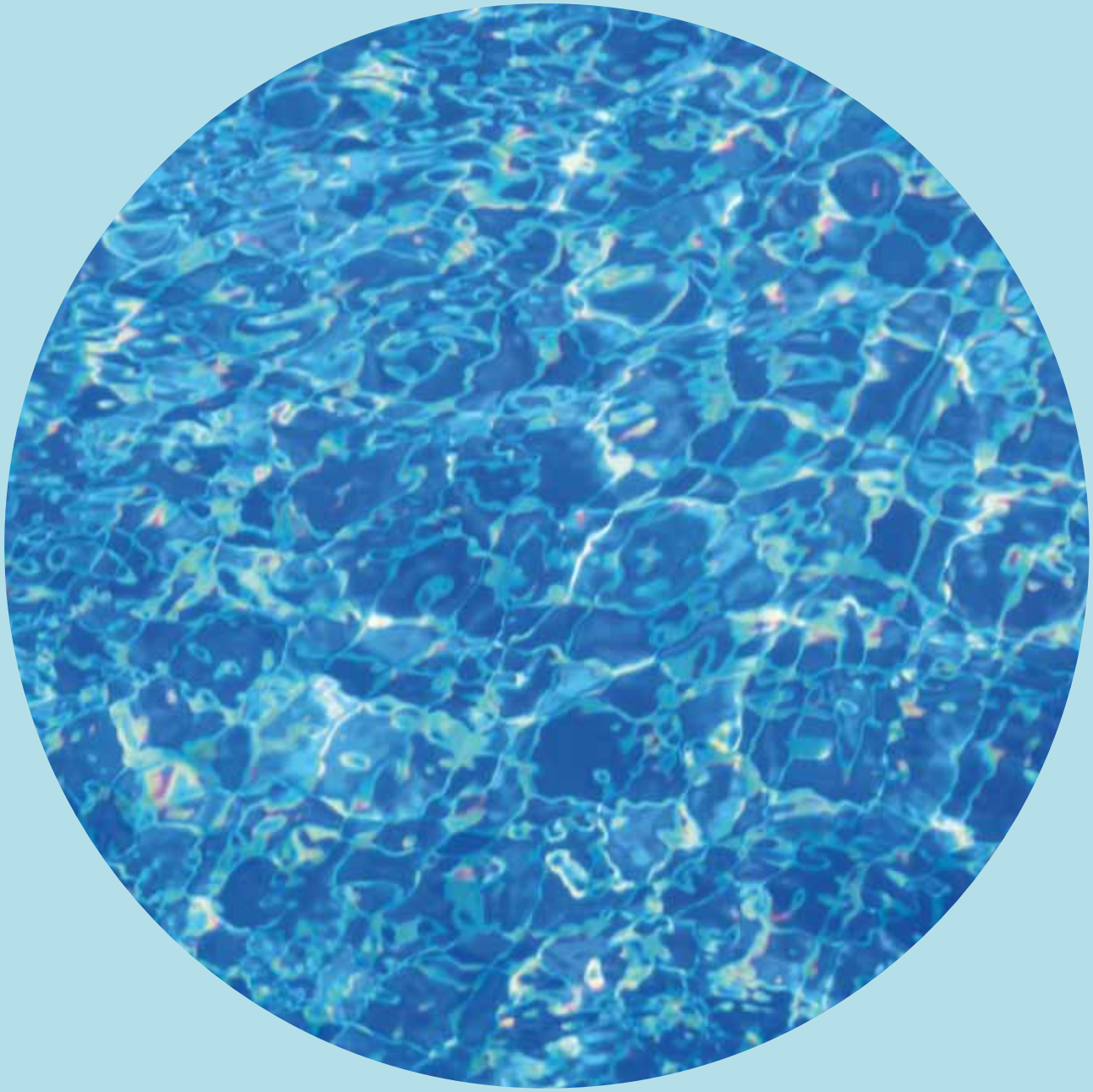
Local Water

The challenge and the prize for the ensuring council as a steward of water

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Local Water

The challenge and the prize for the ensuring council as a steward of water

An APSE report prepared by Infrangilis

June 2014

The Association for Public Service Excellence (APSE) is a not-for-profit local government body working with over 300 councils throughout the UK promoting excellence in public services. APSE is the foremost specialist in local authority frontline service provision in areas such as waste and refuse collection, parks and environmental services, leisure, school meals, cleaning, housing and building maintenance and energy services.

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Contents

Foreword

The devastation caused by the flooding and storms of early 2014 was a significant news story across all media. Such high levels of publicity tend to concentrate the mind on the immediate issue of flooding and the reactive actions taken at that point in time. Local authorities took a lead in responding to this emergency from the point when weather forecasts set off alarm bells through to the clean-up - a role many councils have taken on as flooding has become more prevalent over recent years. The personal upheaval, financial loss and disruption to domestic arrangements and businesses are difficult to understand for those not directly involved but everyone realises it is a very upsetting and never to be forgotten experience when people need both practical and personal support and help.

