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innovative partnerships

a review of innovative public-private partnerships in
food-energy-water-environment domains in the UK

Dr. Pete Barbrook-Johnson

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Economic
and Social
Research Council

About this report

This report is one of the core outputs of my UKRI Innovation Fellowship on public-private partnerships. For more information go to www.innovativeppp.org. The fellowship is hosted by the Centre for the Evaluation of Complexity Across the Nexus (CECAN) at the University of Surrey.

Author

Dr. Pete Barbrook-Johnson, Senior Research Fellow, University of Surrey. @bapeterj

Contact

I welcome comment on this report, please email p.barbrook-johnson@surrey.ac.uk

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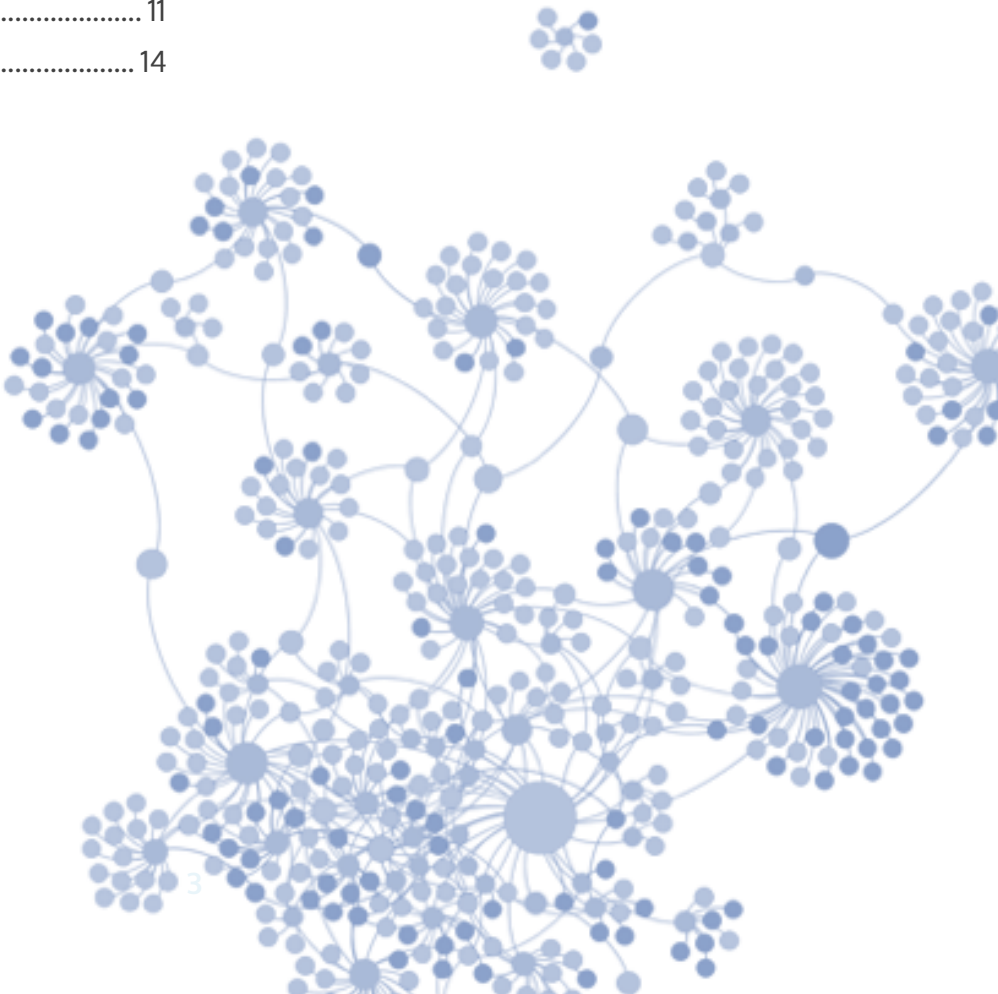


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Summary

The UK is at a crossroads with public-private partnerships. For some, they are loathsome symbols of privatisation and financialisation, for others they are beacons of hope for reforming public services. In reality, they are something in between, and indeed, not all one and the same.

As part of a re-imagining of what public-private partnerships are and can be, this report reviews innovative partnerships working in the UK on food-energy-water-environment 'nexus' domains.

Innovative partnerships are partnerships which are not based on contractual, bilateral, zero-sum, low trust, transactional relationships, but those which are built on shared goals, addressing problems, and trust.

