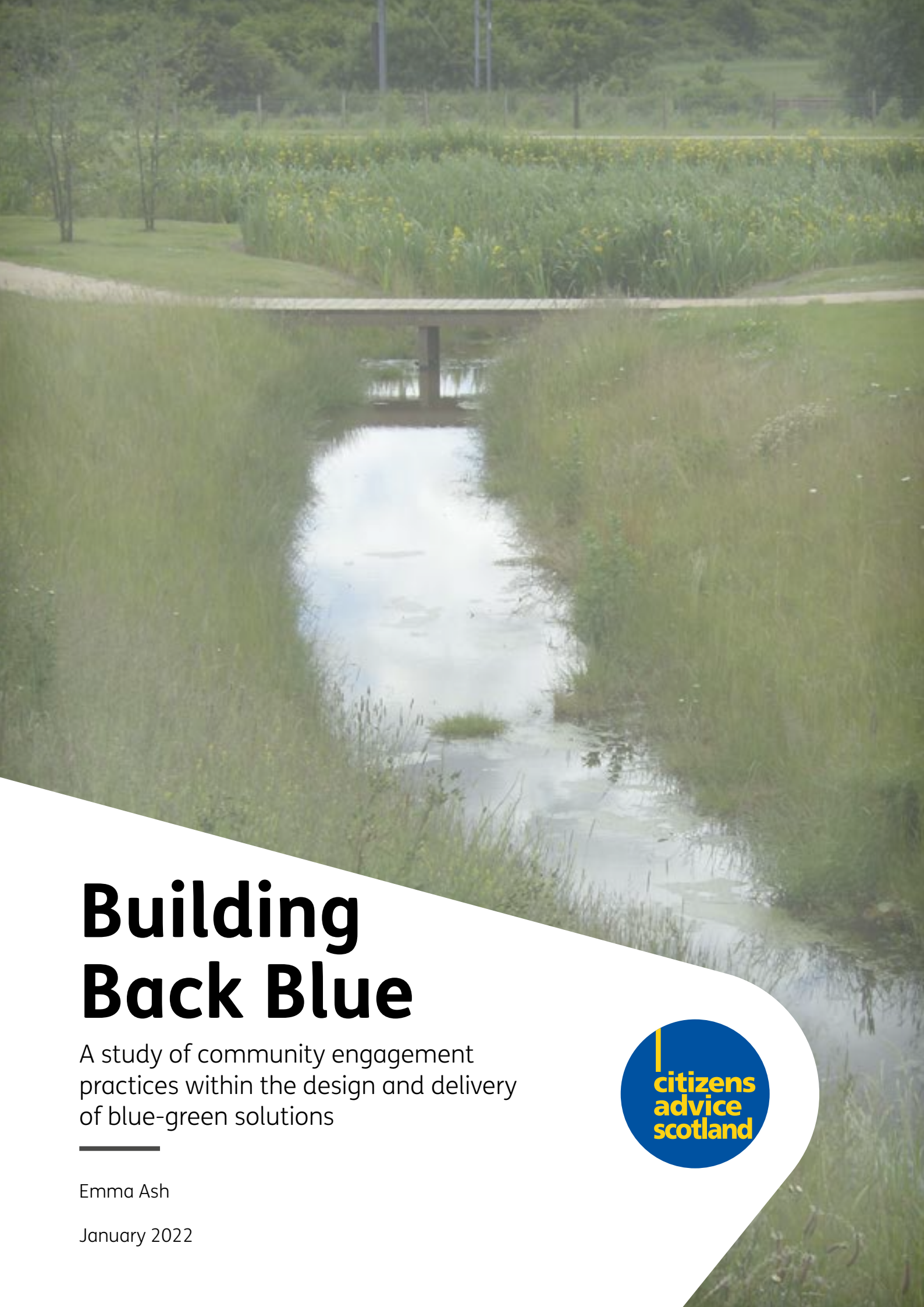

Building Back Blue

A study of community engagement practices within the design and delivery of blue-green solutions

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Contents

Who we are

Scotland's Citizens Advice Network is an essential community service that empowers people through our local bureaux and national services by providing free, confidential, and independent advice. We use people's real-life experiences to influence policy and drive positive change. We are on the side of people in Scotland who need help, and we change lives for the better.

1. Executive Summary

"The risk of flooding to people, communities and buildings is one of the most severe climate hazards for the [UK] population, both now and in the future."

UK Government's Climate Change Risk Assessment[1]

"Living near water improves our mental health, it lowers levels of stress and anxiety and could even lead to more physical activity. Living near water also narrows the gap between richer and poorer areas..."

