



Translating Green Infrastructure research into decision making and practice

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This report is deliberately presented in a visual style, aiming to use easy-to-read and non-technical language.

Table of Contents

1. Background & Introduction	1
2. Results.....	2
2.1 Sectors.....	2
2.2 Factors influencing decision on investment/ delivery of GI	3
2.3 Topics/ factors important for GI investment	4
2.4 Availability of evidence for decision making & investment.....	4
2.5 Top barriers to access evidence, research and tools.....	6
2.6 High Impact Evidence.....	7
2.7 Evidence and Decision Making	8
2.8 Support for types of KE activity.....	9
2.9 Any other comments	9
3. Conclusions and recommendations.....	10

1. Background & Introduction

The Natural Environment Research Council (NERC)¹ has been promoting research on Green Infrastructure over recent years. A recent call for a Knowledge Exchange Fellow for urban Green Infrastructure was opened in March 2017².

A survey was launched to inform the application of Dr Ingo Schüder, a prospective fellow candidate. The aim was to inform the proposal and allow future beneficiaries to influence and shape the proposal. The survey opened on 20 March 2017 and closed on 22 April 2017.

¹ <http://www.nerc.ac.uk>

² <http://www.nerc.ac.uk/funding/available/schemes/kefellows/dkefellowscall/urban/>

The survey asked a number of questions, some permitting free text answers, others asking to rate agreement on a scale of 1-4. The 1-5 rating was not used to avoid sitting-on-the-fence type “3” answers. Responses of 1 and 2 were rated as “agreement”. Some questions were mandatory, others were optional.

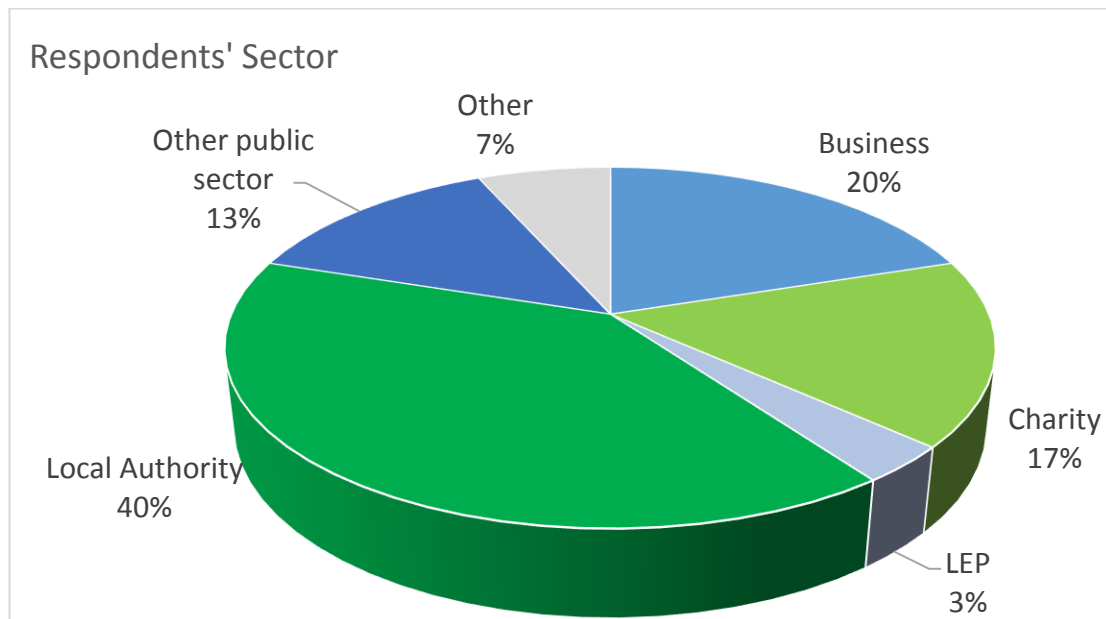
2. Results

This report presents the results from 31 responses.

