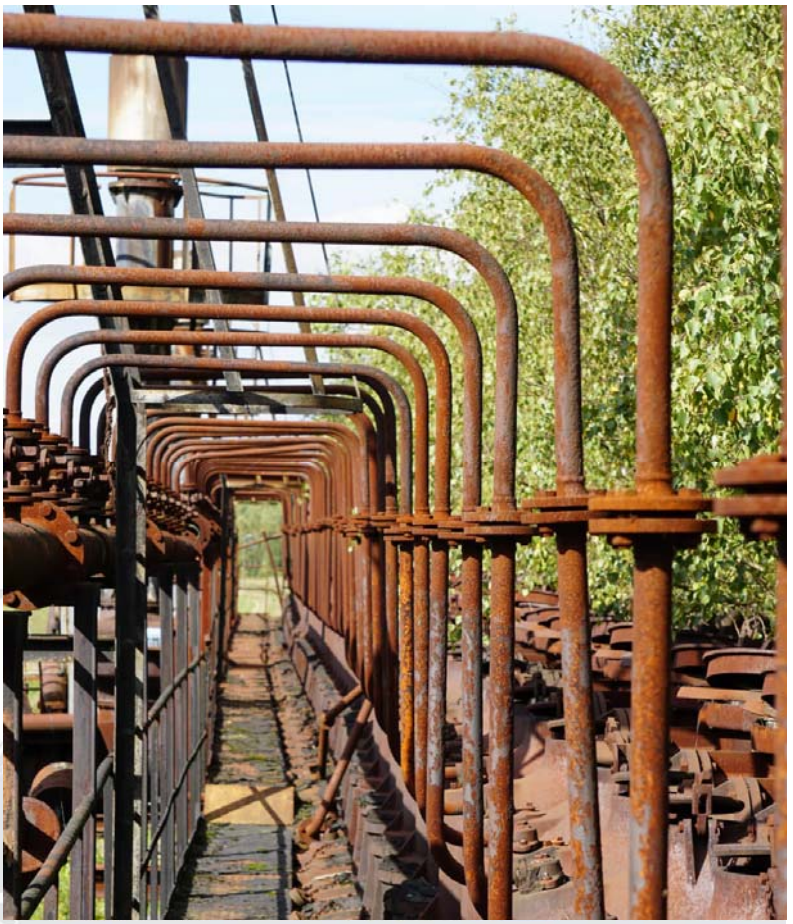
proGIreg



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Data Management Plan

Deliverable 4.2, Amendment 01

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Co-Author(s)	Chiara, Baldacchini, CNR, Carlo, Calfapietra, CNR, Payam, Dadvand, ISGLOBAL, Yole, Debellis, UNIBA, Carmen, De Keijzer, ISGLOBAL, Gabriele, Guidolotti, CNR, Elizabeth, Gil-Roldán, SL, Giovanni, Sanesi, UNIBA, Giuseppina, Spano, UNIBA
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CONTACT:

Email: progireg@la.rwth-aachen.de
Website: **www.proGIreg.eu** .

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Contents

Tables

Figures

Document revision history

Version	Date	Modification reason	Modified by
1	13/06/2020	Modification of the Executive Summary as requested by the project reviewers at the end of the first reporting period	Michele Mattioni

Partner organisations

No.	Name	Short name	Country
1	Rheinisch-Westfaelische Technische Hochschule Aachen	RWTH	Germany
17	Starlab Barcelona SL	SL	Spain
20	Fundacion Privada Instituto de Salud Global Barcelona	ISGLOBAL	Spain
22	Consiglio Nazionale delle Ricerche	CNR	Italy
24	Università degli Studi di Bari Aldo Moro	UNIBA	Italy

Abbreviations

DX.X:	Deliverable
DMP:	Data Management Plan
FC:	Follower Cities
FRC:	Front-Runner Cities
GI:	Green Infrastructure
GIS:	Geographic Information System
LL:	Living Lab
NBS:	Nature Based Solutions
NGO:	Non-Governmental Organization
ORDP:	Open Research Data Pilot
proGIreg:	productive Green Infrastructure for post-industrial urban regeneration
WP:	Work Package

Executive Summary

This document is the first deliverable of Task 4.5 “Data management and accessibility”. It describes the Data Management Plan (DMP) of the proGIreg project, funded by the EU’s Horizon 2020 Programme under Grant Agreement N° 776528-2. ProGIreg is part of the Open Research Data Pilot and provides open access and reuse of the research data generated by the project.

The DMP provides the main elements of the data management policy; it describes in detail the kind of data to be collected during the project and how they will be managed during and after the end of the research project. It also defines all procedures required to collect data and provides information about the storage of acquired standardized data as well.

The project complies with the GDPR regulations, for this reason technical procedures have been used to pseudonymize the personal data collected through the questionnaires. The method used is explained in Chapter 6 "Ethical aspects".

The open data provided by the project will be first analysed to aggregate raw data in case they do not comply with the GDPR.

The DMP is not a static document. It can be adapted according to new needs emerging during the evolution of the project.

The present document is composed by the following sections:

- a short description of the proGIreg project;
- a data summary with a description of the different kinds of data to be produced (Spatial data, Survey data, Systematic Observation data, Environmental data);
- a description of all data platforms and repositories used in proGIreg (Basecamp, Sciebo, pro-GIreg platform, Zenodo);
- a description of the FAIR data principles adopted by proGIreg;
- a description of the Ethical aspects of the produced data.

1. About proGIreg

ProGIreg uses nature for urban regeneration with and for citizens. For proGIreg four front-runner cities (Dortmund (DE); Ningbo (CHN), Turin (IT); Zagreb (HR)) will create Living Labs in urban areas which face the challenge of post-industrial regeneration. These areas suffer from social and economic disadvantages, inequality and related crime and security problems. They lack quality greenspaces, have a negative impact on human health and wellbeing and are more vulnerable to the effects of climate change. Going beyond the current state-of-the-art with Green Infrastructure as a one-off state intervention, the proGIreg Living Labs will develop nature-based solutions (NBS), which are citizen-owned and co-developed by state, market and civil society stakeholders. Eight types of NBS will be implemented during the project:

- NBS 1: Transforming former landfill sites
- NBS 2: Regenerating soil
- NBS 3: Community urban gardening and farming
- NBS 4: Aquaponics
- NBS 5: Green roofs and vertical gardens
- NBS 6: Accessibility to green river corridors
- NBS 7: Embedding NBS into urban planning
- NBS 8: Pollinator biodiversity

Innovation will take place on the technical level through the NBS deployments, on the social level through co-designing, co-creating and co-implementing NBS with local communities and on the economic level through combining NBS with market-ready business models. Four follower cities in Eastern and Southern Europe (Cascais (PT), Cluj-Napoca (RO), Piraeus (GR), Zenica (BA)) will be co-steering the research process to assure replicability and adaptability to their local context resulting in urban plans for NBS deployment.
Scientific assessment and monitoring results from the Living Labs will be made available on both EU NBS platforms OPPLA and THINKNATURE and will contribute to the European reference framework for NBS. Global impact will be achieved by a training programme for cooperative planning, implementation and management of NBS. It will be provided by partners from the cities, SMEs and universities involved.

The project is divided into 7 work packages:

Table 1. Work packages

Work Package number	Title
WP1	Overall coordination
WP2	Planning, design and participation processes for NBS
WP3	NBS pilot implementation
WP4	NBS benefit assessment and monitoring
WP5	NBS Market readiness, barriers and Upscaling
WP6	Global networking, training, dissemination and impact
WP7	Ethics requirements

ProGIreg is part of the Open Research Data Pilot (ORD pilot) that aims to improve and maximise access to and re-use of research data generated by Horizon 2020 projects.

2. Data summary

In the following paragraphs are explained the data types collected within the project. For each type of data are indicated a short introduction to the data, dataset and storage.

Table 2. List of datasets

Name of Dataset	Involved WPs
Spatial data	WP 2 WP 4
Survey data	WP 4
Systematic observation data	WP 4
Environmental data	WP 4

2.1. Spatial data

ProGIreg has started with setting up a solid base for future planning and implementation, through WP2 – Planning, design and participation processes for NBS, which aims to enable and prepare implementation of co-designed, locally adapted NBS in the FRC and to identify the potential for their transfer to the project's FC.

The Task 2.1: Spatial Analysis in front-runner and follower cities assists cities to generate a comprehensive spatial database as baseline input („state of play") for further activities in the project. The task analyses the available (from the dataset point of view) baseline conditions for the four key scientific assessment domains defined in WP4.

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

The database will be updated biannually by WP4, with the help of FRCs.

GIS derived data will be processed by UNIBA within the WP4 activity, on a yearly basis for the entire duration of the project. GIS will specifically provide data on the Normalized Difference Vegetation Index (NDVI) for the Greenness indicator and Walkability Index, using the remote sensing satellite Sentinel-2 (European Space Agency) as well as city spatial and population data using Landscan Global population (https://landscan.ornl.gov/), respectively. Moreover, the same dataset will be used to assess the benefit of NBS implementation.

Data sources

The main data sources of the spatial data are the following:

- Municipal databases, municipal / metropolitan GIS data (ideally microdata for pilot sites);
- Data from service providers at municipal level (contracted GIS services outside municipal departments, utility management companies);
- Data from other external stakeholders (business register, NGOs, chambers of commerce, etc.);
- Regional and national data (data available from the national statistics institutes, nationwide census data);
- Other databases at European level: EUROSTAT, OECD, ESA Copernicus, Europe's soil database, data from ECMWF, European vegetation survey;
- Existing documentations and grounding studies.

The complete list of data sources and metadata, divided by cities (FRC), is shown in the Table 4. Torino Dataset and data source, Table 5. Dortmund dataset and data sources Table 6. Zagreb dataset and data source.

The dataset of spatial data is reported in Table 3. List and availability of spatial/administrative data

Storage

The spatial data are stored in the Sciebo cloud (**https://www.sciebo.de/en/about/index.html**) and shared within the partners of the project. The file format is .xlsx also converted in .pdf. The .xlsx files will be imported into the WP4 proGIreg platform (details on chapter 4) for data visualization and processing.