World Economic Forum[2]

These statements appear to be in stark contrast to each other. However, the creation of nature-based drainage solutions, is the linking factor. These develop urban green space, in such a way that it slows rainwater run-off by directing the water to multi-functional landscaped areas, such as into rain gardens and water channels. These spaces naturally collect, filter and return the water slowly to the environment. By removing rainwater[3] from entering and overwhelming the drainage and sewage systems during heavy rainfall, they can reduce flooding or combined sewar overflows.

Scotland has already begun to apply this type of nature-based design as part of its approach to climate change adaptation, and it is often referred to as 'blue-green infrastructure'[4]. As well as capturing rain and storm water, blue-green designs have secondary benefits, including increasing biodiversity, reconnecting communities with the environment and improving the health and wellbeing of the people who live and work there.

The use of blue-green design requires a fundamental change in approach to traditional, rainwater management and drainage methods, which rely on underground pipes, systems and tanks. One of the crucial differences is the fact community spaces are key to the design, as they are adapted to capture, and extract added value from rainwater. Giving space to nature; possibly the expert at flood management, creates opportunities for multi-functional public uses, such as rain-playgrounds[5]. The outcome is that nature is brought back into our urban environments and community spaces and can offer functional uses that are more attractive for everyone.

Recognising that the community should have an important role in the design of blue-green features, CAS's research has explored the extent to which they are engaged and empowered. We have looked at how they have been and could be, engaged in the planning, design, delivery and maintenance of these multi-functional spaces.

Previous research[6] has identified the benefits of community engagement and empowerment as part of organisational decision making. The principles from this research can apply to the delivery of blue-green design, for the reason that:

> Communities whose space is being altered in design and purpose are more likely to object if they are not aware of the reasons for change and are not given the opportunity to contribute to change

[1] Findings from the third UK Climate Change Risk Assessment (CCRA3) Evidence report 2021 – Flooding and Coastal change briefing
[2] World Economic Forum – research and Instagram
[3] Often referred to as surface water and includes all rainwater run-off
[4] In this report the term 'blue-green design or solution is being used for a plain English approach
[5] Gothenburg – the rain city
[6] CAS – Engaging Hearts and Minds 2021

Executive summary

- Nature-based drainage solutions are a new concept and in order to build community trust in their ability to develop community resilience to climate change, organisations need to engage with and take communities on the journey
- Based on local knowledge and usage, communities can offer insight and input into designs that support better outcomes

The effective communication of blue-green design to communities is critical to ensuring they engage and understand their role in the process. Our research found that more is needed to promote understanding and awareness of the benefits of alternative, nature-based solutions.

The United Nations states:

> **"Water is the primary medium through which we will feel the effects of climate change...water plays a pivotal role in how the world mitigates and adapts to the effects of climate change."[7]**

As such, it is essential more is done to raise awareness of the need for resilience in our urban environments and the role communities and people need to play in this process.

[7] UN Water and Climate Change

RaeburnFarquharBowen, Bertha Park, Perth (2019)

2. Introduction

Why is there a need for blue-green design in Scotland?

Many of our drainage systems were originally designed by the Victorians, whose revolutionary engineering solutions tackled the water related health issues of the time. Their drainage methods still take rainwater run-off (also known as surface water) and wastewater (sewage water) from our homes and businesses[8], to water treatment plants, where it is treated before being released back into our rivers and seas.

Since the Victorian era, our urban environment has expanded. Larger and larger areas are laid with impermeable roads, pavements, car parks and even gardens are built over for extensions and patios. This increases the amount of rainwater that cannot be absorbed and instead runs off roofs, roads and pavements, and enters the drainage system. The UK Climate Change Risk Assessment[9], has predicted a 25% increase in the intensity of rainfall in Scotland during this century, with overall more rain in winter, alongside drier, hotter summers. The impact of more intense rainfall events, particularly within our urban landscape, will result in more homes, businesses and communities being flooded more regularly. Our urban environments rely heavily on built drainage solutions to capture and remove rainwater. However, urban areas are predicted to continue to grow this century[10] and coupled with more intense rainfall, drainage systems will reach capacity and flood more often.

Innovative solutions are emerging both in Scotland and internationally, to better capture and manage rainwater in our communities. Increasing the use of natural solutions such as rain gardens, ponds, green roofs and porous paving as well as re-opening previously culverted waterways, can give water a place to collect and be absorbed slowly and naturally. This concept is sometimes referred to as blue-green infrastructure (BGI) but other terms include 'sponge cities[11]', blue-green cities, rain cities[12], re-wilding cities, resilience by design, and sustainable cities.

