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Executive Summary

This report details the dissemination plan for the monitoring results and project conclusions of the GrowGreen project, funded as part of the European Commission's 2016 Smart Cities and Communities Call "Demonstrating Innovative Nature Based Solutions in Cities". The work focuses on three Demonstration Projects by GrowGreen Front Runner Cities: Manchester (UK), Valencia (ES) and Wroclaw (PL). Together, they looked at the ways Nature Based Solutions (NbS), in particular Sustainable Urban Drainage Systems (SuDs), can help to adapt cityscapes to a changing climate.

The project results will be disseminated in line with the Horizon 2020 Open Research Data Pilot (ORDP) contractual obligation (Art. 29.3) to ensure the research results reach their target audience i.e., those who can best exploit them to develop NbS strategies and implement new NbS schemes and to maximise the impact of GrowGreen. The report details the plans of the GrowGreen partners to disseminate the results from the demonstration projects in Manchester, Valencia, and Wroclaw.

1 Introduction

GrowGreen was funded as part of the European Commission's 2016 Smart Cities and Communities Call "Demonstrating Innovative Nature Based Solutions in Cities". The work focuses on three Demonstration Projects by GrowGreen Front Runner Cities: Manchester (UK), Valencia (ES) and Wroclaw (PL). Together, they looked at the ways Nature Based Solutions (NbS), in particular Sustainable Urban Drainage Systems (SuDs), can help to adapt cityscapes to a changing climate.

The focus of this report is the dissemination of the monitoring results and impact of the demonstration projects in Manchester, Wroclaw, and Valencia. The results from the demonstration projects became available at M65 (October 2022). It not intended to be a comprehensive review of dissemination activities undertaken by the project.

The aim is to ensure the research results reach their target audience i.e., those who can best exploit them to develop NbS strategies and implement new NbS schemes and to maximise the impact of GrowGreen. The report details the plans of the GrowGreen partners to inform and engage politicians, policy makers at all levels (City, Regional, National and European), industry and businesses as well as citizens. It includes information on how the results will reach academic researchers in the field of NbS.

The project results will be disseminated in line with the Horizon 2020 Open Research Data Pilot (ORDP) contractual obligation (Art. 29.3). Open access (OA) refers to the practice of providing online access to scientific information that is free of charge to the end-user and reusable. In the context of GrowGreen this means:

- Peer-reviewed scientific research articles (published in scholarly journals) and
- Research data (data underlying publications, curated data and/or raw data)

A full thematic analysis of all the results can be found in both the thematic and city reports:

- D2.2 Monitoring and Evaluation of Climate and Water Resilience.
- D2.3 Monitoring and Evaluation of Environmental Objectives.
- D2.4 Monitoring and Evaluation of Social Benefits and Participatory Planning.
- D2.5 Monitoring and Evaluation of Economic Objectives.
- D2.6 Green City Framework Evaluation: Frontrunner cities projects demonstration deployment and Front Runner and Fellow city NbS strategies
- D1.4 Intervention Conclusions in Manchester
- D1.5 Intervention Conclusions in Valencia
- D1.6 Intervention Conclusions in Wroclaw
- D1.8 Demonstrations Summary Report – Manchester, Valencia and Wroclaw

2 Open Data Platforms

Monitoring data has been collected manually and via remote sensing in Valencia, Manchester, and Wroclaw. Due to the diversity of pilot projects not all KPI's (Key Performance Indicators) are being measured in each city. Consequently, the GrowGreen consortium selected the following **Core KPI's** as the reference data to be monitored across all pilots, as shown in Table 1 below.

Challenge Area	Core KPI
Climate mitigation & adaptation	<ul style="list-style-type: none"> • Air temperature • Humidity
Water resilience	<ul style="list-style-type: none"> • Run-off coefficient in relation to precipitation quantities
Water Management	<ul style="list-style-type: none"> • Reduction of runoff peak discharges • Reduction of runoff volume rates
Green Space Management	<ul style="list-style-type: none"> • Diversity of trees and shrubs • Diversity of vegetation strata
Social Justice and Social Cohesion	<ul style="list-style-type: none"> • Percentage of individuals with access to at least 2 hectares of green space within 300 metres of home • Percentage of individuals with access to at least one 20-hectare site within 5 kilometres of home • Number of nature reserve/conservation areas per 1000 population
Potential of economic opportunities, green jobs, and business models	<ul style="list-style-type: none"> • One-off construction costs • Recurring / maintenance costs • Property betterment • Direct jobs & local economy

Table 1 GrowGreen Core KPI's

Core KPI monitoring data is held on the GrowGreen Open Data platform hosted by Valencia. Non-core KPI monitoring data is held locally on city platforms. The hosting structure of the monitoring data is shown in Figure 1.