Table 3. List and availability of spatial/administrative data

1. SOCIO-CULTURAL INCLUSIVENESS				Dortmund		Turin		Zagreb	
				CL	LL	CL	LL	CL	LL
Subdomains	**Parameter**	**Description**		**Availability**					
1.1 Demographics	**1.1.1 Total population**	Total number of persons living in the specific area.	persons	YES	YES	YES	YES	YES	YES
	1.1.2 Population density	Number of persons per square km of land area.	persons/km^2	YES	YES	YES	YES	YES	YES
	1.1.3 Population growth rate	Average annual rate of change of population size (%).	%	YES	YES	YES	YES	YES	
	1.1.4 Migration rate	Net number of migrants per 1,000 population.	%	YES	YES	YES	YES	YES	
1.2 Social and cultural inclusiveness	**1.2.1 Material deprivation rate**	Material deprivation rates gauge the proportion of people whose living conditions are severely affected by a lack of resources	person, total	YES		YES	YES		
	1.2.2 Work intensity	% employed out of total economically active population (15-64 years of age, according to	Persons			YES			

		the definitions of the International Labour Organisation)							
	1.2.3 Diversity statistics	% foreign born residents (if available, for both scales, or)	%	YES		YES			
		Population by ethnicity	Persons	YES	YES	YES	YES	YES	
1.3 Education and access to social and cultural services and amenities	**1.3.1 Educational attainment**	Average level of education completed by the 18 years of age and older population	Areas	YES		YES	YES		
	1.3.2 Recreational or cultural facilities	Relevant for LL/regeneration level: no. and identification of recreational and / or cultural facilities		YES	YES	YES		YES	YES
	1.3.3 Accessibility of public urban green spaces	% population having access to green space within a 30 minutes walking distance or within 30 minutes travel time by public transportation.						YES	YES
1.4 Housing	**1.4.1 Housing quality**	Average useful floor area per person, calculated in sqm		YES	YES			YES	YES
	1.4.2 Public housing	Percentage of residents in public housing		YES	YES			YES	

	1.4.3 Housing affordability	Home ownership rate	sqm					YES	
	1.4.4 Density of the built environment	Building Coverage Ratio, or if unavailable,		YES	YES	YES		YES	YES
		Floor Area Ratio (Total residential floor area divided by total residential area surface)	sqm	YES	YES			YES	YES
2. HUMAN HEALTH AND WELLBEING				**Dortmund**		**Turin**		**Zagreb**	
				CL	**LL**	**CL**	**LL**	**CL**	**LL**
Subdomains	**Parameter**	**Description**		**Availability**					
2.1 Health	**2.1.1 Incidence of cardio and respiratory diseases**	Rate of new (or newly diagnosed) cases of the disease per 1,000 persons				YES	YES	YES	
	2.1.2 Incidence of allergic disease	Rate of new (or newly diagnosed) cases of the disease per 1,000 persons				YES	YES	YES	
	2.1.3 Incidence of chronic stress, stress-related diseases, mental health diseases and NCDs	Rate of new (or newly diagnosed) cases of the disease per 1,000 persons				YES	YES	YES	
	2.1.4 Obesity rate	**Possibly available by region /*				YES		YES	

		in specific studies (or possibly at school level)							
	2.1.5 Life expectancy at birth	Average life expectancy (possibly available at higher levels / regional level)		YES		YES		YES	
2.2 Well-being	**2.2.1 Green space per capita**	Sqm of green space / person	sqm	YES	YES	YES		YES	
	2.2.2 Urban safety – crime	Yearly number of reported crimes per 1,000 persons	persons	YES		YES			
	2.2.3 Urban safety – accidents	Yearly number of reported road accidents involving pedestrians and / or bicyclists	persons	YES			YES		
3. ECOLOGICAL AND ENVIRONMENTAL RESTORATION				**Dortmund**		**Turin**		**Zagreb**	
				CL	**LL**	**CL**	**LL**	**CL**	**LL**
Subdomains	**Parameter**	**Description**		**Availability**					
3.1 Land use and Vegetation	**3.1.1 % of green spaces**	% of total surface which is destined for green spaces	%	YES	YES	YES		YES	YES
	3.1.2 structure of green spaces	% of tree covered areas				YES			
	3.1.3 structure of green spaces	% of shrub covered areas				YES			

	3.1.4 structure of green spaces	% of meadow covered areas							
	3.1.5 % Surface of brownfields	% of total surface which is destined for brownfield areas		YES	YES	YES		YES	YES
	3.1.6 % Surface of polluted brownfield areas	% of polluted brownfield areas							
	3.1.7 Canopy cover	the proportion of the forest covered by the vertical projection of the tree crowns							
	3.1.6 Leaf Area Index	Leaf area index is defined as the projected area of leaves over a unit of land (m2 m−2), so one unit of LAI is equivalent to 10,000 m2 of leaf area per hectare. This index takes into account the leaf stratification within the canopy.							
	3.1.7 NDVI	Normalized Difference Vegetation Index							
3.2 Climate / Meteorological data	**3.2.1 Precipitation**	Average annual precipitation (mm)	mm	YES	YES	YES	YES		
	3.2.2 Relative humidity	Relative humidity	%			YES	YES		

	3.2.3 Air temperature	Annual mean temperature	°C	YES		YES	YES		
		Winter mean temperature	°C	YES		YES	YES		
		Spring mean temperature	°C	YES		YES	YES		
		Summer mean temperature	°C	YES		YES	YES		
		Fall mean temperature	°C	YES		YES	YES		
	3.2.4 Wind strength	Wind intensity / average wind speed	m/s			YES	YES		
	3.2.5 Wind direction	Main wind direction	m/s			YES	YES		
3.3 Air Quality	**3.3.1 Ozone concentration**	µg/m3 / ppb	ppb			YES	YES		
	3.3.2 NOx concentration	µg/m3 / ppb	ppb	YES		YES	YES		
	3.3.3 PM 2.5 concentration	µg/m3 / ppb	ppb	YES		YES	YES		
	3.3.4 PM10 concentration	µg/m3 / ppb	ppb	YES		YES	YES		
	3.3.5 VOC Concentration	µg/m3 / ppb	ppb						
	3.3.6 GHG inventory	Inventory of greenhouse gases (GHG) emission at city				YES			

		level and LL level							
3.4 Soil	**3.4.1 Soil quality**	Concentration of C				YES			
		Concentration of N				YES			
		bulk density				YES			
		permeability				YES			
		water retention capability				YES			
3.5 Water	**3.5.1 Water quality**	- Free O							
		- Nutrients							
		- pH							
		- eutrophication level							
		- hydrocarbons							
		- other pollutants							
3.6 Urban environment	**3.6.1 Heat island effect**	Difference (*C) between urban and rural surface temperatures	(euro/sqm)	YES					
4. ECONOMY AND LABOR MARKET				**Dortmund**		Turin		**Zagreb**	
				CL	LL	**CL**	**LL**	**CL**	**LL**
Subdomains	**Parameter**	**Description**	(euro/sqm month)	**Availability**					

4.1 Market labour and economy indicators	**4.1.1 GDP per capita**	GDP (PPP), Euro	euro	YES		YES		YES	
	4.1.2 Businesses in the area - Industrial	Amount of Industrial companies per 1,000 inhabitants	Companies	YES					
	4.1.3 Businesses in the area - Commercial	Amount of commercial companies per 1,000 inhabitants	Companies	YES			YES		
	4.1.4 Businesses in the area - Offices	Total amount of offices companies per 1,000 inhabitants	persons	YES					
	4.1.3 Public jobs	- Total number of jobs in public sector	persons						
	4.1.4 Private jobs	- Total number of jobs in private sector	persons						
	4.1.5 Public green jobs	- Total number of public green jobs	persons						
	4.1.6 Private green jobs	- Total number of private green jobs	persons						
	4.1.7 Qualified jobs	- Total number of qualified jobs	persons						
	4.1.8 Non-qualified jobs	- Total number of non-qualified jobs	persons						
	4.1.9 Turnover in the green sector	Green companies' turnover in EUR	persons						

4.2 Gentrification indicators	**4.2.1 Employment rate**	the proportion of employed adults in the working age (20-64 years)	persons			YES	YES		
	4.2.2 Unemployment rate	the proportion of unemployed adults in the working age (20-64 years)	persons	YES	YES	YES	YES	YES	
	4.2.3 Revenues by household	Average household disposable income	persons	YES				YES	
	4.2.4a Current property sale value for residential use	Property value, average, EUR/sqm, for single- and collective housing, sale price	Eur/sqm	YES	YES		YES	YES	
	4.2.4b Current property rental value for residential use	Property value, average, EUR/sqm, for single- and collective housing, renting (monthly)	Eur/sqm month	YES	YES		YES		
	4.2.5a Current property value for commercial/ industrial/ office use	Property value, average, EUR/sqm, sale price	Eur/sqm	YES	YES		YES		
	4.2.5b Current property rental value for commercial/ industrial/ office use	Property value, average, EUR/sqm, renting (monthly)	Eur/sqm month				YES		
	4.2.6 Free services	Total number of free services (parks, libraries,				YES			

		cycle trials, skate parks…)							
	4.2.7 Basic utilities	Monthly cost of basic utilities (Electricity, water, Garbage…)							
4.3 Tourism and attractiveness indicators	**4.3.1 Current number of tourists**	Measured as average number of overnight stays in tourism accommodations		YES		YES		YES	
	4.3.2 Number of temporary events	Trade Fairs, Congresses, Symposiums, Concerts, Parades before NBS application (in number)							
	4.3.3 No. of foreign students	% of foreign students out of total enrolled higher education students		YES		YES			
	4.3.4 Local expenses	Expenses in local retail businesses		YES					
4.4 Taxes, Investment & Financing	**4.4.1 Local taxes**	Average local taxes per capita	Eur	YES		YES			
	4.4.2 Green investment programs/funds	Public investment programs, and investment funds							

Table 4. Torino Dataset and data sources

EF. DOMAIN	SUBDOMAIN	INDICATOR	DESCRIPTION	SCALE	ID	UNIT	SOURCE_LINK	NOTE
Inclusività socio-cultural	1.1 Demographics	1.1.1 Total population	Total number of persons living in the specific area. Indicator should be collected for both the city/MA scale and the LL/regeneration area district scale.	CITTÁ DI TORINO	1.1.1.a	persons	www.comune.torino.it/statistica,	Data found on the yearbooks from 2008 to 2017 (the latter will be published soon) available on the website of the Statistical Service and Toponymy at the address www.comune.torino.it/statistica,
				<MIRAFIORI SUD>	1.1.1.b	persons	www.comune.torino.it/statistica,	Ad hoc processing carried out using a dataset available to the Statistical Service, containing a summary of the main personal data at 31/12 of each year
		1.1.2 Population density / densità di popolazione	Number of persons per square km of land area. Indicator should be collected for both the city/MA scale and the LL/regeneration area district scale.	CITTÁ DI TORINO	1.1.2.a	persons / km2	www.comune.torino.it/statistica,	The surface of Turin, for the calculation of the density, was found in the Yearbook 2017 (to be published shortly) - Km ^ 2 = 129.999
				<MIRAFIORI SUD>	1.1.2.b	persons / km2	www.comune.torino.it/statistica,	The surface of Mirafiori sud, for the calculation of the density, was found in the 1979 paper Yearbook (whose pdf version will be published shortly) - Km ^ 2 = 11.230
		1.1.3 Population growth rate /tasso di crescita della popolazione	Average annual rate of change of population size (%). Indicator should be collected for both the city/MA scale and the LL/regeneration area district scale.	CITTÁ DI TORINO	1.1.3.a	%	www.comune.torino.it/statistica,	Calculation obtained using the data present in point 1.1.1.a
				<MIRAFIORI SUD>	1.1.3.b	%	www.comune.torino.it/statistica,	Calculation obtained using the data present in point 1.1.1.b
		1.1.4 Migration rate /tasso di migrazione	Net number of migrants (immigrants – emigrants) per 1,000 population. Indicator should be collected for both the city/MA scale and the LL/regeneration area district scale.	CITTÁ DI TORINO	1.1.4.a	persons ‰	www.comune.torino.it/statistica,	To calculate the migration rate, the data referred to in 1.1.4.a and the average population count were used (for which the data in point 1.1.1.a were used)
				<MIRAFIORI SUD>	1.1.4.b	persons ‰	www.comune.torino.it/statistica,	To calculate the migration rate, ad hoc processing was carried out using a dataset available to the Statistical Service, containing a summary of the main personal data at 31/12 of each year and the average population count (for which we used the data present in point 1.1.1.b)
	1.2 Social and cultural inclusiveness	1.2.1 Material deprivation rate	Material deprivation rates gauge the proportion of people whose living conditions are severely affected by a lack of resources	CITTÁ DI TORINO	1.2.1.a	persons, total	Internal data (Rapporto Rota 2017)	**What we have:Proxy to measure material deprivation (economic support provided by the local municipality, Caritas and Ufficio Pio); year 2016; territorial section: "ACE o Zona Statistica"**
				<MIRAFIORI SUD>	1.2.1.b	persons, total		
		1.2.2 Work intensity	% employed out of total economically active population (15-64 years of age)	CITTÁ DI TORINO	1.2.2.a	persons	https://www.istat.it/it/archivio/104317#accordions	Censimento popolazione 2011; years: 1991; 2001; 2011; territorial section: ACE and Sezioni di Censimento
				<MIRAFIORI SUD>	1.2.2.b	persons		
		1.2.3 Diversity statistics	% foreign born residents (if available, for both scales, or) Population by ethnicity	CITTÁ DI TORINO	1.2.3.a	%	https://www.istat.it/it/archivio/104317#accordions	1. Censimento popolazione 2011; years: 1991; 2001; 2011; territorial section: ACE and Sezioni di Censimento
				<MIRAFIORI SUD>	1.2.3.b	%		
	1.3 Education and access to social and cultural services and amenities	1.3.1 Educational attainment	Average level of education completed by the 20-64 year-old population	CITTÁ DI TORINO	1.3.1.a	persons	https://www.istat.it/it/archivio/104317#accordions	**What we have: 1) # of graduates out of the total population; 2) # with a high-school diploma; 3) # with secondary education; # with primary education; year 2011; territorial section: ACE or Sezione di Censimento; source: Censimento della popolazione 2011**
				<MIRAFIORI SUD>	1.3.1.b	persons		
		1.3.2 Recreational or cultural facilities	Relevant for LL/regeneration level: no. and identification of recreational and / or cultural facilities	CITTÁ DI TORINO	1.3.2.a	areas	http://geoportale.comune.torino.it/web/	
				<MIRAFIORI SUD>	1.3.2.b			
	1.4 Housing	1.4.1 Housing quality	Average useful floor area per person, calculated in sqm	CITTÁ DI TORINO	1.3.3.a			
				<MIRAFIORI SUD>	1.3.3.b			