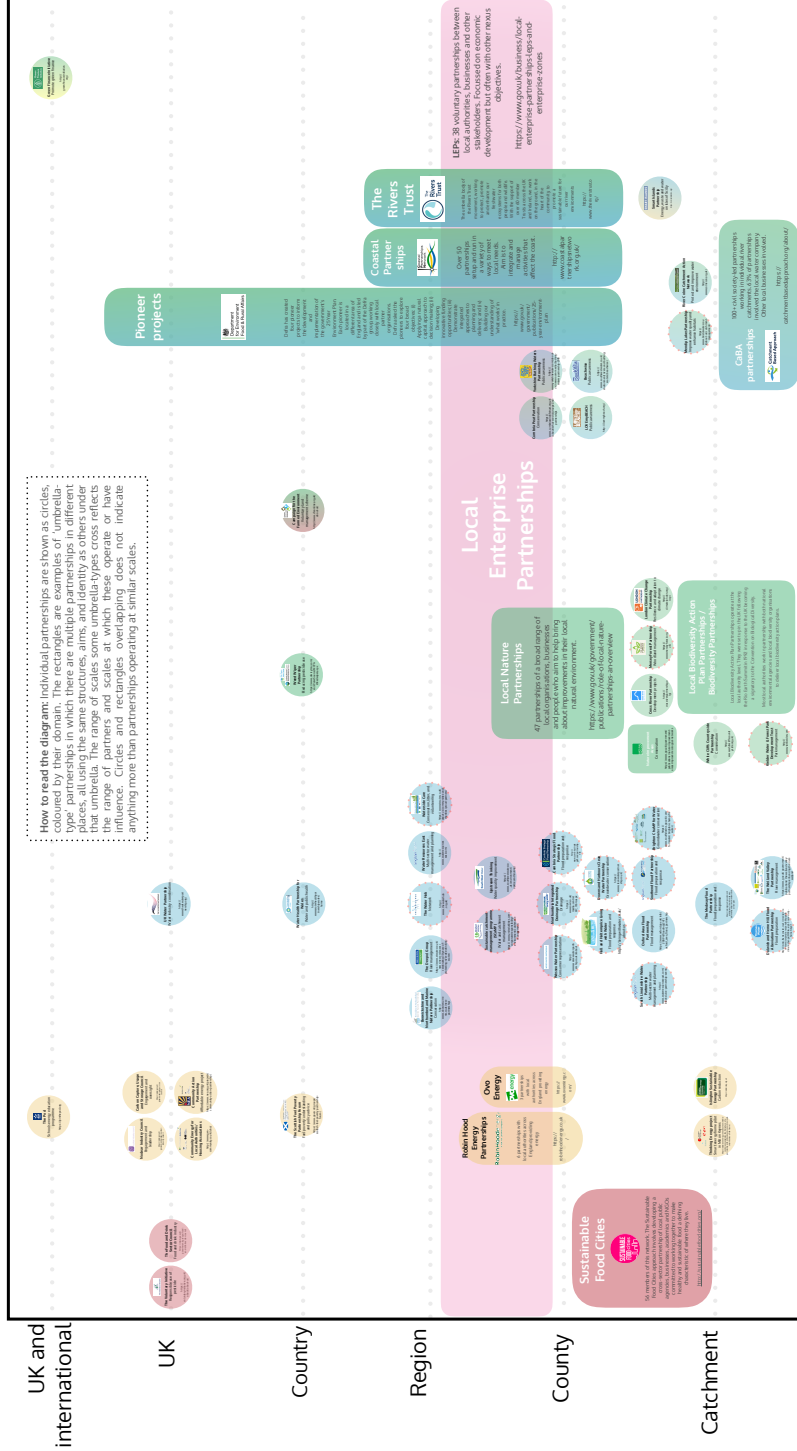
The report finds a vibrant community of interconnected partnerships, with the most activity and interaction in water and environment domains, and at local scales. Organisations from all sectors play important roles, though public sector organisations tend to fill a significant bridging role between partnerships. More results are presented on page 14.

The infographic on the next page gives an overview of the partnerships. High resolution versions of this infographic, and a network diagram, and a full list of partnerships and partners analysed can be found at www.innovativeppp.org/review-of-ppp.

a vibrant community of
interconnected partnerships

Innovative public-private partnerships at the nexus

Produced by Dr. Pete Barbrook-Johnson
 Hear more, get in touch:
 p.barbrook-johnson@surrey.ac.uk | www.innovativepppp.org | @bapeterj



Why look at public-private partnerships now?
 The UK is at a crossroads with public-private partnerships. There is a growing emphasis on and branding of the privatisation, competition, and financialisation agenda, 'opening up' the delivery of public services to the private sector, and/or the over-greater use of the private sector delivery via procurement contracts. Along another, lies the wholesale rejection of the need of the private sector in any form. These two are extremes, we need another path.