Resilience is the word on everyone's lips during and after a flood – in other words the ability to return to a previous state – and it is often the efforts of those from local authorities who provide the initial response and take the first steps in this journey, supplying the immediate support that local people need – food, water, shelter, help to clean up, advice and someone to turn to.

Water is provided free to us all so the supply cannot be controlled. The challenge comes in what we can do to harness it, manage it and benefit from it. This publication will look at the role of local authorities as well as the wider context within which they look to perform stewardship of water assets.

As well as a role for local authorities providing practical help there is a responsibility to put in place effective plans for all those organisations with a potential role in, and subsequent to, an emergency whether that is immediate or longer term.

There is of course a wider context in which the topic of flooding sits. This includes the provision of effective plans and structures to guide investment in and reaction to a wide range of emergencies. The legislative framework allocates responsibilities with the Water Bill currently making its way through Parliament. The devolved administrations have all put in place local arrangements and activities in Scotland, Wales and Northern Ireland are necessarily directed by their contents.

From a financial point of view, the reduction in funding allocations for local authorities overseen by the coalition government, is undoubtedly having an impact on councils' ability to provide basic services to the point where they threaten to undermine the legitimacy and capacity of local government. Responding to emergencies is a perfect example of local authorities showing their worth – providing practical support, advice and help to local people and businesses in times of need.

Being able to plan for the long term is vital in times of austerity and it is a high profile issue across the sector. Planning to reduce the likelihood of emergency events is very difficult given this context but flexibility in response is vital. APSE's 'ensuring' council model, promotes a number of guiding principles, amongst them stewardship and the maintenance of a core capacity to provide services and when necessary, react to unforeseen events. This means they are not dependent upon external contractors who are limited by contractual arrangements and cannot accommodate crisis situations.

Local authorities must take responsibility for playing their part in addressing climate change both in terms of trying to reduce the impact their activities have and in their ability to respond to the local impacts of climate change. It is expected that weather events will become more extreme over years to come so claiming such events is unusual is no longer an excuse.

This publication looks at the issue of flooding alongside local authorities as stewards of local water, security of water and efficient use of it, how water infrastructure can produce local benefits and how water can be a prompt for local economic development. APSE want to see a positive vision for the future of local government and being able to plan for water related events, respond to emergencies when they occur, manage and maintain the associated infrastructure and benefit from water assets is one element of how local authorities can provide stewardship over resources in their area and so shape the locality. A number of case studies are detailed in this publication which reflect how councils are dealing with issues of local water stewardship from operational responsibilities through to education on water usage.

Paul O'Brien

Chief Executive, APSE

Key messages

Councils play a pivotal role in stewarding local water assets to safeguard vulnerable residents, make operational efficiencies in frontline services and support growth. These councils face a perfect storm however – quite literally – a shrink in their budgets and those of multi-agency partners at the same time as communities and businesses are looking to them for more help to recover from the kind of devastating winter storms which flooded the country from Somerset and Stockton-on-Tees to Carmarthenshire in 2013-14.

This publication has four primary objectives. First, to highlight the multiple drivers for councils to rise to the problem and the prize of the nation's water emergency (Chapter 1). Second, to showcase examples of how different councils are grappling with these challenges in unique and difficult circumstances (Chapter 2). Third, to provide a practical guide for integrated local water stewardship across council functions to help elected councillors and service leaders to navigate this perfect storm with multi-agency partners (Chapter 3). Fourth, to set out recommendations for national government to help local authorities overcome barriers to achieve even more (Chapter 4).

A collection of stories from APSE members illustrates why and how councils are responding to the local water emergency across a range of frontline services (as summarised in the table below). These smart interventions range from: cross-boundary and multi-agency partnerships to alleviate flooding in Oxford; novel measures to conserve, recover and reuse water in Glasgow to make operational savings; harnessing water to develop multiple low-carbon infrastructure for sustainable freight in East Riding; through to making the connection between water enterprise and local economic development in Liverpool by tapping into the $300 billion water technology market.

National government needs to wake up to the clear fact that the benefits of investing in local water management far outweigh the upfront cost: for instance, every £1 spent on flood defence saves £8 on cleaning-up the enormous damage of extreme weather. Failing to adequately plan and develop the nation's water assets is bad news for everyone, but especially vulnerable residents and businesses.

Based on discussions with councils amongst 229 member network, APSE strongly believes there are actions national government can take to support local authorities to overcome major barriers to stewarding local water. These include:

- Refresh the **National Infrastructure Plan** by setting out the long-term vision for the system planning of and investment in, a UK water asset framework
- Redefine the **criteria for Grant in Aid** in recognition of the relation between water and the multiple benefits of low-carbon infrastructure development (e.g. energy, transport, land and housing and green spaces).
- Ring-fence budgets and staff involved in flood or drought defence in any **restructuring of environmental agencies** or other support organisations
- Reboot the **National Planning Policy Framework** so that all new commercial and residential buildings in water sensitive zones are required to be flood and drought resilient
- Request that OFWAT and the National Consumer Council for Water strengthen the **accountability of utility companies** on water emergencies to local elected politicians and consumers
- Ensure the strong voice of local authorities is at the top table for implementing the UK's new vision for **water technology** exports to boost economic competitiveness.