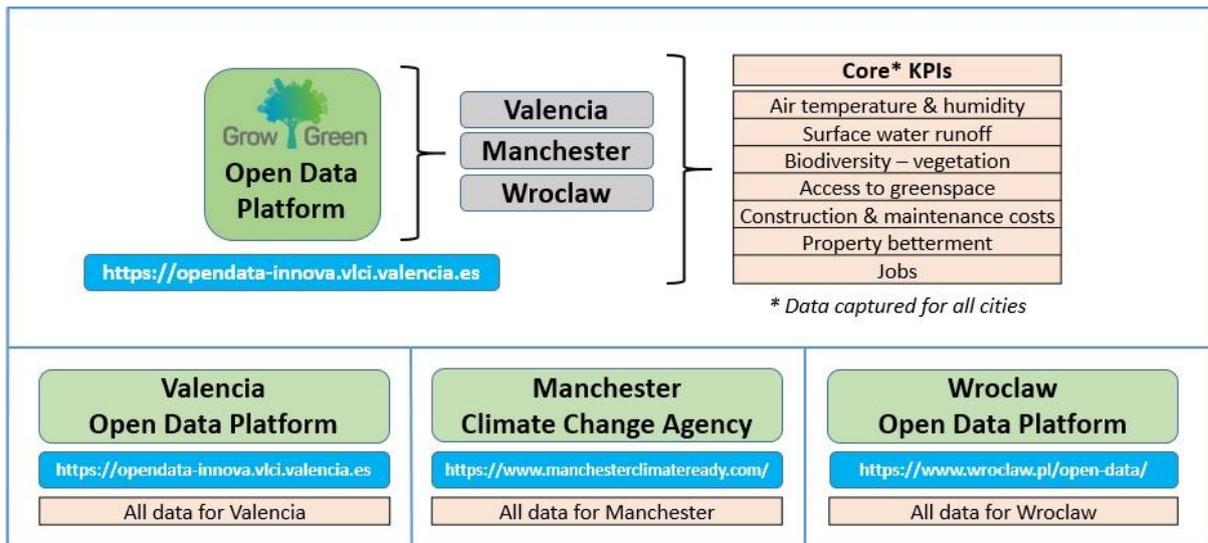


Figure 1 GrowGreen Data Map

2.1 The GrowGreen Open Data Platform

The GrowGreen open data platform is sharing the software architecture for the VLCi platform i.e., the smart city platform of Valencia City. It is an implementation of Telefónica's *Thinking Cities* platform, based on the FIWARE standards and interfaces. A high-level description of the VLCi platform is shown in Figure 2.

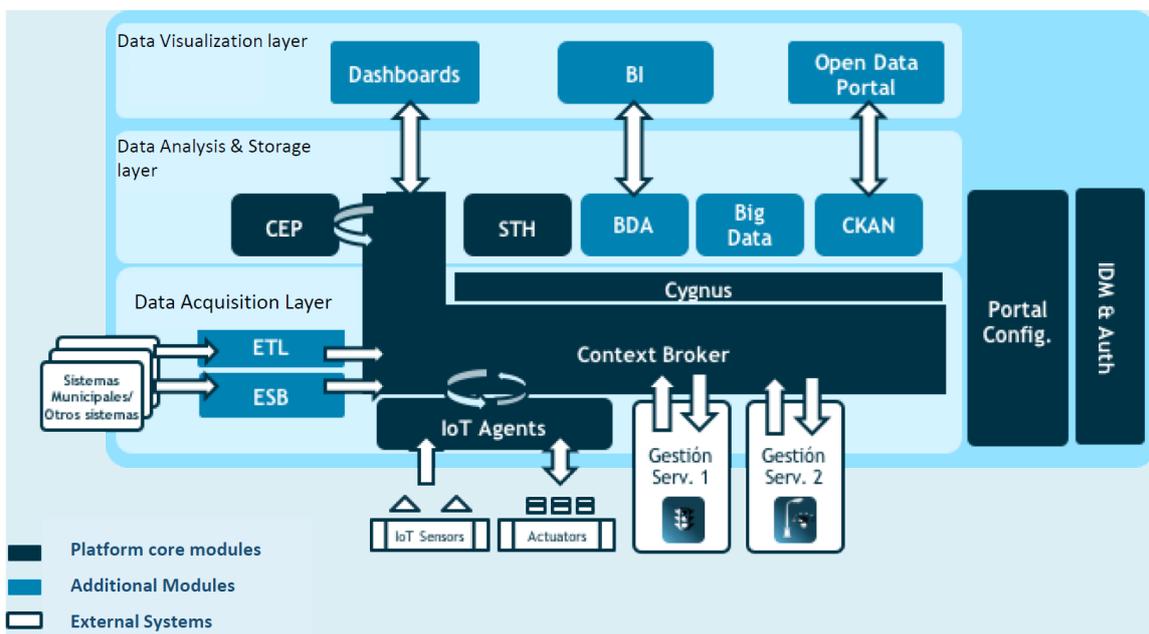


Figure 2 VLCi platform architecture (source: Introduction to VLCi Platform. Adjustment de València)

According to the origin and nature of the data being managed (multiple sources, not in real time), the GrowGreen Project would fit into the “Insertion of data from ETL processes” group of use cases, as defined in the VLCi Platform Operations Manual (v5.0).

The objective of the integration process is the storage of data in the Open Data Portal (CKAN). Therefore, data integration in the VLCi Platform will adjust to the “Insertion of data from ETL towards CKAN through the Context Broker” use case, which is further described in Figure 3 and Figure 4.

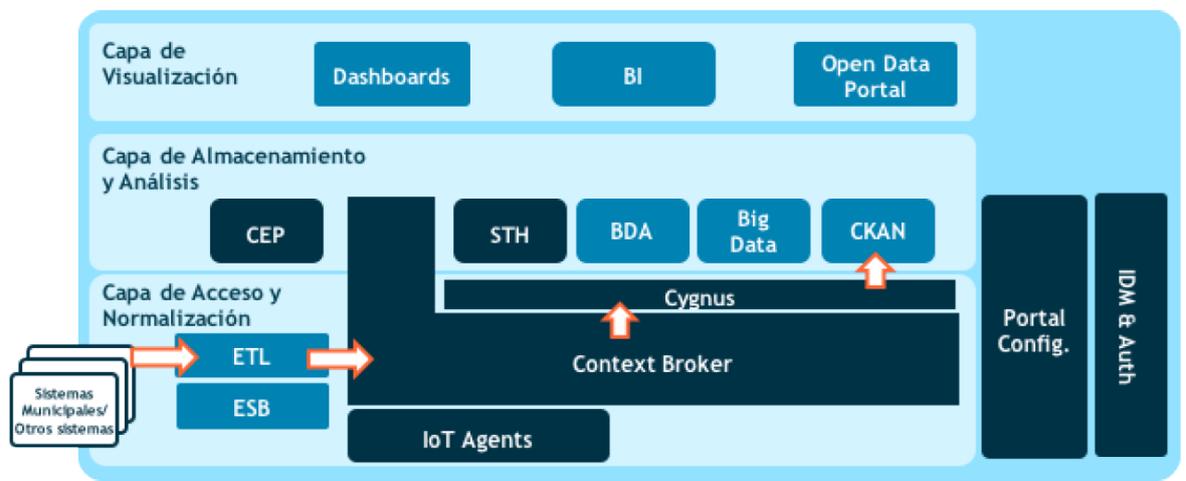


Figure 3 Flow of the insertion of data from ETL towards CKAN through the Context Broker (source: VLCi Platform Operations Manual, v5.0.)