2.1 Sectors

There was a good mix of responses from different sectors. All respondents are from an intended beneficiary sector (consultants, local Authority, business etc.). Local Authority representatives made the majority of respondents. “Other” sectors included a Local Biological Records Centre and a coastal partnership. About half of participants were middle managers (e.g. Principal Consultant, Programme Manager, Development Director, Head of Research Group)

Four respondents from Local Authorities stated the status of their authority as “urban” and 10 as “mixed”. No rural Local Authority representatives responded.



2.2 Factors influencing decision on investment/ delivery of GI

Question: What are the top three factors influencing your decision on investment in/ implementation of GI on the ground?

The survey wanted to avoid the assumption that evidence plays a major role in decision making. The question was therefore phrased as an open question.

The answers from the free text box responses were grouped into clusters. The top five answers were:

- 1) Feasibility
- 2) Biodiversity
- 3) Benefits
- 4) Cost
- 5) Health

It is important to note that “evidence” or “research” did not feature at all in any of the respondents’ replies. In addition to “benefits” generally, respondents stated many specific benefits, so this is clearly very important.

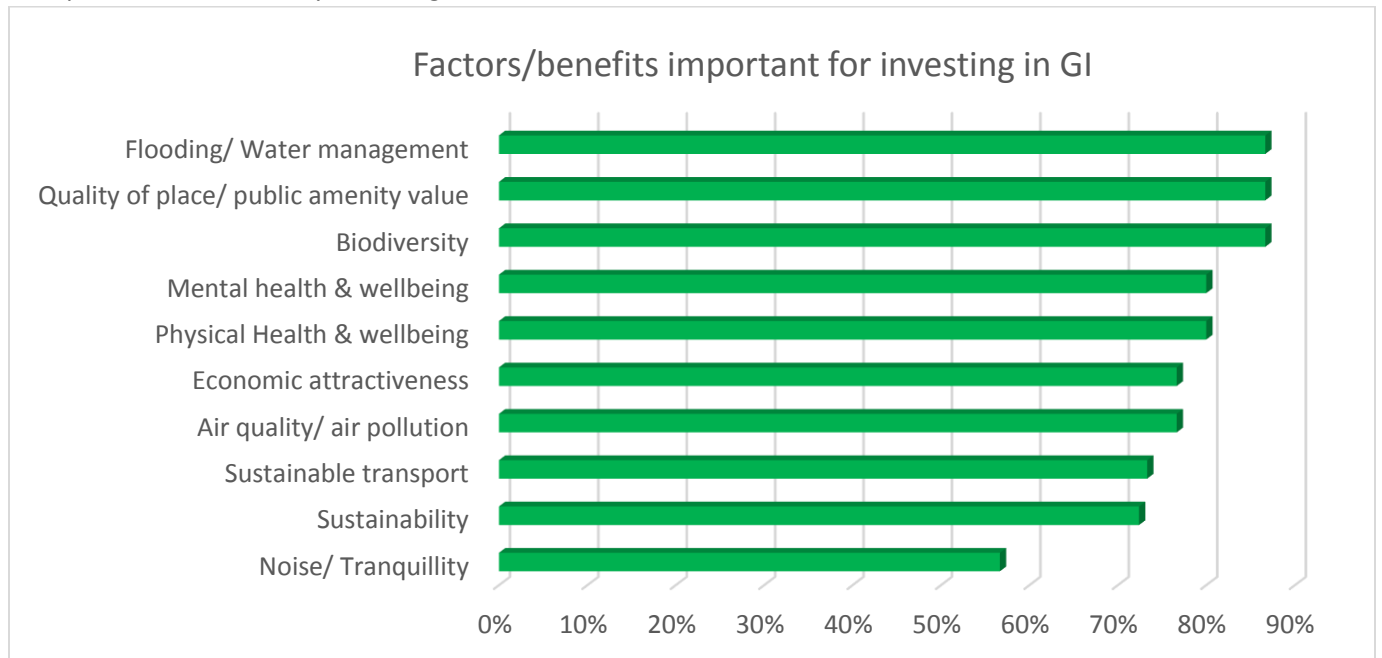
The diversity of responses is illustrated in the word cloud below (The word size represents the frequency of that type of answer).