APSE will engage with the relevant Ministers and agency partners to secure their support for these recommendations.

This publication is part of APSE's ongoing applied research on the role of the ensuring council in the green economy, building upon earlier guidance which includes the publications Addressing your responsibilities under the Flood and Water Management Act 2010 (2010), Stronger Resource Efficiency for Desirable Communities (2012) and The Road to 2020 (2013).

Water prize or challenge	Case studies and reference points	Local authority function							
		Leadership	Regeneration and spatial planning	Transport and logistics	Asset management and procurement	Environmental services	Neighbourhood management	Education and schools	Page
Flood management	Stockton-on-Tees Borough Council pulling out all the stops to deal with a huge tidal surge			●		●	●	●	9
	Cheshire East Council's strategic flood risk assessment	●	●	●		●			18
	Belfast City Council's multi-agency flood resilience forum	●		●			●	●	20
	Glasgow City Council's ecosystem services and gainshare revolving fund for defence and savings		●		●	●			20
	Oxfordshire County Council's flood forum to mobilise resources for a cross-boundary conveyance channel	●	●		●				21
Water security and efficiency	North Tyneside Council's water cycle strategy for abstraction		●		●				24
	Eastleigh Borough Council's education campaign with Southern Water					●	●	●	25
Multiple low-carbon infrastructure	Derby City Council's hydro-electric power plant				●	●			26
	East Riding and Yorkshire Council's waterways partnership for sustainable freight	●		●	●	●			26
Water enterprise	Liverpool City Council's development of a marine and rivers technology cluster through its Local Enterprise Partnership	●	●		●			●	28

Ten things you should be doing now …

1. Make long-term planning a fundamental element of your local authority's financial and planning cycle so that the cycle has elements which are planned for over different time periods. This will include annual, medium and longer-term plans with projects and ongoing work which will only be fully realised in 50 -100 years' time (e.g. Corporate Plan, Local Plan and City or LEP competitiveness strategy). For instance, it might include a section within the Corporate Plan, or its equivalent, which addresses long-term issues and makes a commitment to addressing climate change for current and future generations of communities
2. Establish a pan-council project group to oversee an integrated water management framework: elected member leadership and scrutiny is key here
3. Consider collaborating with other local authorities and support agencies before refreshing or instigating your 'all-in-one' water management framework
4. Identify opportunities for shared services to enable you to do more with less: pool skills and budgets
5. Prepare a water cycle baseline for your area so you are clear on the local challenges and prizes: you may have a flood problem today, but you may also have a drought problem tomorrow
6. Ensure floodable assets – parks, town squares, open spaces, play area and other accessible public space – are designed or allocated (after appropriate work) so that they operate both as community assets under normal circumstances and water stores in times of flooding. Consideration of this type of asset can and should be built into the design stage of major development schemes or as part of works to address potential flooding
7. Calculate how much your area spends on all types of water products and services (e.g. sandbags, water butts, flood gates, SUDs, water efficient white goods, etc.) and determine how much is locally sourced and if you can get more 'bang for your green buck': there could be a significant multiplier economic affect
8. Raise internal awareness amongst your council colleagues and peers on the water emergency by sharing this APSE publication with them
9. Ensure you bring local residents, businesses and local MPs along with you on your journey: flood management may be a clear priority to them if they are a recent victim of severe rainfall but investing in other issues such as water conservation may be less obvious if there has not been a recent incidence of severe drought
10. Commit to issuing regular performance reports – internally and externally – so colleagues, voters and national government alike recognise the problem and value of the progress which your are making on stewardship of place on water.

1. Drivers for local stewardship of the water emergency

1.1 A (strange) day in the life of a council workforce

In early December 2013 a huge tidal surge hit the east coast of the UK, causing catastrophic damage. In parts, the North Sea reached its highest levels in 60 years and Stockton-on-Tees Borough Council in the north east of England, did not escape.

This was not the first time the authority had to pull out all of the stops in an emergency which dramatically affected local residents. In this instance, on 5th December 2013, 147 homes had to be evacuated and the residents moved into a makeshift rest centre, more commonly used as a leisure centre and at 5 p.m. the same day it became clear that this was not a task for one team. The Council's emergency planning procedures were put to the test.

Following the weather forecast report earlier in the day, the tide at Teesport was due to peak at 5:04p.m. at a height of 2.85 metres. The positive surge measured 1.24 metres above spring tide, totalling 4.09 metres in height, which exceeded previous historic events.

Work started prior to the predicted spring tide and the surge and three areas in Port Clarence were sandbagged as a precautionary measure, to interrupt any potential flow routes, even though the forecast levels were not expected to cause any flooding at Port Clarence.

Officers from the Council's Technical Services Division visited the site and realised the potential dangers resulting from the height of the tide. They passed on the message and officers from across the Council put the Emergency Plan into practice with Technical Services Officers setting up a Command Centre within Kingsway House, Billingham. Staff from Direct Services sandbagged more strategic locations within The Clarences, to prevent inundation in the event of the defences being over-topped. In addition to this, Council Neighbourhood Enforcement Officers were deployed to the area and staff from Vela Homes, a local landlord, were made aware of the potential emergency situation and also came on site. There are many teams on standby in a case like this.

