens, playgrounds, planting beds on roads and pedestrian areas and islets.

Limited **economic and labour market** elements are located in the south region of the C' City District (near the Peace and Friendship Stadium, Karaiskaki Stadium and marine). The north boundary runs along the National Highway connecting Piraeus with Athens is scheduled for regeneration where several industries are located such as Xropei (paint), Elais (olive oil), and Ion (chocholate).

D' City District

The D' City District (2,211,691 m²) is located on the main land and is mainly residential with small local neighbourhood commercial areas.

As concerns the **socio-cultural inclusiveness** component, the D' City District hosts four child day care centres, 13 nurseries, 13 primary schools, 3 gymnasiums, 5 lyceums, and 2 public vocational training schools. It also hosts the Child Protection Shelter "Kalos Poiimenas", 4 churches and 14 playgrounds.

The bus lines are limited along the main roads and constitute the main transport system. There are no cycle routes within the district, however there are two cycle shops (shown in OpenStreetMap). The suburban railway serves the district through "Lefka" station.
The relatively large area of abandoned industrial sites including the presence of the suburban railway track that dissects the district in two, constitute the main weaknesses. Both private ownership of the industrial sites and potential soil contamination are identified as the main threats. The development of cycle routes creates opportunities to link with the sea and the stations to the urban rail and tramline located in the other districts (B' and C').

Pertaining to **human health and well-being**, District D' is also confronted with the problem of having limited open space amenities, with an impact on health. The district is land locked and does not benefit from the immediate proximity of beaches.

As far as **the ecological and environmental restoration** component goes, the D' City District is the second "greenest" district with approximately 31,215 m² of green space that includes several moderate sized green spaces ranging between 1,000-2,700 m² comprised mainly of parks and squares. The remaining smaller in size green spaces include urban gardens as well as planting beds located in pedestrian areas. At places the planting beds in the pedestrian areas have been subjected to interventions by people that have planted a variety of ornamental plants and also used them to provide shelter to animals mainly cats. The D' City District also contains the largest number of tall trees (298) with a height >10 m as well as the largest number of trees found growing in tree avenues (5,130).

For the **economic and labour market**, industrial areas characterised as not particularly obtrusive are located along the south boundary of the district (Mikras Asias and Piraios). The regeneration of former industrial sites provides opportunities for economic development. The schedules development of addi- tional transport lines provides opportunities for further economic development and catering a larger number of peoples transport. Private ownership of former derelict sites is identified as the main threat.

E' City District – Regeneration area

The E' City District is the largest district area of the Municipality of Piraeus (2,769,769 m²). With the exception of the passenger port, located on the south boundary, the remaining district is located on the mainland. The facilities of the former Papastratos industry are located within the district and the area is scheduled for regeneration. The former Dilaveri Clay brick factory is also located within the district, which has been converted into a park where the main features of the industry such as the chimneys and clay brick machine Hoffman oven have been preserved as landmarks and some of the buildings have been allocated new use. The district is mainly residential with small local neighbourhood commer- cial areas. The district contains 7 churches and thirteen playground. The bus lines constitute the main transport system and they are distributed throughout the district. There are no cycle paths or cycle shops located within the district (shown in OpenStreetMap). The E' City District also possesses the only cemetery of Piraeus and is located within the boundaries of the Municipality of Drapetsona.

For **the socio-cultural inclusiveness component**, the E' City District hosts four child day care centres (1 infant - preschool and 3 preschool age >2.5 years), 15 nurseries (12 public that include 1 special nursery and 3 private), 11 primary schools (9 public that include 2 special and 5 reform schools and

2 private schools), 7 gymnasiums (all public that include 1 music and 1 night school), 8 lyceums (all public that include 1 music, 1 professional, and 1 night professional school), and 1 public vocational training school.

Regarding the ecological and environmental restoration aspect, the E' City District possesses 18,605 m² of green space comprised mainly of moderate sized parks and squares, ranging between 1,200-5,000 m². The cemetery of Piraeus although located outside the site boundaries of the Municipality of Piraeus, forms part of the E' City District and includes a moderate size green space (1,650 m²) adjacent to the children's section of graves. Smaller sized green spaces (<1,000 m²) include mainly urban gardens and planting beds located in pedestrian areas. At places the planting beds in the pedestrian areas have been subjected to interventions by people that have planted a variety of ornamental plants and also used them to provide shelter to animals mainly cats.

The **economic and labour market** concentration of activities is mainly localized near the passenger port. The few remaining industrial sites constitute the main weaknesses within the district. The scheduled for development former industrial sites create opportunities for regeneration. Private ownership of the industrial sites and potential soil contamination are identified as the main threats. The development of cycle routes creates opportunities to link with the sea and the tramline and metro stations located in the B' City District.

Annex 2.3: Additional Information for the FC Zenica

City of Zenica has developed its **Master Plan for period 2016-2036** according to the guidelines and in alignment with plans of higher governmental levels, detailing these rules and applying them to the city scale. This Master Plan has been adopted by the City Council and is yet to be adopted by Zenica-Doboj cantonal Council.

This document is an obligatory planning document, which guides usage, construction, spatial planning and protection of space and goods on entire territory of City of Zenica, reflecting all guidelines for territorial interventions in City of Zenica.

Zenica Master Plan is not only a land use plan but also a strategic guideline for local development, with several axes concerning the main focus expected for this territory. Territorial cohesion, social inclusion and sustainable development are to be promoted. Master plan also defines obligation for preparation of other development plans and detailed development plans. The Urban Plan for the urban area of the City of Zenica is yet to be updated, aligned with a Master Plan and adopted, since the existing plan originates from 1985.

Zenica Master Plan shows a list of the categories and territorial planning status of the Kamberovića's Urban Regeneration area**:**

All urban interventions must promote new landscapes, connect pre-existing urbanized areas, and promote the use and recovery of abandoned areas. Thirty years ago, this area was classified as a meadow, lacking infrastructure. Development of the area has started with the construction of outdoor sport fields and parking. Later on, other sports facilities have been built, along with a two hanging pedestrian bridges. These bridges connect Kamberovića field with the city center, an area populated by approx. 50, 000 citizens.

Productive and leisure green space areas:

Green space areas are part of the urban ecological structure, with important ecological roles or productive capacity, as well as relevant for recreational uses. All interventions must respect cultural heritage and landscape characteristics, and agricultural holdings must be preserved. These green areas are perceived as a "lung" of the city.

One of the regulations pertaining to the green areas such as the Urban Regeneration Area is that, for each removed tree, two new ones should be planted instead.

Protected green space / riparian areas:

Kamberovića field area is frequently flooded because the right side riverbank is not protected. Flooding presents a threat to the local population and further development of infrastructure, affects the structure of soil and produces direct effects of air pollution. Therefore, these green spaces are crucial for urban environmental quality, and must be protected for ecological and landscape reasons. Any interventions like buildings, destruction of vegetation and changes in soil topography are interdicted.

Social equipment area:

This category concerns public parcels, which may be converted to various kinds of social equipment: education, sports and culture.

Lastly, at a lower level than the Masterplan, municipal regulations foresee that before any intervention on-site, all pre-existing trees must be evaluated. Tree-cutting can only be done with previous municipal authorization.

Annex 3: proGIreg Statistical Spatial data and Indicators and their availability in the FRC and FC

Legend	*Available*	*NOT available*	*Not requested*	*Upper scale*

		1.1 Dortmund	1.2 Dortmund LL	2.1 Turin	2.2 Turin LL	3.1 Zagreb	3.2 Zagreb LL	4.1 Haishu Ningbo	4.2 Ningbo LL	5.1 Cascais	5.2 Cascais URA	6.1 Cluj Metro	6.2 Cluj-Napoca city	7.1 Piraeus	8.1 Zenica
SUBDOMAIN	**SPATIAL DATA**			**AVAILABILITY**											
				1. SOCIO-CULTURAL INCLUSIVENESS											
1.1 Demographics	1.1.1 Total population	*Available*													
	1.1.2 Population density														
	1.1.3 Population growth rate						*NOT available*								
	1.1.4 Migration rate														
1.2 Social and cultural inclusiveness	1.2.1 Material deprivation rate		*Not requested*									*Upper scale*			
	1.2.2 Work intensity														
	1.2.3 Diversity statistics														
1.3 Education and access to social and cultural services and amenities	1.3.1 Educational attainment														
	1.3.2 Recreational or cultural facilities														
	1.3.3 Accessibility of public urban green spaces														
1.4 Housing	1.4.1 Housing quality														
	1.4.2 Public housing														
	1.4.3 Housing affordability														
	1.4.4 Density of the built environment														
				2. HEALTH AND WELLBEING											

		1.1 Dortmund	1.2 Dortmund LL	2.1 Turin	2.2 Turin LL	3.1 Zagreb	3.2 Zagreb LL	4.1 Haishu Ningbo	4.2 Ningbo LL	5.1 Cascais	5.2 Cascais URA	6.1 Cluj Metro	6.2 Cluj-Napoca city	7.1 Piraeus	8.1 Zenica
2.1 Health	2.1.1 Incidence of cardio and respiratory diseases														
	2.1.2 Incidence of allergic disease														
	2.1.3 Incidence of chronic stress/ mental diseases														
	2.1.4 Obesity rate														
	2.1.5 Life expectancy at birth														
2.2 Wellbeing	2.2.1 Green space per capita														
	2.2.2 Urban safety – crime														
	2.2.3 Urban safety – accidents														
				3. ECOLOGICAL AND ENVIRONMENTAL RESTORATION											
3.1 Land use and Vegetation	3.1.1 % of green spaces														
	3.1.2 structure of green spaces (trees)														
	3.1.3 structure of green spaces (shrubs)														
	3.1.4 structure of green spaces (meadows)														
	3.1.5 % Surface of brownfields														
	3.1.6 % Surface of polluted brownfields														
	3.1.7 Canopy cover														
	3.1.6 Leaf Area Index														
	3.1.7 NDVI														
3.2 Climate / Meteorological data	3.2.1 Precipitation														
	3.2.2 Relative humidity														
	3.2.3 Air temperature														
	3.2.4 Wind strength														
	3.2.5 Wind direction														
3.3 Air Quality	3.3.1 Ozone concentration														