		1.4.2 Public housing	Percentage of residents in public housing	**CITTÁ DI TORINO**	**1.4.2.a**			
				<MIRAFIORI SUD>	**1.4.2.b**			
		1.4.3 Housing affordability	Homeownership rate	**CITTÁ DI TORINO**	**1.4.3.a**			
				<MIRAFIORI SUD>	**1.4.3.b**			
		1.4.4 Density of the built environment	Building Coverage Ratio, or if unavailable, Floor Area Ratio (Total residential floor area divided by total residential area surface)	**CITTÁ DI TORINO**	**1.4.3.a**	sqm	http://geoportale.comune.torino.it/web/	
				<MIRAFIORI SUD>	**1.4.3.b**		Masterplan GIS extraction	
2. Human health and well-being,	**2.1 Health**	**2.1.1 Incidence of cardio and respiratory diseases**	Rate of new (or newly diagnosed) cases of the disease per 1,000 persons	**CITTÁ DI TORINO**	**2.1.1.a**		Hospital admissions	
				<MIRAFIORI SUD>	**2.1.1.b**		Hospital admissions	
		2.1.2 Incidence of allergic disease	Rate of new (or newly diagnosed) cases of the disease per 1,000 persons	**CITTÁ DI TORINO**	**2.1.2.a**		Hospital admissions	
				<MIRAFIORI SUD>	**2.1.2.b**		Hospital admissions	
		2.1.3 Incidence of chronic stress, stress-related diseases, mental health diseases and NCDs	Rate of new (or newly diagnosed) cases of the disease per 1,000 persons	**CITTÁ DI TORINO**	**2.1.3a**		Drugs Prescriptions	
				<MIRAFIORI SUD>	**2.1.3.b**		Drugs Prescriptions	
		2.1.4 Obesity rate	*Possibly available by region / in specific studies (or possibly at school level)	**CITTÁ DI TORINO**	**2.1.4.a**		Health Conditions and Use of Health Services (2013)	
				<MIRAFIORI SUD>	**2.1.4.b**			
		2.1.5 Life expectancy at birth	Average life expectancy (possibly available at higher levels / regional level)	**CITTÁ DI TORINO**	**2.1.5.a**		Turin longitudinal study	
				<MIRAFIORI SUD>	**2.1.5.b**		Turin longitudinal study	
	2.2 Wellbeing	**Total of public/private green areas**		**CITTÁ DI TORINO**			http://geoportale.comune.torino.it/web/	
				<MIRAFIORI SUD>			Masterplan GIS extraction	
		2.2.1 Green space per capita	Sqm of green space / person	**CITTÁ DI TORINO**	**2.2.1.a**	sqm	http://geoportale.comune.torino.it/web/	
				<MIRAFIORI SUD>	**2.2.1.b**		Masterplan GIS extraction	
		2.2.2 Urban safety – crime	Yearly number of reported crimes per 1,000 persons	**CITTÁ DI TORINO**	**2.2.2.a**	persons	istat	http://dati.istat.it - numero di delitti denunciati dalle forze di polizia all'autorità giudiziaria - in allegato file dati estratti dal portale istat il 9 novembre 2018 ore 10:02 utc da i.stat
				MIRAFIORI SUD	**2.2.2.b**			
		2.2.3 Urban safety – accidents	Yearly number of reported road accidents involving pedestrians and / or bicyclists	**CITTÁ DI TORINO**	**2.2.3.a**		twist	db sinistri stradali della polizia municipale di torino
				MIRAFIORI SUD	**2.2.3.b**	persons	twist	db sinistri stradali della polizia municipale di torino

3. Ecological and environmental restoration	3.1 Land use and Vegetation	3.1.1 % of green spaces	% of total surface which is destined for green spaces	CITTÁ DI TORINO	2.2.1.a	sqm	http://geoportale.comune.torino.it/web/	
						%	-	
				MIRAFIORI SUD	2.2.1.b		Masterplan GIS extraction	
		3.1.2 structure of green spaces	% of tree covered areas	CITTÁ DI TORINO	3.1.2.a	sqm	http://geoportale.comune.torino.it/web/	
						%	-	
				MIRAFIORI SUD	3.1.2.b			
		3.1.3 structure of green spaces	% of shrub covered areas	CITTÁ DI TORINO	3.1.3.a	sqm	http://geoportale.comune.torino.it/web/	
						%	-	
				MIRAFIORI SUD	3.1.3.b			
		3.1.4 structure of green spaces	% of meadow covered areas	CITTÁ DI TORINO	3.1.4.a			
				MIRAFIORI SUD	3.1.4.b			
		3.1.5 % Surface of brownfields	% of total surface which is destined for brownfield areas	CITTÁ DI TORINO	3.1.5.a	sqm	http://geoportale.comune.torino.it/web/	
						%	-	
				MIRAFIORI SUD	3.1.5.b			
		3.1.6 % Surface of polluted brownfield areas	% of polluted brownfield areas	CITTÁ DI TORINO	3.1.6.a			
				MIRAFIORI SUD	3.1.6.b			
		3.1.7 Canopy cover	The proportion of the forest covered by the vertical projection of the tree crowns	CITTÁ DI TORINO	3.1.7.a			
				MIRAFIORI SUD	3.1.7.b			
		3.1.8 Leaf Area Index	Leaf area index is defined as the projected area of leaves over a unit of land (m2 m−2), so one unit of LAI is equivalent to 10,000 m2 of leaf area per hectare. This index takes into account the leaf stratification within the canopy.	CITTÁ DI TORINO	3.1.7.a			
				MIRAFIORI SUD	3.1.7.b			
		3.1.9 NDVI	Normalized Difference Vegetation Index	CITTÁ DI TORINO	3.1.7.a			
				MIRAFIORI SUD	3.1.7.b			
3. Ecological and environmental restoration	3.2 Climate / Meteorological data	3.2.1 Precipitation	Average annual precipitation (mm)	CITTÁ DI TORINO	3.2.1.a	mm		http://www.regione.piemonte.it/ambiente/aria/rilev/aria-day/ariaweb-new/
				MIRAFIORI SUD	3.2.1.b			
		3.2.2 Relative humidity	Relative humidity	CITTÁ DI TORINO	3.2.2.a	%		
				MIRAFIORI SUD	3.2.2.b			
		3.2.3 Air temperature	Annual mean temperature (°C)	CITTÁ DI TORINO	3.2.3.a	°C		

				MIRA-FIORI SUD	3.2.3.b	°C		
		3.2.3 Air temperature	Winter mean temperature (°C)	CITTÁ DI TORINO	3.2.3.a	°C		
				MIRA-FIORI SUD	3.2.3.b	°C		
		3.2.3 Air temperature	Spring mean temperature (°C)	CITTÁ DI TORINO	3.2.3.a	°C		
				MIRA-FIORI SUD	3.2.3.b	°C		
		3.2.3 Air temperature	Summer mean temperature (°C)	CITTÁ DI TORINO	3.2.3.a	°C		
				MIRA-FIORI SUD	3.2.3.b	°C		
		3.2.3 Air temperature	Fall mean temperature (°)	CITTÁ DI TORINO	3.2.3.a	°C		
				MIRA-FIORI SUD	3.2.3.b	°C		
		3.2.4 Wind strength	Wind intensity (km/h)	CITTÁ DI TORINO	3.2.4.a	km/h		
				MIRA-FIORI SUD	3.2.4.b	km/h		
		3.2.5 Wind direction	Main wind direction	CITTÁ DI TORINO	3.2.5.a			
				MIRA-FIORI SUD	3.2.5.b			
	3.3 Air Quality	3.3.1 Ozone concentration	µg/m3 / ppb	CITTÁ DI TORINO	3.3.1.a	µg/m3 / ppb	Until 2012 only the Lingotto station is present - From 2013 also the Rubino detection station is present.	http://www.regione.piemonte.it/ambiente/aria/rilev/ariaday/ariaweb-new/
				MIRA-FIORI SUD	3.3.1.b		Arpa Lingotto detection station - Average values of the daily averages	
		3.3.2 NOx concentration	µg/m3 / ppb	CITTÁ DI TORINO	3.3.2.a	µg/m3 / ppb	Average values of the daily averages of the monitoring stations: Lingotto, Rubino, Rebaudengo and Consolata	
				MIRA-FIORI SUD	3.3.2.b		Arpa Lingotto detection station - Average values of the daily averages	
		3.3.3 PM 2.5 concentration	µg/m3 / ppb	CITTÁ DI TORINO	3.3.3.a	µg/m3 / ppb	Until 2012 only the Lingotto station (Low Volume) is present - From 2013 also the detection stations of Rebaudengo (Beta) and Rubino (Beta) are present.	
				MIRA-FIORI SUD	3.3.3.b		Arpa Lingotto detection station - Average values of daily averages - Sampling method Low Volume	
		3.3.4 PM10 concentration	µg/m3 / ppb	CITTÁ DI TORINO	3.3.4.a	µg/m3 / ppb	Until 2013 there are only the Lingotto, Rubino, Consolata and Grassi stations. - From 2014 also the Rebaudengo detection station is present.	
				MIRA-FIORI SUD	3.3.4.b		Arpa Lingotto detection station - Average values of the daily averages	
		3.3.5 VOC Concentration	µg/m3 / ppb	CITTÁ DI TORINO	3.3.5.a	µg/m3 / ppb		
				MIRA-FIORI SUD	3.3.5.b			