Over the next few hours, through a combined effort of the Council and the Emergency Services, all the residents of Port Clarence who wished to be evacuated were transported to the designated rest centre at Billingham Forum leisure centre. In addition to this, approximately 100 people who had become trapped at Wilton Engineering were evacuated by the Council, as the flood water had cut off egress points, making it impossible to leave the site in an ordinary vehicle. Shortly after the defences were over-topped, an electricity substation was inundated with flood water causing a widespread power outage, plunging large parts of Billingham, Stockton and Middlesbrough into darkness. This further complicated the evacuation process. At the peak of the event, approximately 250 residents were evacuated to Billingham Forum and provided with food and other essential items.

There were 32 residential properties that suffered internal flooding and 20 businesses, both large and small.

In this particular incident, the residents of High Clarence were evacuated from their homes, an exercise co-ordinated by the Housing Officers from Vela Homes, the Council's Operational Team and Tees Achieve who run the Forum Leisure Centre.

Meanwhile, the Catering Team headed in to the depot to start making food and drink for the evacuees. The first problem was that the power supply had been cut off after water had leaked into the local grid station. To counter this the Highways Team set up generators outside the windows allowing light to enter the civic kitchen. It really was a case of all hands on deck

The team pulled together as much food as possible and made endless rounds of sandwiches whilst the Highways Manager headed for the nearest supermarket (which was also without power) and kindly donated masses of fresh produce. Officers managed to drive over to the supermarket and loaded up as many vehicles as possible then headed back to the rest centre to feed the evacuees.

Unfortunately the tide came in again so the Council was back helping out and catering for local people the following day too. Food was provided to all residents and to the frontline staff who had worked tirelessly through the night to get families back into their homes. The 'Care For Your Area' teams battled to get the areas cleaned, the Highways teams cleared the water, mended, repaired and made good the roads and the Cleaning team cleaned the offices and shops. All in all, the Council's Direct Services frontline teams pulled together and proved they are exactly that, a great team!

Throughout the whole emergency, staff from across the Council were involved. Managers from the Direct Services Command Centre, Highways Operations, Technical Services and the Catering Service all mucked in alongside operational supervisors and many other members of staff to provide much needed immediate help and support. Between them they moved people, provided catering, laid sandbags and helped protect property, cleared the highway and gulley network, carried out the clean-up exercise, collected refuse and detritus and much more. Catering staff, cleaning staff, sweeper drivers, road workers and others joined in to help local people in an emergency by providing practical support and showing real community leadership.

1.2 The Ensuring Council

APSE has long argued that local government must be able to maintain the ability to 'ensure' that political, economic and social policy objectives are met within their communities. It does not call for the retreat of the state, but acknowledges the ongoing responsibility of government for the common good. It recognises that the relationship between government and citizens is a continual relationship based on everyday interactions, which do not disappear between elections. The guiding principles of the ensuring council address stewardship, the maintenance of a core capacity to provide services, municipal entrepreneurialism to capture opportunities for collaborative innovation and income generation, collaboration with a range of service providers rather than through competition, grounding local decision making in political accountability and ensuring the value of local government are founded on equality and meeting community needs.

All councils should be in a position to call on internal resources with adequate capacity to respond to emergency situations and to provide post incident support. These might be flooding related or related to other weather events, severe traffic and transport problems, chemical spills, power loss, major fire or other events. The ability to respond is clearly a significant role for a council and forms the basis for local resilience to all emergencies. The local authority also has a central role in co-ordinating other public service providers involved in such events and needs the capacity to do so. Having an internal resource to call upon enables the council to provide flexibility and immediacy in response to emergencies. Without such a resource they are at the whim of other bodies whose remit will not primarily be the immediate wellbeing of the people, businesses and assets of the locality. For those councils with an external contractor as a provider of large elements of their services, their ability to manage and direct the actions of the contractor during an emergency will clearly be limited by the terms of the contract. As emergencies are by their very nature unpredictable, they cannot be written into contracts and as such there will always be a further, and significant, financial burden when engaging an external contractor in works related to an emergency.

Water, perhaps more than any other resource, is an everyday necessity. Local authorities have a similar responsibility in its stewardship as they do in other elements of the locality and the ensuring council model is as relevant here as elsewhere.

1.3 Safeguarding people, service efficiencies and growth

As 'stewards of place' councils have a unique role in the planning and management of local water assets to protect vulnerable communities, to make cost savings in frontline services and to support economic regeneration.[1]

Water is essential to our survival. We cannot go without drinking water for more than about a week, we use it for sanitation and cooking, not to mention industrial processes, travel and leisure. Yet the UK faces a water emergency, the alarming scale of which is detailed of Box 1. Excessive amounts of water, like the kind that led to the devastating floods from Somerset and Stockton-on-Tees to Carmarthenshire

1 This ethos of active stewardship for the 'ensuring council' is framed by the publication The Road to 2020: A Manifesto for the Ensuring Council (Manchester: APSE).