This infographic, its associated report, and my UKRI Innovation Fellowship, are seeking to illuminate what public-private partnerships are. They are not simply the traditional water and sewerage, where inter-tractable social, economic, climate and ecological issues persist. Partnerships must be part of a radical and holistic vision for how we organise and manage our complex economy and society. They start with the view that contracting and procurement, with the likes of Carrington, or the now innovative partnerships. They are also already well studied and critiqued, we need to turn our attention elsewhere.

What partnerships? This infographic overviews the innovative partnerships working in food, energy, water and environment domains in the

- Who's who?**
 Top 10 partners in multiple partnerships
- Environment Agency 29
 - Natural England 15
 - National Farmers Union 10
 - United Utilities 7
 - Forestry Commission 6
 - Robin Hood Energy 6
 - Anglian Water 5
 - Thames Water 5
 - Defra / Northumbrian Water / RSRB 4

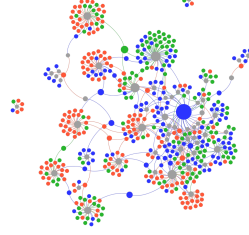
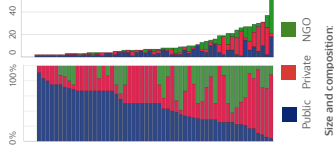
Lone water companies:
 15 partnerships only have one private sector partner — a water company—these are highlighted with red dots around their border.

UK. These are partnerships which are not based on contractual, bilateral, zero-sum, low trust, but rather are built on shared goals, addressing problems, and high-trust. The review seeks to understand what partnerships are out there, what they look like, what they are doing, how they are doing it, and how they are connected with each other and wider society.

Things to notice: There are more partnerships in water and environment domains, and fewer in food and energy. There are many small-scale partnerships, and a few larger-scale, especially in food and energy.

There are many types of outputs and purposes for partnerships, including food, water, energy, and environment, protection, and food production, and local energy. Many partnerships provide specific activities to deliver these, whereas others provide planning and coordination across a sector. Large infrastructure is not the focus of any of these partnerships.

Further analysis: some further analysis on the partnerships can be found below and to the right, as well as in the accompanying full report on partnerships in the UK, including a social network analysis.



Network analysis:
 The network above and to the left shows all of the partnerships (grey) and their partners (blue—public, red—private, green—NGO). The network above and on the right is just the partnerships (red—food, yellow—energy, blue—water, green—environment, etc), which are connected if they have partners in common; further analysis and interpretation of the network analysis of these partnerships can be found in the full report.



Why look at partnerships now?

The UK is at a crossroads with public-private partnerships. Along one path lies a deepening and broadening of the privatisation, competition and financialisation agenda, through 'opening up' the delivery of public services and public goods to the private sector, and/or the ever-greater use of private sector delivery via procurement contracts. Along the other, lies the wholesale rejection of the need for the private sector in any public role.

As is often the case, there are other options. A simple choice might be for something in the middle, a 'third-way' if you will (the nineties are back in fashion after all), however, in reality this is the path we have come from. We need something different.

My UKRI Innovation Fellowship, of which this report is a part, seeks to illuminate this 'something different'. It aims to re-imagine what public-private partnerships are and can be. It starts with the premise that, in the 21st century, where intractable social, economic, climate and ecological issues persist despite

our mastery of science and technology, partnerships must be part of a radical and holistic vision for how we organise and manage our complex economy and society. It starts with the view that contracting and procurement, with the likes of Carillion, or the now (semi-)abandoned Private Finance Initiatives (PFI), are not innovative partnerships. They are also well-studied and critiqued already, we need to turn our attention elsewhere.

All sides seem to agree on this. Government strategies such as the Industrial Strategy¹, Clean Growth Strategy², and 25-year Environment Plan³ are filled with calls for more cross-sector partnerships, at the same time as the previous government killed off PFI. The business community, through associations such as the CBI, routinely recommend partnership working⁴ and consider how partnerships can be made more effective and flexible⁵. The third sector, in all its diversity, also regularly makes calls for new forms or better partnerships^{6 7}. The most compelling and influential academics

¹ <https://www.gov.uk/government/topical-events/the-uks-industrial-strategy>

² <https://www.gov.uk/government/publications/clean-growth-strategy>

³ <https://www.gov.uk/government/publications/25-year-environment-plan>

⁴ <https://www.cbi.org.uk/articles/delivering-skills-for-the-new-economy/>

⁵ <https://www.cbi.org.uk/articles/great-job-solving-the-productivity-puzzle-through-the-power-of-people/>

⁶ <https://common-wealth.co.uk/Public-common-partnerships.html>

⁷ <https://www.instituteforgovernment.org.uk/publications/government-procurement>

too, are looking for new understandings of how the public and private sectors interact⁸.