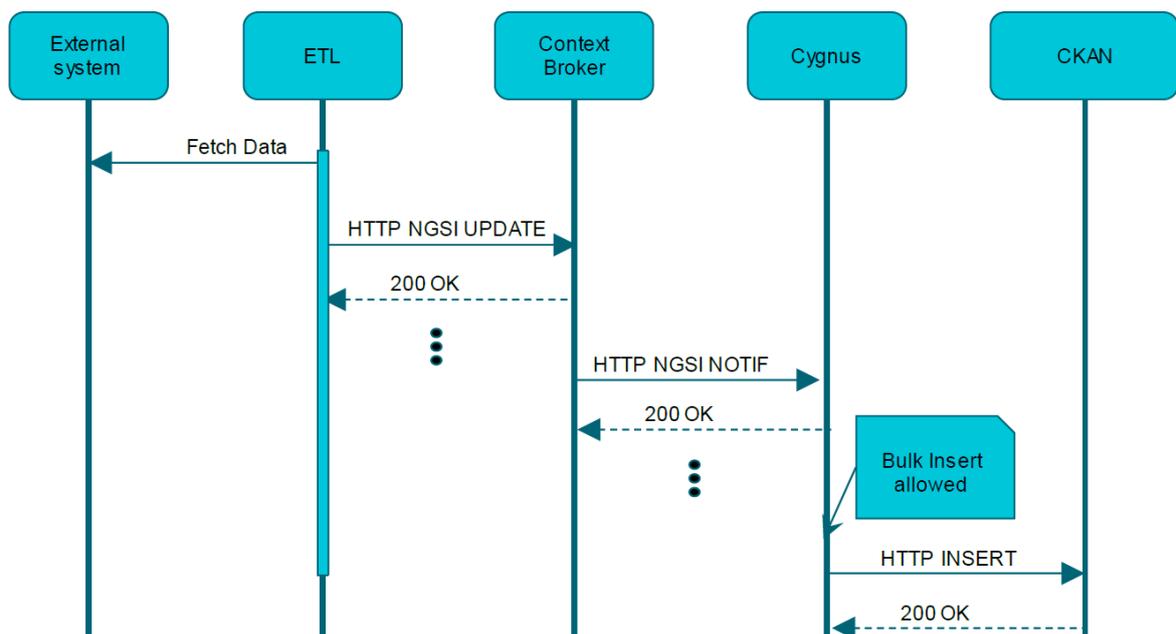


Figure 4 Diagram of the sequence of Insertion of data from ETL processes towards the Open Data Portal through the Context Broker (source: VLCi Platform Operations Manual, v5.0.)

Monitoring data is available as CSV files in the VLCi Open Data Portal <https://opendata-innova.vlci.valencia.es/>

There will be several options for access. For example, any interested person will be able to browse all the datasets and resources owned by the “GrowGreen” organisation. Each dataset and resource will have a unique public URL, which will enable direct data access, preview, and download of CSV files. There are social media sharing buttons within each dataset and resource section in the portal, allowing

for easy sharing of data through social media services. Furthermore, the VLCi Open Data Portal is searchable, allowing users to access data by name, format or assigned tags.

2.2 Local City Data Platforms

2.2.1 Valencia (ESP)

The full list of KPI's for the demonstration projects in Benicalap, Valencia is shown in Table 2 below. Monitoring data for Benicalap is held on the Valencia Open Data Platform.

<https://opendata-innova.vlci.valencia.es/>

Challenge Area	Benicalap KPIs
Climate Mitigation & Adaptation	<ul style="list-style-type: none"> • Humidity. • Air temperature. • Energy and carbon savings from reduced building energy consumption • Mean Radiant Temperature • Physiological Equivalent Temperature PET • Carbon storage and sequestration in vegetation and soil
Water Resilience	<ul style="list-style-type: none"> • Run-off coefficient in relation to precipitation quantities.
Water Management	<ul style="list-style-type: none"> • Reduction on runoff peak discharges. • Reduction on runoff volume rates. • Physical water quality indicators: turbidity, suspended solids, transparency • Chemical water quality indicators: pH value, nutrient levels (especially nitrogen and phosphorus), salinity, heavy metals levels, organic pollutants levels, dissolved • Biological water quality indicators: biochemical oxygen demand BOD, etc • Urban greywater reutilization • Reduction of wastewater organic matter pollution and pathogen content • Reduction of nutrient (N, P, K) content and salinity
Green Space Management	<ul style="list-style-type: none"> • Accessibility to greenspace • Diversity of trees and shrubs • Structural connectivity • Diversity of vegetation strata
Air Quality	<ul style="list-style-type: none"> • Pollution levels (PM10)
Noise	<ul style="list-style-type: none"> • Noise levels (LAFma1, Lday)
Participatory Planning and Governance	<ul style="list-style-type: none"> • Electoral participation rate (municipal and regional). • Rate of participation in calls for participation budgets.
Social Justice and Social Cohesion	<ul style="list-style-type: none"> • Percentage of individuals with access to at least 2 hectares of green space within 300 metres of home, percentage of individuals with access to at least one 20-hectare site within 5 kilometers of home, number of nature reserve/conservation areas per 1000 population • Percentage of households in full-time employment (Neighborhood), percentage of households earning less than the national and regional average (City), percentage of households classified as deprived (Neighborhood) • Singular elements (informative points, monuments, or artistic interventions) in the public space • Adaptation of basic furniture (litter bins ...) • Adaptation of children, youth, and elderly equipment.
Public Health and Wellbeing	<ul style="list-style-type: none"> • Mortality annual rate • Life annual expectancy • Reduced cardiovascular morbidity and mortality • Percentage of people taking notice of their environment • Percentage people who feel integrated into their community • Percentage of people with an attachment/sense of belonging to the neighbourhood • Percentage of people of who feel able to trust one another within the neighbourhood • Percentage of people who are happy in their daily lives.

	<ul style="list-style-type: none"> • Percentage of people undertaking forms of physical activity
Potential of Economic Opportunities, Green Jobs and Business Models	<ul style="list-style-type: none"> • One-off construction costs • Recurring / maintenance costs • Property betterment • Direct jobs & local economy • Indirect jobs & local economy

Table 2 KPI's for Benicalap, Valencia

A data visualisation tool is available for Benicalap on a cross-platform ArcGIS Online Web Application. The 2D web app includes a web map and a number of widgets, inside and outside the web map of the Benicalap area.