		1.1 Dortmund	1.2 Dortmund LL	2.1 Turin	2.2 Turin LL	3.1 Zagreb	3.2 Zagreb LL	4.1 Haishu Ningbo	4.2 Ningbo LL	5.1 Cascais	5.2 Cascais URA	6.1 Cluj Metro	6.2 Cluj-Napoca city	7.1 Piraeus	8.1 Zenica
	3.3.2 NOx concentration														
	3.3.3 PM 2.5 concentration														
	3.3.4 PM10 concentration														
	3.3.5 VOC Concentration														
	3.3.6 GHG inventory														
3.4 Soil	3.4.1 Soil quality														
3.5 Water	3.5.1 Water quality														
3.6 Urban environment	3.6.1 Heat island effect														
				4. ECONOMY AND LABOR MARKET											
4.1 Market labour and economy	4.1.1 GDP per capita														
	4.1.2 Businesses in the area - Industrial														
	4.1.3 Businesses in the area – Commercial														
	4.1.4 Businesses in the area - Offices														
	4.1.5 Public jobs														
	4.1.6 Private jobs														
	4.1.7 Public green jobs														
	4.1.8 Private green jobs														
	4.1.9 Qualified jobs														
	4.1.10 Non-qualified jobs														
	4.1.11 Turnover in the green sector														
4.2 Gentrification	4.2.1 Employment rate														
	4.2.2 Unemployment rate														
	4.2.3 Revenues by household														
	4.2.4a Sale value for residential use														
	4.2.4b Rental value for residential use														

		1.1 Dortmund	1.2 Dortmund LL	2.1 Turin	2.2 Turin LL	3.1 Zagreb	3.2 Zagreb LL	4.1 Haishu Ningbo	4.2 Ningbo LL	5.1 Cascais	5.2 Cascais URA	6.1 Cluj Metro	6.2 Cluj-Napoca city	7.1 Piraeus	8.1 Zenica
	4.2.5a Value for commercial/ industrial/ office use														
	4.2.5a Rental value for commercial/ industrial/ office use														
	4.2.6 Free services														
	4.2.7 Basic utilities														
4.3 Tourism and attractiveness	4.3.1 Current number of tourists														
	4.3.2 Number of temporary events														
	4.3.3 No. of foreign students														
	4.3.4 Local expenses														
4.4 Taxes, Investment & Financing	4.4.1 Local taxes														
	4.4.2 Green investment programs/funds														

Annex 4: Detailed SWOT analysis for each city

FRONT RUNNER CITIES

4.1.A CITY OF DORTMUND (DE) – CITY LEVEL

SWOT ANALYSIS DORTMUND – CITY LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	**Positive population dynamics**, with an increase of over 4% over the last 8 years (ca. 25,000 persons). **Diverse building and settlement typologies:** Many housing areas have been designed around coalmines and steel mills for workers, mainly around 1900, but due to World War II bombings a large percentage of houses was built during the 1950´s. With the industries decline, few investments to modernize workers housing, thus some settlements were in a poor condition in the 1970´s.	**High rate of social welfare recipients:** With rates of ~ 14%, Dortmund has a relatively high rate of social welfare recipients compared to Germany (9.2% in 2017) and other proGIreg cities (e.g. Cascais, 6%). Partly, the high numbers result from the decline of the coal and steel industries and unemployment rates, which are twice as high as state average. **One in ten residents of Dortmund between 20-64 years old have not completed any level of education**: a very high percentage compared to the European levels, and over 5 times as much as Germany (1.8%, World Bank).	**Average net migration rate of 9.8 ‰** in the last 5 years indicates the city is attracting population and can further capitalize on its assets to grow. The growing diversity of the city inhabitants (from 14% foreign-born residents in 2013 to 17.7 in 2017) supports this.	**-**
Human health and wellbeing	**High percentage of green infrastructure:** According to zoning plan, about 50 % of Dortmund´s area is covered by parks, sport areas etc. within settlements and meadows, forests etc. outside of settlements. GIS-	**Life expectancy at birth in Dortmund is lower than the EU-28 average** (77.0 versus 78.2 years for	**Attractive green infrastructure of regional interest:** Dortmund provides green infrastructure of citywide, respectively regional	**Heat islands in large, dense settlements:** Dortmund´s inner city increased urban density disables air circulation.

	data analysed show 34% green space, as it does not include the share of green spaces within built-up zones, which has different qualities and characteristics. **Citywide bike infrastructure:** In past decades, Dortmund has extended its bikeway system. Most principle streets provide bike paths and are connected with a network of routes in minor streets. Nevertheless, there are still gaps in the system, which consequently will be closed in the future. **Downward trend of reported crimes in the city**, in the last years (a decrease of almost a fourth in 2014 to 2017).	males and 81.8 vs 83.6 years for females, 2016 – EUROSTAT data) **Dortmund's green infrastructure is unequally distributed,** with neighbourhoods especially in the central and peri-central areas	importance (e.g. the Westfalenpark or Rombergpark) as popular inner-city park areas. In addition, there are linear green spaces, such as those along the Dortmund-Ems-Kanal, the Emscher river or paths on former train tracks. They form a citywide network for sport activities and recreation. The paths next to the Dortmund-Ems-Kanal and Emscher river are sections of regional cycle routes. Dortmund will be part of the first German bike-expressway, a 101 km long west-east connection between Duisburg and Hamm, which is currently in realisation. Easy-accessible offers like Metropolradruhr (region-wide public bike-renting initiative) are incentives to use emission-free transportation systems.	During summer nights, temperature differences between cold air production areas outside settlements and the warmest inner-city areas differ more than 9 degrees (see separate Annex 2.1, simulation of Regionalverband Ruhr: temperature range between 12 and >21°C). High temperatures cause stress on human health like circulation problems or headache. Especially children and elderly people are affected.[4] With climate change, the heat island effects will possibly become stronger.
Ecological and environmental situation	**Brownfield regeneration:** During the past 60 years, Dortmund has converted about 1,100 ha of former industrial sites into new urban areas. To convert about 10 % of Dortmund´s settlement area has been a	**Large portion of anthropogenically transformed soils:** Most soils within settlements are anthropogenically transformed. This also includes soils of nowadays GI as many of these	**Emscher renaturation:** After 100 years in a concrete streambed transporting excrement of the whole Ruhr region ("Europe´s dirtiest river")	**Ecological effects due to climate change are likely**

[4] Currently a comprehensive analysis of the local climate is being compiled by the RVR (commissioned by the City of Dortmund) and is to be completed by the end of 2018.

	challenge and a great opportunity for urban development at the same time. The effort to clean problem sites has been tremendous and has led to an overall improvement of environmental conditions. Today, some of these former brownfields are used as economic sites or residential areas, others for green infrastructure. The renaturation of former industrial sites also has helped to connect existing green infrastructure within the city. With Emscher renaturation retention ponds have been created, e.g. PHOENIX lake or RHB Mengede. Especially the 33 ha large retention pond in Mengede offers a variety of different habitats. Within only few years, it has become an important biotope especially for birds.	areas were formerly used as industrial sites and may be contaminated. Therefore, contamination needs to be checked before using sites. Contamination may require rehabilitation measures or restrictions for reuse. While air quality is generally good, **pollutant concentration surpassing** especially for PM2.5 (Dortmund-Eving) and PM10 (Dortmund Brackeler Straße station). Accumulated number of days in which the air quality is classified as very poor to moderate are of 33-35% in the last 100 days (EEA Air Quality Index, 2019)	the Emscher has been renatured during the past 25 years, not transporting wastewater any longer. With renaturation, the former biologically dead water body was able to regenerate. The colonization process is ongoing, but creates opportunities - even rare species are returning.	**Soil contamination** may pose a threat as not all soil is transformed
Economy and labour market	**Structural change successfully managed:** forced structural change during the past decades, Dortmund´s economic strength is today characterised by ICT and logistics. 80% of Dortmund´s workforce is in the tertiary sector, 20% is occupied in the secondary sector with metal processing and production of new materials as important branches. Only 0.1% of the workforce is in agriculture and forestry. During the past years the sectoral	**Unemployment still above average values for the region and country, albeit in a downward trend:** In August 2018, the unemployment rate was at 10.4%. In comparison this rate is represents one of the lowest numbers of the past years. In 2013, unemployment rate was at 13.2% which was the highest within the state of North-Rhine Westphalia. Nevertheless, in comparison with average numbers of North-Rhine Westphalia (6.8 %) or Germany (5.2	**Further decline of unemployment** as new economic opportunities stem from the valorisation of recovered ex-industrial sites **Comparably low prices for property (built and land, commercial and residential)[5]:** Dortmund, respectively the Ruhr area have low land values in comparison to other metropolitan areas in Germany, which can represent a	A high relative unemployment rate in Dortmund compared to the rest of the region can be a determinant for outmigration and loss of attractiveness for inhabitants, existing and potential.