2.3 Topics/ factors important for GI investment

Question: How important are the following factors for investing in Green Infrastructure?

Respondents said they invest in GI to tackle flooding & water issues, to enhance the quality of the place and biodiversity. The diagram below shows the full set of answers.



2.4 Availability of evidence for decision making & investment

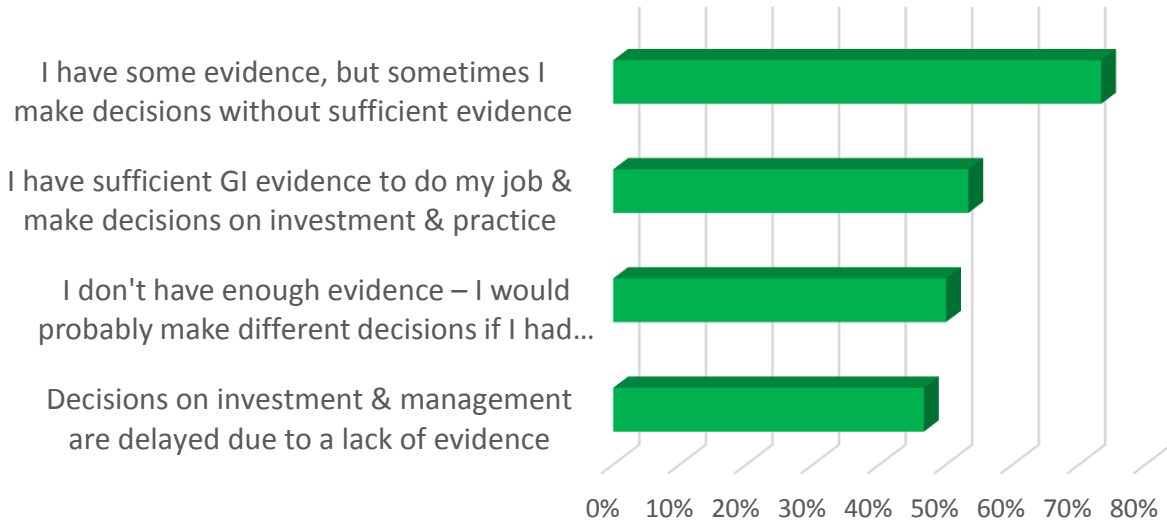
Question 1: Access to knowledge, Science and evidence - Which of the following describes you best?

Question 2: Investment in GI and implementation on the ground happens ...: Which statement describes your work area/department?

These were the only question that did not return a very high frequency of agreement to any of the given statements.



How respondents describe their decision making



This suggests that decision making is complex and that many organisations have mixed approaches when considering evidence-based decision making. The most likely scenario is that organisations have evidence in some areas, but not in others. And that investment may happen despite a lack of evidence or be held back by it.

Investment in GI and delivery on the ground ...