<https://raimon.maps.arcgis.com/apps/webappviewer/index.html?id=6d093eaabe0943c2bb8d7ceaad29f140>

2.2.2 Manchester (UK)

The full list of KPI's for the demonstration project in West Gorton, Manchester is shown in Table 3 below. The research results are also accessible in open data format from *Manchester Climate Change Agency's* 'Manchester Climate Ready' web portal available at:

<https://www.manchesterclimateready.com/>

Challenge Area	West Gorton KPIs
Climate Mitigation & Adaptation	<ul style="list-style-type: none"> • Humidity • Air temperature • Ground temperature
Water Resilience	<ul style="list-style-type: none"> • Run-off coefficient in relation to precipitation quantities
Water Management	<ul style="list-style-type: none"> • Reduction on runoff peak discharges • Reduction on runoff volume rates
Green Space Management	<ul style="list-style-type: none"> • Diversity of trees and shrubs • Diversity of vegetation strata • Green area per capita • Structural connectivity • Accessibility to greenspace • Percentage of individuals with access to at least 2 ha of green space within 300 m of home • Percentage of individuals with access to at least one 20 ha site within 5 km of home • Number of nature reserve/conservation areas per 1000 population
Participatory Planning and Governance	<ul style="list-style-type: none"> • Degree to which institutions have enhanced their knowledge and understanding of nature-based solutions • Institutional capacity development in responding to urban ecosystem challenges • Degree to which policies and plans have changed to incorporate nature-based solutions • Number of meetings held with citizens to explain the progress of the project • Number of civil society entities representing community members • Number of civil society entities that have participated in the execution of the project in relation to the total of entities with presence in the neighbourhood • Number of initiatives proposed and implemented by the public in the framework of the project • Extent to which citizens have trust in decision-makers • Extent to which citizens have positively changed their opinion of decision makers • Extent to which citizens believe in the value of procedures • Extent to which citizens believe that their participation in the project has served something • Degree of interest in urban ecosystems • Extent of understanding of attributes and functions • Degree to which interest and understanding has changed over time • Extent to which community attach significant value to nature-based solutions • Rankings of preferred nature-based types

Social Justice and Social Cohesion	<ul style="list-style-type: none"> • Percentage of households in full-time employment • Percentage of households earning less than the material average • Percentage of households classified as deprived • Percentage of people who reported feeling safe in their neighbourhood • Percentage of people who reported feeling fairly treated in their local community • Percentage of people reported using local public green space • Number of people observed using target outdoor spaces • Percentage of people taking notice of their environment • Percentage of people who reported opportunities to socialise locally /Feel integrated within community • Percentage of people who reported good organisation of local events • Percentage of people who believe local community can influence local issues • Percentage of people interacting with each other in an outdoor space • Percentage of people of who feel suspicious of others within the neighbourhood versus able to trust neighbours • Percentage of people who often hear or see neighbours pulling together
Public Health and Wellbeing	<ul style="list-style-type: none"> • Measure of daily happiness • Percentage of people observed doing vigorous physical activity in target outdoor spaces • Percentage of people observed doing moderate physical activity in target outdoor spaces • Number of older persons observed walking in target outdoor spaces • Number of adults observed walking in target outdoor spaces • Number of children and teenagers observed walking in target outdoor spaces/playing in target outdoor space • Percentage of non-white persons observed walking in target outdoor spaces • Percentage of women and girls observed walking in target outdoor spaces
Potential of Economic Opportunities, Green Jobs and Business Models	<ul style="list-style-type: none"> • One-off construction costs. • Recurring / maintenance costs. • Property betterment. • Direct jobs & local economy. • Indirect jobs & local economy. • Avoided cost of run-off treatment.

Table 3 KPI's for West Gorton, Manchester

The West Gorton research results are accessible from the *Manchester Climate Change Agency's* 'Manchester Climate Ready' web portal. The deployment of green infrastructure and NbS is one of the thematic objectives of the Agency and hosting the evidence base for the West Gorton demonstration project on their portal is a natural fit.

2.2.3 Wroclaw (PL)

The full list of KPI's for the demonstration projects in Olbin, Wroclaw are shown in Table 4. The monitoring data from Olbin is stored on the open data platform "Otwarte Dane Wroclaw" (Open Data Wroclaw): <https://www.wroclaw.pl/open-data/>.

Challenge Area	Olbin KPIs
Climate Mitigation & Adaptation	<ul style="list-style-type: none"> • Humidity • Air temperature • Wind speed • Carbon sequestration in vegetation and soil
Water Resilience	<ul style="list-style-type: none"> • Run-off coefficient in relation to precipitation quantities.
Water Management	<ul style="list-style-type: none"> • Reduction on runoff peak discharges. • Reduction on runoff volume rates.
Biodiversity / Green Space Management	<ul style="list-style-type: none"> • Diversity of trees and shrubs. • Diversity of vegetation strata. • Green area per capita. • Accessibility to greenspace.
Air Quality / Noise quality	<ul style="list-style-type: none"> • Pollution levels (PM2,5, PM25, BaP) • Pollution levels (PM10) • Noise (LAFma1, Lday)
Participatory Planning and Governance	<ul style="list-style-type: none"> • No. meetings with citizens to explain the progress of the project • Number of persons (on average) involved in the activities carried out under the project • Percentage of women involved in project activities • Percentage of older/younger people (on average) involved in project activities • Number of civil society entities representing community members • Number of civil society entities that have participated in the execution of the project in relation to the total of entities with presence in the neighbourhood • Number of initiatives proposed and implemented by the public in the framework of the project • Percentage of population that has faith in decision-makers • Percentage of population that has positively changed his/her opinion of decision makers • Percentage of population that believes in the value of procedures • Percentage of the population that believes that their participation in the project has served something.
Social Justice and Social Cohesion	<ul style="list-style-type: none"> • Percentage of households in full-time employment, percentage of households earning less than the national and regional average, percentage of households classified as deprived. • Percentage of people who feel safe in their neighbourhood • Number of people using green space. • Percentage of people taking notice of their environment. • Percentage of people who feel integrated into their local community • Percentage of people interacting with each other in an outdoor space. • Percentage of people with an attachment/sense of belonging to the neighbourhood. • Percentage of people of who feel able to trust one another within the neighbourhood.
Public Health and Wellbeing	<ul style="list-style-type: none"> • Percentage of people who are happy in their daily lives. • Percentage of people undertaking forms of physical activity
Potential of Economic Opportunities, Green Jobs and Business Models	<ul style="list-style-type: none"> • One-off construction costs. • Recurring / maintenance costs. • Property betterment. • Direct jobs & local economy. • Indirect jobs & local economy. • Avoided cost of run-off treatment.