[5] The Standard Ground Value (Bodenrichtwert) provides a reference for the value of parcels including development charges etc. but not the value of buildings. It is assigned to areas of similar use and structure and is derived from average sales prices.

	distribution of the workforce has been relatively stable. The largest increase (+9,900 respectively +9.7%) between 2010 and 2016 occurred in public and private services (2010:102,100 in comparison to 2016: 112,000) as part of the tertiary sector. **Dortmund as an attractive city for tourists and business persons:** About 60 trade fairs attract numerous people from the region and beyond. Moreover, Dortmund is an attractive city for culture and sports. In only 7 years, the number of overnight stays has increased by 45% from 861,185 in 2010 to 1,253,546 in 2017. Currently, several new hotels are under construction. Tourism has become an important economic branch for the city.	%) Dortmund´s situation is still disadvantaged.	competitive advantage for investment and living, if corroborated with other assets and values (e.g. extensive green space, work opportunities, infrastructures).	

4.1 B - CITY OF DORTMUND (DE) – LL ANALYSISI AREA LEVEL

SWOT ANALYSIS DORTMUND – LL ANALYSIS AREA LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	**Education based on local needs:** In Huckarde-Nord more places in kindergartens than children are available, so that children from other districts are attending as well. There are kindergartens and schools with multi-lingual offers, contributing to the enhancement of tolerance and plurality, and others with	**High proportion of socially deprived people** with low educational level in Huckarde-Nord, one of the neighbourhoods in the LL Analysis Area. The lack of social mixture leads to a disproportionally high child poverty. Hence, public meeting points	**-**	**Failure to generate significant impact in the improvement of urban quality in Huckarde of previous initiatives can indicate resistance to change in the area – and potential difficulties in**

	focus on arts in cooperation with Hansa coking plant. Apart from teaching linguistic abilities, other schools focus on social development of children which aids children from vulnerable familial situations **High satisfaction with local living conditions:** Even though housing conditions are not the best in Huckarde-Nord, citizens are very content with their surroundings regarding its suitability for families and elderly people, cleanliness, tranquillity, and safety. In general, there is a high identification of Huckarde citizens with their settlement (Integriertes Handlungskonzept, Stadterneuerung Dortmund-Huckarde-Nord). Huckarde also has a small city center with facilities to serve daily needs. Strong presence and commitment of third sector organizations at local level	for children and teenagers are important. **High rate of social welfare recipients:** Almost every fourth person within the Analysis Area receives social welfare. These high numbers vary considerably between Deusen (6.6 %) and Hafen-Süd (32.5 %), but are generally higher than the citywide average (20.8 % in the LL Analysis Area versus 14.3 in Dortmund, 2017). **Below average living space per person in Analysis area** with 35.6 m²/person, which is about 4 m² less than in Dortmund (39.4 m²/person). **Declining rate of public housing units:** The overall number of public housing units has decreased from 4,683 in 2013 to 3,784 in 2017 which is a remarkable drop within 5 years (-899 units, whereas within the whole city the numbers decreased by 4,289). In 2017, within Analysis Area, about 17 % of Dortmund´s public housing units are located, serving 9.4 % the total population. This underlines a disproportional need for public housing in the Analysis Area. **Unequal distribution of foreign population:** in Huckarde-Nord (2017 districts of Mailoh and Huckarde) about every fifth person is a foreigner (City of Dortmund: 16,3 %). Close to the LL and within areas of urban renewal		**achieving measurable impact of the interventions:** In former years next to many continuous efforts to stabilize the overall situation in Huckarde the urban renewal program “Stadterneuerung Ortskern Huckarde” (1992) as well restoration of Hansa coking plant which began in 2008 were realized. Unfortunately, the positive developments have not been strong enough to improve the situation of all adjacent settlement areas. Huckarde still has a negative image even though there are also neighbourhoods, which are of high quality and socially stable.

		programmes is a high portion of foreign population, e.g. Union district with 50,6 %, Hafen district with 42,3 % and Hafen-Süd with 41,8 %. This often reflects areas with poorer housing conditions. **Streets as urban barriers:** The Emscherallee as an important north-south-bound within Dortmund street network. It represents the western frontier of Dorstfeld settlement and is a cut within Huckarde settlement as it is hard to cross and reduces path connections towards Hansa coking plant/ the Emscher river/ the Deusenberg in Huckarde-Nord and towards Dortmund city centre in Dorstfeld.		
Human health and wellbeing	**Deusenberg as an attractive recreation area:** On top of Deusenberg, the EDG Mountain bike-Arena opened in 2008. Along some slopes, small trails have been created. On the southern part of the top, a popular track with curves, obstacles etc. has been installed and attracts mainly teenagers and young adults. Moreover, the Deusenberg has a 6 km pathway system and viewpoints on top. This infrastructure has helped to establish the Deusenberg as a local attraction point. **Germany´s largest climbing wall located at Hansa coking plant:** In 2008 in a former 20 m high building of Hansa coking plant climbing gym “Kletterhalle Bergwerk”	No weaknesses have been identified (no data on health at Analysis Area level)	**Green infrastructure for local recreation:** forests and fields surround To the North and West Huckarde-Nord, which offer attractive possibilities for local recreation. Moreover, small parks and allotments are within or close distance to the settlement.	**Limited access to Deusenberg from Huckarde-Nord:** Even though the local recreation areas like Deusenberg or Emscher pathway are close by, they are hard to access due to the separation effect of the congested Emscherallee and missing path connections from Hansa coking plant. As children and teenagers only have few places to meet outside school areas in Huckarde-Nord, access

	opened. The 5,000 m² climbing wall is Germany´s largest indoor facility. In 2015, 124,000 persons visited, many of them came from outside Dortmund. There are plans to enlarge the sports facility, which has a good reputation and improves Huckarde-Nord´s image. The Analysis Area offers a high value of **urban green space** (excluding agricultural and forest areas) **per capita** – ca. 38 m²/person.			to Deusenberg may help to improve the current situation. **Limited access from Dorstfeld towards Dortmund city:** Dorstfeld settlement is at its eastern edge limited by the noise protection wall of the Emscherallee. There are only few crossings at the Emscherallee, which allow pedestrians or bikers to cross the busy street and to move westward, especially as the Emscher river only can be crossed at even fewer points. The unattractive connections keep some citizens from hiking or biking citiwards to downtown Dortmund.
Ecological and environmental situation	**Availability of natural brown soils:** Northwest of Hansa coking plant the only large area with natural brown soils is located. Currently, the area is still used as a field. In the future, the site will be turned into an economic site. **Cold air source areas:** Especially the agricultural areas north of Huckarde-Nord and the Deusenberg are important cold air source areas (See separate Annex). They provide Huckarde-Nord with colder air	**High portion of anthropogenically influenced soils:** Due to its industrial history, the soils within Living Lab are likely to be transformed. Partly, they were contaminated and, in many cases, already have been rehabilitated. For example, northeast of Hansa coking plant contaminated soils have been collected and secured in a so-called “Landschaftsbauwerk”. The former landfill Deusenberg is situated on natural soils; nevertheless,		

	during nights with cold air production thus improving the local climate. Cold air from the north flows into the urban areas up to the bridge of the Mallinckrodt-street crossing the Emscher. In the southern part of the Living Lab, the southwestern vegetated part of the HSP-site is a larger cold air production site. Nevertheless, it hardly provides adjacent settlements with cold air.	soils on its surface are as well allochthonous. On anthropogenically influenced soils, thorough analyses are important before reusing them.		
Economy and labour market	**Economic site "Gewerbepark Hansa": the** 10.4 ha large economic site was one of the IBA-projects (1989-1999) on the former Hansa coal mine. The existing old winding tower is reminding of its former use. During the past 20 years, companies, which serve local and regional markets, have settled on about 9 hectares. Only few lots are still on sale. Gewerbepark Hansa is an important place for SME within Huckarde and so far, the only economic site within Huckarde. **Employment training initiative Bahnhof Mooskamp gGmbH:** Bahnbetriebswerk Mooskamp is not only a museum for old trains but also a place where up to 28 long-term unemployed people are trained for the job market. Regarding this, the museum has a high importance for the labour market and as a socially stabilizing initiative. **Low standard ground values compared to the rest of the city**: In Huckarde-Nord the standard property values for housing range between 190 and 235 €/m². They are within Dortmund´s last third of the price	**Unemployment rate is above city average:** Huckarde is Dortmund´s city district with the lowest improvements regarding its employment rate respectively its unemployment rate. Therefore, initiatives like Bahnhof Mooskamp gGmbH are of high local importance. In most statistical units of the Analysis Area, average unemployment rates are above city average, in some statistical units almost twice as high. **C**omparatively lower rents in the Analysis Area indicate a **lower housing standard of mostly older buildings within these statistical units.**	**Future economic site "Gewerbegebiet Kokerei Hansa Nord":** development of this 7 ha site is an important contribution to further economically strengthen Huckarde-Nord. The future use is not substantiated yet. The development plan process will start in 2019, so far preparation studies are worked out.	

	range.Within Analysis Area standard ground values for Rheinische Straße differ between 130 €/m² at (future urban development area) and 390 €/m² (urban development area of the past years). Standard ground values for economic sites vary between 50 and 70 €/m², comparable with Dortmund average values. **Wide range of standard property values:** Property values for residential areas vary between 665 and 2,245 €/m². These numbers reflect the quality range of housing conditions - Huckarde-Nord's standard property values are at the lower level of the range, (780 €/m²) whereas in the Southern part of the Analysis Area, due to more recently constructed residential areas, standard property values are up to 2,245 €/m². **Comparably low monthly rents:** In 11 of the 13 statistical units of the Analysis Area the monthly average rents varied between 5.23 and 6.73 €/m² (2016/2017) for new renting contracts. Huckarde-Nord is at the upper level of this range. Two out of the 13 statistical units have a relatively large portion of newly constructed buildings. Therefore, average monthly rents are higher (7.10 €/m² respectively 9.01 €/m²).			

