The Urban Lab of Europe!

NEWS

PROJECT

IGNITION - Innovative financinG aNd delIvery of naTural clImate sOlutioNs in Greater Manchester

Greater Manchester, United Kingdom

TOPIC

Climate adaptation

EDIT 09 MAY 2022
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The legacy of IGNITION: Multiple support tools making co-investment for nature-based solutions work

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The goal of IGNITION, which started in November 2018, was to develop innovative financing schemes for the implementation of large-scale nature-based solutions. Three and a half year later, the project ends with multiple smaller solutions, supporting tools and approaches instead. Why have so many been developed – some planned, some unplanned, and why are the unexpected results nevertheless a success that have pushed nature-based solutions forward on Greater Manchester's agenda? Presentations and discussions at the final IGNITION event on 30th March 2022 provided interesting insights.

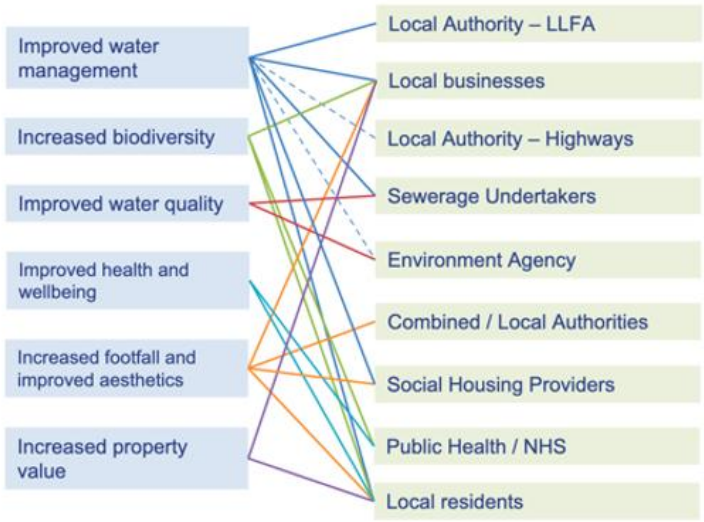
> Maybe we have been too naive and underestimated the challenges to establish pipelines for large-scale projects within just two years

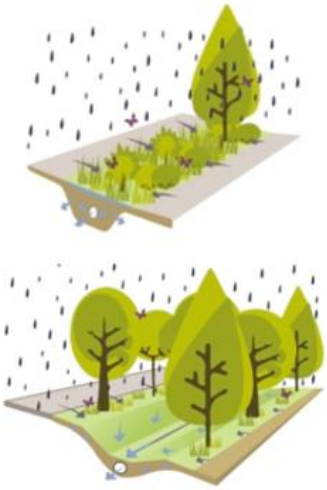
... says Matt Ellis from project partner the Environment Agency during IGNITION's final event. In theory, it seems relatively simple that there will be a financial return if water charges can be saved by decoupling areas from the sewer network with stormwater instead managed in sustainable drainage systems (SuDS). This assumption drove the selection of the water charging band model as IGNITION's funding stream 1 model, as it had also been tested in practice prior to the project at Moorland School. While the scheme worked there - with the support of eventual IGNITION partners - challenges appeared when trying to mainstream and upscale this approach. Nevertheless, this first attempt at developing a sustainable funding model has been very important in teaching the project team valuable lessons (see also: The long and winding road to financing nature-based solutions).

This test case made the team recognise that the solution cannot be as simple as it appears, and potential public and private investors may not yet be ready to apply nature-based solutions as a key tool to tackle climate change impacts such as urban heating and flooding. After analysing the barriers, the team adjusted its focus by looking into the broader framework, which includes people, places, opportunities and tools and approaches needed to overcome the barriers and utilise the different opportunities.

Challenges and a new approach

When planning the project, the team had partially underestimated local resident's awareness and knowledge. While residents value greenspace in general for its social and wellbeing benefits, which became even more pronounced under the COVID 19 crisis, the citizen engagement survey revealed that people had a low knowledge of the important role that greenspace has in mitigating the impacts of urban heating and flooding, both climate impacts that will substantially increase in Greater Manchester in the future.
A similar picture appears with property owners and investors. There has been little confidence on the exact benefits of installing nature-based solutions instead of conventional technical solutions, and on the returns from this investment. "We know from literature and research about benefits of nature-based solutions, but how much would the presented calculations apply to our situation? The scientists say it would depend ..., or the solutions are at other places and cannot be compared. That is not fully convincing; we need more small-scale data from the UK" says Charlotte Markey, Green Urbanisation Innovation Manager at Polypipe. Furthermore, when experts promote the multiple benefits, these are partially for other beneficiaries who did not bear the costs. There is a high complexity of stakeholders which could benefit from but would not necessarily pay for the solutions, versus the investors left with an uncertain return.