Table 4 KPI's for Olbin, Wrocław

Otwarte Dane Wrocław allows all interested parties, including residents of Wrocław, to quickly and easily find public information collected by the Wrocław City Office and other municipal units. The website contains information or datasets that can be freely used by all. They can be distributed and used without any restrictions, also for commercial purposes. In the event that the data user is obliged to take a specific action (e.g. informing about the source of the data used), such information is included

in the detailed conditions of use specified for each data set made available on the portal. Organizing and making open data public is aimed at, inter alia, inspiring entrepreneurship, increasing involvement in the city's affairs and demonstrating the transparency of city authorities' activities.

Otwarte Dane Wroclaw is under the supervision of the Wroclaw City Mayor (more information here: https://www.wroclaw.pl/open-data/pages_about).

3 Conferences and Events

3.1 Dissemination of Results at Conferences and Events - Completed 2022

- The main project conclusions of the monitoring and evaluation of the demonstration projects were shared at the **GrowGreen final event in Brest, France on 8th – 9th November 2022**. There were 93 attendees from a range of organisations across Europe. Details can be found on the GrowGreen website. <https://growgreenproject.eu/growgreen-final-conference/>
- Large walking and wellbeing behaviour benefits of a co-designed sustainable park: A natural experiment study in a UK deprived urban area. Urban Transitions conference, Sitges, Spain. November, 2022. *University of Manchester*
- 17th SDEWES conference: Climate proofing urban planning in the City of Valencia, Paphos, Cyprus. November, 2022. *Tecnalia*
- Sustainable cities: SBN to face the challenges of the city of Valencia. Learning from Wuhan Sponge City. Valencia, Spain. November 2022. *Las Naves*
- Presentation of Grow Green research findings on health and wellbeing to the 'Wellbeing Economy Alliance'. This is a collaboration of organisations, alliances, movements and individuals working towards a wellbeing economy, delivering human and ecological wellbeing. (Online), Jamie Anderson. November 2022. *University of Manchester*
- COP27- TF2 7 side-event on "Documenting the multiple benefits and engagement mechanisms of nature-based solutions: applying a common EU impact assessment framework "A nature-positive economy for climate and biodiversity benefits" organised by Horizon funded projects. November 2022. *Tecnalia*

3.2 Planned Dissemination Conferences and Events - Planned 2023

- Presentation on 'Hydrological performance of swales and raingardens: a case study from Manchester, UK'. Conference: European Geoscience Union General Assembly in Vienna, April 2023. *University of Manchester*
- Presentation on 'Working with nature to reduce flood risk' at the Town and Country Planning Association Annual Conference, Autumn, 2023. *University of Manchester*
- Presentation of 'health and wellbeing' research work at: UK Society of Behaviour Medicine conference in March 2023. *University of Manchester*
- Presentation of 'health and wellbeing' research work at: International Society of Behavioural Nutrition and Physical Activity in June 2023. *University of Manchester*
- Presentation on 'Landscapes of resilience: Linking Sponge City approaches to urban regeneration'. Conference of the International Association of Landscape Architects (IFLA) (Europe), October 2023. *University of Manchester*
- European week of Regions and Cities 2022. *Tecnalia*

4 Scientific publications

There have been several publications developed prior to the evaluation of the monitoring results which outlined the monitoring and evaluation methodologies. All publications are open access.

4.1 Journals

- Anderson, J., French, D., Benton, J., Dennis, M., Rothwell, J. (2020). The effects of the Grow Green urban greening improvements on physical health and wellbeing behaviours in Manchester UK: A natural experimental study. *Open Science Framework*. <https://osf.io/zqgcn>. This publication registers the formal research approach and hypotheses for the project.
- Anderson, J., Benton, J., Macintyre, V., Rothwell, J., French, D.P. (2021). Neighbourhood fLOURISHing (NOURISH): A new short and inclusive interpersonal measure of subjective wellbeing. *Wellbeing, Space and Society*, 2, 100030. This paper describes the monitoring approach that was used to capture wellbeing/social justice data on the project.
- Benton, J, Anderson, J, Pulis, M, Cotterill, S, Hunter, R & French, D. (2020). Method for Observing pHysical Activity and Wellbeing (MOHAWk): validation of an observation tool to assess physical activity and other wellbeing behaviours in urban space. *Cities & Health*, 1-15. This monitoring method was deployed on the project, with Benton and Anderson undertaking the data capture.
- Garcia- Blanco G. et al, (2021) Climate proofing urban planning in Valencia through NbS. CIOTX International congress of spatial planning. Valencia November 2021 Conference proceedings. <https://www.10ciot.org/libro>
- Orozco-Messana, J., Lopez-Mateu, V., Pellicer, T. (2022) City Regeneration through Modular Phase Change Materials (PCM) Envelopes for Climate Neutral Buildings. *Sustainability*, 14(14), 8902.
- Orozco-Messana, J., Iborra-Lucas, M., Calabuig-Moreno, R. (2022) Combined Greening Strategies for Improved Results on Carbon-Neutral Urban Policies. *Buildings* 12(7), 894.
- Orozco-Messana, J., Iborra-Lucas, M., Calabuig-Moreno, R. (2021) Neighbourhood Modelling for Urban Sustainability Assessment. *Sustainability* 13(9), 4654.
- Zwoździak J., Kuchar L., Kwiecinska K., Broszkiewicz-Suwaj E., Szałata L., Byelyayev M. (2021). Security and wellbeing assessment in local community and directions of social wellbeing restoration with the use of nature-based solutions. *Studia Ekonomiczne. Gospodarka • Społeczeństwo • Środowisko (economic studies. economy • society • environment)* nr 2/2021 (8)
- Zwoździak J., Szałata L., Zwoździak A., Kwiecinska K., Byelyayev M., (2020), Water retention in nature-based solutions – assessment of potential economic effects for local social groups. *Water* 2020, 12, 3347; file:///C:/Users/UP/Downloads/water-12-03347-1.pdf

4.2 Books

- Barker A, Feliú E, Garcia-Blanco G., Kwiecinska K, Pedrola B. (2021). Sustainability assessment of urban infrastructures, in Croci E, Lucchita B. (eds). *Nature-Based Solutions for More Sustainable Cities: A Framework Approach for Planning and Evaluation*. Emerald Publishing Limited, Pp 400.