4.2.A CITY OF TURIN (IT) – CITY LEVEL

SWOT ANALYSIS TURIN – CITY LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Strong presence and commitment of third sector organizations - Presence of tools for inclusion and for civic participation in urban governance: Common Assets Regulation as a model of shared administration of urban common goods (e.g.eg public green and neighbourhood) - Low material deprivation rate (1.25% in 2016)	- Strong and progressive ageing of the population, apparent in the downward population trend (-2.71% in the last 10 years) and the negative migration rate in the city for last 5 years. - Weak economic development perspective, especially in neighbourhoods with socio-economic difficulties (path dependency) - Local public transport system that increases the central / periphery dichotomy - Increasing of the urban poverty rate - The geographical distribution of accessible public green areas does not correspond to the social distribution of the need (greater concentration of disadvantaged families in the North) - Public areas under agricultural use are privatized, which reduces availability of green areas for public use - Lack of connection between accessible green areas	- Management and development of agricultural areas as potential urban common assets - Opportunity to extend the presence of territorial welfare structures linked to the third sector (example Case del Quartiere) to the management and enhancement of green areas - Actions of urban regeneration and social inclusion of the AxTo Peripheral National Plan - Shared management that stimulates socialization by increasing the sense of community	- Depopulation trend, with an out-migration towards the Turin green belt (suburbanisation), partly due to the advantage of a greater accessibility to quality green areas

		- Difficulty understanding the citizens' needs and demands – general lack of institutional culture about Civic Engagement (an administrative capacity issue in spite of existing tools and instruments)		
Human health and wellbeing	- High degree of walkability, and of cycle and pedestrian mobility - Declining rates of new (or newly diagnosed) cases of cardio and respiratory diseases, and of allergic diseases, between the periods 2008-2011 and 2012-2015 - Very low obesity rate compared to national and European levels (average 5,7 in 2013, whereas national average was 21% in 2014 according to WHO) - Good availability of usable and accessible green, in terms of perceived safety and in terms of paths / access infrastructure - Culture and awareness of the food supply-chain, strengthened by the existence of Community Gardens and Urban agricultural areas - Availability of green and public spaces along the urban fluvial axis - The majority of the inhabitants of Turin have access to a green space (generic) within a radius of 300 m	- Non-homogeneity of the security perception - Unequal access to health facilities and surroundings (food / walkability)	- Sensitization projects towards physical activity (walking groups) - Strong interest of the CSR sector of companies in investing in the wellbeing of the workforce - Potential for enhancing the psycho-physical well-being of the individuals due to Community Gardening	- Abandonment and degradation (e.g. waste disposal practices with high impact on health) - Risk related to spontaneous horticultural activity, due to pollutants present in urban soils - Exposure to polluted air (smog) during physical activity (especially for children and the elderly) - Obesity trend in children
Ecological and	- Wide spreading of green areas with high ecological quality (e.g. the Colline di Torino, Superga Hill Regional Park, etc.)	- Incomplete implementation of some soft mobility infrastructures (e.g. BiciPlan)	- Plan tool that increases the offer of municipal services (25 m² of services /	- Fragmentation of the landscape

environmental situation	- Important work in recovering abandoned areas (about 4.7 million square meters) with consequent increasing of the real estate value in the surrounding area - Most of the surfaces recovered (80%) have been allocated for urban green areas - Good green endowment per inhabitant (55 m²/inhabitant at city level) - Good green and blue infrastructure in the city (78 km², with important effects on CO2 detention (496 km of tree-lined avenues) - The distribution of green areas in Turin ensures a good accessibility	- Environmental / social damage and urban degradation of non-reclaimed and non-recovered residual areas - Difficulty to complete the valorisation of green / blue infrastructure (e.g project "Torino città d'acque") due to complex management of areas and costs - High costs of reconversion and reclamation - High level of smog, mainly due to private mobility - Predominance of conventional agriculture, which uses chemical-based agents (pesticides) - Abandonment and social degradation, security problems, unauthorized residences	inhabitant, with a minimum of 12.5 m² being green areas) - Internal and external connection with the green belt area to implement ecological corridors with increased biodiversity and tourist / recreational opportunities - Conversion of traditional agriculture into organic with a short supply chain - Improvement of environmental quality due to the increase in ecological corridors - Opening of new green areas of the city with positive effects on neighbouring districts - Project for the widespread networking of existing green systems - Promotion of soft mobility (less pollution and ease of access to green spaces) - Corona Verde Regional Plan - Potential in inter-municipal governance on inter-territorial planning - "Torino Città da Coltivare" project: 2,000,000 m² of available areas	- Events of floods and insufficient economic resources for land security - Reduction of resources and powers of the Metropolitan City in the enhancement of the green system

			- Large public park regeneration projects (Parco Basse di Stura)	
Economy and labour market	- Good presence of young students in the city, including foreign ones (107,000 in 2017) - Many workers in the service sector (Services account for 72% of total employment, according to EUROSTAT) - Many activities of research and development and the highest percentage of spending for R&D from the private sector - Culinary capital with a wide range of food and farmer's markets (including Mercato di Porta Palazzo, largest open market in Europe) - Many jobs in the green sector (15.070 employees) - Training and research institutes in the field of GI	- Non-accessibility of public areas for agricultural use and low impact of these areas on the labour market. - Increasing unemployment rate and poverty rate - High level of youth unemployment (25%) - Presence of agricultural areas with traditional models of production that do not relate to the city	- Co-City project for U.I.A. (Urban Innovative Actions) - The collaborative management of urban commons to counteract poverty and socio-spatial polarisation, as well as other EU projects supporting social innovation, inclusion, NBS and circular economy	- Residual agricultural areas at risk, due to a negative market trend (models that do not innovate) - Aggressiveness of urban built-up area expansion and of the real estate market, which reduce the functions of urban agriculture - Economic crisis and reduction of investments in the city

4.2.B – CITY OF TURIN (IT) – LL ANALYSIS AREA LEVEL

SWOT ANALYSIS TURIN – MIRAFIORI DISTRICT LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Presence of community foundations and city networks have helped to avoid	- Abandoned industrial areas that prevent communications and internal	- Empty industrial spaces: potential social spaces to be filled	- Absence of a public policy that puts local

	degradation at local level, in spite of the socio-economic decline in the district. - The district attracted new young residents with the project ALLOGGIAMI - Presence of sports activities related to green areas (CUS) - Good availability of social assistance services	connections within the neighbourhood - Loneliness, relational isolation, growth of mono-parental families - Downward population dynamics (albeit not that accentuated), with a 3.59% migration rate and an overall -0.86% population growth rate for 2017) - Decrease of generalized participation to social, religious and otherwise community events and gatherings - Closure of public services - Fragmentation of the social fabric and of the support network (third sector) - Lack of social control of public and green spaces - Absence of pedestrian areas, areas of safe access to the school and areas with limited traffic - High concentration of public housing (social housing) - Absence of public libraries - In spite of Mirafiori being a district with many residents, its density is relatively low – under half of that of Turin (3,086 inh/km² vs. 6,805). The low population density does not favour interaction: poor interaction between inhabitants and users	- Presence of the seat of the Politecnico design office, with the relative number of young people (2000 students) and teachers - Action to involve the CUS on the Colonnetti Park - Construction of a common identity in the neighbourhood – a “Mirafiori brand” with which inhabitants can identify - Refurbishment of farmhouses on the golf course area	projects in place at city level - Economic crisis: participation becomes a luxury if you do not have a job and you are in layoffs - Confidence crisis towards intermediate subjects (representation crisis) - Thousands of square meters of empty / vacant spaces that can further enhance degradation at local level (lack of attractiveness for development, “broken windows theory”)

		(Polito students / teachers, FCA workers, CUS users, etc.)		
Human health and wellbeing	- Presence of numerous green areas equipped for outdoor sports and of urban gardens - Wide availability of accessible public green – considerably higher surfaces of green space per capita compared to the city (91 vs. 55 m² / inhabitant) - Presence of cycle path along the Sangone river	- Higher incidence of cardio and respiratory diseases, allergic diseases, chronic stress, mental health diseases and NCDs compared to data at city level. Relevant presence of alone elderly with psychic discomfort - Insecurity perceived in the green area along the Sangone river - Presence of dangerous infrastructures such as unsecured electric pylons within equipped green areas - Low permeability between the various parts of the district - Continuous use of the private vehicle, a serious shortage of cycle paths and difficulties in expanding the infrastructure (e.g. the via Plava bike path has been financed but the construction does not start) - Shortage of park areas accessible to the West	- CSR companies to involve the employees of companies based in Mirafiori South in the care of the green - Presence of Eco design and chemistry faculty in the territory - opportunities for activities of education and sensitivity to environmental issues	- Extra-urban vehicular traffic at high distance which potentially threatens the health of the inhabitants through air pollution
Ecological and environmental situation	- District with good presence of green areas, especially available for residential building areas - Parks extended to the south with good ecological potential	- Urban soils with high levels of pollutants from industrial pollution and fuels used in past years - High levels of atmospheric pollution - Abandoned industrial areas	- Possible connection and enhancement of the peripheral parks within the Corona Verde program and the ongoing process to	- Significant pollution due to the presence and use of the waste incinerator - Little local public transport, can limit the transition to more

