



Green cities for climate and water resilience, sustainable economic growth, healthy citizens and environments

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www.growgreenproject.eu



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730283

Project Outline



- FIVE YEAR PROJECT
 - STARTED IN JUNE 2017 - ENDS IN JUNE 2022
 - BUDGET OF 11 MILLION EUROS
 - 23 PARTNERS (22 IN EUROPE AND 1 IN CHINA)

 - THREE FRONT RUNNER CITIES
 - MANCHESTER
 - VALENCIA
 - WROCLAW

 - THREE FOLLOWERS
 - BREST
 - MODENA
 - ZADAR
-

GrowGreen partners - 23



WROCLAW



ZADAR



Comune di Modena



UNIWERSYTET PRZYRODNICZY WE WROCŁAWIU



MANCHESTER CLIMATE CHANGE AGENCY



Project Objectives



“Deliver systematic changes to the long term planning, development, operation and management of 6 Cities through the use of nature based solutions (NBS) in order to deliver quantified improvements in climate, water resilience, social, environmental and economic performance”

- Add to the NBS evidence base by evaluating the impact of demonstration projects in 3 Front Runner Cities.
 - Develop viable business models and policy instruments to create the market conditions for NBS investment.
 - Developing a Green Cities Framework to help Cities develop and implement NBS strategies.
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Demo Project Objectives



- The demos are being built to study the impact of NBS and are being built in the 3 front runner cities of Manchester, Valencia and Wroclaw.
- They are to be co-designed, co-delivered and co-managed.
- All the demo projects will be innovative, replicable, cost effective and sustainable.





Demo Project - ManchesterGrow Green

Manchester, West Gorton - A new community park with NBS.



Demo Projects - Valencia



Grow Green

Benicalap -Valencia = 5 pilots

- new vertical eco system
- urban forest
- green corridor
- green roof
- food basket & biodiversity app



Demo Projects - Wroclaw

WROCLAW – Olbin

6 NBS courtyards and
a green corridor.





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Monitoring and Evaluation



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Objectives



Impact evaluation across a range of benefits:

- **CLIMATE-Heat stress**
 - **WATER RESILIENCE –water management and flood risk**
 - **ENVIRONMENTAL -CO₂ emissions, biodiversity, water quality, air quality**
 - **SOCIAL, HEALTH AND WELL BEING-Social cohesion, health and well being, noise, stakeholder participation**
 - **ECONOMIC –economic benefits**
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General Approach



- Local university monitoring teams have been set up in Manchester, Valencia and Wroclaw.
 - KPIS have been agreed in each City (a total of 142 KPIs)
 - The sites are being monitored for 6 months before construction of the NBS demos.
 - The demos will be monitored for 2 years once NBS has been constructed.
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Market and Policy development



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Objectives



- To develop an understanding of the potential market for NBS.
 - Identify the options available for financing NBS.
 - Understand the policy and legislation in relation to the use of NBS.
 - Source funding for NBS investments from public & private sources.
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Green Cities Framework



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Grow Green

Green Cities Framework Objectives

To develop a framework document which will provide guidance to support cities to develop and implement NBS strategies.

The Green Cities Framework will be tested on the Front Runner and Follower Cities at different scales

- city wide scale
- neighbourhood scale
- site level scale

The objective is for it to be used as a guide to replicate NBS at different scales worldwide.



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Replication



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Replication activities



- To create knowledge sharing to develop and implement NBS
- To develop training programmes to implement NBS.
- To encourage cities around the world to use NBS.
- Working with Cities with Nature and their global network to green up cities.





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Case study-new park in West Gorton, Manchester



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Grow Green

Site location and context

Part of a wider housing led regeneration project
(poor levels of health, education, skills, lack of green space etc)



Park Design objectives

- Improved water management and reduction in flood risk-inspired by Wuhan Sponge Cities programme.
 - Decrease in peak temperatures.
 - Improved social, health and well-being, including social cohesion, stakeholder engagement, etc.
 - Access - improved distribution of public green space and access to green space.
 - Biodiversity - enhancement of species present, habitat, vegetation.
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Park design

Links 3 separate areas-1 existing park and 2 demolition sites
SUDS features in each area.

Co-designed with residents with support from Groundwork



Woodland Play Zone

Incorporates play equipment set amongst green rolling landscape and planting to benefit wildlife.





SUDS features

A



Rainwater from Gregory Street is funnelled beneath the pavement and into a planted bio-swale. Cobbled head-walls and timber check-dams help to slow and break up the water flow, helping it disperse into the planting.