What do you mean by ‘innovative’?

Contributing to a re-imagining of public-private partnerships, this report reviews the innovative partnerships working in food, energy, water and environment domains in the UK.

Innovative partnerships are partnerships which are not based on contractual, bilateral, zero-sum, low trust, transactional relationships, but those which are built on shared goals, addressing problems, and trust. They are in direct opposition to traditional partnerships, as outlined in Table 1 below.

Table 1: Innovative vs traditional partnerships

<i>Innovative partnerships</i>	<i>Traditional partnerships</i>
Based on trust	Based on detailed contracts
Non-zero-sum relationships with shared goals	Zero-sum transactional relationships
Multi-partner	Bilateral
Combination of informal and emerging institutional designs	PFI/PF2, procurement contracts etc.

The review seeks to understand what partnerships are out there, what they look like, what they are doing, and how they are connected with each other and wider society. By doing this, we can reconceptualise what partnerships are and what they do, to help us

see how they might be part of a new vision of managing our complex society and economy.

Why food-energy-water-environment?

The intersection of these four ‘nexus’ domains represents some of the most pressing and important issues facing society. Food production and consumption is at the core of a range of sustainability, health and social justice issues. Energy production and use continues to be a focus of climate breakdown mitigation efforts, and changes here have impacts in all other areas. Water supply and use is forecast to become increasingly important as the UK becomes dryer and more water-stressed. The natural environment and the damage being done to it via pollution and the removal of habitat are also high on the public and political agenda, reflecting their importance. The interaction, synergies and trade-offs of these areas is also well-documented⁹.

Public-private partnerships working in these areas appear less tainted by the controversial history of PFI projects. In health and education, PFI has been used widely and created much suspicion of public-private partnerships, whereas in nexus domains, there are relatively few examples and they are only in waste management. This both reflects the domains’ more organic and open-minded approach to partnerships, and an opportunity to learn and expand what we think partnerships can and should be.

Can we, and do we want to, reconceptualise what public-private partnerships can be?

⁸ <https://www.ucl.ac.uk/bartlett/public-purpose/research>

⁹ <https://thenexusnetwork.org/research/>



Review of partnerships

This review uses two approaches to studying innovative partnerships:

- a **thematic overview** of partnerships considering what they are doing (i.e. their domain, and their goals), and at what scale they are doing it.
- a **network analysis** of the partners involved in these partnerships, and the partnerships themselves, considering how they are connected to each other and to wider society.

A full list of the partnerships found and analysed in this review, with more details and information, can be found at www.innovativeppp.org/review-of-ppp.

How did you find these partnerships?

In total, the review includes 55 individual partnerships, and 9 'umbrella' partnership types (i.e. in which there are multiple partnerships in different places, all using the same structures, aims, and identity as others under that umbrella). These were found through a systematic web-based search strategy. The search strategy involved using the keyword 'partnership' to search the websites of a range of relevant organisations (i.e. public, private, and third sector organisations operating in nexus domains) operating in the UK, including: 70 energy companies, 28 water companies, 16

supermarket and food delivery companies, 19 environmental charities, 13 relevant government departments and agencies, and the 3 devolved national governments. It also included using popular search engines to search for combinations of keywords (e.g. food, energy. etc) with 'partnership', and searching of academic databases for examples of partnerships. This systematic searching was supplemented by some targeted searching in key documents or databases (e.g. government strategies, infrastructure planning databases), and requests for examples from experts. The examples these searches and requests yielded were then manually screened for inclusion. An initial long-list of partnerships was created with over 200 partnerships, on which further reading was conducted, before the final list of 55+9 was used for the review and analysis presented in this document.

How did you decide what to include?

From the 200+ examples found during searching, partnerships were included for analysis when:

- They included at least one public sector organisation or representative, and one private sector organisation or representative. The presence or absence of third sector/non-governmental organisations (NGOs) partners did not determine eligibility.

- They had a purpose, function, service, product, or other output with a specific relation to one of the four nexus domains: food, energy, water, and environment.