		3.3.6 GHG inventory	Inventory of greenhouse gases (GHG) emission at city level and LL level	**CITTÁ DI TORINO**	**3.3.6.a**		Only available data for 2005, 2014 and the projection to 2020. Source: Monitoring report "Covenant of Mayors" - Year 2014	
				MIRAFIORI SUD	**3.3.6.b**			
	3.4 Soil	**3.4.1 Soil quality**	Concentration of C / Concentration of N/ bulk density / permeability / water retention capability	**CITTÁ DI TORINO**	**3.4.1.a**		Map of Piedmont soils 1: 50.000 scale - IPLA (Unit U0342 - csl2)	-
				MIRAFIORI SUD	**3.4.1.b**			-
	3.5 Water	**3.5.1 Water quality**	Free O/ Nutrients / Ph /eutrophication level / hydrocarbons / other polluntants	**CITTÁ DI TORINO**	**3.4.1.a**			-
				MIRAFIORI SUD	**3.4.1.b**			-
	3.6 Urban environment	**3.6.1 Heat island effect**	Difference (*C) between urban and rural surface temperatures	**CITTÁ DI TORINO**	**3.4.1.a**			-
				MIRAFIORI SUD	**3.4.1.b**			-
<	**4.1 Market labour and economy indicators**	**4.1.1 GDP per capita**	GDP (PPP), Euro	**CITTÁ DI TORINO**	**4.1.1.a**	euro	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	Gross domestic product (GDP) at current market price and in PPS; per capita and per capita in percentage of the EU average
				MIRAFIORI SUD	**4.1.1.b**			
		4.1.2 Businesses in the area - Industrial	Amount of Industrial companies per 1,000 inhabitants	**CITTÁ DI TORINO**	**4.1.2.a**	companies		**What we have:CCIA data 2017, yet they have some issues to be solved before using them**
				MIRAFIORI SUD	**4.1.2.b**			
		4.1.3 Businesses in the area - Commercial	Amount of Industrial companies per 1,000 inhabitants	**CITTÁ DI TORINO**	**4.1.3.a**	companies		
				MIRAFIORI SUD	**4.1.3.b**			
		4.1.3 Public jobs	- Total number of jobs in public sector	**CITTÁ DI TORINO**	**4.1.3.a**	persons		
				MIRAFIORI SUD	**4.1.3.b**	persons		
		4.1.4 Businesses in the area - Offices	Total amount of offices companies per 1,000 inhabitants	**CITTÁ DI TORINO**	**4.1.4.a**	persons		
				MIRAFIORI SUD	**4.1.4.b**	persons		
		4.1.5 Public green jobs	- Total number of public green jobs	**CITTÁ DI TORINO**	**4.1.5.a**	persons		
				MIRAFIORI SUD	**4.1.5.b**	persons		
		4.1.6 Private green jobs	- Total number of private green jobs	**CITTÁ DI TORINO**	**4.1.6.a**	persons		
				MIRAFIORI SUD	**4.1.6.b**	persons		
		4.1.7 Qualified jobs	- Total number of qualified jobs	**CITTÁ DI TORINO**	**4.1.7.a**	persons		
				MIRAFIORI SUD	**4.1.7.b**	persons		

4.1.8 Non-qualified jobs	- Total number of private green jobs	**CITTÁ DI TORINO**	**4.1.8.a**	persons		
		MIRAFIORI SUD	**4.1.8.b**	persons		
4.1.9 Turnover in the green sector	Green companies' turnover in EUR	**CITTÁ DI TORINO**	**4.1.9.a**	persons		
		MIRAFIORI SUD	**4.1.9.b**	persons		
Economically active population	Number of economically active persons (20-64 years)	**CITTÁ DI TORINO**		persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	**What we have:Number of economically active persons by age group (15-24 years; 15 years and over; 20-64 years; 25 years or over)**
		MIRAFIORI SUD				
Unemployment females	Absolute number of females employed (20-64 years)	**CITTÁ DI TORINO**		Thousand persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	
		MIRAFIORI SUD				
Unemployment males	Absolute number of males employed (20-64 years)	**CITTÁ DI TORINO**		Thousand persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	
		MIRAFIORI SUD				
Employment females	Absolute number of females employed (20-64 years)	**CITTÁ DI TORINO**		Thousand persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	
		MIRAFIORI SUD				
employment males	Absolute number of males employed (20-64 years)	**CITTÁ DI TORINO**		Thousand persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	
		MIRAFIORI SUD				
High growth enterprises	Number of high growth enterprises measured in employment (growth by 10% or more)	**CITTÁ DI TORINO**		Number enterprises	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	
		MIRAFIORI SUD				
Employees in enterprises	Number of employees in active enterprises	**CITTÁ DI TORINO**		persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	**What we have: Number of employees in active, birth, death and newly born enterprises by NACE activity or size group (total; 1-9 employees; 10 or more)**
		MIRAFIORI SUD				
Employment in enterprises	Number of persons employed in active enterprises	**CITTÁ DI TORINO**		persons	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	
		MIRAFIORI SUD				
Active Enterprises	Number of active enterprises	**CITTÁ DI TORINO**		Number enterprises	https://ec.europa.eu/eurostat/web/metropolitan-regions/data/database	**What we have:Number of active enterprises by NACE activity or size group (total; 1-9 employees; 10 or more)**

			MIRAFIORI SUD				
4.2 Gentrification indicators	**4.2.1 Employment rate**	the proportion of employed adults in the working age (20-64 years)	**CITTÁ DI TORINO**	**4.2.1.a**	persons	https://www.istat.it/it/archivio/104317#accordions	Censimento popolazione 2011; years: 1991; 2001; 2011; territorial section: ACE and Sezioni di Censimento
			MIRAFIORI SUD	**4.2.1.b**	persons		
	4.2.2 Unemployment rate	the proportion of unemployed adults in the working age (20-64 years)	**CITTÁ DI TORINO**	**4.2.1.a**	persons	https://www.istat.it/it/archivio/104317#accordions	Censimento popolazione 2011; years: 1991; 2001; 2011; territorial section: ACE and Sezioni di Censimento
			MIRAFIORI SUD	**4.2.1.b**	persons		
	4.2.3 Revenues by household	Average household disposable income	**CITTÁ DI TORINO**	**4.2.3.a**	persons	https://www.istat.it/it/archivio/104317#accordions	**What we have: "Popolazione residente - totale di 15 anni e più percettori di reddito da lavoro o capitale"Censimento popolazione 2011; years: 1991; 2001; 2011; territorial section: ACE and Sezioni di Censimento**
			MIRAFIORI SUD	**4.2.3.b**	persons		
	4.2.4a Current property sale value for residential use	Property value, average, EUR/sqm, for single- and collective housing, sale price	**TORINO CITTA**			https://www.borsinoimmobiliare.it/menu/Guida_alla_consultazione_dei_Valori_immobiliari	
			MIRAFIORI SUD		Market value (€/mq)		Range: 1.300 - 1.950 €/sqm (https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php)
	4.2.4b Current property rental value for residential use	Property value, average, EUR/sqm, for single- and collective housing, renting (monthly)	**TORINO CITTA**			https://www.borsinoimmobiliare.it/Torino/torino/quotazioni_mq_immobiliari/5239/2544	
			MIRAFIORI SUD		Location value(€/mq x mese)	https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php	Range: 5-9 €/sqm/mo (https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php)
	4.2.5a Current property value for commercial/ industrial/ office use	Property value, average, EUR/sqm, sale price	**TORINO CITTA**			https://www.borsinoimmobiliare.it/menu/Guida_alla_consultazione_dei_Valori_immobiliari	
			MIRAFIORI SUD		Market value (€/mq)	https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php	Range: 1.300 - 1.950 €/sqm (https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php)
	4.2.5a Current property rental value for commercial/ industrial/ office use	Property value, average, EUR/sqm, renting (monthly)	**TORINO CITTA**			https://www.borsinoimmobiliare.it/Torino/Torino/quotazioni_mq_immobiliari/5239/2544	
			MIRAFIORI SUD		Location value(€/mq x mese)	https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php	Range: 5,4 - 10,8 €/sqm/mo (https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/risultato.php)
	4.2.6 Free services	Total number of free services (parks, librairies, cycle trials, skate parks…)	**CITTÁ DI TORINO**			http://geoportale.comune.torino.it/web/	
			MIRAFIORI SUD				
	4.2.7 Basic utilities	Monthly cost of basic utilities (Electricity, water, Garbage…)	**CITTÁ DI TORINO**				
			MIRAFIORI SUD				
	4.3 Tourism and attractiveness indicators	**4.3.1 Current number of tourists**	Measured as average number of overnight stays in tourism accommodations	**CITTÁ DI TORINO**			http://www.sistemapiemonte.it/cms/privati/turismo/servizi/497-osservatorio-del-turismo	
				MIRAFIORI SUD				

		4.3.2 Number of temporary events	Trade Fairs, Congresses, Symposiums, Concerts, Parades before NBS application (in number)	**CITTÁ DI TORINO**				
				MIRAFIORI SUD				
		4.3.3 No. of foreign students	% of foreign students out of total enrolled higher education students	**CITTÁ DI TORINO**			https://www.unito.it/ateneo/chi-siamo/unito-cifre https://www.polito.it/ateneo/colpodocchio/colpo_occhio_2017.pdf	
				MIRAFIORI SUD				
		4.3.4 Local expenses	Expenses in local retail businesses	**CITTÁ DI TORINO**				
				MIRAFIORI SUD				
	4.4 Taxes, Investment & Financing	**4.4.1 Local taxes**	Average local taxes per capita	**CITTÁ DI TORINO**		euro	CIty of Turin	
				MIRAFIORI SUD				
		4.4.2 Green investment programs/funds	Public investment programs, and investment funds	**CITTÁ DI TORINO**				
				MIRAFIORI SUD				

Table 5. Dortmund dataset and data sources

REF. DOMAIN	SUBDOMAIN	INDICATOR	SCALE	ID	UNIT	SOURCE_LINK	NOTE
1.Socio-cultural inclusiveness	1.1 Demographics	1.1.1 Total population	Dortmund	1.1.1.a	persons	"Bevölkerung nach Geschlecht und Altersgruppen am 31.12." ("Population by sex and age") 2010-2017, published by Dortmunderstatistik - 24.10.2018	
			Analysis Area	1.1.1.b	persons	Dortmunderstatistik, 22.10.2018	
		1.1.2 Population density	Dortmund	1.1.2.a	p /sq km	eigene Berechnung auf Grundlage Geodaten Stadt Dortmund und Einwohnerzahl	
			Analysis Area	1.1.2.b	p /sq km		
		1.1.3 Population growth rate	Dortmund	1.1.3.a	%	derived from "Bevölkerung nach Geschlecht und Altersgruppen am 31.12." ("Population by sex and age") 2010-2017, published by Dortmunderstatistik - 24.10.2018	
			Analysis Area	1.1.3.b	%	Dortmunderstatistik, 22.10.2018	
		1.1.4 Migration rate	Dortmund	1.1.4.a	net number migrants / 1.000 inhabitans	Dortmunderstatistik, 22.10.2018	negative number: more emigrations than immigrations!
			Analysis Area	1.1.4.b	net number migrants / 1.000 inhabitans		
	1.2 Social and cultural inclusiviness	1.2.1 Welfare recipients	Dortmund	1.2.1.a	%	Dortmunderstatistik, 22.10.2018	
			Analysis Area	1.2.1.b	%		
		1.2.2 Work intensity	Dortmund	1.2.2.a			
			Analysis Area	1.2.2.b			
		1.2.3 Diversity statistics (percentage of residents with foreign nationality)	Dortmund	1.2.3.a	%	Dortmunderstatistik, 22.10.2018	
			Analysis Area	1.2.3.b	%		
	1.3 Education and access to social and cultural services and amenities	1.3.1 Educational attainment	Dortmund	1.3.1.a	persons		
			Analysis Area	1.3.1.b			
		1.3.2 Recreational or cultural facilities	Dortmund	1.3.2.a	number		
			Analysis Area	1.3.2.b	number		
		1.3.3 Accessibility of public urban green spaces	Dortmund	1.3.3.a			
			Analysis Area	1.3.3.b			
	1.4 Housing	1.4.1 Housing quality	Dortmund	1.4.1.a	sqm/person	Dortmunderstatistik, 22.10.2018	
			Analysis Area	1.4.1.b	sqm/person		
		1.4.2 Public housing units (appartements)	Dortmund	1.4.2.a	units	Dortmunderstatistik, 22.10.2018	
			Analysis Area	1.4.2.b	units		
		1.4.3 Housing affordability	Dortmund	1.4.3.a			
			Analysis Area	1.4.3.b			
		1.4.4 Density of the built environment	Dortmund	1.4.4.a	persons		
			Analysis Area	1.4.4.b	persons		