- Contribution to Evaluating the impact of Nature-based Solutions: a handbook for practitioners 2021 https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/evaluating-impact-nature-based-solutions-handbook-practitioners-2021-05-06_en

4.3 Planned Publications

The following publications are planned for 2023 (working titles):

- Reducing urban runoff using nature-based solutions: a comparative analysis of three European cities (2023/4). Target journal: *Urban Forestry and Urban Greening*.
- Soil temperatures dynamics in a UK urban park: a multi-year study (2023/4). Target journal: *Urban Climate*.
- Pathways to partnership: pluralism, environmental governance, and the delivery of NBS within the post-industrial city (2023/4). Target Journal: *Environment and Planning E: Nature and Society*.
- Institutional resilience for climate change adaptation: assessing the role of urban experimentation in supporting NBS knowledge and capacity improvements (2023/4). Target: *Journal of Environmental Management*.
- Social justice and cohesion within the Sponge City: Evaluating NBS innovation and community dynamics within vulnerable urban communities (2023/4) Target journal: *Urban Studies*.
- The impact of NBS on community health and wellbeing: a time series analysis of relational change (2023/4). Target: *Journal of Environment and Planning D: Society and Space*.
- Large walking & wellbeing behaviour benefits of a co-designed sustainable park: A natural experiment study in a UK deprived urban area (2023/4). Target journal: *The Lancet Planetary Health*.
- From the Green Cities Framework to Nature-based Solutions Cities Strategies. Experiences in 6 European cities. Joint paper led by TEC and co-authorship UNIMAN, BIPOLAIRE, TRINOMICS, LAS NAVES, PAT. Journal to be confirmed.
- Testing methodologies to assess the NbS effectiveness in thermal stress at micro scale: Valencia's outputs in GrowGreen Project" Journal: *Urban Climate* | Journal | ScienceDirect.com by Elsevier. Authors: David Solar UPV, Alejandro Aduna UPV, Adrian Glodeanu TEC, Alejandro Gonzalez BIPOLAIRE, Igone García TEC.
- Adaptation pathway for NbS deployment in West Gorton Manchester by Technalia and MCC.
- Green Cities Framework by Technalia and all Bipolaire as co-author.

5 GrowGreen Website Resources

To ensure the resources remain accessible, the GrowGreen website will be maintained for two years post the project, end date 30 November 2024.

The website hosts all the final monitoring and evaluation dissemination materials for the project. All of the resources below can be accessed at <https://growgreenproject.eu/>

5.1 Factsheets

Factsheets were produced for the final event in Brest, Nov 2022 to summarise the **thematic impact** of the demonstration projects:

- 11/2022 | GrowGreen Thematic Factsheet: biodiversity
- 11/2022 | GrowGreen Thematic Factsheet: economic impacts
- 11/2022 | GrowGreen Thematic Factsheet: heat stress
- 11/2022 | GrowGreen Thematic Factsheet: social benefits
- 11/2022 | GrowGreen Thematic Factsheet: water runoff
- 11/2022 | GrowGreen Thematic Factsheet: water quality

During the life-cycle of the project, factsheets have been produced to summarise **processes, toolkits and methodologies** that have been developed:

- 11/2021 | Insight briefing: GrowGreen – Monitoring Strategy for Nature-based Solutions impact assessment in cities
- 09/2021 | Factsheet: GrowGreen – Guidance on resources and outcomes
- 07/2021 | Factsheet: Stakeholder and citizen engagement processes within an NBS city strategy
- 05/2021 | Factsheet: Unpacking Urban Heat Island
- 05/2021 | Factsheet: Climate change, vulnerability and risk in urban areas
- 05/2021 | Factsheet: The adaptation pathway approach to increase urban resilience to climate change
- 05/2021 | Factsheet: Using nature to reshape cities and live with water: an overview of the Chinese Sponge City Programme and its implementation in Wuhan
- 05/2021 | Nature-Based Solutions – Financing Assessment Factsheet
- 05/2021 | Citizen engagement for Nature-based Solutions Factsheet

5.2 Posters

7 posters were produced for the final event in Brest 2022, summarising the main **impacts of the project in each City** and a summary of the **Green Cities framework**.

- 11/2022 | Poster: Brest
- 11/2022 | Poster: Manchester
- 11/2022 | Poster: Modena
- 11/2022 | Poster: Valencia
- 11/2022 | Poster: Wroclaw

- 11/2022 | Poster: Zadar
- 11/2022 | Poster: From the Green Cities Framework to NbS local strategies.

5.3 City Reports

Individual reports detail **the results of the interventions in each city**. D1.8 is an overview of the three.

- D1.4 Intervention Conclusions in Manchester
- D1.5 Intervention Conclusions in Valencia
- D1.6 Intervention Conclusions in Wroclaw
- D1.8 Demonstrations Summary Report

5.4 Videos and Films

Manchester, Valencia and Wroclaw each produced videos about the **impact of the NbS demonstration projects in the neighbourhood**. In addition, videos have been produced by the follower cities. A screening of final cities' videos took place during the Final GrowGreen conference in Nov 22. All videos are available at: <https://growgreenproject.eu/growgreen-cities-videos/>

5.5 E-newsletter

A digital newsletter has been produced twice a year. The newsletter counts a total of 394 subscribers. Each of the newsletter editions are posted on the website and shared on social media.