Partnerships which were organised on an umbrella-basis (i.e. were part of a larger scheme) were included as special cases. They are included in the thematic review, but not the network analysis. Individual instances of these partnerships were also not included on an individual basis, but represented via the inclusion of the umbrella-type. These umbrella types included; Catchment Based Approach partnerships, Defra Pioneer Projects, Local Enterprise Partnerships, Local Nature Partnerships, Rivers Trusts, Nature Improvement Area partnerships, Coastal Partnerships, Sustainable Food Cities partnerships, and Biodiversity Partnerships. They were treated as special cases because either they are already well-understood and studied (e.g. Catchment Based Approach Partnerships), because they are mandated and organised via administrative or geographic areas (e.g. Local Nature Partnerships) and thus not considered relevant for my focus here on innovative (i.e. trust and problem-based initiatives), or their umbrella-type met inclusion criteria but no individual example surfaced in the search (e.g. Sustainable Food Cities partnerships).

Common reasons for not including examples of partnerships found in the initial search included:

- Those in which the private sector was only represented by a trade association.
- Those for which the sole purpose was charity fundraising.
- Those which were research projects, or other funded projects, with no clear evidence of, or emphasis on, partners working outside the funded project.
- Those in which a partnership has established a new organisation with

its own distinct identity and legal form.

- Those which were membership organisations.

Overview of partnerships

Figure 1 shows an overview of the partnerships found. A larger infographic version can be found at www.innovativeppp.org/review-of-ppp.

Which domains do partnerships operate in? The nexus domains have the following number of partnerships (note, some partnerships fall across two categories):

- Water (28 + 4 umbrella)
- Energy (19)
- Environment (14 + 7 umbrella)
- Food (3 + 1 umbrella)

Many of the partnerships have a water focus, reflecting a prevalence of flooding management partnerships and partnerships with an interest in water quality and river environments. Many of these partnerships (15) also have only one private partner, a water company. This reflects water companies' unusual and history-dependent position of being highly-regulated private organisations, with a range of responsibilities which often encourage them to become members of partnerships.

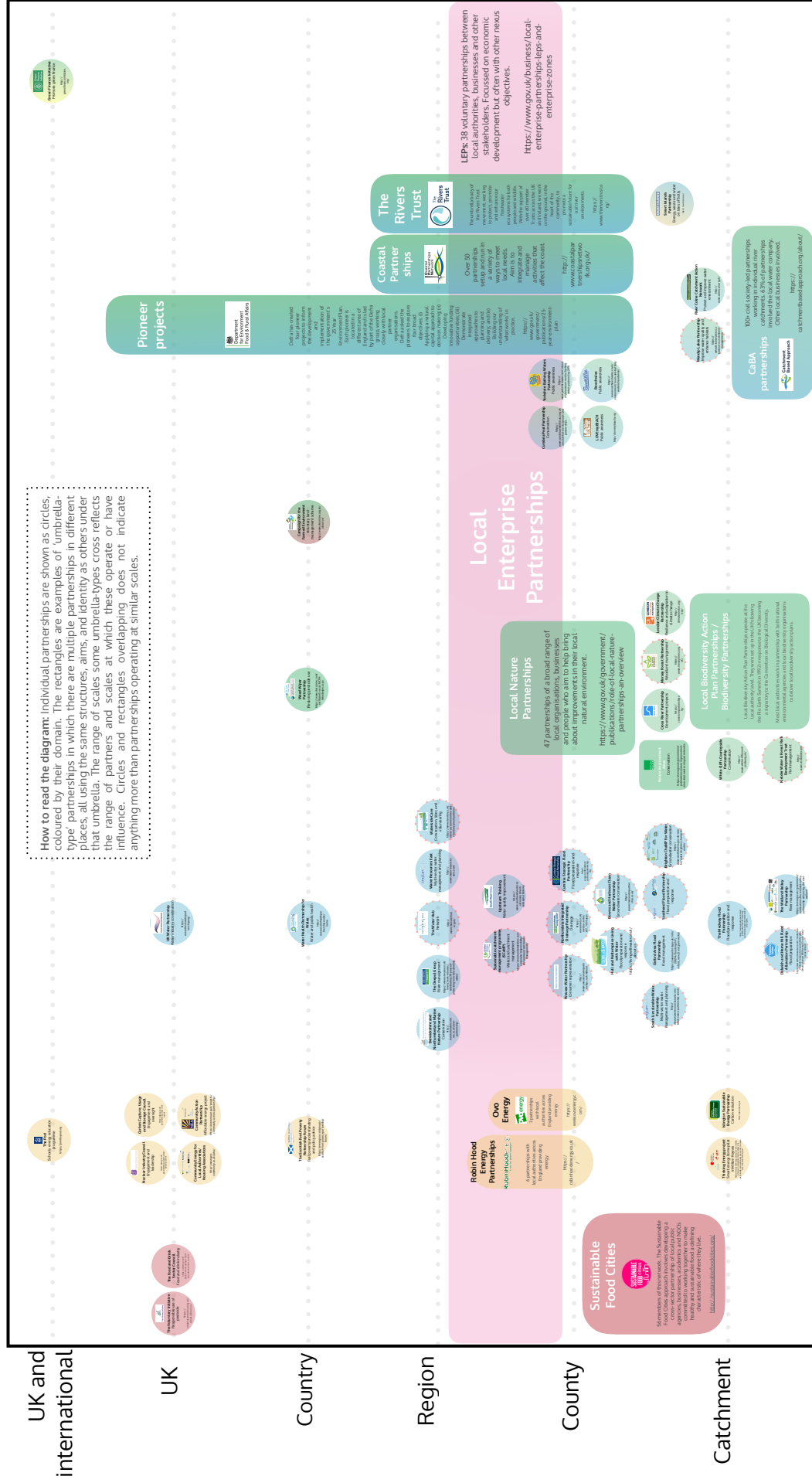
What scales do partnerships operate at?