2. Health & Wellbeeing	2.1 Health	2.1.1 Incidence of cardio and respiratory diseases	Dortmund	2.1.1.a			
			Analysis Area	2.1.1.b			
		2.1.2 Incidence of allergic disease	Dortmund	2.1.2.a			
			Analysis Area	2.1.2.b			
		2.1.3 Incidence of chronic stress, stress-related diseases, mental health diseases and NCDs	Dortmund	2.1.3.a			
			Analysis Area	2.1.3.b			
		2.1.4 Obesity rate	Dortmund	2.1.4.a			
			Analysis Area	2.1.4.b			
		2.1.5 Life expectancy	Dortmund	2.1.5.a	average age at death m / f	Dortmunderstatistik, 22.10.2018	
			Analysis Area	2.1.5.b			
	2.2 Wellbeing	2.2.1 Green space per capita	Dortmund	2.2.1.a	*sq m / capita*		
			Analysis Area	2.2.1.b	*sq m/ capita*		
			Dortmund	2.2.1.a	sq m / capita		
			Analysis Area	2.2.1.b	sq m / capita		
		2.2.2 Urban safety – crime	Dortmund	2.2.2.a	number of reported crimes per 1.000 persons	Annual crime statistics, "Polizeiliche Kriminalstatistik Dortmund und Lünen", published by Dortmund Police, 2012 - 2017 - 26.10.2018	
			Analysis Area	2.2.2.b			
		2.2.3 Urban safety – accidents	Dortmund	2.2.3.a	pedestrians / bicyclists	Annual statistics of traffic accidents, "Verkehrsbericht", published by Dortmund Police, 2012 - 2017- 26.10.2018	
			Analysis Area	2.2.3.b			
3. Ecological and environmental restoration	3.1 Land use and Vegetation	3.1.1 % of green spaces	Dortmund	3.1.1..a	%		
			Analysis Area	3.1.1.b	%		
		3.1.2 structure of green spaces	Dortmund	3.1.2.a			
			Analysis Area	3.1.2.b			
		3.1.3 structure of green spaces	Dortmund	3.1.3.a			
			Analysis Area	3.1.3.b			
		3.1.4 structure of green spaces	Dortmund	3.1.4.a			
			Analysis Area	3.1.4.b			
		3.1.5 % Surface of brownfields *(not including reused areas)*	Dortmund	3.1.5.a	%		
			Analysis Area	3.1.5.b	%		
		3.1.6 % Surface of polluted brownfield areas	Dortmund	3.1.6.a			
			Analysis Area	3.1.6.b			
		3.1.7 Canopy cover	Dortmund	3.1.7.a			

			Analysis Area	3.1.7.b			
		3.1.6 Leaf Area Index	Dortmund	3.1.6.a			
			Analysis Area	3.1.6.b			
		3.1.7 NDVI	Dortmund	3.1.7.a			
			Analysis Area	3.1.7.b			
	3.2 Climate / Meteorological data	3.2.1 Precipitation	Dortmund	3.2.1.a	mm	Emschergenossenschaft / River Emscher Association, Division for Technical Services and Flood Management	Value = average taken from four measuring stations in Dortmund
			Analysis Area	3.2.1.b			
		3.2.2 Relative humidity	Dortmund	3.2.2.a			
			Analysis Area	3.2.2.b			
		3.2.3 Air temperature	Dortmund	3.2.3.a	°C	Deutscher Wetterdienst, Station Waltrop	Information forwarded by the Department for the Environment (Umweltamt), City of Dortmund
			Analysis Area	3.2.3.b			
		3.2.4 Wind strength	Dortmund	3.2.4.a			
			Analysis Area	3.2.4.b			
		3.2.5 Wind direction	Dortmund	3.2.5.a			
			Analysis Area	3.2.5.b			
	3.3 Air Quality	3.3.1 Ozone concentration	Dortmund	3.3.1.a			
			Analysis Area	3.3.1.b			
		3.3.2 NOx concentration	Dortmund	3.3.2.a	µg/m3 / ppb	Landesamt für Naturschutz Umwelt und Verbraucherschutz, NRW	* The range shows the respective average values of various stations. As the locations for measurements were selected to monitor problematic areas they do no represent an average for the City of Dortmund. Information forwarded by the Department for the Environment (Umweltamt), City of Dortmund
			Analysis Area	3.3.2.b			
		3.3.3 PM 2.5 concentration	Dortmund	3.3.3.a	µg/m3 / ppb	Landesamt für Naturschutz Umwelt und Verbraucherschutz, NRW	
			Analysis Area	3.2.3.b			
		3.3.4 PM10 concentration	Dortmund	3.3.4.a	µg/m3 / ppb	Landesamt für Naturschutz Umwelt und Verbraucherschutz, NRW	
			Analysis Area	3.3.4.b			
		3.3.5 VOC Concentration	Dortmund	3.3.5.a			
			Analysis Area	3.3.5.b			
		3.3.6 GHG inventory	Dortmund	3.3.6.a			
			Analysis Area	3.3.6.b			
	3.4 Soil	3.4.1 Soil quality	Dortmund	3.4.1.a			
			Analysis Area	3.4.1.b			
	3.5 Water	3.5.1 Water quality	Dortmund	3.5.1.a			
			Analysis Area	3.5.1.b			
	3.6. Urban enviorment	3.6.1 Heat island effect	Dortmund	1.6.1.a			
			Analysis Area	1.6.1.b			
4. 4. economy + labour market	4.1 Market labour and economy indicators	4.1.1 GDP per capita	Dortmund	4.1.1.a	€ / capita	Volkswirtschaftliche Gesamtrechung der Statistischen Ämter von Bund und Ländern, provided by Dortmunder-Statistik 22.10.2018	
			Analysis Area	4.1.1.b			
			Dortmund	4.1.2.a	persons		

		agriculture and forestry	**Analysis Area**	**4.1.2.b**			
		production	**Dortmund**	**4.1.3.a**	persons	Number of employed people by location of employment (i.e. independent from their residency)	
			Analysis Area	**4.1.3.b**			
		processing	**Dortmund**	**4.1.4.a**	persons	AK Erwerbstätigenrechnung der Statistischen Ämter des Bundes und der Länder / task force for employment calculations of the statistical departments of the federal government and federal states	
			Analysis Area	**4.1.4.b**			
		construction	**Dortmund**	**4.1.3.a**	persons	provided by DortmunderStatistik	
			Analysis Area	**4.1.3.b**			
		trade, hospitality industrie und traffic	**Dortmund**	**4.1.4.a**	persons		
			Analysis Area	**4.1.4.b**			
		finance, real estate (renting), business services	**Dortmund**	**4.1.5.a**	persons		
			Analysis Area	**4.1.5.b**			
		public and private services	**Dortmund**	**4.1.6.a**	persons		
			Analysis Area	**4.1.6.b**			
	4.2 Gentrification indicators	**4.2.1 Employment rate**	**Dortmund**	**4.2.1.a**			
			Analysis Area	**4.2.1.b**			
		4.2.2 Unemployment rate	**Dortmund**	**4.2.2.a**	%	derived from "Arbeitslose nach Statistischen Bezirken und Stadtbezirken." (" Unemployed persons according to statistical districts and municipalities") 2010-2017, published by Dortmunderstatistik	
			Analysis Area	**4.2.2.b**	%	derived from "Arbeitslose nach Statistischen Bezirken und Stadtbezirken." (" Unemployed persons according to statistical districts and municipalities") 2010-2017, published by Dortmunderstatistik	
		4.2.3 Revenues by household	**Dortmund**	**4.2.3.a**	€ / capita*	Arbeitskreis Volkswirtschaftl. Gesamtrechnungen der Länder (August 2017) provided by Landesdatenbank NRW, State Department for Statistics of North Rhine-Westfalia	*revenue of households / capita available for personal expenses and savings (excluding costs for rent etc.)
			Analysis Area	**4.2.3.b**			
		4.2.4a Current property sale value for residential use	**Dortmund**	**4.2.4.a.a**	€/sqm	Immobilienrichtwert (Standard Property Value), published by Oberer Gutachterausschuss für Grundstückswerte im Land Nordrhein-Westfalen, (29.10.2018)	4.2.4a The Standard Property Value (Immobilienrichtwert) shows an average value for a typical building within an determined zone of similar architecture and use.
			Analysis Area	**4.2.4.a.b**	€/sqm		
		4.2.4b Current property rental value for residential use	**Dortmund**	**4.2.4.b.a**	€/sqm	Mietspiegel 2017 Dortmund (Rent-Index Dortmund published by the the City of Dortmund)	4.2.4.b.a The rent-index median is determined by construction-period.

			Analysis Area	**4.2.4.b.b**	€/sqm	DortmunderStatistik 29.10.2018	*4.2.4.b.b The range shows only the average monthly rent /m² of new rentals (as offered on the market) for various subdistricts. For Dortmund (as alternative data to 4.2.4.b.a) this value for new rentals would be 6.66€/m²
		4.2.5a Current property value for commercial/ industrial/ office use	**Dortmund**	**4.2.5.a.a**	€/sqm	Bodenrichtwert (Standard Ground Value), published by Oberer Gutachterausschuss für Grundstückswerte im Land Nordrhein-Westfalen (29.10.2018)	*4.2.5a The Standard Ground Value ("Bodenrichtwert") is a benchmark derived from average sales prices, including development charges etc. but refers only to the ground (without taking the value of buildings into account). It is regularly revised and is taken as basis for the determination of property tax rates. It is assigned to zones of similar use and structure.
			Analysis Area	**4.2.5.a.b**	€/sqm		
		4.2.5a Current property rental value for commercial/ industrial/ office use	**Dortmund**	**4.2.5.a.a**			
			Analysis Area	**4.2.5.a.b**			
		4.2.6 Free services	**Dortmund**	**4.2.6.a**			
			Analysis Area	**4.2.6.b**			
		4.2.7 Basic utilities	**Dortmund**	**4.2.7.a**			
			Analysis Area	**4.2.7.b**			
	4.3 Tourism and attractiveness indicators	**4.3.1 Current number of tourists**	**Dortmund**	**4.3.1.a**	overnight stays / year	DORTMUNDtourismus GmbH forwarded by Wirtschaftsförderung 16.10.2018	
			Analysis Area	**4.1.3.b**			
		4.3.2 Number of temporary events	**Dortmund**	**4.3.2.a**			
			Analysis Area	**4.3.2.b**			
		4.3.3 No. of foreign students	**Dortmund**	**4.3.3.a**	students / year	TU Dortmund, Dezernat Hochschulentwicklung und Organisation - Statistik -; Fachhochschule Dortmund University of Applied Sciences and Arts, Dep. VI - Hochschul IT	Inquiry at Dortmund universities / academies. Most but not all institutions provided information about internal students. *numbers refer to the second semester of the respective year
			Analysis Area	**4.3.3.b**			
		4.3.4 Local expenses	**Dortmund**	**4.3.4.a**	*see SINGLE YEAR INDICATOR*		
			Analysis Area	**4.3.4.b**			
	4.4 Taxes, Investment & Financing	**4.4.1 Local taxes**	**Dortmund**	**4.4.1.a**	€ / capita	Realsteuervergleich der Gemeinden in Nordrhein-Westfalen ab 2016 Landesdatenbank NRW, State Department for Statistics of North Rhine-Westfalia	
			Analysis Area	**4.4.1.b**			
		4.4.2 Green investment programs/funds	**Dortmund**	**4.4.2.a**			
			Analysis Area	**4.4.2.b**			