There are additional benefits of blue-green designs which can make a significant impact on the health and wellbeing of a community. This is through its ability to offer improvements to community spaces and better access to nature. The World Economic forum[13] has found that being close to water can

- Lower levels of stress and anxiety
- Increase physical activity
- Narrow the gap between richer and poorer areas
- Reduce levels of premature deaths

Yet, recent research from the Fraser of Allander Institute[14], found the numbers of people in Scotland living near blue or green spaces has fallen since 2014, with those in deprived areas less likely to live near blue-green spaces.

The number of people living in urban environments is expected to continue to grow this century, and the benefits of ensuring our urban environments create space for blue-green designs, is a key factor in supporting the health and wellbeing and resilience of communities.

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[8] Historically up to the 1980's foul sewage generated from within properties (ie toilets, baths, sinks, etc) has been mixed with surface water into a single pipe (combined sewer).
[9] CCRA Evidence report for Scotland 2021
[10] Scottish Government – A Scotland for the future: opportunities and challenges of Scotland's changing population March 2021
[11] A term popular in China and used in the City of Harbin
[12] Gothenburg
[13] World Economic Forum – research and Instagram
[14] Fraser of Allander Institute – Scotland's road to net-zero – tracking Scotland's performance

2. Introduction

Many new developments in Scotland, are now required to incorporate Sustainable Drainage Systems (SuDS) on site. SuDS ensure rainwater does not enter the public sewerage drains but is collected and either filtered back into the soil or runs off into burns and rivers. However, there may now be a need to consider whether legal requirements are necessary to mitigate the flood risks posed from the ever-expanding, impermeable surfaces within existing urban spaces.

Scottish Government approach to blue-green design

The Scottish Government's Hydro Nation agenda seeks to maximise the value of water resources in a sustainable and responsible way. Alongside this, the Scottish Government has set out a vision for the future of surface water management in Scotland:

> **"Scotland's blue-green towns and cities are thriving water-resilient places designed to adapt to increased rainfall, river flooding and sea-level rise. They attract people, businesses and investors because they are great places to be and because they are resilient to climate change.**
>
> **They provide wide-ranging economic, social, environmental and well-being benefits to individuals, communities and the nation"[15]**

There are multiple and clear benefits that the Scottish Government has recognised from blue-green design: to more sustainably capture and manage surface water; prevent flooding and reduce the need to pump water to water treatment works, thereby saving on carbon.[16] However, as a nature-based solution, it also delivers improvements to biodiversity, health and wellbeing, active travel, urban heat control, air pollution, recreation and cultural spaces.

Because blue-green designs depart from traditional engineered solutions, they also must depart from established methodologies for installation and maintenance. The nature-based approach often requires collaboration to design and deliver, from a wider range of bodies, including Local Authorities, Scottish Water, SEPA, developers and housing associations. Furthermore, as blue-green solutions use community spaces, the community can become a useful contributor in the effective design and implementation.

The Scottish Government has recognised that in order to build water resilient communities, application of the 'place principle'[16] is a key component in the delivery. The place principle requires the bodies responsible for services, land and buildings, to work collaboratively with communities, to create better places to live and work and in so doing, also better manage resources.

Engaging communities on blue-green design

Previous research undertaken by CAS, which examined effective methods of community engagement, found that:

> **"Joint working between a community and an organisation towards shared outcomes will achieve better results than an organisation working alone."[17]**

The research found that by engaging with communities, solutions are more likely to reflect community needs, receive community acceptance, and deliver positive outcomes. Involving communities also provides an opportunity to raise awareness and effect wider societal changes, particularly around

[15] The Scottish Government - "Water Resilient Places – A policy framework for Surface Water Management and Blue-Green Cities"
[16] ibid
[17] ibid

2. Introduction

new concepts, such as the management and treatment of rainwater run-off. This could lead to increased household uptake of porous driveways and patios or use of rain butts to reduce the amount of surface water entering the public drains.

Recent UK research[18] also found that 77% of people in the UK want to be involved in local decisions, to the extent that community input was prioritised over the amount of funding available. Of particular relevance to blue-green designs, was the finding that 88% of respondents would prefer to see improvements to their community's physical and social infrastructure (e.g. parks and public spaces) than local economic improvements.

The task of adapting Scotland to the impacts of climate change is going to require approaches to water management that will differ from the traditional concrete underground drainage solutions that have worked invisibly in the past. Blue-green designs bring about transparency for communities on a very real issue, water is made visible, and its management can be seen in a lived-out way. This can promote conscious thought about how we value water in a more natural and holistic way.

Engaging with a community on blue-green solutions ensures they are given the chance to understand why this approach is necessary and what other benefits exist, such as, play parks, sports pitches, cycle paths, planting that can improve air quality, amongst many others. Engagement can also create an opportunity for the community to influence the outcome, by offering insight and local knowledge, as well as building trust in the design and getting community buy-in.