Value proposition of NBS for different users

Other challenges have been the low availability of standardized nature-based solutions and inappropriate or uncertain fiscal and legal framework conditions, in which benefits cannot be realised. For example, the original Funding Stream 1 model had only long-term returns and which, in addition, are uncertain due to the possibility that the water charging system could change over time.
Against this backdrop it was difficult to convince public or private investors to use more nature-based solutions for climate-resilience, with different approaches needed to drive forward collaborative investment in nature-based solutions. These new approaches are more diverse, complex, and location-specific. They combine efforts of different stakeholders in co-investment and co-implementation approaches, where benefits and costs are much better shared, many more benefits can be enabled, and implementation can be enabled through a mix of funding and funders. For example, the workshops with local authorities have revealed that there are multiple options to implement nature-based solutions. One of the largest sources to tap in to are the benefits received by other departments in the same authority, such as highways or health, as well as building on citizens' high willingness to support.

Supporting tools and actions for making multiple co-investment schemes work

The new co-investment and co-implementation approaches do not come by themselves. To overcome the barriers identified along the way, IGNITION developed different tools and activities to make them work.

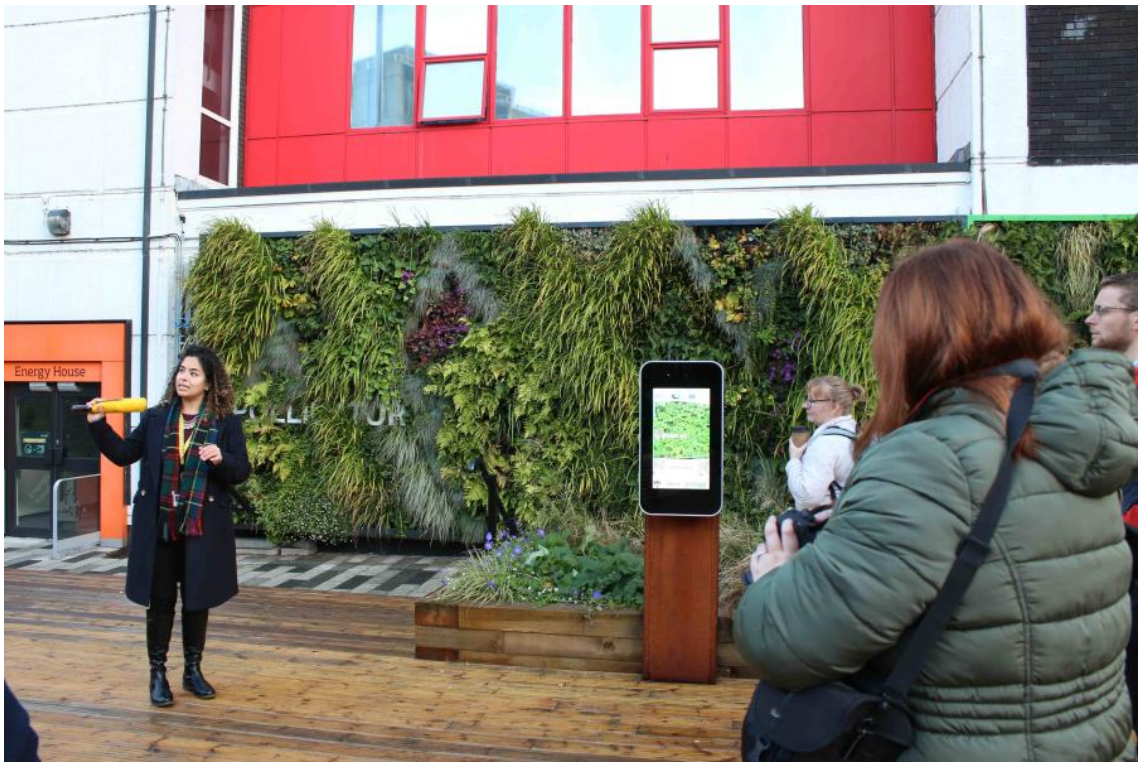
Green infrastructure evidence base – knowledge and data
Screening through approximately 1,000 sources of literature and research, IGNITION compiled the quantitative and qualitative benefits of different kinds of nature-based solutions to tackle impacts on urban heat, water quality and quantity, air quality and noise attenuation, carbon sequestration, energy use, health and well-being, as well as land and property values. This Green infrastructure evidence base on the benefits of nature-based solutions is now publicly available and supplemented with illustrative factsheets for an easier access and understanding. This database has since then been a strong support for planners and investors as they could find all the benefits collected and well sorted at one place.