There are many small-scale partnerships operating at catchment, county or regional scales, and fewer larger-scale partnerships operating at country or UK levels.

There are more partnerships with an energy focus that operate at a country or UK level, relative to those with water and environment focus which are more commonly smaller-scale.

Other patterns. Analysis of the partnerships also shows that partnerships which cover two nexus domains tend to have more public and NGO partners, and partnerships which operate at larger scales tend to have more private partners.

Figure 1: Overview of partnerships organised by the domain and scale they operate in.



What purposes and outputs do partnerships have? There are many types of outputs and purposes for the partnerships, including:

- flooding planning and management
- water management
- conservation and local environmental protection efforts
- food production
- local energy provision
- education programmes
- advice and guidance
- market/sector coordination
- infrastructure
- a mix of the above

Only three partnerships focussed specifically on providing infrastructure, an output typically associated with PFI partnerships.

Who is taking part in these partnerships?

Across the 55 partnerships, there were 462 individual organisations, 140 from the public sector, 185 from the private sector, and 137 NGOs. The top 10 partners, ranked in terms of how many partnerships they are in, are:

1.	Environment Agency	29
2.	Natural England	15
3.	National Farmers Union	10
4.	United Utilities	7
5.	Forestry Commission	6
6.	Robin Hood Energy	6
7.	Anglian Water	5
8.	Thames Water	5
=9.	Defra	4
=9.	Northumbrian Water	4
=9.	RSPB	4

Network analysis

Figure 2 shows a full network diagram of the 55 partnerships (coloured by their domain) and their partners (coloured in grey). A high-resolution version can be found at www.innovativeppp.org/review-of-ppp.

How ‘incestuous’ is the network? Only two partnerships are completely isolated (i.e. have no partners in common) from the rest,

and the network as a whole is potentially well connected relative to what we plausibly might have found. There is a small chance that this pattern is due to the imperfect sampling method use to collect partnerships, however significant effort was made to find examples from a range of settings and scales.

Core and periphery of the network. The network is laid out using a standard algorithm which tries to minimise the number of connections (i.e. lines) which cross each other, and tries to keep connections a similar length. Partnerships focussed on energy (yellow) are located more on the periphery of the network, with fewer partners in common. The partnerships with water, environment and food foci are much more centrally located with many partners in common, especially those with water and a combined water and environment focus.

Notable partners. The Environment Agency is clearly visible as the largest node, reflecting its position as both the most connected node, but also one within the water and environment domains which are central to the map. Other notable partners which play a bridging role in the network (i.e. connecting different partnerships and parts of the network) include the Scottish Government (left, middle), the City of London (up and right of centre), Liverpool City Council (up from centre) which all connect different parts of the network. The NGO Groundwork and private sector organisation Arup also play similar roles, but to a lesser extent.