[18] DEMOS – Everyday Places, Creating strong locations to support daily life in Britain – April 2021

3. Methodology

The research had three elements and the key findings in this report reflect each of the three elements:

1. To develop an understanding of how local authorities and housing associations meet the challenges of developing blue-green infrastructure, as part of creating positive living environments. For this element of the research CAS commissioned researchers, Ironside Farrer to:

   > Explore the policy landscape in Scotland of blue-green solutions

   > Undertake a series of in-depth case study interviews of local authorities and housing associations. This sought to better understand practices of community engagement in blue-green projects.

2. To gain an impression of how people understand the terms and concepts used in relation to blue-green solutions and designs and more generally terms used by the water sector.

   As part of this element CAS commissioned a YouGov omnibus survey that explored public understanding of water sector terminology, particularly that used in blue-green solutions. The survey also examined the public's interest in installing blue-green measures in their homes and communities. The questions were run during March 2021, resulting in a representative sample of 1,044 Scottish adults aged 18 or over.

3. Once both aspects of the research had been completed, CAS presented the findings at a stakeholder workshop, attended by Scottish Environment Protection Agency (SEPA), Drinking Water Quality Regulator (DQWR), Water industry Commission for Scotland (WICS), Scottish Water and the Scottish Government. The workshop sought to gather feedback and facilitate collaborative discussion of the key issues identified in the research.

RaeburnFarquharBowen, Bertha Park, Perth (2019)

4. Key findings

i. Clear purpose and plan for community engagement

1. Planning that identifies the role of the community

Case study evidence supports the view that the developers and other bodies using blue-green designs in their projects, value community engagement and recognise the input a community can make to projects.

[engagement is] "Highly valued"

"It gave us a lot of feedback and some of it was a bit of a surprise... sitting in an office you don't really think about these things, that's why the consultation is so important."

"design evolved alongside community and their needs"

The use of blue-green design is a fairly new concept for communities as well as the water sector and this fundamental shift in approach to how rainwater is managed, creates a clear role for communities, that would not have been needed in the past. This is because rainwater solutions are no longer confined only to storage tanks, pipes and concrete, but instead community spaces can become the drainage solution, by incorporating nature-based solutions into cycle paths, play parks, football pitches, ponds and other features.

Our case study evidence found that despite community engagement, there was often little public interest, and it was usually attributed to the fact the project focussed on flood prevention and surface water management. For many in those communities, they had not been flooded, or it was a rare occurrence, therefore it was of less relevance.

However, if initial engagement with the community is carried out at the outset and focuses on placemaking, which includes solutions to surface water flooding, it creates a more inclusive opportunity to explore what is relevant to that community, what common goals they may have with the project and an appropriate engagement approach can then be deployed. This will allow the benefits of blue-green designs to be identified and agreed collaboratively, including improved green spaces, better air quality, play parks, walkways etc.

CAS supports the use of the National Standards for Community Engagement, which provide seven principles that can guide a community engagement process[19]. Planning is a key element and will underpin an effective process:

"Planning - There is a clear purpose for the engagement which is based on a shared understanding of the community needs and ambitions."

Early assessment of what is relevant to the community can support the development of inclusive and appropriate engagement methods, clear communication and can identify potential barriers in the process of engagement. This in turn is likely to avoid lacklustre community interest, due to engagement that has not made clear what the project offers or communicated how it will value community contributions.

[19] Scottish Community Development Centre – National Standards for Community Engagement 'Appendix 2'

4. Key Findings

2. Effective communication of a project and the community's role

Effective communication should be informed by planning and early engagement that can help assess community needs and how blue-green solutions relate to the community. Our case study evidence consistently saw use of terms such as 'flood prevention' or 'surface water management' in communications, despite the fact that in many instances, the community had limited experiences of flooding and may therefore, not have related to the project:

"Flood risk is not viewed as a particular challenge by locals in [the area]. Very low attendance as not on their agenda."

"I don't think they [residents] perceive that surface water management being an issue at the moment so it's hard for us to get feedback..."

If a community has not been flooded or flooding is rare and has so far seemed innocuous, then to use terminology, such as "flood prevention" is unlikely to illicit much interest and misses an opportunity to engage with the wider community on 'placemaking' benefits.

Furthermore, the role for the community in the design and planning of new blue-green solutions was not always clearly communicated:

"Your community has been identified as having the potential to flood as our weather changes. So it is time for a new plan about how extreme rainfall is managed. [The] Council is working with engineering consultants to implement a Surface Water Management Plan and would love you to be involved"

The community may struggle to see a role for themselves in this project; the local authority and engineers appear to have developed a plan to deal with the flood risk and many people believe it is the local authority's responsibility anyway. In CAS's omnibus survey 70% of respondents believed the local authority was responsible for surface water management, with only 13% seeing a role for individual householders. However, by making the wider benefits of blue-green designs more relevant to the community and highlighting the value of their contributions to the design and planning, it is likely to help people move people from being passive observers to active participants.