The final newsletter will be published in December 2022 and contain a summary of the monitoring results and impact.

6 Social Media

Twitter handle @GrowGreen <https://twitter.com/GrowGreenCities>

The Twitter account currently (as of December 2018) has 671 followers. Tweets from the account earn on average 17,110 impressions per month and 271 engagements per month. The twitter feed is used to signpost followers to the results and resources on the GrowGreen website.

7 City Level Results Dissemination

7.1 Manchester

7.1.1 Site Tours

Site tours of the West Gorton demonstration project have been a valuable mode of dissemination. During the early stages of the project this included information on the design and monitoring methodology and to share interim findings. Recent visits have included the dissemination of the impact data. Currently site visits are planned until March 2023.

Date	Organisation(s)	Nos	Attendees
15 Dec 2022	EU-funded project “Strengthening disaster resilience and accelerating implementation of the Sendai Framework for Disaster Risk Reduction in Central Asia”	15	Nur-Sultan (capital city of Kazakhstan) Bishkek (capital city of Kyrgyzstan) Dushanbe (capital city of Tajikistan)
15 Nov 2022	Salford City Council	4	Parks officer, planners/landscape architects
28 Oct 2022	The University of Manchester	19	Post graduate students from the MSc Green Infrastructure programme
9 Jun 2022	URBACT Zero Carbon Cities Network	15	City partners from Modena, Zadar, Bistrita (Romania), Tartu (Estonia), Vilvoorde (Belgium)
11 Apr 2022	Manchester City Council	2	Park rangers
30 Nov 2021	Far East Consortium	3	Landscape architects
24 Nov 2021	Manchester City Council	2	Victoria North Strategy & Coordination team
22 Oct 2021	The University of Manchester	9	Post graduate students from the MSc Green Infrastructure programme
22 Oct 2021	Landscape Institute	1	Development manager
26 Nov 2020	ARUP	3	Civil engineers and consultants

Figure 5 Manchester Pilot Site Visits

<https://www.manchester.ac.uk/study/masters/courses/list/18589/msc-green-infrastructure/>

The GrowGreen project has acted as a catalyst for the establishment of a new MSc in Green Infrastructure at the University of Manchester. It was launched in the academic year 2021/22 (9 students) and has recruited 19 students in its second academic year (2022/23). This MSc is an important platform for the dissemination and continuation of project monitoring. Students visit the West Gorton site and also work with some of the monitoring data as part of their practical work. The demo site is a fantastic resource for student dissertation work, utilising existing datasets, and collecting new evidence for NBS effectiveness. The MSc is a tangible ongoing route for dissemination, ensuring that the next generation of environmental professionals are aware of the value of NBS and are skilled in the tools and approaches of how to monitor and evaluate NBS.

7.1.2 Local Events Planned - 2023

- Jan 2023 - GrowGreen Manchester findings – workshop planned for key stakeholders in Manchester to share the monitoring findings and plan next steps.
- ‘Seeing is believing’ tour for UK Landscape Institute Members: A landscape based approach to urban flood water management: Lessons from the Grow Green Project, West Gorton, Summer 2023
- Spring 2023 – Manchester Museum. Re-opening of Manchester Museum following extensive refurbishment. There will be a new Chinese Culture Gallery – where Wuhan’s sponge city principles will be showcased, together with the West Gorton Community Park’s water management approach.
- Spring 2023 - Presentation of research findings to Manchester City of Trees, with a focus on sustainable drainage. James Rothwell, University of Manchester.

7.1.3 Awards

Submissions for awards is an excellent way to reach a wider audience, particularly the professional and industry sectors. The West Gorton Community Park has been recognised in three UK awards.

- Design Council’s ‘Golden Pineapple’ Award for Best Public Space: The Pineapples awards are unique in seeking to celebrate great places that thrive, where people want to live, work, play, shop or learn. www.festivalofplace.co.uk/project-showcase/winners-gallery-the-pineapples/west-gorton-community-park-manchester-winner--manchester-city-council-with-bdp
- Excellence in Flood and Water Management Award from the Landscape Institute Awards 2021 (BDP: West Gorton Community Park designers) : www.youtube.com/watch?v=Rn2cwEe6opc
- Excellence in Flood and Water Management Award from the Landscape Institute Awards 2021 (BDP: West Gorton Community Park designers) : www.youtube.com/watch?v=Rn2cwEe6opc

7.2 Valencia

7.2.1 Site Tours

Site tours of the Benicalap demonstration projects have been a valuable mode of dissemination.

Date	Organisation	Nos	Attendees
19 May 2021	Las Naves	35	General citizens
07 Aug 2021	Las Naves	30	Las Naves staff
11 May 2022	Las Naves	13	Las Naves staff
14 Jun 2022	Las Naves	56	School students and teachers from Nuestra Señora del Carme School (Benicalap)
15 Jun 2022	Las Naves	42	School students and teachers Nuestra Señora del Carme School (Benicalap)
15 Jun 2022	Las Naves	5	Researchers from Seoul
30 Jun 2022	Las Naves	4	General citizens
9 Jul 2022	Las Naves	6	General citizens
21 Oct 2022	Las Naves	15	Graduate students from Polytechnic University of Valencia
25 Oct 2022	Las Naves, ICUH	25	Researchers from different organizations
4 Nov 2022	Las Naves	8	Graduate students from University of Valencia
15 Nov 2022	Las Naves	5	General citizens
17 Nov 2022	Las Naves	13	Master students from University of Valencia
23 Nov 2022	Las Naves	6	General citizens
24 Nov 2022	Las Naves	7	NBS entrepreneurs

Figure 6 Site Visits - Valencia Pilot

7.2.2 Local Website

Valencia has its own website for the Benicalap demonstration projects.

[GrowGreen Valencia – Grow Green Valencia | Mes Verd Benicalap](#)

7.2.3 Local Events

A number of events have been held in Valencia to share the results of the demonstration projects with local stakeholders.