Table 6. Zagreb dataset and data source

REF. DOMAIN	SUBDOMAIN	INDICATOR	SCALE	ID	UNIT	SOURCE_LINK	NOTE
1. Socio-cultural inclusiveness	1.1 Demographics	1.1.1 Total population	Zagreb	1.1.1.a	persons	National Statistics	
			District Sesvete	1.1.1.b	persons	National Statistics	
		1.1.2 Population density	Zagreb	1.1.2.a	persons/ sqkm	National Statistics	
			LL / Regeneration area scale	1.1.2.b	persons/ sqkm	National Statistics	
		1.1.3 Population growth rate	Zagreb	1.1.3.a	%	National Statistics	
			LL / Regeneration area scale	1.1.3.b			
		1.1.4 Migration rate	Zagreb	1.1.4.a	%	National Statistics	
			LL / Regeneration area scale	1.1.4.b			
	1.2 Social and cultural inclusiveness	1.2.1 Material deprivation rate	Zagreb	1.2.1.a		available only at national level	
			LL / Regeneration area scale	1.2.1.b			
		1.2.2 Work intensity	Zagreb	1.2.2.a		available only at national level	
			LL / Regeneration area scale	1.2.2.b			
		1.2.3 Diversity statistics	Zagreb	1.2.3 a			
			LL / Regeneration area scale	1.2.3 b			
		1.2.3 Diversity statistics	Zagreb	1.2.3 c	%	National Statistics. *MINORITIES- 5,26% (Serb-2,22%, Bosnian-1,03%, Albanian – 0,54%, Roma – 0,35%, Slovenian – 0,27%, Montenegrin – 0,15%, Macedonian – 0,15%, Czech – 0,11%, Hungarian- 0,10%, Russian- 0,04%, Italian- 0,05%, German- 0,05%, Ukrainian- 0,04%, Slovakian- 0,03%, Bulgarian- 0,02%, Polish-0,02%, Rusyn-0,02%, Romanian-0,01%, Turkish-0,01%, Austrian- 0,01%, Vlachs -0,00%, Jews- 0,04%) Others- 0,30%	
			LL / Regeneration area scale	1.2.3 d			
	1.3 Education and access to social and cultural services and amenities	1.3.1 Educational attainment	Zagreb	1.3.1.a			
			LL / Regeneration area scale	1.3.1.b			
		1.3.2 Recreational or cultural facilities	Zagreb	1.3.2.a	number	Municipality ((187 cultural and 145 recreational)	*Yearly, since 2017
			LL / Regeneration area scale	1.3.2.b	number	Municipality	
		1.3.3 Accessibility of public urban green spaces	Zagreb	1.3.3.a	%	National Statistics	*from the 2011 Census, every ten years
			LL / Regeneration area scale	1.3.3.b	%	National Statistics	
	1.4 Housing	1.4.1 Housing quality	Zagreb	1.4.1 a	sqm/person	National Statistics	
			LL / Regeneration area scale	1.4.1 b	sqm/person	National Statistics	
		1.4.2 Public housing	Zagreb	1.4.2 b	%	Municipality	

			LL / Regeneration area scale	**1.4.2 b**			
		1.4.3 Housing affordability	**Zagreb**	**1.4.3 b**	%	Municipality	
			LL / Regeneration area scale	**1.4.3 b**			
		1.4.4 Density of the built environment	**Zagreb**	**1.4.4 a**		Municipality	*Occasionally
			LL / Regeneration area scale	**1.4.4 b**		Municipality	*Occasionally
2. Human health and well-being	**2.1 Health**	**2.1.1 Incidence of cardio and respiratory diseases**	**Zagreb**	**2.1.1.a**	number	Public health centre	
			LL / Regeneration area scale	**2.1.1.b**			
		2.1.2 Incidence of allergic disease	**Zagreb**	**2.1.2.a**	number and %	Public health centre	*will be available from 2018 onward
			LL / Regeneration area scale	**2.1.2.b**			
		2.1.3 Incidence of chronic stress, stress-related diseases, mental health diseases and NCDs	**Zagreb**	**2.1.3a**	number	Public health centre	*hospital admission for mental problems
			LL / Regeneration area scale	**2.1.3.b**			
		2.1.4 Obesity rate	**Zagreb**	**2.1.4.a**		Public health centre	*will be available from 2016 onward
			LL / Regeneration area scale	**2.1.4.b**			
		2.1.5 Life expectancy at birth	**Zagreb**	**2.1.5.a**	years	Public health centre	
			LL / Regeneration area scale	**2.1.5.b**			
	2.2 Wellbeing	**2.2.1 Green space per capita**	**Zagreb**	**2.2.1.a**	sqm of green space / person	Municipality	*from the 2011 Census, every ten years
			LL / Regeneration area scale	**2.2.1.b**		Municipality	
		2.2.2 Urban safety – crime	**Zagreb**	**2.2.2.a**	‰	Municipality/Police	
			LL / Regeneration area scale	**2.2.2.b**			
		2.2.3 Urban safety – accidents	**Zagreb**	**2.2.3.a**		Municipality/Police	
			LL / Regeneration area scale	**2.2.3.b**			
3. Ecological and environmental restoration	**3.1 Land use and Vegetation**	**3.1.1 % of green spaces**	**Zagreb**	**3.1.1.a**	%	Municipality	
			LL / Regeneration area scale	**3.1.1.a**	%	Municipality	*from the 2011 Census, every ten years
			Zagreb	**3.1.2.a**			

		3.1.2 structure of green spaces	LL / Regenera-tion area scale	3.1.2.b			
		3.1.3 structure of green spaces	Zagreb	3.1.3.a			
			LL / Regenera-tion area scale	3.1.3.b			
		3.1.4 structure of green spaces	Zagreb	3.1.4.a			
			LL / Regenera-tion area scale	3.1.4.b			
		3.1.5 % Surface of brown-fields	Zagreb	3.1.5.a	ha	Municipality	*Yearly, since 2017
			LL / Regenera-tion area scale	3.1.5.b	ha	Municipality	*Yearly, since 2017
		3.1.6 % Surface of polluted brownfield areas	Zagreb	3.1.6.a			
			LL / Regenera-tion area scale	3.1.6.b			
		3.1.7 Canopy cover	Zagreb	3.1.7.a			
			LL / Regenera-tion area scale	3.1.7.b			
		3.1.8 Leaf Area Index	Zagreb	3.1.8.a			
			LL / Regenera-tion area scale	3.1.8.b			
		3.1.9 NDVI	Zagreb	3.1.9.a			
			LL / Regenera-tion area scale	3.1.9.b			
	3.2 Climate / Meteoro-logical data	3.2.1 Precipitation	Zagreb	3.2.1.a			
			LL / Regenera-tion area scale	3.2.1.b			
		3.2.2 Relative humidity	Zagreb	3.2.2.a			
			LL / Regenera-tion area scale	3.2.2.b			
		3.2.3 Air temperature	Zagreb	3.2.3.a			
			LL / Regenera-tion area scale	3.2.3.b			
		3.2.3 Air temperature	Zagreb	3.2.3.c			*average temperature in January
			LL / Regenera-tion area scale	3.2.3.d			
		3.2.3 Air temperature	Zagreb	3.2.3.e			*average temperature in April
			LL / Regenera-tion area scale	3.2.3.f			
		3.2.3 Air temperature	Zagreb	3.2.3.g			*average temperature in July

			LL / Regenera-tion area scale	3.2.3.h			
		3.2.3 Air temperature	Zagreb	3.2.3.i			*average temperature in October
			LL / Regenera-tion area scale	3.2.3.j			
		3.2.4 Wind strength	Zagreb	3.2.4.a			
			LL / Regenera-tion area scale	3.2.4.b			
		3.2.5 Wind direction	Zagreb	3.2.5.a			
			LL / Regenera-tion area scale	3.2.5.b			
	3.3 Air Quality	3.3.1 Ozone concentration	Zagreb	3.3.1.a			
			LL / Regenera-tion area scale	3.3.1.b			
		3.3.2 NOx concentration	Zagreb	3.3.2.a			*NO2
			LL / Regenera-tion area scale	3.3.2.b			
		3.3.3 PM 2.5 concentration	Zagreb	3.3.3.a			
			LL / Regenera-tion area scale	3.3.3.b			
		3.3.4 PM10 concentration	Zagreb	3.3.4.a			
			LL / Regenera-tion area scale	3.3.4.b			
		3.3.5 VOC Concentration	Zagreb	3.3.5.a			*Benzo[a]pyrene
			LL / Regenera-tion area scale	3.3.5.b			
		3.3.6 GHG inventory	Zagreb	3.3.6.a			
			LL / Regenera-tion area scale	3.3.6.b			
	3.4 Soil	3.4.1 Soil quality	Zagreb	3.4.1.a			
			LL / Regenera-tion area scale	3.4.1.b			
		3.4.1 Soil quality	Zagreb	3.4.1.c			
			LL / Regenera-tion area scale	3.4.1.d			
		3.4.1 Soil quality	Zagreb	3.4.1.e			
			LL / Regenera-tion area scale	3.4.1.f			
		3.4.1 Soil quality	Zagreb	3.4.1.g			

			LL / Regeneration area scale	3.4.1.h			
		3.4.1 Soil quality	Zagreb	3.4.1.i			
			LL / Regeneration area scale	3.4.1.j			
	3.5 Water	3.5.1 Water quality	Zagreb	3.5.1 a			
			LL / Regeneration area scale	3.5.1 b			
		3.5.1 Water quality	Zagreb	3.5.1 c			
			LL / Regeneration area scale	3.5.1 d			
		3.5.1 Water quality	Zagreb	3.5.1 e			
			LL / Regeneration area scale	3.5.1 f			
		3.5.1 Water quality	Zagreb	3.5.1 g			
			LL / Regeneration area scale	3.5.1 h			
		3.5.1 Water quality	Zagreb	3.5.1 i			
			LL / Regeneration area scale	3.5.1 j			
		3.5.1 Water quality	Zagreb	3.5.1 k			
			LL / Regeneration area scale	3.5.1 l			
	3.6 Urban environment	3.6.1 Heat island effect	Zagreb	3.6.1 a			
			LL / Regeneration area scale	3.6.1 a			
	4.1 Market labour and economy indicators	4.1.1 GDP per capita	Zagreb	4.1.1.a	Euro	National Statistics	
			LL / Regeneration area scale	4.1.1.b			
		4.1.2 Businesses in the area - Industrial	Zagreb	4.1.2.a			
			LL / Regeneration area scale	4.1.2.b			
		4.1.3 Businesses in the area - Commercial	Zagreb	4.1.3.a			
			LL / Regeneration area scale	4.1.3.b			
		4.1.4 Businesses in the area - Offices	Zagreb	4.1.4.a			
			LL / Regeneration area scale	4.1.4.b			
		4.1.5 Public jobs	Zagreb	4.1.5.a			