Our research also found that water sector terminology, including terms, such as 'surface water', is often misunderstood. Therefore, any public communications should use sector terminology with caution, our research found that a self-declared awareness does not imply understanding:

"I believe surface water is any water that the falls or is collected on the surface of the earth and includes rivers and streams, lakes and the seas and oceans"

Waste water is "excessive consumption"

Placemaking is "removing distinctions between roadways and pedestrian areas"

Blue-green infrastructure is "building or manmade structures which are built on border landscapes such as ports, harbours or reservoirs"

Furthermore, only 5% of respondents in our omnibus survey had heard of blue-green solutions and 16% had heard of SuDS. With respondents suggesting that terms should better reflect what these drainage solutions do. Communication needs to meet communities at their level of experience of water management issues and understanding and exploring the use of alternative terms that are less technical, at less risk of misinterpretation, are descriptive and

relate to the community. This may mean sector terminology is replaced with plain English terms such as, 'rainwater run-off' or 'storm water' and 'nature-based drainage', 'sponge planting' or 'rain playgrounds'.

CAS's omnibus survey found that most people do not see a role for themselves in water management, yet 36% of the respondents believe blue-green, nature-based solutions should be a priority in Scotland's response to the climate crisis. The benefit of blue-green solutions is the fact individual households and communities are able to play a part in their adoption and design and create an opportunity for communities to contribute to Scotland's adaptation to climate change.

During the stakeholder workshop, attendees identified a need to ensure effective messaging is carried out, at both local project level and through national campaigns, similar to 'Zero Waste' or 'RainScape' in Wales[20]. This can raise awareness of the need for and benefits of, blue-green solutions as well as the ways individuals and communities can contribute to their implementation.

3. Effective methods of engagement

Our case study evidence found community engagement included a variety of methods, such as leaflets, community hall events, animated 3D fly-throughs, site walk-throughs, information boards, BBQs and family fun days.

Evidence gathered from the community did often shape masterplans and the ongoing design elements of the various projects. This included re-designs to move an open water channel away from a children's play park, adding an extra football pitch, increasing green space, as well as creating a boardwalk and pond dipping area for the school. However, it was noted that the numbers of people attending and responding to community engagement was lower than anticipated. Perhaps this is to be expected where communities may not be familiar with being involved in partnership working with other bodies.

A previous report from CAS highlighted that engagement methods can be seen on a spectrum[21] that can move from a simple informative position towards an approach that enables the community to take part in the planning and delivery of the project. There are multiple benefits to enabling the community to be part of decision making:

- the project meets the specific needs of the community and can deliver added social benefits beyond the core aims of the project
- it can build local trust and legitimacy of the project
- it supports communities to develop local resilience and capacity to cope with local issues, such as how flood water is managed to best protect them
- by working with a community there is an opportunity to increase awareness of wider issues and affect positive behavioural changes, including household use of porous paving, green roofs, rain butts etc.

When community engagement methods do not consider what is needed to draw in the wider community, such as those that are difficult to engage with, but only provides information and traditional consultation through town hall style events, it promotes self-selection from community members and limits involvement to those who have the time and confidence to contribute. This will likely lead to large portions of the community excluding themselves, as they see no role for their input. This in turn means many

[20] Zero Waste and RainScape Welsh Water
[21] Appendix 1

4. Key Findings

of the benefits such as, better quality decision making, local trust and buy-in, are lost.

Blue-green solutions are more than drainage solutions and offer a fundamental change in approach to how we view and treat rainwater in our urban environments. This requires establishing new principles of engagement that ensure stakeholders are partnering with communities and creating opportunities for co-design alongside awareness raising of the impacts of climate change. During our stakeholder workshop, it was suggested that community engagement needed to be recognised as a skillset and as such needs appropriately financed.

There are examples of empowering communities from elsewhere within the UK, such as Greener Grangetown in Cardiff[22], where the engineers partnered with placemaking teams and gave each street community, the opportunity to influence the design of their street to suit their needs. The outcome has been a community that has removed rainwater from the public drains and created uniquely tailored and beautiful streets.

[22] https://ww.arup.com/projects/greener-grangetown

ii. Embedding blue-green solutions from start to finish – A paradigm shift in how we value water

1. Embedding blue-green solutions

Our case study evidence highlights that incorporating blue-green solutions early in a development and not treating them as an optional add on, is a key factor in ensuring they are not viewed as superfluous and therefore dropped from a project when rising costs create pressure to make savings.