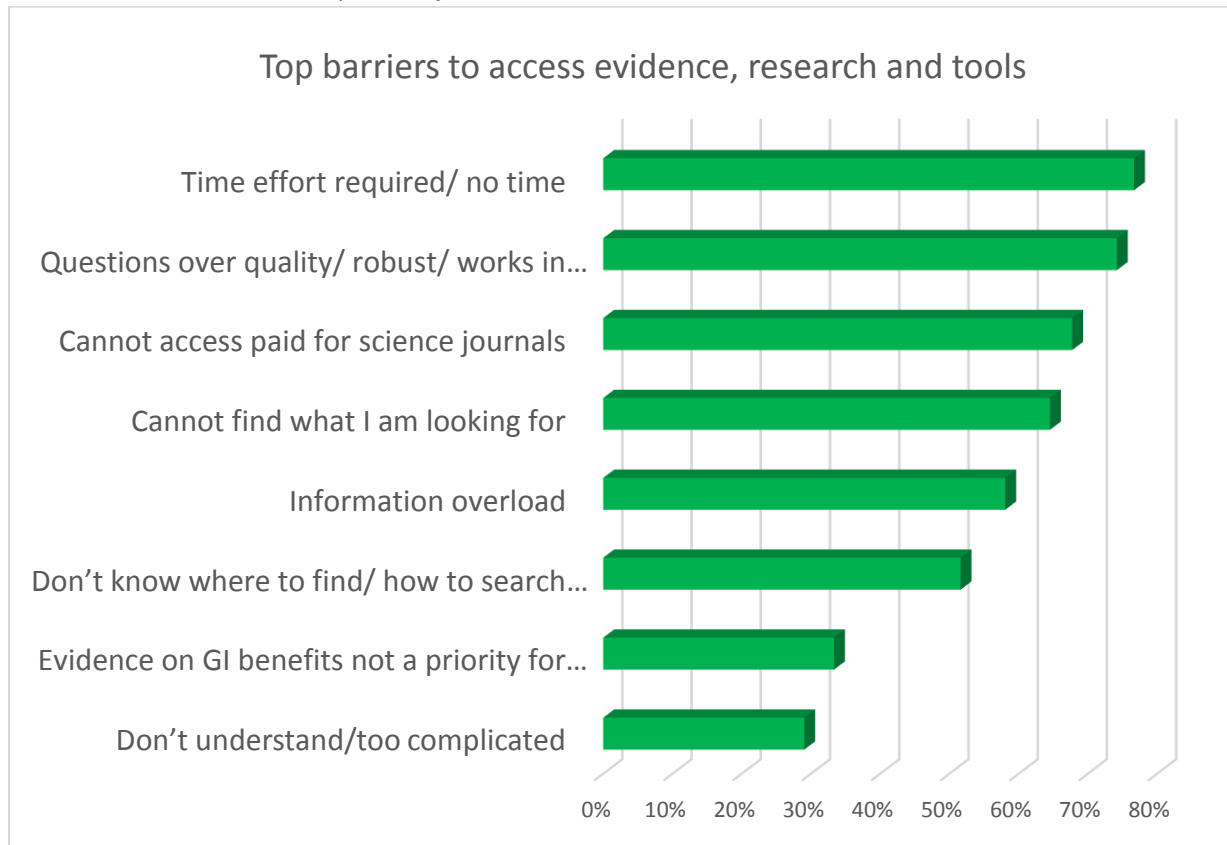
2.5 Top barriers to access evidence, research and tools

Question: The top barriers for you to access evidence, research and tools on GI are ...?

Respondents were asked to rate the barriers preventing them from accessing existing evidence.

The top three barriers were:

- Time effort required
- Questions over quality or robustness of evidence
- Cannot access paid for journals