	- Large spaces that help to avoid traffic congestion with the associated peaks of air pollution - Low temperature, reduction of heat island effect due good connectivity to green areas and building density - Mirafiori Social Green Project - Mirafiori Chlorophyll Project - Presence of active associations in terms of environmental sustainability - Higher percentage of "green per capita" than the rest of the urban area - Presence of vast areas dedicated to community gardens - Presence of cycle paths that connect the district to the city centre	- Presence of abusive gardens as degraded and often polluted areas - Poor availability of cycle paths for local use, which connect the various areas of the neighbourhood	redevelop the shores of the Sangone river - Processes of social activism that allow the involvement of citizens in the care of green spaces (Co-City / Regulation of common goods) - Presence of flat roofs and residual urban spaces as potential green roofs of greening - Eco design and faculty of chemistry, education and sensitivity to environmental issues - Industrial brownfields as potential for new green spaces	sustainable transport models - Possible conflicts between anthropic uses of green areas and their ecological value and ecosystem services
Economy and labour market	- Presence of large multinational enterprises - High number of employees in the service sector - Low real estate values in the area, compared to the urban average - Wide availability of empty accommodation - Good solutions for temporary residents, at low cost	- Work activities are increasingly individual within the district - Youth unemployment over 50% in the LL Analysis Area – District Mirafiori - Average completed year of studies for Mirafiori citizens is the third year, indicating a generally low education level. - Few local shops compared to city average - Low number of local businesses - Declining outdoor market activity	- TNE (Torino Nuova Economia) development plans and the former Mirafiori factory (example, Competence Center) - Presence of innovative companies in the Ex-Iveco area - FCA CSR policies	- Low interaction between the development plans of the TNE area, the former Mirafiori factory and the local community - Crisis in the construction sector and in the industrial sector

		- Lower number of employees in the construction sector (due to the crisis)		

4.3.A CITY OF ZAGREB (HRV) – CITY LEVEL

SWOT ANALYSIS ZAGREB – CITY LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Developed social welfare system (financial aid and social services) - Diversity and abundance of civil society organizations - Good coverage of urban area with communal infrastructure - Good spatial coverage with public traffic system - Good accessibility of green spaces, and greenery as a service to inhabitants (3/4 of citizens having direct access within a radius of 300 m)	- Lack of funding for construction of needed social facilities and realisation of planned programmes - Inadequate inclusion of marginalized groups - Insufficient capacities and deterioration of buildings for education - Nonexistence of work evaluation criteria, results and developmental effects of civil society organizations: data is unavailable on the performance and social contributions of the NGOs - Vandalism/graffiti - Poor perception of importance of cultural and natural heritage as a development resource - Incomplete communal infrastructure network in the city outskirts	- European programmes supporting lifelong learning and retraining - Organization of international sports and cultural events that position the City of Zagreb on the international stage - Plans to develop integrated public transport of Zagreb and its surrounding counties	- Global and national economic crisis - The increase of poverty - Social stratification – widening of the gap between the poor and the rich - Architectural barriers (temporary and permanent interventions on public areas, traffic poles, kiosks, market stalls, urban furniture etc.)

		- Lack of an integrated system of public transport connecting Zagreb and its surrounding area		
Human health and wellbeing	- Availability of medical and hospital services, developed network of public health and disease preventive programmes - Trend of increasing life expectancy (more than 2 years over the last 7) - Favourable epidemiological situation in terms of infectious diseases - Abundance of natural landscape zones: Medvednica nature park, alluvial plain of Sava river, Vukomeričke hills, urban forests in the city	- Insufficient capacity for specific medical services and poor condition of some facilities and equipment - Mortality rate higher than the EU average (chronic diseases, some types of cancers etc.) - Increased need for health care and protection due to ageing population - Lack of accommodation capacity for the elderly - Insufficient number, poor condition and uneven distribution of existing sports and recreational facilities	- Use of ESI funds and other foreign financial sources for the development of the city - Raising awareness of health through education - Creating a network of green recreational zones and completing bicycle track network - The use of ESI funds and programmes and other foreign financial sources to prepare and implementation of health-related projects	- Ageing population - Inadequate planning of new residential zones - Privatization of sports fields - The inactivity and neglect of walking as a primary form of mobility (reducing the pedestrian corridors to accommodate parking and bicycle paths – difficult movement along the walking paths)
Ecological and environmental situation	- Natural diversity - Built heritage - Agricultural potential of rural city area - Good quality of parks and green areas - Diversity and preservation of natural resources: Sava aquifer, forests, agricultural land - Relatively good indicators of environmental quality in general but also for particular elements such as NO2 and O3 concentration; - Established system of protection and conservation of natural and cultural heritage	- Outdated communal infrastructure network (large water losses, maintenance costs) - Consistent exceeding of the reference values for PM10 concentration (EEA, 41.2% of the last 100 days – 2018. classified as “Poor” Air quality index due to PM10) - Abandoned and unfinished buildings - Insufficient use of train, park & ride and bike & ride options - Inadequately developed urban areas - Illegal landfills	- Possibility of developing sustainable urban mobility plans - Developing and linking the rural area as an asset for development of economy, environment, landscape and tourism in the city - Revitalization of industrial architecture's valuable structures and their inclusion in cultural and tourist offer of the city through EU funds - Revision of physical planning documents with respect to the principles of low carbon	- Loss of identity of historical settlements - Reconversion of forests and agricultural land in private ownership - Pressures for land use conversion of agricultural land - Degradation of architectural heritage - Expansion / sprawl of the city built-up areas without the urbanistic and economic justification

	- Tradition of environmental care	- Incomplete waste management system - Insufficient share of use of renewable energy sources - Insufficient public awareness of need for environmental care - Low ratio of energy efficient buildings - Non-existent common strategy for protection and use of resources in the city of Zagreb and its surrounding area - Incomplete hot water network and no cooling water network - Decisions on city spatial development are made without using analyses	development, energy transition and renaturalisation - More effective cooperation with neighbour counties in environmental and natural sense of values - The use of ESI funds and programmes and other foreign financial sources to prepare and implement projects in the field of environment - Protection of aquifer and development of space along Sava river - Unused geothermal sources	- Endangerment of natural resources by conversion and exploitation - Unsatisfactory coordination in planning and construction of traffic infrastructure - Centralization on the state level in certain sectors (forests, agricultural land, water) - Climate change - Insufficient coordination of key actors in environmental issues - Common changes to regulations, plans and programmes, related to the topic of waste management - Groundwater endangerment
Economy and labour market	- Educated population - Diversity of cultural, educational and scientific research institutions - Concentration of businesses/entrepreneurs and employment opportunity - Skilled labour - Growing tourist centre	- Insufficient interconnection of economy and science/research - Lack of strategy and implementing measures for the development of the economy - Unused potential of city property - Underdeveloped and insufficiently accessible modern business	- Drafting and implementation of a comprehensive policy programmes to encourage employment - Geopolitical position as a development resource - Development and availability of information and communication services	- Strengthening of the human capital flight trend - Mismatch of supply and demand for workforce - Dependence of development strategies, projects and programmes on political changes and political

	- Development of contemporary business infrastructure - Diversity of specialized business services - Development of high-tech sectors of economy (pharmaceutical, ICT, electrical industry) - Tradition of innovation - Market with the highest purchasing power (as the capital of Croatia) - Land and other property owned by the city – strategic development resources - Incentive policies in the field of traditional crafts and domestic products in the city markets	infrastructure (entrepreneurial hubs, technology parks) - Existence of grey economy, which is neither taxed nor monitored - Complicated and time-consuming process of adoption of physical planning documents - Difficulties in resolving property - legal relations for realisation of projects of importance for the city - Inadequate flow of individual and public transport (mobility problems) - Concept of circular economy is undervalued	- Networking and exchange of experiences with cities within the Republic of Croatia, EU and abroad (partnership programmes) - Zagreb university city - The use of ESI funds and other foreign financial sources for the development of small and medium entrepreneurship - Modernisation of Pan-European VB and X transport corridors - Global trends of rising demand for urban, cultural, congress, health tourism and agritourism - Steering industry towards making products of larger added value - Developing management system of strategic city projects - Inclusion in support funds and expansion of market for ecological production, agrotourism, rural cultural landscape etc.	will in the city and the state - Administrative barriers when investing in entrepreneurship development - Competition of other European cities - Competition for cheaper foreign production - Competition of neighbouring counties for lower business costs - Failure to fulfil commitments to the European Commission

4.3.B – CITY OF ZAGREB (HRV) – LL ANALYSIS AREA LEVEL

SWOT ANALYSIS ZAGREB – LIVING LAB LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Powerful civil society – local population supports the initiative to change the current conditions and develop new facilities - Young population in the adjacent area - Community gardens provide opportunity for socializing of the users - Presence of physical activity in part of the population, regardless of inadequate facilities	- Numerous marginalized social groups (poor, Roma, people with disabilities and special needs) - Difficult mobility due to inadequately constructed pavements and paths - The railway separates the area south of the centre of Sesvete, inadequate crossing - Population south of the railway isolated from the rest of Sesvete - Uniformity of land use in the zone - The wider area lacks public and social facilities - Illegal dumping of construction waste - Demographic explosion - population tripled in the last 30 years (communal problems) - The need for public services such as police, health centre, court, music school, technology centre etc. - Existing services and facilities are inadequate for actual population - Undeveloped awareness of ecological problems - the need for education and sensitization of the population	- Potential of planning social and inclusive developments in the area - Planning of commercial facilities that communicate with the pedestrians (shops, market, public institutions) - Possibility of development of sports and recreational zones at the centre of the area - existing spatial capacity due to the inactive commercial/ industrial zone	- The planned commercial/ industrial zone might be inaccessible to the public, and monofunctional so it is not used outside working hours, which could contribute to the isolation of the population from the centre of Sesvete - Inadequate participation of the local population in the planning process - Further exclusion of the population south of the railroad - The construction of a commercial /industrial zone does not ensure acceptable and necessary facilities for the needs of the local population