When stakeholders were asked during the workshop what the risks are from removing elements of blue-green designs during a project, the answers highlighted that this could:

- damage any established community trust in the engagement process
- remove an effective, long term solution to flood risks for a community
- harm community trust in the concept of blue-green solutions to improve a community's resilience to climate change impacts

Evidence also found that other requirements will compete with blue-green solutions, including the need to build homes, which can restrict the amount of urban landscape available for water. Additionally, Housing Associations recognise the reality of their tenants' hierarchy of needs and will respond accordingly to these:

> "heating and food on the table", then maybe followed by "climate, blue-green spaces and flood risks"

The stakeholder workshop discussions recognised a need to accurately quantify the disbenefits and risks of solely relying on or prioritising traditional surface water management solutions, stressing

4. Key Findings

that blue-green solutions should not be costed the same way as grey infrastructure. During the recent COP26 Water Climate Discussion conference[23], a water sector engineer who was promoting the need for nature-based solutions said that:

> "traditional engineering cannot scale up to meet the necessary resilience without a huge, embodied carbon cost"

It is therefore necessary that public bodies are effectively meeting the requirements of Scotland's Climate Change Adaptation Programme[24] and are ensuring decisions take into account adaptation measures, such as blue-green solutions. This should also include attributing value to the many associated benefits of blue-green solutions, which can be long term, or are of no direct benefit to the organisation funding the project. Benefits can also appear intangible and difficult to measure, such as reducing the number of homes at risk of future flood events, as well as improved mental health and quality of life. The need to recognise and incorporate adaptation into decision making is a legal requirement and essential in building resilient communities.

Confining blue-green solutions, to either an add-on raingarden or a playground, does not recognise their adaptation potential and the value to communities of taking a holistic approach to water in our urban landscape. The holistic benefits of water were reported by the World Economic Forum's[25] recent research, which said that proximity to water, such as blue-green design, improves physical and mental health, reduces premature death rates (particularly of those in less affluent areas), provides cleaner air and can provide connective travel pathways and recreational spaces.

2. Stronger policy is needed on long term maintenance and vesting

A recurring issue found in our case study analysis, was a lack of clarity on responsibility for long term maintenance of blue-green solutions and vesting of assets. It was reported that agreements for the management and maintenance of blue-green solutions often remained part of discussions during the project. This can make the blue-green solutions vulnerable to being reduced or removed altogether, if agreements cannot be reached.

The lack of predictability for vesting and responsibility for maintenance has the potential to derail the scheme design of successful blue-green solutions and requires to be reviewed by government and associated parties. Furthermore, indecision and lack of a strategic approach to long term maintenance of blue-green solutions, may be a risk to meeting the requirements of the Climate Change Act,[26] by not delivering on the adaptation programme.

Research shows that many elements of blue-green spaces are designed to be maintained by the housing association, local authority or factors if in private developments. However, due to limited budgets, there can be a drive to reduce maintenance burdens to a minimum or even make spaces 'maintenance free' through developing green space into wild meadows.

However, there is a twofold risk to concepts of low or minimum maintenance:

1. Added value in terms of the public amenity factor of spaces can be lost - spaces may become abandoned areas, with no clear purpose and of little or no value to the community and risk developing into urban 'scrub-land'.

[23] Hosted by andeye - in the run up to November's COP26 in Glasgow, the water sector has come together to collaborate and make a difference.
[24] The 2021-24 programme which supports the duties imposed on public bodies under the Climate Change Act 2009 s44
[25] World Economic Forum – "This is how blue spaces can improve our health" March 2021
[26] Climate Change (S) Act 2009 s44

4. Key Findings

2. It may not operate effectively as a drainage solution, thereby negating a fundamental purpose of ensuring the community is resilient to flooding and climate change impacts.

International research has recommended that more consideration needs to be given to long-term maintenance of blue-green solutions[27]. This research stated that whilst a benefit of blue-green solutions is their incorporation into the urban landscape and their ability to deliver public amenities, this has led to a focus on the design, rather than the performance and maintenance of the drainage solution:

> "Asset management of [nature-based storm water solutions] is now a concern for early adopters and may become a strong barrier to the adoption of such systems ... At the same time, the promise of low maintenance requirements for such assets still presents a problem."[28]

This international research urges pro-active, long-term and active asset management and maintenance. This was echoed in our research, which highlights a need to move away from reactive approaches to maintenance, applicable to traditional surface water management solutions and replace with proactive, ongoing nature-based maintenance regimes.