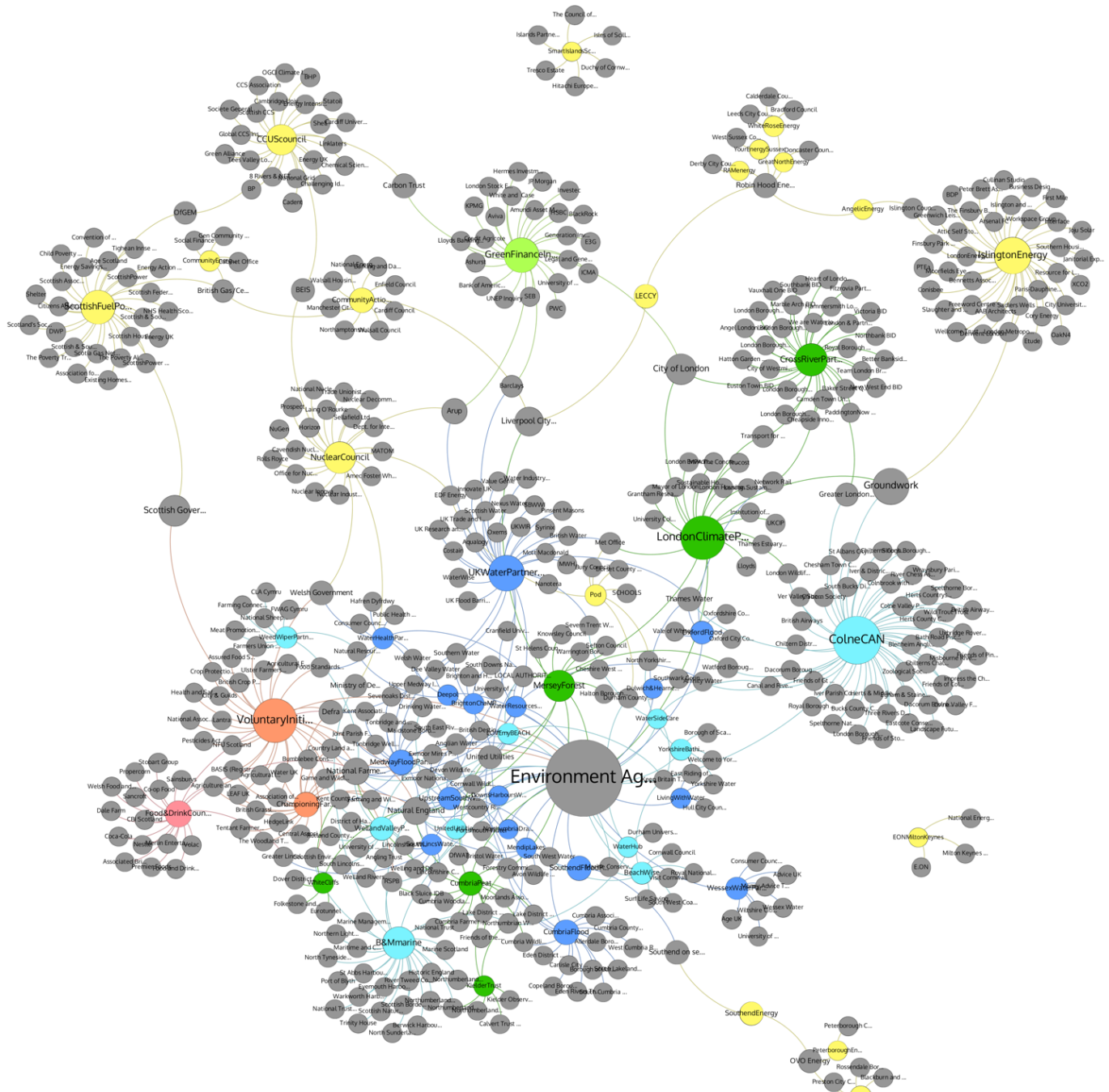


Figure 2: Full network diagram of all partnerships and partners. The size of nodes reflects their 'betweenness centrality' a network measure describing how many shortest paths the node is on, thus showing its importance as a bridging node in the network. A high-resolution version can be found at www.innovativeppp.org/review-of-ppp

How do public, private and NGO partners interact? The left-hand panel of Figure 3 shows a different visualisation of the same map as Figure 2. It shows that the sectors partners come from (i.e. public, private,

NGO) are generally well-mixed. However, the energy partnerships at the top of the network and the food partnerships to the left are dominated by private sector partners.