Human health and wellbeing	- Forest and plant nursery provide potential for a new recreation zone (not in current planning documents) - Vuger stream in the vicinity, bicycle track and walking path are being built along the stream - 68.6% of the population in the Analysis Area of Zagreb LL have access to public green space in a radius of 300 m	- Green areas are not linked to residential areas, are not publicly available and have no public facilities - Non-existent organized publicly available green or recreational zone within the whole LL area - Railway line makes the area south of it poorly accessible - The environment is a threat to safety (the existing green zones are inaccessible and have become the place for dumping construction and other waste) - Lack of pedestrian-cycling infrastructure apart from partial tracks in the newly built neighbourhood of Novi Jelkovec (pedestrian communication takes place along a fast road, without vegetation, in the commercial/ industrial zone) - Playgrounds exist only within school property, with the exception of Novi Jelkovec where sporadically developed public facilities exist (such as fitness parks, bowling grounds, etc.) – inadequate for the number of inhabitants - Lack of sports and recreational facilities contributes to population inactivity - Lack of identity - the need for a new centre	- Extending and completing of the network of pedestrian and bicycle paths - Possibility of extending sports and recreational facilities - Possibility of extending urban gardens to include the new concept of a therapeutic garden for people with special needs (planned within the proGIreg project, NBS3)	- Introduction of loud and incompatible production in the commercial/ industrial zone, consequently the disturbance of the health of the population - Continuation of polluting with construction and other waste

		- Playgrounds are not publicly available - a large number of sports centres are commercial		
Ecological and environmental situation	- Numerous green areas in the adjacent area, but inaccessible to the public and unused - Vuger stream as a N-S link connecting Medvednica and Sava river - Forest and plant nursery in the vicinity - Higher percentage of "green per capita" than the rest of the urban area - Presence of vast areas dedicated to community gardens - Presence of cycle paths that connect the district to the city centre	- Neglected area of the abandoned industrial complex - the threat and the danger of collapsing infrastructure - Planning documents foresees insufficient areas for residential and mixed use - Streams are crossed by roads, next to the commercial/industrial zone - Disruption of the streambed by illegal construction - loss of the green corridor along the stream - The tendency of channelling the stream without the prospect of return to its natural state and / or development of social spaces next to the stream - Large area planned for commercial/ industrial purposes without adequate drainage - direct spillage of wastewater into the environment. - Lack of awareness of the need for environmental protection and planning of green areas - the need for a central park of a larger scale in the centre of the LL - Lack of parks along the streams - a continuation of sports and recreational facilities	- Opportunity to expand the idea of green infrastructure in an area that is yet to be built - Possibility of relocating the commercial /industrial zone - Possibility of increasing the share of green areas throughout the area - Possibility of using new principles and expanding road corridors - NBS solutions due to lack of space	- Given the necessary modifications to the planning documentation, there is a risk that, besides project activities, other renewal activities will not be implemented, which would result in the site not coming to life - Continue the existing policy of neglecting space - Existing road corridors are planned for the needs of commercial vehicles and do not consider the needs of population mobility (trees, wide walking paths, necessary recreational facilities and resting platforms, pollution) - Further pollution of streams and loss of natural value

		- Insufficient number of children's' playgrounds		
Economy and labour market	- Young and active population - Affordable real estate - Vicinity of railroad connecting Sesvete to Zagreb - Strong connection to people living abroad	- Unexplored demographic data of the existing population - Worn-out traffic infrastructure - Perception of the area as abandoned and obscured - The need for a different type of urban gardening (larger plots, possibility of production capitalization, variety of production etc.)	- Possibility of building new productive facilities in the zone such as HUB, market and public buildings - Alternative location for the development of the commercial /industrial zone beyond the LL area at the intersection of two European corridors with solved traffic	- Revitalization of the commercial/industrial zone as the main driver of the development of the space despite the different requests from the local community - Increased commercial/industrial traffic at the heart of the district from the development of the commercial/industrial zone - overload of transport infrastructure at the expense of residents

4.4.A CITY OF NINGBO (CN) – CITY DISTRICT LEVEL

SWOT ANALYSIS NINGBO – CITY DISTRICT LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- **Positive statistical population inclusion:** After the adjustment of the administrative division of Haishu District in 2016, the population of Haishu District has statistically more	- **The economic development of Haishu District is uneven:** the economy, population and buildings are concentrated in the eastern part of Haishu District, that is, the streets of various	**Mobility:** Before the adjustment of administrative divisions in 2016, although the annual population has decreased, the average annual	A large number of migrant workers can cause social instability and security problems.

	than doubled, offering a more diverse inhabitant pool - The social welfare benefit rate is low: the annual average social welfare benefit rate in Haishu District in 2008-2017 is only 0.768%. - Material deprivation rates witness a downward trend, from 0.99% (2008) to 0.62% (2017). - There is a **high employment rate** (98.52%), and the trend of the last 10 years shows an increase in employment of ca. 3.2%.	urban areas, while the economic activities of the townships and towns in the west of Haishu District are less developed. - There is an overall slight **depopulation tendency**, with the statistical data between 2008-2016 showing a 3.3% decrease in inhabitants.	migration in 2008-2017 is 1.38‰, indicating that Haishu District has certain attractiveness.	
Human health and wellbeing	- **Life expectancy:** In 2008-2016, life expectancy showed an increasing trend, reaching 81.5 years in 2016.	- **The green space is unevenly distributed**: in the western region with a small population, the green space is large. And 2008-2016 per capita green space occupancy is 10.59m^2 lower than the national average 13.5 m^2. - Fewer medical facilities per capita, crowded medical treatment.	In September 2016, the administrative division was adjusted, the green space in Haishu District became larger, and the vast forest land in the western region served the entire Haitang District more conveniently.	Water pollution in some rivers and lakes is severe, and poor air quality affects the health of residents
Ecological and environmental situation	- **The proportion of green area**: from 2008 to 2016, the proportion of green area to total area was 40.07%. In 2018, the proportion of forest land in green space reached 52.1%, due to the administrative re-adjustment of district limits for Haishu.	- **Poor air quality**: in recent years, PM2.5 concentration is 41.75 μg/m^3; PM10 is 68.8 μg/m^3; ozone concentration is 150 μg/m^3; nitrogen oxide concentration is 43.78 μg/m^3 - Since 2008, there has been an upward trend in temperature.		Every year, Ningbo has a typhoon landing, causing casualties, building collapse, crops and large vegetation lodging.

Economy and labour market	- In the past 10 years, the **employment rate** of people aged 20-64 was 78.92%; the unemployed rate of people aged 20-64 was 3.1%; the rest were mostly students. - **Local retail sales** showed a year-on-year growth, with sales increasing by 2.8 times in 2008-2017. - **Per capita tax revenue:** per capita tax increased by 70% in 2008-2017 - In 2008-2017, investment in water conservancy, environment and public facilities management increased by 17.8 times.	- **Housing prices** in Haishu District have been growing, and 2017 prices reached 16140 ¥/m^2. - In 2013-2018, the number of overnight visitors decreased.	In 2011, Ningbo launched the "3315 Plan" for the introduction of high-level talents. As of 2018, it has supported talents to start 345 companies. These companies have invested 3.09 billion yuan in R & D and a valuation of 30.65 billion yuan.	Affected by the slow development of world trade, Ningbo, as a seaport city based on foreign trade, has a slow economic growth.

4.4.B – CITY OF NINGBO (CH) – LL ANALYSIS AREA LEVEL

SWOT ANALYSIS NINGBO – LL ANALYSIS AREA LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- There are 7 primary and secondary schools in Moon Lake Street, 3 theaters, 8 large-scale leisure sports venues, and 3 museums, and the subway is conveniently located bordering the LL Analysis Area. - The density in the area is slowly decreasing to more manageable levels – from 15,300 inh. /km^2 to 12,440, namely a 18.9% decrease.	- The population of the analysis area is decreasing year by year. - The population density is still very high, reaching 12,440 inh. /km^2.	- Various adult education schools; - Improvement of social security benefits; - Help for poor families.	Difficulties for non-residents to understand local dialects, leading to cultural divide.

	- The migration rate is statistically insignificant (0.04%), implying a heterogenous, socio-culturally and economically well-established area.			
Human health and wellbeing	- The Moon Lake Park covers an area of 28 hectares and is surrounded by a large number of attractions. - The 7 communities of Moon Lake Street can easily enter the green space for walking and entertainment. - The Moon Lake Park is within the 10-minute walking isochrone from any point of the LL Analysis Area, as well as withing 5-7 minutes of the three subway stations located peripheral to the LL Analysis Area.	- Excessive tourists, entertainment facilities and catering accommodations affect the living environment of the surrounding residents; - Large population, insufficient capacity to provide specific medical services.	- Raise people's health awareness through education and advocacy; - The Health & Wellness Industry Expo 2019 provides free medical services.	Noise and dust pollution caused by renovation of old buildings.
Ecological and environmental situation	- Moon Lake Street has a large green space and beautiful scenery. - The commercial block on the west side of Moon Lake is undergoing renovation. It is called “Shi qing hu xi” construction project, and the northernmost Jinhui village has been built.	- Moon Park is located in the urban area, surrounded by many old neighbourhoods, with high land prices and large transformation costs.	- Moon Lake Street carried out the construction of civilized cities, dismantled various safety hazards, and implemented garbage classification; - "Scenic Area Management" Work plan of Moon lake Street.	- hot weather caused by climate change will aggravate the moon lake blooms.
Economy and labour market	- Moon Lake Street is a mature tourist area, with a large number of hotels and restaurants, providing a large number of jobs for the labor force. The	- Due to its touristic and service industry vocation, the area is	- People are paying more attention to the quality of life, and tourism is becoming popular;	- The service industry is the mainstay, and the industry is relatively simple,

	company's land is mostly distributed on the east and south sides.	prone to gentrification, and the land / property price is high.	- Ningbo Cultural Tourism Festival.	which is vulnerable to market shocks.