B



Rainwater collected in the dished channel around the basketball area funnels down into a bio-retention tree pit. A perforated pipe takes the water slowly through the tree roots and soil zone, before any excess is taken away.

The Meadow Zone

Incorporates natural play features grass mounds, willow den, picnic tables and a trim trail set in flowering orchard trees.



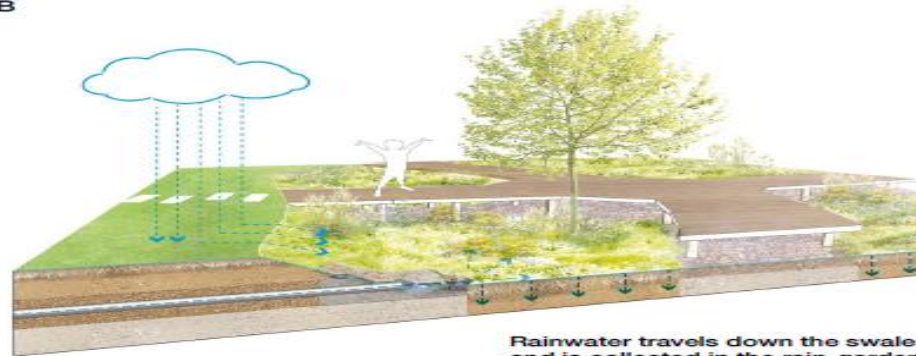
SUDS features

A



Rainwater from Wenlock Way is funnelled beneath the pavement and into a planted bio-swale. Cobbled head-walls and timber check-dams help to slow and break up the water flow, helping it disperse into the planting.

B



Rainwater travels down the swale and is collected in the rain-garden where plant roots take up the water, and the excess infiltrates slowly into the ground at a controlled rate or evaporates away in warm weather.

Community garden

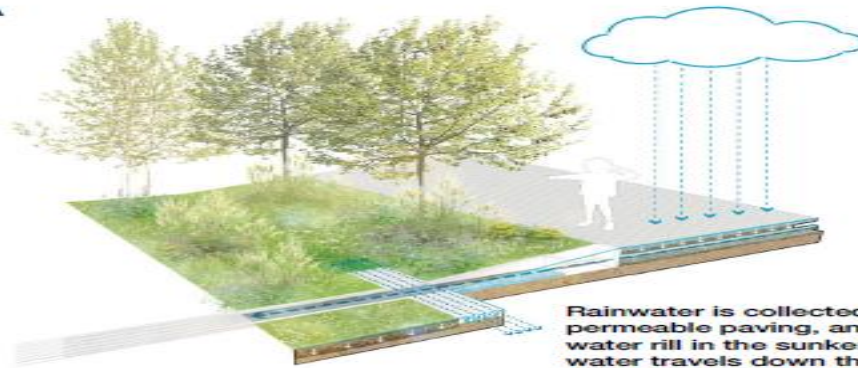
Incorporates a sunken garden with a community plaza, grow zones and lawned areas.





SUDS features

A



Rainwater is collected from permeable paving, and travels to the water rill in the sunken garden. The water travels down the rill and filters into the moisture loving planting along the way.

B



At the end of the water rill an Alder Tree is planted to 'drink' excess rain water. The water infiltrates slowly into the ground to manage the drainage of the park in a sustainable, environmentally friendly way. Flowering plants attract beneficial insects and wildlife.

Progress



2 year Impact evaluation - University of Manchester



Climate mitigation and adaptation-humidity, air temperature, ground temperature, surface temperature

Water resilience-run off in relation to precipitation

Water management-surface water run off, run off peak discharges, run off volume

Green space management-diversity of trees and shrubs, diversity of vegetation strata

Participation, planning and governance-citizens involved in project activities, interest in urban eco systems, faith in decision makers, degree to which knowledge about NBS has changed.

Social justice and social cohesion-access to green space, attachment to the neighbourhood, levels of trust,

Public health and well being-activity levels, average weight

Economic- opportunities-avoid run off treatment, direct jobs , property values

Management and maintenance



Plan A

Charge a levy to private sector home owners (provided for in the deed) + dowry from the Guinness Partnership (largest social housing provider in the area) + MCC capital receipts from sale of land to private housing developer.

Tender maintenance to 3rd party- land trust etc.

X- could not get political approval for enacting the levy clause in such a deprived area.

Plan B

Dowry from the Guinness Partnership + MCC capital receipts from sale of land

Maintenance by MCC – 5 years then??