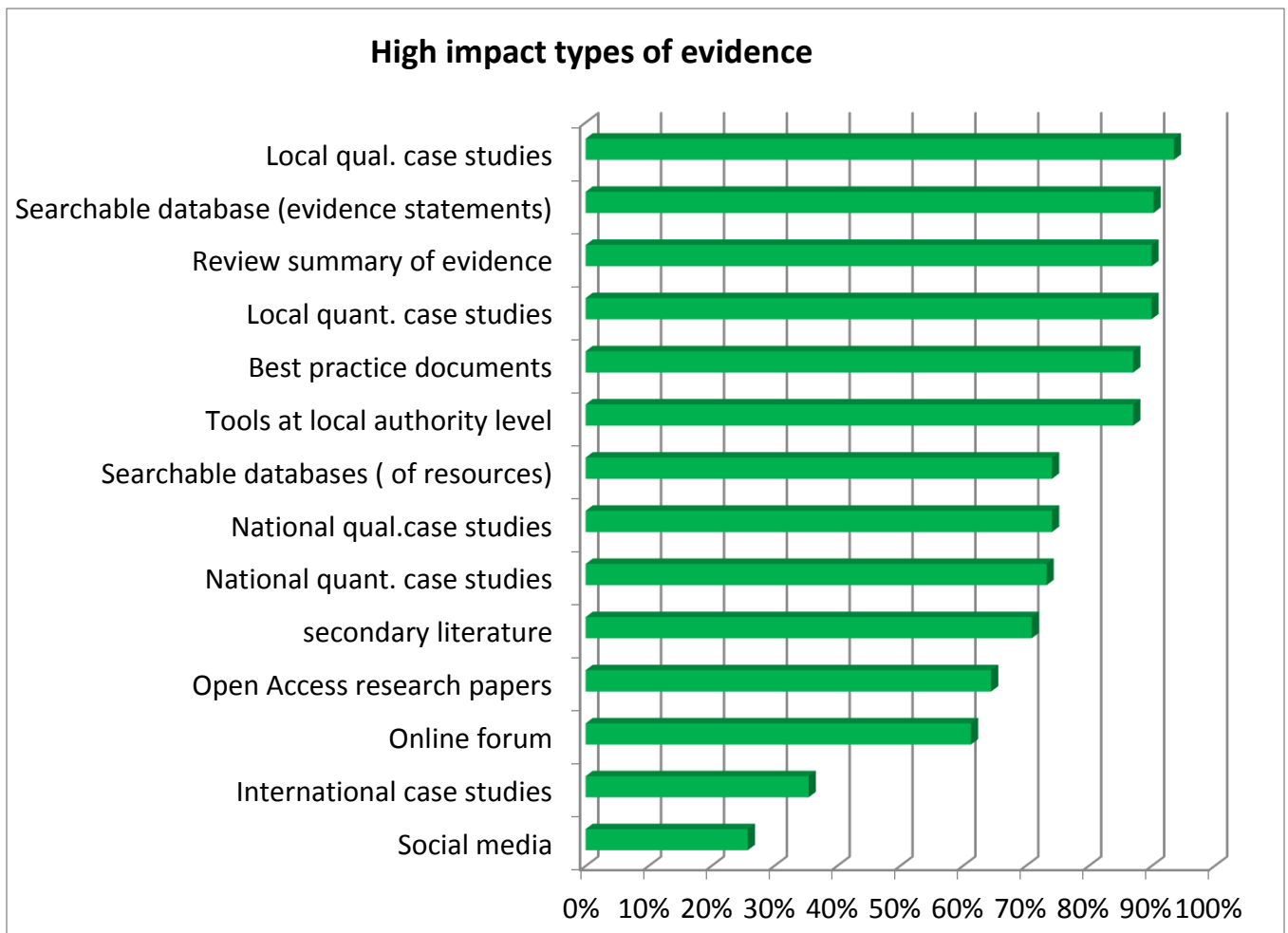
2.6 High Impact Evidence

Question: What evidence is most likely to be accepted and used by you and decision makers?

Respondents were asked to rate the suitability of evidence and what type of evidence is most influential.

All but two evidence sources seemed to be accepted and used by the majority of respondents. Six types of evidence had a high acceptance rate (> 80%):

- ✓ Local case studies
- ✓ Searchable databases (Summarizing evidence or facts)
- ✓ Review summary of Evidence
- ✓ Local Case studies with quantifiable evidence
- ✓ Best practice documents
- ✓ Tools that can be applied at the local authority level