FOLLOWER CITIES

4.5.A CITY OF CASCAIS (PT) – CITY LEVEL

SWOT ANALYSIS CASCAIS - CITY LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Cascais Social-net (Rede social de Cascais) - Peaceful communities (31 crimes / 1000 persons per year) - Participatory budget programme	- Migrant communities with lack of school education	- National Educational programmes for adults - EU projects like proGIreg and Milan pact	- Gang influence
Human health and wellbeing	- Good quality of life (Bloom Consulting's Portugal City Brand Ranking sets Cascais in 3rd place, of the 308 Portuguese municipalities) - Existing local public health infrastructures (1 public general hospital, 2 specialist hospitals, 6 health centres)	- Weak pedestrian accessibilities - Lack of urban green areas (indicator 3.1.3: 10%; indicator 2.2.1: 12 m²/person)	- EU projects like Milan Pact and proGIreg - Organic food is trendy	- Climate change
Ecological and environmental situation	- Mild climate (supporting year-round cultures; 12^0 C Winter mean temperature) - Local Land Bank (Banco de Terras)	- Lack of urban green areas (see above) - Urban expansion - River pollution	- European projects like Milan Pact and proGIreg	- Climate change

		- Other interests for land use, not in the NBS scope		
Economy and labour market	- Factor C – Local development programme - Huge market for vegetables and fruits (Market study 2016) - Citizens with economic capacity that may support Community Supported Agriculture (CSA) - Local Brand Terras de Cascais	- Lack of interest and entrepreneurship in primary sector - Social and economic asymmetries - More profitable projects in short term - Lack of public/private partnership	- Organic vegetable market increasing trend - New economies emerging like CSA	- No national funds for the primary sector in Cascais

4.5.B – CITY OF CASCAIS (PT) – URBAN REGENERATION AREA LEVEL

SWOT ANALYSIS CASCAIS – URBAN REGENERATION AREA Tires/ Brejos				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Municipal Social inclusiveness office (+Perto) - Several local civil society associations, including Food Bank (FEBA) and church	- Low education level of the residents - Difficult relationship / discrimination between previous residents by prejudice towards immigrant communities from African ex-Portuguese countries	- Community-Supported Agriculture (CSA) implementation	
Human health and wellbeing	- Mental health improvement by contact with nature and outdoor living	- Lack of pedestrian access - Addictions	- Health academy (Academia da Saúde)	- Air pollution from the highway
Ecological and environmental situation	- Naturalized river banks - Rich soils in the flood area - Existing vegetable gardens, and citizens showing interest in urban agriculture	- Illegal soil occupations - Discontinuous land parcels - Flood area/risk - Other land uses may compromise ecological values	- Local Land Bank (Banco de Terras)	
Economy and labour market	- Existing local open-air market and small local grocery shops, may sell local products	- Residents with low income - Lack of entrepreneurship and education or training of the community	- Municipal start-up incubator (DNA Cascais) - Local Brand Terras de Cascais	- Legislation and bureaucracy too demanding for small local businesses - Difficult partnerships with private land owners, and investors - Low cost Supermarkets

4.6.A CITY OF CLUJ-NAPOCA (RO) – METROPOLITAN LEVEL

SWOT ANALYSIS CLUJ – METROPOLITAN LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Positive trends in demography, with a population growth rate of 1.38% and decrease of migration rate with 41% from 2013 to 2017 - High rate of young people (15-29 years old) Functional Urban Area (FUA) of the Cluj-Napoca city (19.4 – 23.2%) - Very low outmigration in the Metropolitan Area - The material deprivation rate is considerably dropping in the region, and subsequently in the area	- Underdeveloped ambulatory social services for the elderly and people with disabilities, home care, and daily care centres, etc. These services are missing in rural areas - Increase of rural-urban dependency for specialized services and facilities provided by Cluj-Napoca - Suburbanisation: Florești commune, adjacent to Cluj-Napoca to the west, reached 50 dwellings per hectare, in unsustainable urban amenity conditions - Low dwelling and amenity quality in the peripheral areas of the CMA	- National support programmes for the construction of social / youth housing - Development of partnerships between communities to solve various social problems - Access to funds for the modernization and development of university / pre-university education	- Lack of support for implementing social inclusion policies (Cluj-Napoca missing in the national Atlas for Marginalized Areas)
Human health and wellbeing	- High living standards in the Functional Urban Area m² ofm²of Cluj-Napoca (> 50 m²/house) - Several communes are supported by a rich natural environment	- Uncontrolled urban expansion with negative effects in the Functional Urban Area, facilitated by administrative passivity and commercial interests - Overcrowded, unplanned areas with a lack of sustainable	- Further development of communes endowed with a special natural heritage, as destinations for second homes - Major infrastructure projects which would considerably	- Lack of immediate intervention, on the improvement of housing conditions resulting from unplanned, uncompromising and

	- A well-consolidated East - West urbanisation axis, with dwellings having amenities and utilities over national averages - Very good connectivity to the sanitation services at county level (90.1%) - Existence of medical institutions and doctors in every locality of the metropolitan area	perspectives in Florești / west of Cluj-Napoca, with strong negative effects on the inhabitants and both administrations, in the long run - Significant sources of air quality degradation at metropolitan level, including traffic, specifically E-W - Only 51 of the 98 localities in the metropolitan area benefit from the presence of water supply networks - Presence of very poor urban / rural areas (Cojocna, Gilau, Sânpaul, Bonţida)	increase the production capacity of renewable energy at metropolitan level	chaotic development, mainly from Floreşti - If the 3500m runway is implemented, noise pollution may affect the city more severely (acoustic and chemical pollution), also creating negative externalities by deviating the Someș course - Migration of specialized medical staff
Ecological and environmental situation	- Numerous natural protected areas of from which of interest for the community (9), of national interest (10) and of county interest (7) - Potential to define a green corridor along the Someşul Mic valley	- Uncompact tentacular expansion of housing creating “dormitory neighbourhoods” (monofunctional residential areas) of poor quality, impacting on the natural framework (extension to the protected Făget area) - High anthropogenicity: Only 18% of the area is covered by forests, natural meadows and marshes; - Uncontrolled waste disposal along Someș Valley, with a strong impact on water and soil quality; - There are valuable environmental areas in the CMA	- Valorisation of the northern slope in Cluj-Napoca and planned development on Lomb Hill; - Funding of some Regional Operational Programme (ROP) projects (Axis 4) and Large Infrastructure Operational Programme (Axes 3, 4 and 5) in the 2014-2020 period - Financing of some punctual interventions under the environmental and climate measures under the ROP 2014-2020	- The continuing of the tentacular expansion of Cluj-Napoca to the south and to Feleac - The extensive eastern agricultural area close to Cluj-Napoca is vulnerable from the point of view of the nitrate pollution of the groundwater - Continuing the approval of Urban Plans without considering the ecological limits of certain territories

		not included in protected areas (Bonţida centre);		
Economic and labour market benefits	- Very good industrial investment support network, and availability of industrial parks with special status (TETAROM I-IV, ca. 283 hectares in total) in the FUA of Cluj-Napoca - CMA spearheads innovation and the Research and Innovation (R&I) economy at national level, holding 1st place in percentage of workers employed in specialized sectors (25,87% in 2016, PIAROM Patronage of Local Investors study) - High visibility and attractiveness of the CMA, especially of Bonţida, following the festive events, which stimulated cultural and entertainment tourism	- The young population decreased by 40% in the metropolitan area during the period 1992-2014 (with the exception of Floresti). - The entrepreneurial environment still generally incipient - Lack of harmonization between labour market qualifications and the requirements and trends of development of the local business environment	- High mobility of workforce due to the strong relations between ClujNapoca and CMA; - High attractiveness for Direct Foreign Investments, national investors, university environment, increased investment opportunities due to infrastructure projects - Dynamic investment context, which shows interest from foreign investors in Cluj area - Facilitating trade links both to central and western Europe and to other cities in the country - The availability of European funding to support the business environment	- Increasing rural-urban disparities by pursuing a quasi-exclusive financial concentration policy in the municipality - Poor connectivity with Bucharest, the main economic pole of the country and with the east of the country which hinders potential economic exchanges with the business environment and the East market

4.6.B – CITY OF CLUJ-NAPOCA (RO) – MUNICIPALITY/ REGENERATION AREA LEVEL

SWOT ANALYSIS CLUJ-NAPOCA – MUNICIPALITY / REGENERATION AREA				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Historically interethnic community: the Romanian citizens, followed by citizens of Hungarian nationality (15.3%), represent 75.2% of the total population - Performant higher education system (second in Romania), with 11 Universities, some of which are internationally recognized. 35% of the population has finished tertiary education - Existence of specialized social services - The existence of a wide range of NGOs providing social services and applying the legislation in the field of social security - High proportion of young people (15-29 years old) in Cluj-Napoca (17.4%) - Low costs for dwellings maintenance, lowest in the European level (186 out of 197), which positions Cluj-Napoca as one of the more attractive cities for expats - A modest quantity of public housing units has almost doubled in the last 4 years;	- High living densities in Cluj-Napoca (average 1787.3 inh/km²), reaching up to 7000-9600 inh/km² in neighbourhoods along the Regeneration Area (Mănăștur, Center, Mărăști) - A percentage of only 25.60% of dwellings are currently performing in terms of energy efficiency and refurbishing, along the regeneration area (Someș and rail corridors) - Very high property costs comparative with other cities at national level - Predominantly collective housing (over 78% in 2009), with degraded, poorly equipped and of very high-density districts in the post 1980s (Mănăştur, Mărăşti) - New districts in southern part of the city (Bună Ziua, Europa, Făget, Borhanci, etc.) represent unplanned and poorly accessible expansions	- High tourist potential in the metropolitan area for the population of Cluj (one-day excursions, cycling tours, etc.)	-