It was also found in our research that the multi-functional benefits of blue-green solutions can create resistance around vesting. Blue-green designs by their very nature, can deliver multiple benefits to both water management and community wellbeing, in fact it is their ability to do both that supports community buy-in and long-term use. It is therefore important the community benefits are not removed but that stakeholder adaptation frameworks and funding incentives promote collaborative working and the ability to work in multi-disciplinary teams.

[27] International Water Association – The Source Magazine July 2021 – The role of sensors in nature-based stormwater control, Frederic Cherqui, Associate Professor at University Lyon 1, France
[28] Ibid

RaeburnFarquharBowen, Bertha Park, Perth (2019)

5. Conclusion

The need for blue-green solutions to address the risk of flooding to communities from climate change is increasing. Weather patterns are already overwhelming the capacity of existing drainage infrastructure. Blue-green solutions are one, albeit key element, in building Scotland's resilience to climate change. However, they are vulnerable to being removed or minimised within development and planning stages, due to inconsistencies in stakeholder approaches to delivering and maintaining blue-green projects across Scotland. Ultimately this can put at risk an effective adaptation approach to climate change.

Concerns and uncertainty during a project, around long-term maintenance, risks solutions that remove blue-green elements and the additional community benefits. The need for a fundamental shift in approach to surface water management, imposed by the changing climate and increased urbanisation, means it is paramount that principles for the long-term maintenance and vesting of blue-green solutions, are addressed.

As such, further consideration should be given to ensuring adaptation approaches, such as blue-green solutions are embedded and required, within decision making at all levels. This will ensure consistency in how public bodies, communities and organisations develop resilience strategies in relation to their roles and responsibilities.

Blue-green solutions utilise community spaces and can incorporate multiple benefits for people. Therefore, key to their effective design is ensuring that communities are engaged and aware of the principles and design features, to ensure it can meet the community's needs.

This will require stakeholders to develop a clear understanding of, and process for, community engagement that identifies the potential value to the community of a blue-green design, as well as the value the community can offer the project. Additionally, utilising methods of communication that adopt clear and accessible language as well as engagement methods that create opportunities to involve and empower the community, is fundamental to successful blue-green solutions.

6. Recommendations

1. The Scottish Government needs to create frameworks to embed adaptation to climate change in decision making

Blue-green solutions require a fundamental shift in approach to the way surface water is thought about and managed. This will be reliant upon stakeholder collaboration across sectors, and with society. As the concept of blue-green solutions is still in its infancy and stakeholder practices often vary by local authority, housing association, business and project, successes also vary.

CAS recognises the Adaptation Capability Framework and its role in supporting public bodies adapt to climate change. However, CAS recommends the Scottish Government seek to ensure the delivery of a consistent and embedded approach to adaptation in decision making at all levels. This will support the pace and scale of adaptation required for the predicted impacts of climate change.

2. Communication and awareness raising of adaptation

Clear communication from organisations of the roles that they and communities can and should play within the design and delivery of blue-green projects will help generate opportunities to empower communities to partner in and influence decision making.

Furthermore, CAS recommends the Scottish Government develop a public awareness raising campaign, that communicates the need for adaptation. This can highlight the necessary changes to the way infrastructure is designed and delivered and create opportunities for communities, to be part of Scotland's adaptation to climate change.

4. Recommendations

3. Identify and adopt effective community engagement frameworks

Tried and tested community engagement frameworks and principles already exist. These will support efforts by multiple stakeholders to ensure blue-green projects can best engage across a range of communities and identify what matters to the community, for example, whether to frame up blue-green solutions as tackling flooding or more widely, as an improvement and access to blue-green spaces, to increase involvement.

This process should aim to:

- Assess the benefits that are likely to have more impact for the community
- Develop clear objectives for community contribution, co-creation and engagement methods to increase community input and partnership working
- Develop an evaluation stage of the community engagement, to ensure it enabled the community to work in partnership with stakeholders, as part of contributing to Scotland's climate adaptation approach.

4. Commit to use simple and common language around blue-green solutions to increase understanding

Stakeholders need to consider how sector terminology can be simplified for wider public consumption. Research has demonstrated that terminology such as 'surface water' and 'wastewater' and 'blue-green infrastructure' do not have widespread common understanding, and as such, language needs to be expressed in such a way that is accessible, simple to understand and clear in order to effectively engage with society.

This is especially important in light of predictions that flooding will continue to increase as a result of climate change. Public bodies will need to engage with with communities in a way that supports understanding and collaboration, and the identification of other benefits of blue-green solutions for the community - including the positive environmental impact, the increase in blue and green spaces, improved connective travel pathways, better mental and physical wellbeing and more recreational spaces etc.