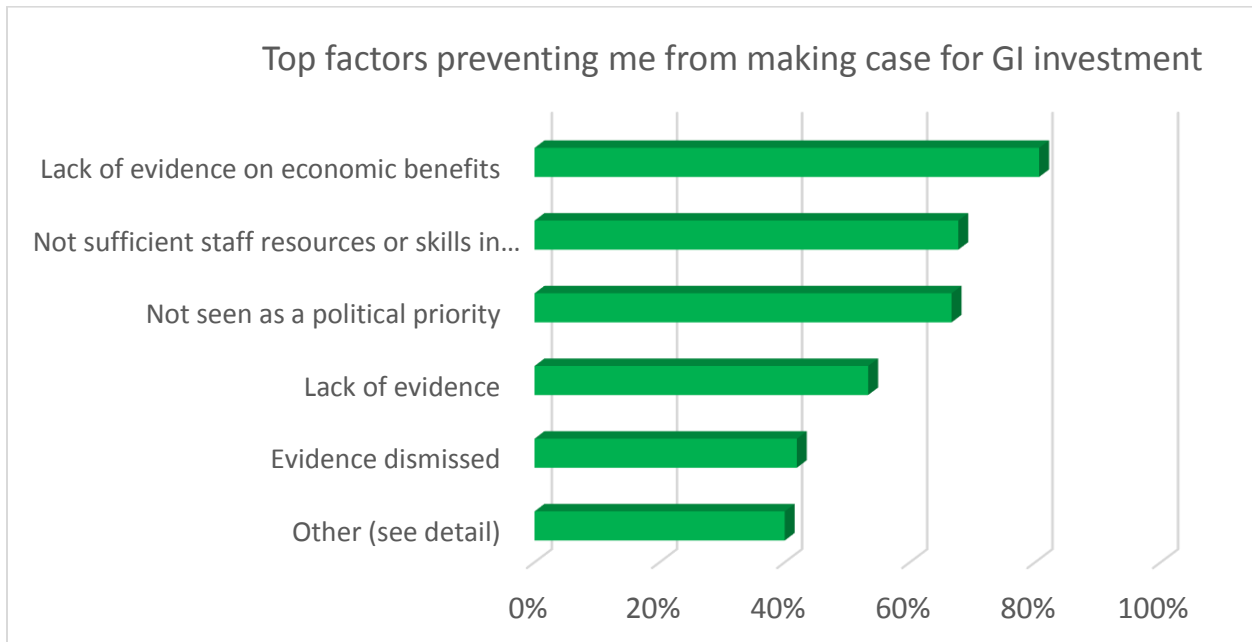


2.7 Evidence and Decision Making

Question: The top issues from preventing me to making the case/ a stronger case for GI investment/ implementation to other decision makers are...?

When respondents were specifically asked about the factors around evidence contributing towards decisions for investment in GI on the ground, they answered as follows:

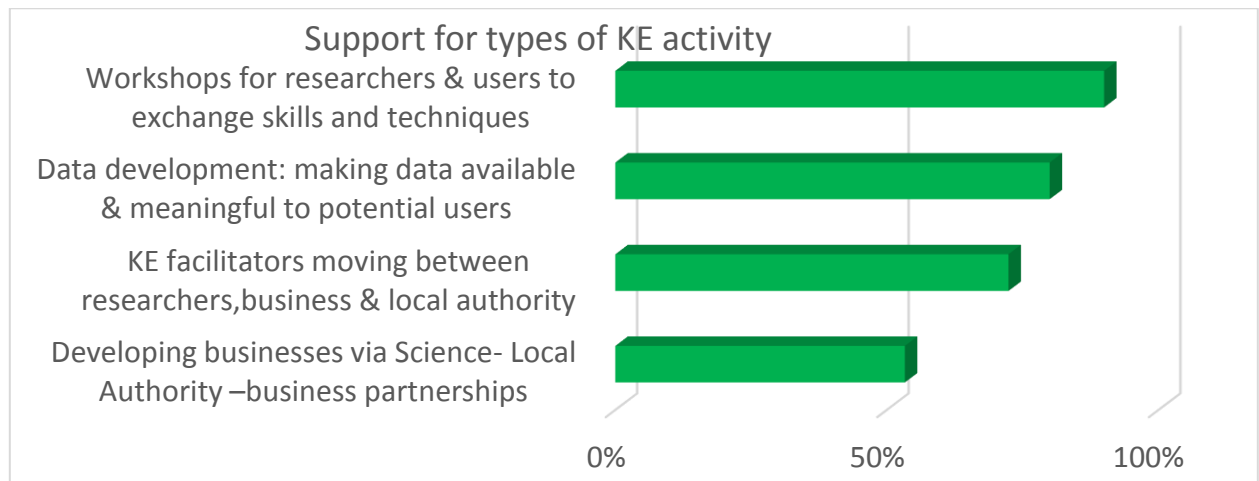
- The lack of evidence stating the economic benefits is the most significant factor in evidence informing the GI investment case.
- Staff time and skills to use and interpret evidence is also a key factor
- Over half the respondents said GI simply isn't a priority
- The lack of general evidence is not a major issue (as seen in 2.5, the majority of respondents considers too much evidence an issue)