Human health and wellbeing	- A performant health system in Cluj-Napoca, being a university centre for medical education, with a large and qualified medical staff - Life expectancy is slightly increasing in the county (almost a year, from 76.4 to 77.3 years over the last 5 years) - Green space per capita increased by 40% in the last 7 years, to more than 25 m²/inh.	- Slightly growing incidence of cardiopathies, hypertension, cerebro-vascular diseases, chronic pulmonary diseases, respiratory and cardiac anomalies	-	- Lack of immediate intervention for improvement of housing conditions generated by unplanned, uncompromising and chaotic housing development - passive attitude of the municipality regarding housing conditions
Ecological and environmental situation	- High ecological and provisioning services potential of the Someș river, the „blue-green spine" of the city - Valuable protected areas (Fânațele Clujului Natural Reservations) and urban green spaces: Făget Forest, Băile Someșeni, Dealul Galcer, Hoia Forest	- The Cluj-Napoca area is prone to landslides, and hosts 23 geological and geomorphological hazard zones; furthermore, it's also prone to floods on the Someș river course - Eight contaminated sites at the level of Cluj-Napoca - Considerably-sized brownfields along the Săsar river corridor and the railway (Regeneration Area), in multiple ownership and in need of conversion	-	- The Făget Forest is threatened by uncontrolled development of residential areas, especially in recent years
Economy and labour market	- Key role at national level: one of the 7 growth poles where priority is given to community and national investments, and the second largest city in the country - The city is situated close to the western border, facilitating economic	- High costs for living in Cluj-Napoca comparing to income, especially considering the costs involved in housing, which creates a barrier to the attraction and retention workforce - Cluj-Napoca is the city with the most expensive dwelling rent	- Cluj-Napoca has the possibility to benefit from important investments for the development of the economic, university and infrastructure environment - Very close relations of the Municipality with the	- Poor connectivity with Bucharest, the main economic pole of the country, and with the east of the country, which hinders potential economic exchanges with the

	relations with central and western European countries - A diversified business environment with no dependency on any sector - Recent launching of initiatives to support entrepreneurs and stimulate innovation - Dynamics of cluster structures, with an increasingly diversified offer of support services for the industries they represent - Current network of industrial parks (3 public investment parks, plus private investments), offers attractive locations for current or potential investors	(approx. 7.3 EUR / m² / month, 2018) and selling prices (approx. 1550 EUR / m², 2019) on average, in Romania	communes inside the first ring, but also on the E-W axis (Jucu, Gilau), high mobility of the workforce	business environment and the East market

4.7.A CITY OF PIRAEUS (GR) – CITY LEVEL

SWOT ANALYSIS PIRAEUS - CITY LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- 26 churches, some of which are popular with increased intra- and inter- visitation - The presence of archaeological sites located throughout the city as valuable cultural assets - Access to all forms of transport (tram, urban and suburban rail, metro) - High work intensity - employment status of	- Very dense living environment and a relatively high overcrowding rate (about 38% of housing units under 30 m²) m²imply the need to provide proper infrastructure for ensuring liveability / high quality of life m² - A relatively large amount of the population (9.4%) have not	-	- Depopulation and out-migration (downwards trend with a 7% population loss between 2001 and 2011, according to national Censuses)

	working-age household members (approx. 80%) - Relatively high levels of qualification and educational attainment of the population, with one fifth having completed higher education studies	completed primary education - Buildings occupy 34.6% of the total surface area of Piraeus		
Human health and wellbeing	- Piraeus is surrounded largely by the sea, which has potentially beneficial effects for its inhabitants from the point of view of iodine, salt and magnesium present in sea air (with purported beneficial effects for the respiratory system and against allergies) - Provision of recreational sea related services - Since 2008 the number of crimes has decreased by more than half - The total number of accidents caused by drivers in the last couple of years (33-41 accidents) has decreased slightly since 2008	- Piraeus is also of the busiest ports in Greece, which contributes to the degradation of air quality through generation of sulphate aerosols from the shipyard, which potentially negative effects to the health of the inhabitants. - Limited green space availability. The calculated green space per capita (excluding tree avenues) is approximately 0.83 m²/person - Limited number of playgrounds - Increased traffic hence noise (near main roads and port) and particle air pollution	-	- Increasing freight and people transit traffic with further development of the port
Ecological and environmental situation	- Within residential and pedestrian areas people interact with green spaces - The amount of NOx, remained relatively the same over years 2008-2017 after showing a relatively small decrease in 2010-2014 - The amount of PM 2.5 concentration has decreased since 2008 from 28 µg/m3 to 18 µg/m3 in 2017	- Low share of green spaces (about 1%, excluding tree avenues) - Potentially contaminated sites - the amount of PM10 concentration increased since 2008 from 33 µg/m3 to 41 µg/m3 in 2017 - Private ownership of derelict sites	- Regeneration of former industrial sites - Better harnessing of the potential of small green spaces through interconnection	-
Economy and labour market	- Europe's third largest port in terms of passenger transportation, third freight	- Economically productive functions concentrated in a very particular area	- Regeneration of former industrial sites - Reuse of	- Increased development costs due to state of dereliction and potential

	transport port in Greece - Good transport system, facilitating circulation of freight and urban mobility - relatively high number of industrial businesses Piraeus (1,269 in 2015). Similarly, the number of commercial and office businesses is relatively high (respectively 7,865 and 4,073 in 2015) - The total economically active population (15-64 years of age) employed is relatively high (79.2%; Hellenic Statistical Authority, 2011c) - Since 2010, the total number of tourist overnight stays within Piraeus increased from 304,968 to 405,763 in 2017	(City Districts A' and B') - Derelict industrial building sites, most in private ownership - The average local taxes have decreased from 457,188,000 Euros in 2008 to 363,232,000 Euros in 2011	abandoned industrial buildings - Partnership possibilities with Athens	contamination of soils

4.7.B – CITY OF PIRAEUS (GR) – DISTRICT LEVEL

SWOT ANALYSIS PIRAEUS – DISTRICTS C' and E' LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Both areas (C' and E') are mainly residential, with small local commercial areas. The latter also hosts the passenger port, a main attractor of the city, and successful regeneration areas (Dilaveri clay brick factory) - C' District hosts three child day care centres, 2 nurseries, 6 primary schools, 3 secondary schools, 2 lyceums and 1 public vocational training school. Both stadiums	- The facilities of the former Papastratos industry are located within the E' district - and the area is scheduled for regeneration - There are no cycle paths or cycle shops within either area - Relatively good connectivity via bus routes, yet the transport lines are confined to the main urban axes	- "Recycle" abandoned industrial buildings for new use	- Depopulation and out-migration (downwards trend with a 7% population loss between 2001 and 2011, according to national Censuses)

	(Karaiskaki, and Peace and Friendship Stadium) have local, regional and national significance; there is also the Athens Marina (in the Eastern part of Piraeus), 3 churches and 6 play-grounds - E' District hosts four child day care centres (1 infant - preschool and 3 preschool age >2.5 years), 15 nurseries (12 public that include 1 special nursery and 3 private), 11 primary schools (9 public that include 2 special and 5 reform schools and 2 private schools), 7 gymnasiums (all public that include 1 music and 1 night school), 8 lyceums (all public that include 1 music, 1 professional, and 1 night professional school), and 1 public vocational training school			
Human health and wellbeing	- Existence of a private hospital in district C' (Metropolitan Hospital)	-	-	-
Ecological and environmental situation	- C' District possesses approx. 14,000,050 m² green space incl. few medium size green spaces (1,200-4,500 m²) and many smaller in size (≤ 900 m²). - E' District possesses 18,600,605 m² of green space comprised mainly of medium sized parks and squares, ranging between 1,200-5,000 m² - Local initiative for up-keep of the planting beds in pedestrian areas	- Green spaces still insufficient, quantitatively, in either of the two districts	- Regeneration of former industrial sites - Create a green network linking smaller green spaces	- Private ownership of derelict sites - Contaminated soils
Economy and labour	- In district E', concentration of activities is mainly localized near the passenger port - Limited elements are located in the south	- Remaining industrial sites in District E' in need of regeneration and re-introduction into the productive	- Regeneration of former industrial sites - Partnership possibilities with	- Private ownership of derelict sites - Increased development

market	region of the C' District (near the Peace and Friendship Stadium, Karaiskaki Stadium and marine).	cycle - Private ownership of the industrial sites	Athens	costs due to state of dereliction and potential contamination of soils

4.8.A CITY OF ZENICA (BIH) – CITY LEVEL

CITY LEVEL				
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Socio-cultural inclusion	- Material deprivation rate is low - Plenty of recreational and cultural facilities - University city - Favourable geographical position, with a good connection to Sarajevo (one hour, via direct highway) - Relatively high homeownership rates (73.68%)	- Negative population growth rate (-0.6%) - Housing quality is relatively low - Reduced work intensity (only 52.7%)	-	- "White plague" – drastic reduction in birth rates, which if continued, can lead to significant population loss - Immigration issues
Human health and wellbeing	- Accessible green spaces	- High number of crimes - High number of respiratory diseases - High air pollution affecting health	- Opportunity of using adjacent hills of Zenica for recreation, in benefit of the residents' health	- General feel of danger in communities can accentuate
Ecological and environmental situation	- Average level of precipitation - Moderate climate - High quality water for drinking	- Highly polluted air (high NOX – 22 µg/m3 / ppb and PM10 – 55 µg/m3 / ppb concentrations) - Soil polluted by heavy metals	- Rehabilitation of contaminated sites - Use of water for energy production	- Topography negatively influencing air pollution distribution - Stable metrological conditions

Economy and labour market	- Low local taxes - Plenty of property for living - Existence of agricultural small businesses	- Low number of green jobs - Low GDP per capita - Industry prevailing companies - Low employment rate - Low number of tourists - Low number of foreign students	- Possibility of new small businesses in the field of green jobs - Increase work intensity by green jobs - Creating of green funds - Green tourism and leisure facilities usage - Use of rehabilitated soil for agriculture - Fair tourism building expansion	- Resistance of green companies to be in heavy industry polluted city - Political will affecting decisions