Benefit	Physical flow	Living wall	Green façade	Unit
Air quality	Nitrogen dioxide	18-35% [Mid-point 26.5%]		% Reduction in ambient concentration of NO_x at street level in a street canyon
	Particulate matter [PM10]	22-50% [Mid-point 36%]		% Reduction in ambient concentration of PM 10 at street level in a street canyon
Carbon	Carbon sequestration	0.68		Avg. carbon kg yr. m^2
		0.14-3.18 [mid-point 1.66]		Rng. carbon kg yr. m^2
	Carbon storage	*No data*	*No data*	Carbon kg m^2
Water quantity	Rainwater runoff reduction	<75%		Max. % rainfall retained
		No data	*No data*	Avg. rainfall intercepted m^2 annum per m^2
Water quality	Total nitrate removal	30-83% [Midpoint 57%]		Rng. % reduction in total Nitrates
	Total suspended solids removal	33-99% [Midpoint 66%]		Rng. % reduction in total suspended solids
	Total phosphate removal	15-30% [Midpoint 23%]		Rng. % reduction in total phosphates
Temperature	Indoor air temperature	4.8°C*	2.7°C [Rng. 1.7-4°C]	Avg. reductions in indoor air temp °C
	Exterior wall temperature	3°C [Rng. 1-3°C]	3.8°C [Rng. 0.4-7.1°C]	Avg. reductions in exterior wall temp °C
	Ambient exterior air temperature	0.5-4.1°C [Midpoint 2.3°C]	1-3°C [Midpoint 1.5°C]	Avg. reductions in exterior air temp °C
Energy use	Energy consumption for cooling	No data use green facades	19% [Rng. 13-23%]	Avg. % reduction in energy use for cooling
	Total energy consumption	15% [Rng. 14-16%]	8% [Rng. 8-9%]	Avg. % reduction in total energy consumption
	Energy consumption for	5.2% [Rng.4-6.3%]	1.6% [Rng. 1.2-1.9%]	Avg. % reduction in energy consumption for warming

Screenshot of the evidence base on green walls

Living Lab - tangible experience, live data, and learning

However, the data contained in the evidence base was largely from national and international case studies, rather than projects located within the Greater Manchester context. A key element from IGNITION therefore became the Living Lab at the University of Salford While it was planned from the beginning, its importance for the project's success became much higher than expected. It provided a real and tangible case to experience different nature-based solutions, by retrofitting existing space and buildings. On top of that, the Living Lab with its multitude of sensors delivers continuous real-life data on the actual performance of the nature-based solutions under different weather conditions. These will soon be publicly accessible via an online dashboard. Investors can feel and see how successful the solutions are at insulating buildings against heat, mitigating stormwater, supplying rainwater to SuDS-trees in dry periods, and how much carbon is stored, or noise reduced.



Visiting tour through the Living Lab

In addition, that knowledge and data from the Living Lab as an existing case in the region is also very important for suppliers of nature-based solutions. It is not only an excellent showcase but delivers performance data to convince potential clients, thus strengthening their business and providing the opportunity to further optimise the solutions based on the data captured.

Green infrastructure explorer – data

A green infrastructure explorer will enable local authorities in Greater Manchester to have an overview on the amount and distribution of greenspace in their municipality. Thereby, the explorer does not only count green areas, but also the tree canopy that is highly important for heat reduction and usually not included in comparable tools elsewhere. The tool, while based on GIS, is easy to apply by users without any GIS skills. It can help in multiple ways: creating a baseline and evidence for planning and green infrastructure or climate resilience strategies, understanding the role and options of green infrastructure at user-defined sites, identifying priority sites for intervention, or informing project funding allocations. Its usefulness can be even increased by combining it with socio-economic data for example.