2.8 Support for types of KE activity

Question: Which of the following types of activities would you most support to achieve the aims of GI KE fellowship as set out above?

Moving on towards possible solutions, respondents were asked what types of KE activities anticipated under the NERC KE fellowship.



2.9 Any other comments

Observations included:

“We have a lot of evidence, but struggle to translate it from the world of landscape/ecologists to the wider world of planning. Much of this is actually about how the documents are presented, and how websites/mapping is badly used. This effectively means we have made a massive investment in finding out about our landscape, but then it’s too difficult for people to use. Any help on that, and on funding the appearance of documents to make them usable to housing developers is what we need.”
(A Local Authority Planner)

“In the emerging vision for [our county], the council and the county are focused on enhancing the quality of place. We need to achieve not only the numbers of houses and the adequacy of infrastructure, but the scale and integrity of the green areas to make the county a great place to live and work. In seeking to do this we need as much support as possible from academia and business.”
(A Local Authority Environment and Flood Manager)

“The problems with getting GI benefits are: they accrue over the long term but the potential investors are thinking short term, the cost of installing or maintaining them and benefit of removing them are economically focussed on the few but the benefits are more social, and environmental and given to many, those who receive them do not pay for them and those who pay for them do not receive them all.”

(A Local Authority Ecologist)

3. Conclusions and recommendations

The findings of this survey confirm and build on previous findings, in particular from Green Infrastructure Research into Practice (UWE, 2016)³. They add significant new information of importance to scientists.

- 1.) When practitioners and decision makers consider how to go about a task and whether to embed GI, practitioners' top question is whether it is (technically) feasible to deliver GI. Next important are whether investing in GI will deliver policy aims (in particular biodiversity and health) and/or the desired benefits (2.2).

Recommendation:

- Research Councils, research organisations and individual scientists need to understand practitioners' and decision makers' needs. They need to present their findings in a language of "benefits" and show how it can be adopted in a pragmatic way.

- 2.) Decision makers have clear and specific policy goals in mind when making decisions. From the sample of people surveyed, flooding, water, quality of place and biodiversity are of high importance (2.3).

Recommendation:

- Research Councils, research organisations and individual scientists need to consider to which degree they can target their applied research in priority policy areas. Any research communicated will benefit from being presented in the context of priority policy areas.

- 3.) Despite the exponential growth in evidence and research papers on GI, many decision makers still say they do not have enough or the right kind of evidence. There is significant potential for science (whether already published or still to be conducted) to influence decisions on practice and policy more often. The right kind of evidence made available in the right way could unlock positive decisions to invest in GI (2.4).

Recommendation:

- Research Councils, research organisations and individual scientists need to help decision makers to find the right evidence where it already exists. They also need to engage with practitioners and policy makers to understand where these perceive the evidence gaps to be.