Box 1: The alarming scale of the UK water emergency

Where tap water comes from

All our water comes from rainfall, but where it is sourced from varies. Two thirds of drinking water in England and Wales comes from surface water (e.g. reservoirs, lakes and rivers). The rest of the water comes from underground geological formations called aquifiers which store rainwater that drains through the soil (and is extracted by pumping it to the surface through boreholes). This water is then treated before travelling through the water mains, sometimes over substantial distances, to reach taps in homes and businesses. Different parts of the country access water from these two sources to varying extents, which can affect their risk of flooding or drought (e.g. in the North of England aquifiers are less influential and so regular rainfall is needed to replenish rivers).

Too much water

One in seven UK properties (3.6 million homes and businesses) currently face some form of flood risk. Around 10% of critical infrastructure (power stations, water treatment works) and emergency services (fire, police and ambulance stations) are also currently located in the floodplain. Climate change could increase the number of properties in England with a significant chance of flooding from rivers or the sea from 330,000 now to between 630,000 and 1.2 million by the 2080s. The annual expected costs of flooding could increase from £1 billion now to between £1.8 billion and £5.6 billion (present day prices) over the same time period.

Too little water

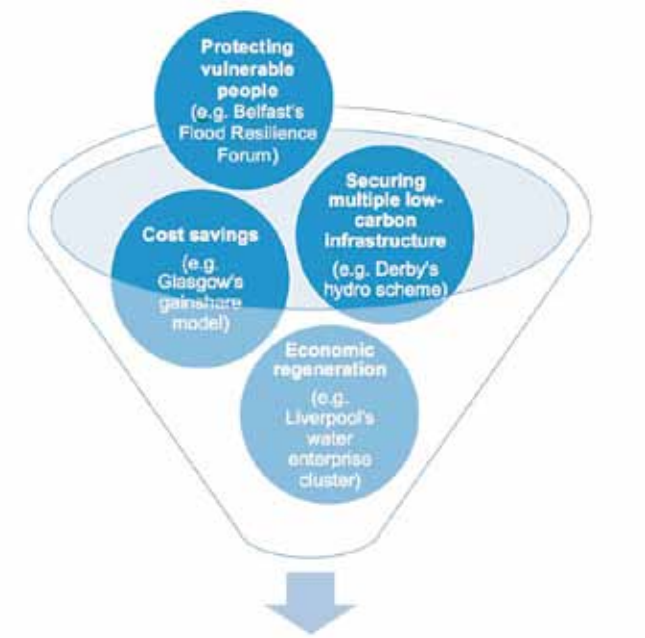
In recent decades England has been affected by a drought every 7 years on average. Whilst requiring the use of standpipes is rare, restrictions such as hose-pipe bans and constraining the level of abstraction are more common. Current levels of abstraction for agriculture, the electricity supply industry and the public are putting undue stress on the natural environment. Climate change is likely to alter annual and seasonal rainfall patterns, but the extent and timing of changes remain uncertain. Without action to prepare nearly half of key water sources could be at risk or deficit during a drought by the 2020s due to the combined effect of climate change and population growth. As a result the supply-demand deficit in the 2020s could be up to 1.2 billion litres per day (7% of existing supply).

this winter is a huge threat to the nation's quality of life: it can be a deadly safety hazard, destroy homes and result in serious loss of business income. Yet as hard as it is to imagine, places like London suffer from worse water scarcity than Istanbul, which as recently as 2012 forced Thames Water to issue restrictions on domestic use of hose-pipes and industrial abstraction licenses. Even worse, just two years ago in the first six months of 2012, South Wales suffered first from too little water and then from too much water: drought followed by flooding. Whilst it is not possible to attribute current weather events to climate change, extremes of this kind are predicted to become more common in the future.[2]

The ensuring council recognises that active stewardship of place often requires going further than the mandatory minimum to respond to this water emergency. It is reflective of a new wave of municipal innovation that involves joining forces with local partners in the more productive use of scarce assets to create better livelihoods, achieve operational cost efficiency and contribute to an economic recovery, as well as restore cherished natural resources (as depicted in Figure 1 below). These smart interventions range from: cross-boundary and multi-agency partnerships to alleviate flooding in Belfast, Cheshire East and Oxford; novel measures to conserve, recover and reuse water in Eastleigh, Glasgow and North Tyneside; harnessing water to develop multiple low-carbon infrastructure for energy and transport in Derby and East Riding; through to making the connection between water enterprise and local economic development in Liverpool to tap into an export industry for water technology worth $300 billion.

2 Committee on Climate Change (2012). Climate Change - Is the UK preparing for flooding and water scarcity? (London: Committee on Climate Change).

Figure 1: The challenge or prize of local water management



(Source: author. Credits: see cases in Chapter 2)

In making this case, APSE appreciates that the context in which a council operates is complex and may vary according to local weather and natural environment, as well as legal powers and responsibilities. So it is a matter of each council prioritising its own resources and budgets and influencing how its partners use theirs to meet local circumstances.