			LL / Regeneration area scale	4.1.5.b			
		4.1.6 Private jobs	Zagreb	4.1.6.a			
			LL / Regeneration area scale	4.1.6.b			
		4.1.7 Public green jobs	Zagreb	4.1.7.a			
			LL / Regeneration area scale	4.1.7.b			
		4.1.8 Private green jobs	Zagreb	4.1.8.a			
			LL / Regeneration area scale	4.1.8.b			
		4.1.9 Qualified jobs	Zagreb	4.1.9.a			
			LL / Regeneration area scale	4.1.9.b			
		4.1.10 Non-qualified jobs	Zagreb	4.1.10.a			
			LL / Regeneration area scale	4.1.10.b			
		4.1.11 Turnover in the green sector	Zagreb	4.1.11.a			
			LL / Regeneration area scale	4.1.11.b			
	4.2 Gentrification indicators	4.2.1 Employment rate	Zagreb	4.2.1.a			
			LL / Regeneration area scale	4.2.1.b			
		4.2.2 Unemployment rate	Zagreb	4.2.2.a	%	Municipality	
			LL / District Sesvete	4.2.2.b	%		
		4.2.3 Revenues by household	Zagreb	4.2.3.a	Euro/gross/montly	City Statistics	
			LL / Regeneration area scale	4.2.3.b			
		4.2.4a Current property sale value for residential use	Zagreb	4.2.4a.a	Euro/sqm	City Statistics	
			LL / Regeneration area scale	4.2.4a.b			
		4.2.4b Current property rental value for residential use	Zagreb	4.2.4b.a			
			LL / Regeneration area scale	4.2.4b.b			
			Zagreb	4.2.5a.a			

		4.2.5a Current property value for commercial/ industrial/ office use	LL / Regeneration area scale	4.2.5a.b			
		4.2.5b Current property rental value for commercial/ industrial/ office use	Zagreb	4.2.5b.a			
			LL / Regeneration area scale	4.2.5b.b			
		4.2.6 Free services	Zagreb	4.2.6.a			
			LL / Regeneration area scale	4.2.6.b			
		4.2.7 Basic utilities	Zagreb	4.2.7.a			
			LL / Regeneration area scale	4.2.7.b			
	4.3 Tourism and attractiveness indicators	4.3.1 Current number of tourists	Zagreb	4.3.1.a	number	National Statistics	
			LL / Regeneration area scale	4.3.1.b			
		4.3.2 Number of temporary events	Zagreb	4.3.2.a	number	Municipality	*number of events at the Zagreb Fair
			LL / Regeneration area scale	4.3.2.b			
		4.3.3 No. of foreign students	Zagreb	4.3.3.a	number	University of Zagreb	
			LL / Regeneration area scale	4.3.3.b			
		4.3.4 Local expenses	Zagreb	4.3.4.a			
			LL / Regeneration area scale	4.3.4.b			
	4.4 Taxes, Investment & Financing	4.4.1 Local taxes	Zagreb	4.4.1.a			
			LL / Regeneration area scale	4.4.1.b			
		4.4.2 Green investment programs/funds	Zagreb	4.4.2.a			
			LL / Regeneration area scale	4.4.2.b			

2.2. Survey data

The questionnaires will be used for tasks 4.1, 4.2 and 4.4 of WP4. The aim of the data collection of the task 4.1 - assessing social-cultural inclusiveness, is to evaluate the benefits/co-benefits and negative impacts of the implemented NBS in terms of social and cultural inclusiveness both on a district level (Living Lab) and on each NBS level. This aim is in line with the general aim of proGIreg project which is to demonstrate the integration of nature-based solutions (NBS) into business models which are economically self-sustaining and which provide multiple benefits for the economic, ecological and social regeneration of deprived urban areas suffering from the consequences of de-industrialisation. The data will be useful to disseminate results on the effectiveness of each NBS implementation in enhancing wellbeing for the general population.

The overall purpose of the data collection of the task 4.2 - Increased human health and wellbeing, is to assess the impact of the nature-based solutions in the Living Lab on the mental and physical health. This aim fits with the objective of the ProGIreg project to assess the benefits/co-benefits of the deployed NBS for the residents of the urban areas surrounding the Living Lab, as one of these potential benefits is the impact on health and quality of life. The data collected in this task will be used by researchers to estimate the change in health that is related to the implementation of NBSs. The results of the analyses will be useful for policy-makers and public health specialists, who can use the evidence for future NBS implementations that will benefit the general population.

The purpose of the data collection to be done as part of task 4.4 is to assess the economic and labour impacts of the NBS implemented as part of the ProGIreg project. The general questionnaire contains some questions on the economic and labour situation of the respondents to see what changes there are in the economic and labour wellbeing of the respondents in the LL areas compared to the control district, where minimal or no NBS will be implemented.

Three types of questionnaires are administered to collect data on Living Lab level and on (separate) NBS level:

I. **The general population survey (general questionnaire – GQ)**: The aim of the general questionnaire (GQ) is to assess the benefits of all NBS together in the Living Lab district. Each questionnaire collects approximately 130-150 data points. The general survey will involve 600 participants in each city (300 from the Living Lab and 300 from the control site). The control district, to be selected by the cities, is a district which is very similar to the Living Lab district in terms of socioeconomic and demographic characteristics but will not have any NBS (or minimal NBS) planned to be conducted during the course of the proGIreg.

   Only adults aged 18 to 84 years will be included. The participants are selected randomly from a person or address register of the LL district and control district (depend-

ing on the availability within the city). The questionnaire (translated to the local language) is administered by an interviewer. The interviewer fills in the participant's answers directly on a tablet in a program designed by proGIreg using the "EUsurvey" online forms. Using tablets for the data collection is more optimal (less risk of human error and cheaper that manual digitalization) than hiring people to transfer GQ data from the paper format to the platform, as it allows for the data to be collected in electronic format directly. The tablets can also be used for the data collection of the NBS-visitor questionnaire. The data collected with the GQ consist of a number of variables (columns) per participant (rows), with two data points (follow-ups) per variable.

II. **The NBS visitor survey:** the aim of the NBS-visitor questionnaire is to assess the social and health benefits obtained from the following NBS after their implementation (separately for each NBS): NBS1 - leisure activities and clean energy on former landfills; NBS2 – new regenerated soil; NBS3 – community-based urban farms and gardens; NBS5 – green walls and roofs.

   The NBS-visitor evaluation will be conducted only once, post-NBS implementation. The methodology for administering the questionnaire involves an interviewer going onsite and holding a face-to-face interview with the selected participants. The interviewers will stand on a strategic spot (e.g. the entrance of the NBS) and will be instructed to ask all adult visitors (that comply with the inclusion criteria) to participate in the study. The NBS-visitor questionnaire will be short (aimed for an interview of 15-20 minutes) and include items about the perceived social and health benefits derived from the direct contact with the implemented NBS. No personal or sensitive data will be collected into the Zeonodo, proGIreg platform and Sciebo.

III. **Economic survey:** To evaluate the economic impact of the implemented NBS it will be necessary to collect a set of indicators related to both the construction phase of the NBS and the long-term functioning of the new spaces. A brief questionnaire will be sent via email to the organizations that have been in charge of these 2 phases according to contacts provided by the FRCs. Therefore, this evaluation will only be necessary post NBS implementation. The questionnaire will just ask relevant questions to find values for the following list of indicators. This is the general list of all NBS indicators but these will be selected according to the type of NBS that the organization has been involved in. [volume of new soil created, number of workers needed to implement NBS, labour costs of the NBS implementation, new jobs created post implementation, material cost of NBS implementation, number of visitors, extension of new green area created, average annual energy consumption of buildings, food production, value of food sold, bike lane extension created, area of river bank converted to beach.

For the general questionnaire, documentation will be provided that explains the data and facilitates re-use of the data. Part of this documentation is a codebook explaining all variables and the scoring.

Certain sets of questions in the questionnaire are from validated questionnaires that have specific scorings. We will provide documentation on these standardized scales, for example:

"The Generalized Anxiety Disorder scale (GAD-7) has 7 items (a-g) with possible answer “not at all sure”, “several days”, “over half the days”, and “nearly every day”. Each answer corresponds to a number of points; “not at all sure” gets 0 points, “several days” gets 1 point, “over half the days” gets 2 points, and “nearly every day” gets 3 points. The score for each item is summed to a total score, resulting in a minimum of 0 and a maximum of 21. Cut-off scores have been established [1] for mild (5), moderate (10) and severe anxiety symptoms (15). At the cut-off score of 10 both sensitivity and specificity are >0.8.

[1] Kroenke, Spitzer, Williams, Monahan, Löwe (2007) Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. Ann Intern Med. 146(5): 317-325."

Table 7. GQ data codebook

Variable	Variable label	Explanation	Scoring
sex	Sex	Respondent is male or female	1=male; 2=female; 3=third gender
age	Age	Age in years	Continuous
marit	Marital status	Current marital status	1=single; 2=married/registered partnership; 3=living together; 4=LAT; 5=divorced/separated but not divorced; 6=widowed
edu	Educational level	Years of education (begining with primary school)	Continuous
empl	Employment status	Current employment status	1=employee; 2=self-employed w employees; 3=self-employed wo employees; 4=unemployed; 5=student; 6=home parent; 7=disabled; 8=retired; 9=other
empl_oth	Other employment status	Specified other employment status	Open question
home	Type of home	Type of home	1=detached; 2=semi-detached; 3=building <10 flats; 4=building >10 flats; 5=other
home_oth	Other home	Other type of home specified	Open question

outd	Outdoor green/blue	Private outdoor green/blue environment at home	1=private garden/yard; 2=private communal garden/space; 3=balcony patio; 4=none; 5=agricultural; 6=other
outd_oth	Other outdoor green/blue	Other private outdoor green/blue environment specified	Open question

Storage

The questionnaire data will be collected using the EUSurvey platform (**https://ec.europa.eu/eusurvey**) that is an online survey management system for creating and publishing forms. EUSurvey allows the distribution of the questionnaire to the participants through an interviewer that will be selected by the municipalities. No sensitive data will be stored on the EUSurvey platform (details regarding the processing of sensitive data in the questionnaires are explained on Chapter 5 – Ethical aspects).

When the questionnaires distribution phase has been completed, the results will be exported in a .cvs file containing all the answers and imported into Sciebo cloud platform, in the WP4 proGIreg platform and shared within the partners. The same .csv file will be saved on Zenodo.

2.3. Systematic Observation dataset

For some of the NBS, the goal is to provide (or provide access to) a space that the population can use for visits to green and/or blue spaces (e.g. providing access to a river bank, re-naturing a square, etc.) and/or for physical activity. To evaluate whether this is effective, it is important to measure whether the implementation of the NBS actually increases the use of these spaces and whether there is an increase in the physical activity performed in the space.

A valid method to quantify the use of a green/blue space (i.e. to estimate the number of users and type of physical activity) is systematic observation. We will use the validated SOPARC (System for Observing Play and Recreation in Communities)[1, 2] tool.

[1] McKenzie, Cohen, Sehgal, Williamson, Golinelli, 2006. System for Observing Play and Recreation in Communities (SOPARC): Reliability and Feasibility Measures. J. Phys. Act. Health 3 Suppl 1, S208-S222.
[2] https://www.rand.org/health-care/surveys_tools/soparc/user-guide.html

Table 8. SOPARC dataset

DATE: _____ SITE: _____ OBSERVER: _____

TARGET AREA: _____Start time:_____ End time: _____

Person	Gender		Age Group				Ethnicity		Activity Level(s)		
	Female	Male	Child	Teen	Adult	Older Adult	White	Non-White	S	W	V
1											
2											
3											
4											
5											
:											

Storage

Trained observers (possibly including participation of stakeholders) go to the NBS site to observe and count the number of users, and register the users' characteristics (sex and age group) and type of activity that they are doing at the site (e.g. sedentary, walking, or very active). These observations are systematic and periodic; measurements are taken in specific periods of time (morning, lunchtime, afternoon, and evening) and specific days (within one week). The observers mark the data on a paper sheet and then transcribed into a spreadsheet file (.xlsx file extension). This file is subsequently saved in Sciebo cloud and then imported in proGIreg platform and Zenodo (details on chapter 3.1).