Green roof benefit calculator

An interactive Green roof benefit calculator has been developed to bridge the gap between the data and the planning of real-world projects, and thus ease and accelerate the installation of green roofs by all types of investors by using the data from the evidence base to calculate their benefits. Property owners can put in the basic data of the roof in question, like area and building characteristics, and obtain the estimated potential benefits including: energy and carbon reductions, biodiversity, storage of rainwater, reduction in urban noise, extended roof longevity, increased property or rental value, improved air quality, surface water drainage bills and reduction in temperature and the cost of installing the roof under Greater Manchester conditions.

Case studies, business cases, fact sheets – knowledge and inspiration

Several real business cases have been described in case studies, such as on financing green roofs, parks, and sustainable drainage systems. They present illustrative cases and a blueprint to inspire followers. Specific guides, one for local authorities and one for private businesses show the many different options to plan, implement and maintain solutions, such as community support, donations, parks foundations, and cross-departmental collaborations, etc.

Ask an expert – efficient decision and planning support

Finally, IGNITION itself with its knowledgeable experts has been an important asset for investors. This has been expressed by Chris Whetstone, who is responsible for managing the Swinton Shopping Centre that is installing nature-based solutions: “The wrap around service of IGNITION, the option to ask an expert, and the access provided to direct research was even more important than the funding.”

Eco-streets, climate hackathon and Living Lab – tangible experience moving people

> People need to believe in it. We shouldn't underestimate the emotional factor, when people can see and feel nature-based solutions.

Sam Hartley from the project partner Business in The Community.

Surveys, multiple target group-specific workshops have shown the high willingness of citizens and other stakeholders to engage in nature-based solutions. While they need better knowledge on the additional climate benefits of effectivity of nature-based solutions, that knowledge alone is unlikely to move them. The experience made in the project has shown that people need to see and feel the solutions first. That makes them believe in them. Only then, the data and knowledge help to actually plan and implement concrete solutions.
The Living Lab has already had 600 visitors and an additional 1,000 have taken the virtual tours. Many of them feel inspired and want to have similar solutions in their neighbourhood or property.
An Eco-streets competition last summer opened the minds in local communities and boosted creativity. Communities could apply for seed money and technical support to green their own alley way or other underused space. The response was overwhelming, and the first eco-streets are being established right now. Such small citizens projects can become little pockets in an overall green network of the city and thereby boost through tangible experience the knowledge and awareness of the multiple benefits of nature-based solutions, thus also increasing support for greenspace elsewhere.
In climate hackathons, groups of students have solved different tasks to design greenspace in the region. Thereby, they have also been asked to step into the shoes of other open space users, like elderly people, to take their perspective. This has increased their awareness and knowledge on nature-based solutions as well as understanding of the needs of different users, challenges and options. It has shown to be a helpful approach to co-create greenspace and create ownership for the solutions, which can be repeated also with other citizen groups.

> Having all these tools made it so much easier to get the project running.

Chris Whetstone, managing Swinton Shopping Centre

From here

"IGNITION has developed useful tools to understand the value of nature and has put in the foundations for upscaling investment in Greater Manchester in the future" Sam Evans, Head of Natural Environment, Greater Manchester Combined Authority. To make these tools work, the right structures need to be put in place to make it easy for widespread installation of nature-based solutions. Therfore, grant funding needs to be used more smartly to blend it with other funding contributions. Greater Manchester needs to extend the enabling framework by continuously providing more confidence in the installation and maintenance of natural solutions over the longer term, collecting more data at a scale that allows the environmental benefits to be proven and valued. More standardised approaches such as those tested in close collaboration with suppliers at the Living Lab will further accelerate the uptake.

IGNITION has also supported the setting up of the Greater Manchester Environment Fund, a new charity with the aim of providing a way of bringing together funding from different sources to deliver projects on the ground. The financing schemes and business cases developed provide a potential blueprint for multiple partners to come together in the future to co-fund projects where one partner cannot do it alone.

> Two years ago, nobody was talking about nature-based solutions. Now everybody is talking about them. Something has moved, even if we have not introduced them in one big step. We will do it slowly by learning, testing and then expanding.

Jo Harrison, United Utilities

Links

IGNITION Homepage with all tools
Investing In Nature: Lessons from Greater Manchester event, 30 March 2022 - YouTube

Climate adaptation

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