1.4 Policy context and devolved national variations

There are a number of international and national policies that shape a council's approach to local water stewardship, as set out below. Devolved powers mean that some nations are taking different journeys to local water stewardship. This has led to leaders in Scotland in particular arguing they are more progressive than Westminster when it comes to stronger water management for the national economy compared to England.

EU Water Blueprint and EU Water Framework Directive

The European Union's (EU) "Water Blueprint" outlines actions on better implementation of current water legislation (including the EU Water Framework Directive), integration of water policy objectives into other policies and filling the gaps with regards to water quantity and efficiency. The aim is to ensure that a sufficient quantity of good quality water is available for people's needs, the economy and the environment. The Water Blueprint's time horizon is closely related to the EU's 2020 Strategy and, in particular, to the 2011 Resource Efficiency Roadmap. The analysis underpinning the Blueprint covers a longer time span however, up to 2050.

The EU Water Framework Directive (WFD) was adopted in 2000. The purpose of the WFD is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters (to one nautical mile) and groundwater. To meet the objectives of the WFD the UK has established River Basin Districts and developed plans and programmes of measures that detail the actions that need to be taken within each district. The aim is for each River Basin District to achieve 'good ecological status' by 2015.

Flood and Water Management Act[3]

The Flood and Water Management Act 2010 applies to England and Wales and implements several key recommendations of Sir Michael Pitt's Review of the Summer of 2007. The aim of the legislation is to reduce the likelihood and impacts of flooding, to clarify roles and responsibilities, to improve the efficiency and management of the water industry and to reduce pollution and improve water quality. This means that unitary and county councils will be the lead local authority with a duty to bring together the relevant bodies, who will have a duty to cooperate, to develop local strategies for managing local flood risk and create flood risk management strategies. All other authorities must have regard to the scrutiny process of the lead authority. The Act specifically: provides for a power for local authorities to require information from any person and to impose a civil sanction if information is not provided; provides for a sustainability duty on lead authorities, districts, internal drainage boards (IDBs) and highway authorities; enables the Environment Agency and local authorities more easily to carry out flood risk management works; provides for local authorities to be given responsibility for surface water flooding; requires the use of sustainable drainage systems (SUDS) in certain new developments; encourages the uptake of SUDS by removing the automatic right to connect to sewers and providing for unitary and county councils to adopt SUDS for new developments and redevelopments so helping to manage and reduce the flow of surface water into the sewerage system; provides that the Environment Agency, local authorities and IDBs are able to ensure that private assets which help manage the risks of floods cannot be altered without consent.

Climate Change Act

The Climate Change Act 2008 created a framework for building the UK's ability to adapt to climate change. The Committee on Climate Change is an independent, statutory body established under the Act to advise the UK government and devolved administrations report to Parliament on progress made in reducing greenhouse gas emissions and preparing for climate change. This includes the UK's preparedness for flooding and water scarcity (e.g. preparation of a sustainable, long-term plan for the Somerset Levels and Moors following the recent episodes of flooding).

Water for Life White Paper and Water Bill

The White Paper launched in 2011 describes a vision for the future of water management in England up to 2050 in which the water sector is resilient, in which water companies are efficient and customer focused and in which water is valued as more a precious resource. It places a particular focus on: tackling water pollution; tackling over-abstraction; supporting growth and innovation; affordability and bad debt; reducing high household bills in the south west of England; and changing the way water is valued.

The Water Bill 2013-14 is currently making its way through UK Parliament. It makes provision for the water industry; compensation for modification of licences to abstract water; main river maps; records of waterworks; the regulation of the water environment; the provision of flood insurance for household premises; internal drainage boards; Regional Flood and Coastal Committees; and connected purposes.

Water Resources (Scotland) Act and Hydro Nation and Flood Risk Management (Scotland) Act

The Water Resources (Scotland) Act 2013 aims to maximise the opportunities from the hydro economy and ensure that management of the Scottish water sector remains cutting edge. This legislation alongside the Hydro Nation programme of work places a duty on Ministers to develop the value of Scotland's water resources, viewing them as an economic, social and environmental asset. The vision is for Scotland to be strategically placed to play a key role in the development of water as the key asset of the 21st century using its technical expertise and academic knowledge to their full potential. The legislation also ensures the management of Scotland's water environment is modern and proactive (e.g. procedures have been updated to deal with shortages in the public water supply, Scottish Water has been given new powers to assist them in preventing certain substances entering the sewerage network and provisions introduced to assist communities manage shared septic tanks).

3 For a comprehensive analysis of obligations required by the Flood and Water Management Act 2010 refer to APSE (2010) *Addressing Your Responsibility Under the Flood and Water Management Act 2010* (Manchester: APSE).