2.4. Environmental dataset

Several environmental data will be collected to monitor the ecological and environmental restoration benefits across all implemented NBS. This benefit assessment is explicitly requested in the proGIreg grant agreement within the activities of WP4.

Data related to air temperature, relative humidity, concentration of ozone (O_3) and nitrogen dioxide (NO_2), particulate matter foliar deposition (PM), water quality data, trees structural features together with plant and animal diversity will be collected within WP4 task 4.3.

Available meteorological and pollution concentration data together with spatial data (NDVI) developed within the WP4 will be used for upscaling at living lab and city level.

The above-mentioned data will be measured by means of active and passive sensors, laboratory analysis of in situ sampled leaves and diversity surveys.

Table 9. Environmental dataset

DATA	LOCA-TION	NBS/CNT	NBS TYPE	AIR Temp (°C)	RH (%)	[O_3]	[NO_2]	PM2.5 (µg m^{-2})	PM10 (µg m^{-2})
dd.mm.yyyy HH:MM	Lat & Lon	0/1	1/2/3/4/5/6/7/8						

DATA	LOCATION	NBS/CNT	NBS TYPE	Flora (species)	Flora (abundance)
dd.mm.yyyy HH:MM	Lat & Lon	0/1	1/2/3/4/5/6/7/8		
DATA	LOCATION	NBS/CNT	NBS TYPE	Bee (species)	Bee (abundance)
dd.mm.yyyy HH:MM	Lat & Lon	0/1	1/2/3/4/5/6/7/8		
DATA	LOCATION	NBS/CNT	NBS TYPE	Butterfly (species)	Butterfly (abundance)
dd.mm.yyyy HH:MM	Lat & Lon	0/1	1/2/3/4/5/6/7/8		

DATA	LO-CA-TION	NBS/CNT	NBS TYPE	Tree spe-cies	Tree height (m)	Tree dbh (cm)	Tree crown base height (m)	Tree crown width (m)	Tree crown miss-ing (%)	Tree crown health
dd.mm.yyyy HH:MM	Lat & Lon	0/1	1/2/3/4/5/6/7/8							

Data storage

The data from the active sensors will be collected in a datalogger located near the sensor. The data is downloaded from the data logger manually in a file. The file format is .csv and will be stored into the Sciebo cloud platform and shared within the project partners. The same files will be imported into the progireg platform and Zenodo (chapter 4). In total, the data recorded will occupy less than 5 Gb.

3. FAIR data

3.1. Making data findable, accessible, interoperable and reusable

Since proGIreg is part of the Open Research Data Pilot, is expected to store collected data in an open online research data repository. For this purpose, Zenodo (https://zenodo.org) has been selected as repository; it allows researchers to deposit both publications and datasets. Zenodo facilitates the finding, accessing, re-using and interoperating of datasets, which are the basic principles of the ORD Pilot projects.

The following table shows which data, produced and used in the project, will be made openly available.

Table 10. List of open data

Data type	Data openly available
Spatial Data	Yes
Survey data	Yes (Due to the presence of personal and sensitive data, the questionnaires will be pseudonominized before being stored on EUSurvey)
Systematic observation data	Yes
Environmental data	Yes

All the public documentation of the project including deliverables, milestones, datasets will be available online through the project website (**www.progireg.eu**) and Zenodo repository. All the datasets of the project will be uploaded into the proGIreg platform (chapter 4).

Research data which is created in the project is owned by the partner who generates it. Each partner must disseminate its results unless there is legitimate interest to protect them.

The datasets will be made available for re-use through Zenodo. Search keywords will be provided in Zenodo which will optimise possibilities for re-use.

To ensure the accessibility and the interoperability of the NBSs assessment data among the NBS sister projects in Horizon 2020, a task force: “Data Management and EU evidence-based platforms” has been established. Each NBS project will store in an individual database its NBS case studies data. Thanks to this task force it will be possible to connect (create or update) case studies and data from the single NBS project to the EU Repository of Nature-Based Solutions, Oppla.

The first step is to register a new case study on the Oppla platform (Figure 1). Oppla will expose a set of API to enable the programmatic interaction with the single NBS platforms (Figure 2).

Figure 1. Graphic representation of the interaction between NBS project platform and Oppla platform

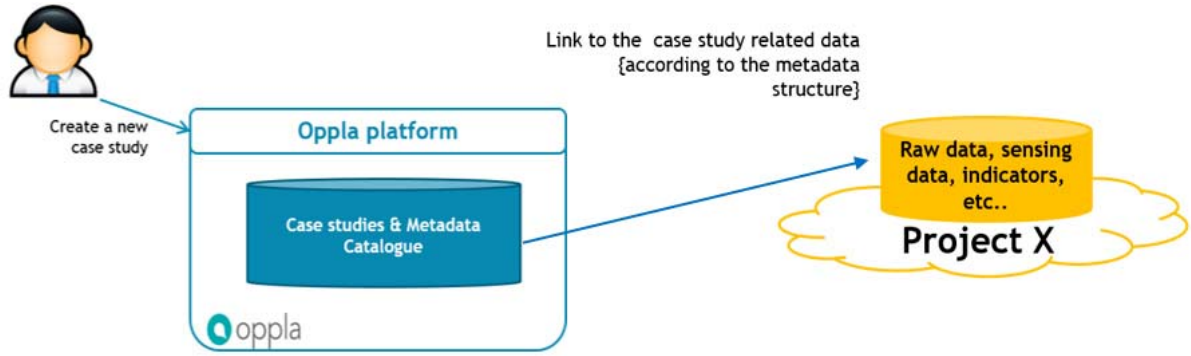
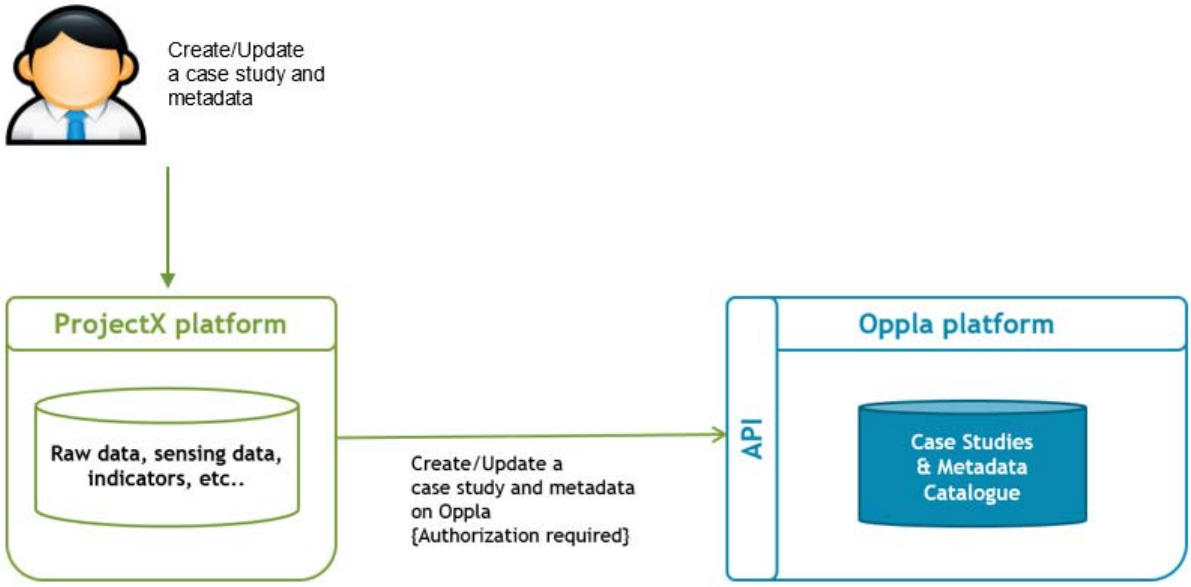


Figure 2. Graphic representation of the interaction between NBS project platform and Oppla platform



4. WP4 proGIreg platform

A cloud proGIreg platform will be developed for the storage, visualisation and processing of the datasets collected within the WP4.

Through the platform it will be possible to transform data into visual graphs and share them within the WP4 partners. It will also be possible to visually explore and analyze data. Moreover a greater collaboration between the WP4 partners can be guaranteed through the creation of interactive reports.

Within the platform, personal information of the survey data will not be uploaded during the entire duration of the project. For this purpose, it's necessary a data pseudonymization before that the interviewer collect the answers (details on pseudonymization are in the ethical aspects - chapter 5).

To ensure the integrity and quality of the research data and increase the potential for data sharing, the processed data will be checked by the Task leader In the quality control. The Task leader will perform descriptive statistics to identify outliers or impossible values with the support of the Data Manager. The Data Manager is in charge of standardizing the data to be sent to the WP4 platform. It supports the Task leader in the uploading and managing the various datasets collected in the project, both in the WP4 platform and in Zenodo. It also deals with the interfacing and data exchange between the WP4 platform and the ThinkNature and OPPLA platforms.

5. Data storage

Within the proGIreg various data storage and sharing platforms will be used. The table below shows their use.

Table 11. Data storage platforms

Platform	Data type	Description
Basecamp	Administartive data files (.pdf, .docx. .xlsx), Agreement, Deliverables, Milstones (.pdf, .xlsx, .docx)	Basecamp is a project management and team communication platform
Sciebo cloud	Deliverables, Milstones, Datasets files: - Spatial Data (.xlsx, .pdf); - Survey Data (.csv, .xlsx); - Systematic observation data (.xlsx); - Environmental data (.csv, .xlsx)	Sciebo is a cloud storage platform. It also allows simultaneous editing of text and spreadsheets.

WP4 proGIreg platform	Datasets files: - Spatial Data (.xlsx, .pdf) - Survey Data (.csv, .xlsx) - Systematic observation data (.xlsx) - Environmental data (.csv, .xlsx)	proGIreg platform allows the online data visualisation, graphs, quick insights from spreadsheet. Send data to the OPPLA platform
Zenodo	Datasets files: - Spatial Data (.xlsx, .pdf) - Survey Data (.csv, .xlsx) - Systematic observation data (.xlsx) - Environmental data (.csv, .xlsx)	Zenodo is an open access storage for research publications and datasets. Ensures sustainable long term archiving of the public research data items.

6. Ethical aspects

We will adopt adequate measures to ensure personal data protection and confidentiality, as described in proGIreg Deliverable 7.2.

As the questionnaires include personal and sensitive data, they need to be pseudonymised by the local partner by use of an identification number. The local partner will keep a "key file" that can be used to link the identification number back to the personal information (i.e. name, address, contact details). This "key" file will only be used by the local partner to link the ID number to the contact information of the participant in order to reach out to the participant for follow-up and will be kept in a separate, password-protected, encrypted file by the local partner.

The anonymised database will be based on the ID number and will not include any identifying data. The anonymised database can accessed by the WP4 researchers.

The participants are informed on this process and give informed consent at first contact, both regarding the participation in the data collection for the baseline and the willingness to be contacted again.

Each participant has an identification number (ID), the ID will include a code for the data source (i.e. city) and consists of 5 numbers that will be unique to each participant:

I. the first number indicates the city: 1 for Dortmund, 2 for Turin, 3 for Zagreb, 4 for Ningbo;

II. the second number indicates whether the information was collected from the general survey (0) or from a user survey (1);

III. the last three numbers give the participant number in that survey (Table 12. **ID of questionnaires**).

Table 12. ID of questionnaires

Numbers composing the ID	Values			
1	Dortmund=1	Turin=2	Zagreb=3	Ningbo=4
2	General survey = 0	User survey =1		
345	Participant number (range 1-600)			

Examples:

- The 1st participant in the general survey in Dortmund will get number 10001
- The 115th participant in the general survey in Zagreb will get number 30115