- September 2022 – Presentation of project pilots for Climate Change Chair in Polytechnic University of Valencia.
- September 2022 – Presentation of project outputs to Valencia City Council heads of services
- October 2022 – Participation in round table conference for green-urban fair in Valencia
- November 2022 – Wuhan Sponge Cities and sustainability event in Las Naves
- November 2022 – Participation in roundtable in Sustainability Festival of Las Naves
- November 2022 – International presentation of Energy Poverty pilot from Las Naves at Polytechnic University of Valencia

7.3 Wroclaw

7.3.1 Site Tours

In Wroclaw, site tours of the Olbin demonstration projects have been a very valuable mode of dissemination.

Date	Organisation	Nos	Attendees
25 July 2021	Metrex	4	urban planners
30 May 2022	Erasmus+	15	students
23 June 2022	Ledum – landscape architecture office	10	landscape architects

Figure 7 Sites Visits - Wroclaw Pilot

7.3.2 Local Website

GrowGreen Wroclaw has its own website about the Olbin demonstration projects which is a part of Wroclaw Municipality service:

<https://www.wroclaw.pl/growgreen/>

7.3.3 Local Events

A number of events have been held in Valencia to share the results of the demonstration projects with local stakeholders.

- December 2022 – Gdansk, Marshall’s office, event on blue-green infrastructure
- May 2022 – June 2022 – series of webinars for professionals and municipal workers on NBS <https://www.wroclaw.pl/growgreen/blekitno-zielona-infrastruktura-w-inwestycjach-miejskich-warsztaty-on-line>
- October 2022 – GPP Helpdesk Webinar Public Procurement of Nature-Based Solutions https://ec.europa.eu/environment/gpp/webinars_en.htm

7.3.4 Local Events Planned - 2023

As a result of Wroclaw being recognised as a Resilience Hub within Making Cities Resilience 2030 initiative, there are plans to build the Hub on NBS expertise and run a number of events in 2023.

7.3.5 Awards

Similar to the projects in the other project cities, Wroclaw has created a living lab, in this case a series of labs. The courtyards provide an exemplar for other developments. The solutions used have gained recognition and distinction, for example in the EcoCity Competition. The competition is organized by

the French Embassy in Poland. Wrocław was awarded for recognition of the importance of areas covered with vegetation (formal and informal green areas) as an equal material of the urban structure of the city and for the apt and interestingly planned educational and investment projects in the field of blue-green infrastructure in the GrowGreen project.

<https://www.eco-miasto.pl/konkurs-dla-miast-2/konkurs-dla-miast/laureaci-minionych-edycji/2/>

The work has also been recognized by the Friendly Public Space Competition organized by Polish Architects Association (SARP) as a part of DoFa Festival. It received a mention for revitalization of courtyard interiors no. 3 and no. 4 in the category Public and Semi-public space in areas co-created with the participation of the local community.

<http://www.wroclaw.sarp.org.pl/pl/dofa/20/category/dofa-festiwale-20-wystawy-konkursowe>

8 European Networks

8.1 Horizon Results Platform

The Horizon Results Platform (<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform>) aims to turn “Europe’s research results into innovations which generate value for economy, society and contribute to a sustainable future” acting as a result repository for the broad range of H2020 projects. The following Key Exploitable Results (KER) will be uploaded:

- Monitoring KPIs being evaluated in the Demonstration projects and main outcomes i.e., individual indicator factsheets with different levels of information and technical requirements to be applicable
- GrowGreen NBS inventory of NBS
- Repository of solutions being implemented in the partner cities
- Green cities framework handbook [Green Cities Framework Handbook - GrowGreen \(growgreenproject.eu\)](#)
- NbS project co- design guide [Co-design guide tool - GrowGreen \(growgreenproject.eu\)](#)
- GrowGreen NbS Benefit calculator - [NBS Benefit Calculator - GrowGreen \(growgreenproject.eu\)](#)
- GrowGreen NbS business models search [NBS Business Models search engine - GrowGreen \(growgreenproject.eu\)](#)

8.2 Network Nature

As a multi-stakeholder platform on nature-based solutions, NetworkNature gathers the different actors of the NBS community, and provides a common space for key resources, news, and events.

Through the 5 NetworkNature Taskforces, a broad range of EU NBS projects (including GrowGreen) collaborate on common transversal topics:

- TF1 – Data Management and EU NBS Knowledge Repository
- TF2 – NBS Impact Evaluation
- TF3 – Governance, business models and financial mechanisms
- TF4 – NBS Communicators
- TF6 – Co-creation and governance

GrowGreen is a member of TF2, TF3, TF4 and TF6. Collaboration of GrowGreen with the TFs has led to the production of the [NBS Impact Assessment Handbook](#) and the [Publication on Public Procurement of Nature-based Solutions](#). Furthermore, GrowGreen has been participating in the bi-annual NetworkNature Taskforces Cluster Meetings, where all Taskforces members are gathered to strengthen their collaboration and understating of each other's work, including discussions on how EU NBS projects can effectively create policy impact.

In addition, NetworkNature is setting up national and regional NbS hubs, to strengthen the engagement at local and regional level (across different stakeholder types) on NbS related topics. So far, a Hungarian HuB and a Nordic Hub have been launched in October 2022, while a Portuguese Hub is planned to be launched in early 2023. Discussions are ongoing for a potential Italian Hub, Slovenian Hub, and German Hub (to be confirmed).

The nature of these hubs calls for involvement of actors at city level, therefore creating an opportunity for the GrowGreen partner cities located in the Hubs' regions/countries to engage.

NetworkNature has also made a link with the existing UrbanByNature Hubs, to further encourage learning and knowledge sharing.

The NetworkNature Taskforces will continue their work during the next phase of the project (NetworkNature+) and further NbS Hubs are planned to be launched. GrowGreen partners will continue to monitor the work carried out under this project (through the direct engagement of IUCN) to ensure capitalisation on any upcoming engagement and collaboration opportunities, directly contributing to building the evidence base on NbS.

8.3 Oppla

The Oppla platform, to which NetworkNature is directly linked, works as a repository of key resources on NbS, ecosystem services and natural capital. <https://oppla.eu/>

In order to ensure the long-term sustainability of the main GrowGreen resources such factsheets, tools, videos, posters, and public deliverables have been uploaded to the platform.

Annex 1- Monitoring and Evaluation Contacts

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Figure 8 Project contacts for further information and research