The Flood Risk Management (Scotland) Act 2009 was introduced to deliver a more sustainable and modern approach to flood risk management. Although the Scottish Environmental Protection Agency (SEPA) acts as the competent authority for floods, local authorities are expected to make a significant contribution to the preparation of assessments, maps and plans to comply with the requirements. SEPA is responsible for district flood risk management plans (district plans) that set the national and strategic framework for flood risk management in Scotland. Local authorities are responsible for preparing local flood risk management plans which must be consistent with the district plans. This duty includes preparing maps of bodies of water and SUDS in their areas, to assess where a body of surface water could give rise to a risk of flooding and where this is the case, to consider whether clearance or repair works could reduce that risk (i.e. lochs, rivers, streams, watercourses, drains, ditches, culverts and artificial watercourses).

Water Strategy for Wales

The Welsh Assembly is currently consulting on a new water strategy to improve water quality and help Wales manage water resources sustainably. It will set out: a commitment to improving water quality; an approach to integrated water management; how Wales will ensure its water resources are managed sustainably; and how it will maintain a high quality of drinking water. Policy direction in this document on water issues in Wales will cover issues related to: land use and the environment; water resource management and the value of water; water efficiency; future regulation of the water industry; affordability and metering; and water and sewerage services for the public and private sector. The strategy will also be written to include: tackling poverty; the Living Wales Programme and the Future Generations Bill (previously sustainable development white paper).

Water (Northern Ireland) Order and Flood Risk Management Plans

The Water Management Unit (WMU), within the Northern Ireland Environment Agency (NIEA), under the Water (Northern Ireland) Order 1999, has a duty to promote the conservation of the water resources of Northern Ireland and the cleanliness of water in waterways and underground. The WMU protects the aquatic environment through a number of activities including: monitoring water quality; preparing water quality management plans; controlling effluent discharges; taking action to combat or minimise the effects of pollution; supporting environmental research; and coordinating production of draft river basin management plans with partners.

All Northern Ireland Departments, each district council and Northern Ireland Water are required to exercise their relevant functions in a manner which secures compliance with the requirements of the WFD. Importantly, although the NIEA is the competent authority, councils are required to contribute to the development of Flood Risk Management Plans by assisting in the establishment of appropriate objectives and measures that are designed to reduce the adverse consequences of flooding.

2. How councils are stewarding local water

The previous chapter set out the business case for councils wanting to better steward local water within the legislative context. This chapter shows how APSE members are actively dealing with the challenge and prize of local water management (flood management, water efficiency, low-carbon infrastructure and water enterprise) across a range of frontline municipal services (regeneration and spatial planning, asset management and procurement, transport and mobility, environmental services, neighbourhood management, education and schools). In light of the devastating wet winter in 2013/14 which badly affected APSE members' communities, special focus is given here to flood management and in particular a review of the impact of the Comprehensive Spending Review and the National Infrastructure Plan.

2.1 The frontline response on flood management

Councils are confronted by multiple hazards in their efforts to manage flood risk: extreme weather, the deficit reduction and an infrastructure investment gap. Most councils have a duty, as the lead authority or in support of that lead authority, to contribute to flood risk management in their local areas. This major task is set to become even harder given incidences of extreme weather are predicted to become more frequent in the future as a result of climate change. Yet this is just one hazard councils must grapple with. At the same time, both councils and their partner agencies for flood risk management are facing up to severe budget cuts and national infrastructure plans for long-term investment in water assets remain uncertain. This deterioration of the operating environment undermines efforts to manage flood risk, which is bad news for everyone, but especially vulnerable residents and businesses.

It makes good business sense to invest in flood prevention: according to the Environment Agency £1 spent on preventing flooding saves £8 in repairing damage.[4] During 2012, flooding occurred one day in five in England and Wales. This wet weather cost the economy almost £600 million. The cost to business of this extreme weather was valued at £200 million, or £60,000 on average for each business that was affected. Figures issued by the Association of British Insurers reveal that the cost of flood damage since 2000 has jumped by 200% when compared with the 1990s. The Chartered Management Institute found that extreme weather was increasingly interfering with business too, reporting that ten years ago just 15% of businesses were affected each year, but that this leapt to 29% in 2008 and to 49% in 2012. It is estimated that 175,000 businesses in the UK are currently vulnerable to flooding.

The economic cost of flooding pales into insignificance compared to the human cost: loss of life, loss of home, loss of savings and loss of livelihood. The final cost of clearing up after the winter floods in 2013-14 from Conwy to Staines is likely to top £1 billion, including a bill of at least £500 million for the insurance industry. Whilst 5,800 properties flooded, not all vulnerable areas like Hull were hit by the bad weather; there are a total 5.2 million properties at risk in England (1.4 million are at risk from rivers or the sea alone, 2.8 million from surface water and 1 million from both). Worse still, the current annual cost of flood damage is £1.1 billion but this is forecast to increase to £27 billion by 2080.[5] It has been estimated that maintaining existing levels of flood defence would require flood defence spending to increase to over £1 billion per year by 2035 (from an average £579 million spending per year budgeted by the government for the period 2011-15). The Joseph Rowntree Foundation also conclude there is a triple injustice when it comes to flood risk management: low-income households are more vulnerable to extreme weather (proximity to a flood plain, ability to respond or recover), pay proportionately more and benefit less from certain policy responses and particularly those paid for through energy bills, while also being responsible for the least emissions that cause climate change.[6] For instance, one harsh reality is that some households still struggle to get affordable home insurance despite having flood defences in place. The Water Bill 2013-14 making its way through Parliament will introduce a scheme called Flood Re to help resolve this particular problem from 2015 onwards, but it may not be sufficient. Flood Re will pool a small amount of the premiums paid by every household to ensure flood insurance stays affordable for up to 500,000 households which might otherwise struggle to pay large

4 The Environmentalist (2013) 'Firms given flood warning', *The Environmentalist*, 06: December 2013.

5 The Observer (2014) 'Flood-hit Britain', *The Observer* (8-9: 16 February 2014). Sources: National Audit Office, Institute of Terrestrial Ecology, Environment Agency.