- 4.) GI practitioners and decision makers are busy people. Lack of time is the greatest barrier to accessing evidence. They need help in deciding what "good" evidence is and what isn't. Science papers are not a very good source of evidence, especially if they are published on a paid-for basis (2.5).

³ Sinnett, D., Calvert, T., Martyn, N., Williams, K., Burgess, S., Smith, N. and King, L. (2016) *Green infrastructure: Research into practice*. Project Report. University of the West of England. Available from: <http://eprints.uwe.ac.uk/29515>

Recommendations:

- Aim to increase the proportion of open access papers
- Publish research results in other formats than peer reviewed papers (e.g. by providing a non-technical summary of the paper)
- Any knowledge Exchange projects and initiatives should seek to produce easy to use
- Make publications short focussing on the results and facts most relevant to practitioners and decision makers
- Use Social media and other means to signpost to sources of evidence

5.) Not all evidence is equal! Research papers rate low in terms of usefulness and impact on practitioners and decision makers, even if they are an open access paper (2.6).

Local case studies are most likely to be accepted as evidence. Good examples of case study collections usually include a good search function:

- ✓ [SUDS case studies](#) (CIRIA)
- ✓ [Green Roof Case studies](#) (Greater London authority)
- ✓ many more (UK) case studies are included in: [Green Infrastructure Resource Library](#) (Brillianto & TCPA)

Searchable databases with evidence on the benefits of GI are hard to come by. The best example is probably the

- ✓ [Benefits of GI knowledge portal](#) (Forest Research, not updated since 2014)
- ✓ The development of a searchable database of “GI factoids” is currently under consideration by Brillianto and the GI Partnership. A prototype is available here: <http://www.brillianto.biz/gi-factoids>

Review summaries of evidence can be extremely useful for people who do not have access nor the time to read lots of individual science papers. Some recent great examples include:

- ✓ [Urban green spaces and health - a review of evidence](#) (WHO, Nov 2016)
- ✓ [Green Infrastructure’s contribution to economic growth: a review](#) (Sheffield Hallam University and CRESR for Defra and Natural England, July 2013)
- ✓ [Benefits of Urban Parks – A systematic review](#), (International Federation of Parks and Recreation Administration, Jan 2013)

There are lots of **good practice and best practice** documents. Many are listed in are included in:

- ✓ [Green Infrastructure Resource Library](#) (both a pdf and searchable database)

The Ecosystem Knowledge Network has done a brilliant job in describing, reviewing and promoting **analytical tools**. Several of these apply (specifically) to GI:

- ✓ [Tool Assessor](#) by EKN

Recommendations:

- Research Councils, research organisations and individual scientists should liaise more with the voluntary and public sector and businesses to present their research in formats that are considered as highly acceptable evidence by end users
 - Reviews of evidence should be conducted more often. They will have particular value if published in a less technical, secondary literature document format.
 - Research Councils and research organisations should publish more case studies demonstrating the application of science and how their science has made a difference “in the real world”.
- 6.) Respondents said that the lack of evidence stating the economic benefits is the most significant factor in evidence informing the GI investment case.

Recommendation:

Researchers should consider adding economic illustrations and figures to their research findings. This applies to science papers, conference talks and other forms of communication. This may include working with environmental economists or referring to other socio-economic expertise.

- 7.) Respondents indicated that they would find workshops where scientists meet users of data and evidence most helpful. They are also looking to scientists to make data models and data and evidence provision more user friendly, making it more meaningful and useful (2.8).

Recommendation:

- Research Councils, research organisations and individual scientists should consider how they can make data portals more user friendly or further develop academic data models to more user-friendly versions.
- Knowledge Exchange activity should focus on those types of activities that are identified as high priority by practitioners and decision makers

Overall recommendation:

Repeat this survey with a greater sample size in partnership with relevant professional bodies such as CIEEM, RTPI, TCPA and environmental networks such as the GI Partnership and EKN. This would provide more robust data to inform future Knowledge Exchange activities of NERC and other research organisations.