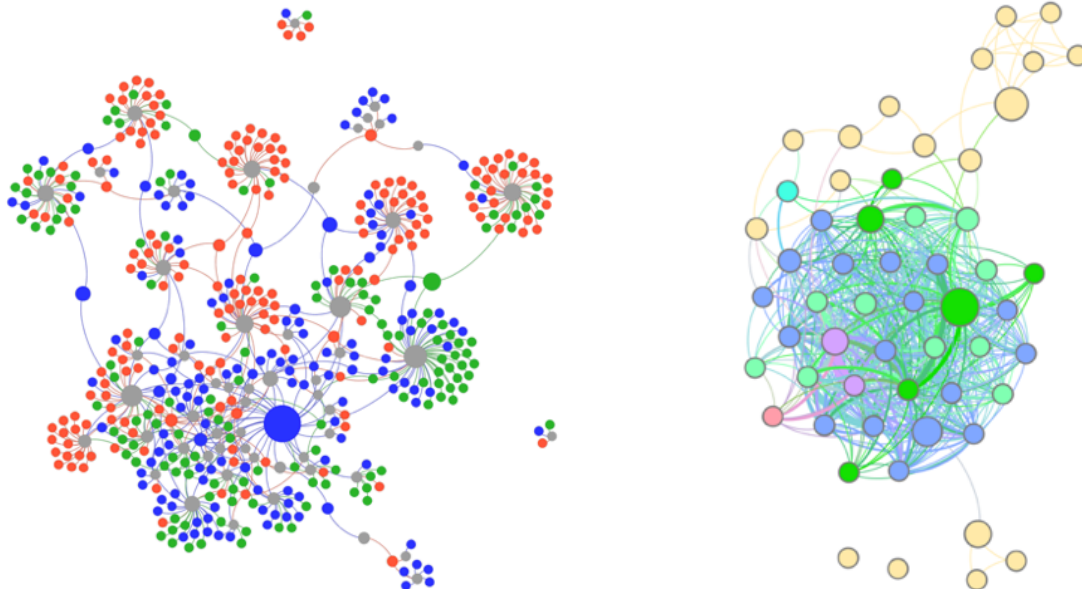


Figure 3: (Left) Same map as Figure 2, but colour by sector Blue=Public, Red=Private, Green=NGO (Right) Network of partnerships colour by domain (yellow=energy, red=food, green=environment, blue= water, purple=food and environment, turquoise=energy and environment, light green=water and environment).

Notable partnerships. The right-hand panel of Figure 3 shows just partnerships (i.e. nodes for individual partners are removed), with a connection between partnerships if they have a partner in common. This again emphasises the core-periphery structure with energy partnerships on the periphery. The Mersey Forest partnership (the larger green

node) shows high 'betweenness centrality' (i.e. a network measure describing how many shortest paths the node is on, thus showing its importance as a bridging node in the network), as does the Southend Flood Partnership, and LECCY (a local energy provider).



Conclusion and next steps

Aiming to support a re-imagining of what public-private partnerships are and can be, this report reviews innovative examples operating in the UK in food-energy-water-environment nexus domains. It finds:

- An active community of partnerships, with over 200 examples broadly fitting the description, and 55 specific examples and 9 umbrella-types analysed.
- Many partnerships focus on water and environment domains, with fewer in energy and food. A key question arises as to why this may be. Are there intrinsic characteristics about each of these sectors, for example, the way they are governed, the key actors, the structure of influences and influence, that mean water and environment may be more amenable, or in need of, partnership working?
- Most partnerships operate at local scales, with notable exception in energy where there are several national level partnerships.
- Organisations from public, private, and third sectors all play important roles, with the Environment Agency and Natural England holding very central roles, and the National Farmers Union and Water Companies also central.
- Water companies also play an unusual role, often being the sole private partner in a partnership.
- Though there were roughly equal numbers of organisations from different sectors, public organisations tended to play more of a 'bridging' role across the full network of partnerships and partners.
- Only two partnerships were found to be completely separate from the rest (i.e. having no partners in common), with the network of partnerships overall rather interconnected.
- Energy partnerships are very much on the periphery, tending to have fewer partners in common with other partnerships. Why might this be? Is energy really disconnected from the other nexus sectors?
- Energy and food partnerships tended to have a higher number of private organisations compared to others.

Next steps and future work will include:

- **Analysis:** a broader and deeper investigation of the partnerships overviewed will be conducted and presented in an academic journal.
- **Interpretation and discussion:** I encourage you to get in touch if you have questions, reflections or interpretations you would like to share on the review and conclusions presented here.
- **Understanding individual partnerships:** the fellowship will be focussing next on the methods and approaches which can be used to support ex-ante appraisal and ex-post evaluation of partnerships.
- **Exploring partnership and institutional design:** we also hope to work with specific partnerships to further explore the exact legal and financial arrangements under which they can operate in innovative partnership.



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www.innovativeppp.org

p.barbrook-johnson@surrey.ac.uk

@bapeterj

University of Surrey, Guildford, GU2 7XH, UK