4. Recommendations

5. Clear ownership of the maintenance of BGI solutions

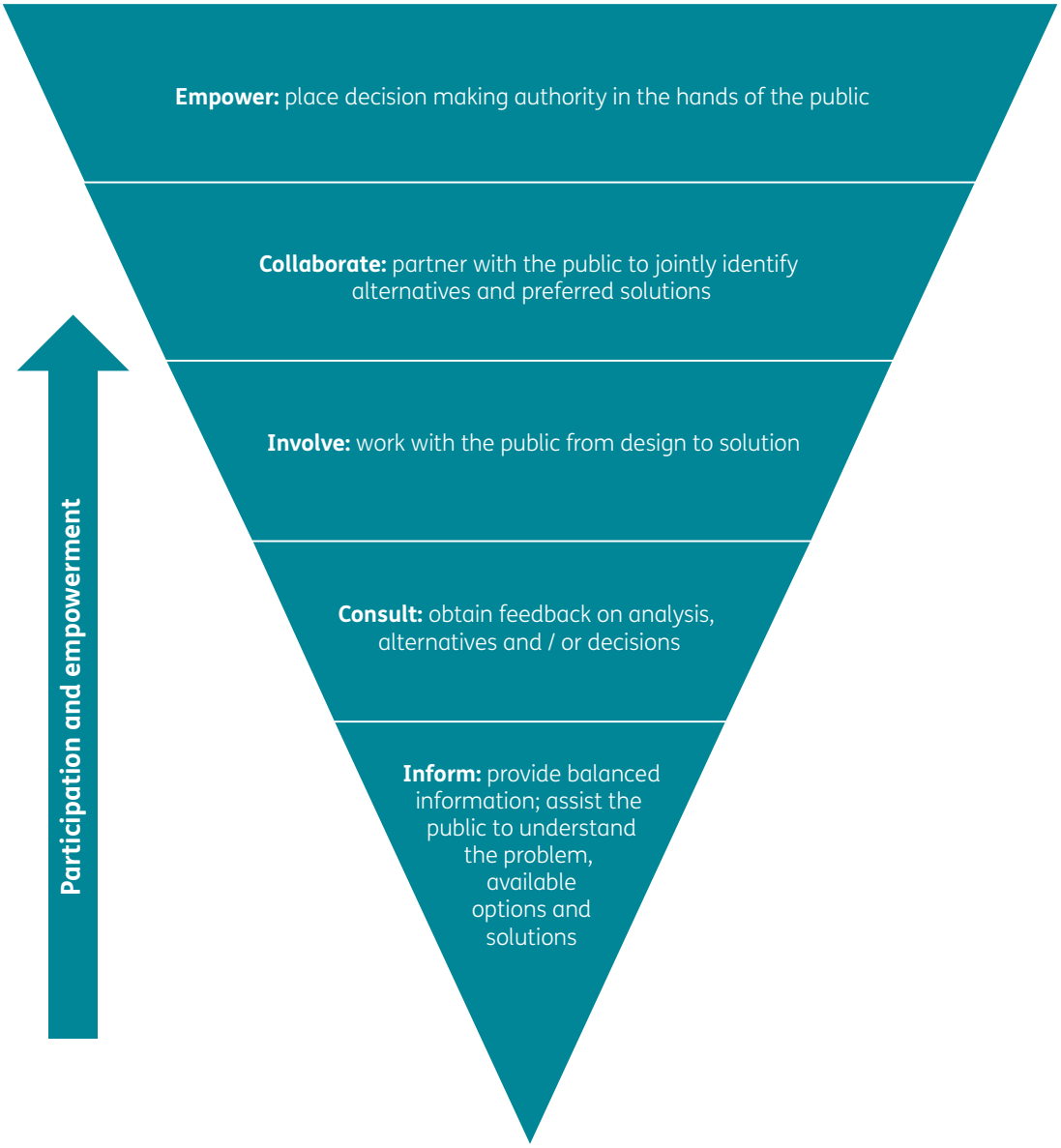
There are clearly issues regarding the building and adoption of SuDS and other blue-green solutions between the building process and their longer-term maintenance. This uncertainty risks limiting funding as well as negating their effectiveness and the protection they can offer to communities at risk of flooding.

A principled approach to the long-term management and maintenance of blue-green solutions between public bodies and the private sector, is essential to improve the adoption and ownership of blue-green solutions in surface water management projects and to ensure the longer-term resilience of communities.

This requires a fundamental review of existing design, planning and maintenance practices for drainage solutions, as part of a wider adaptation requirement. Clearer roles for private and public bodies, and opportunities to involve communities, in the ongoing maintenance and use of such infrastructure will support a placemaking approach.

Appendix 1

Citizens Advice Scotland - Engaging Hearts and Minds 2021, spectrum of community engagement



Appendix 2

Scottish Community Development Centre – National Standards for Community Engagement

www.cas.org.uk

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