6 Joseph Rowntree Foundation (2011) *Climate Change, Justice and Vulnerability* (York: JRF).

bills because they live in high-risk areas. Controversially however, it is unlikely houses built since 2009 will be able to access Flood Re, to avoid incentivising unwise building in a flood plain. This is a concern for social justice, as people on low incomes or in social housing often have less choice about where they live and so may not knowingly or willingly decide to live in a house in a flood plain built before 2009.

Severe cuts in local authority budgets to reduce the national deficit are already biting hard; but cuts to agencies with responsibilities for flood defences, hurt local authorities further. As at January 2014 government figures show its funding for flood defences was expected to be lower in both nominal and real terms during the current spending period than during the last spending period.[7] This is expected to lead to 387 projects not proceeding for at least four years, but also to result in the redundancy of 15% of the Environment Agency workforce in the coming year. This is depicted in Figures 2 and 3 below. In practical terms this means the possible loss of up to 550 skilled professionals whom local authorities rely on for expert support in local flood risk management plans through multi-agency partnerships.[8] For instance, more than 99% of developments that the Environment Agency has objected to on flood risk grounds are amended or refused in line with their advice.[9]

Figure 2: DEFRA funding on flood defence (£ millions)

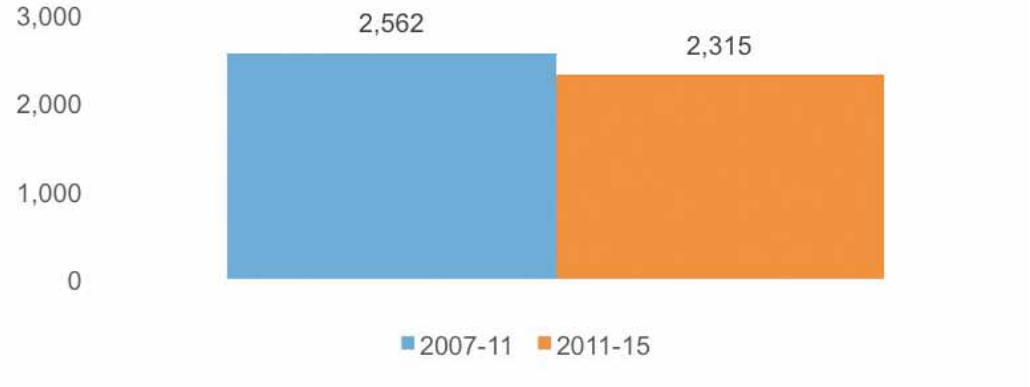
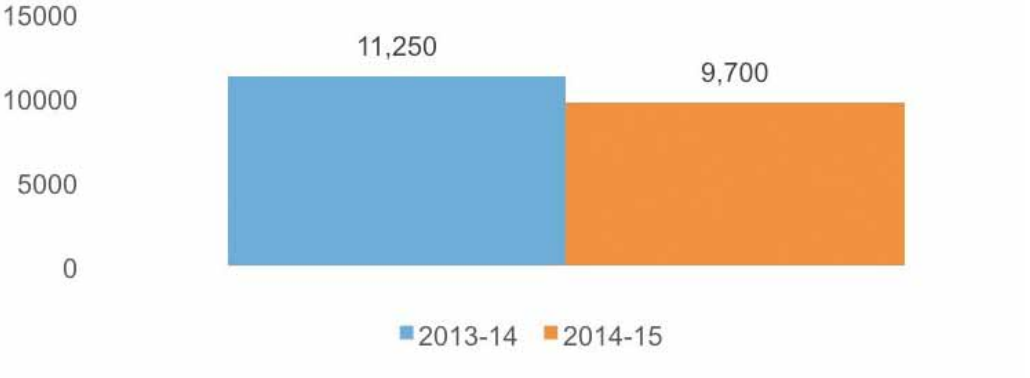


Figure 3: Environmental Agency workforce numbers



(Sources: author analysis of data from the House of Commons Library and The Telegraph)

Whilst the government's intention is that the shortfall in government spending on flood defences in the current spending period compared to the previous one should be plugged from alternative sources, locally or otherwise, uncertainty remains about the National Infrastructure Plan for investment 2010- 2020.[10] Whilst HM Treasury's Plan is helpful in that it is intended to lay the foundations for a more structured approach to national infrastructure delivery by setting out what the UK needs and makes an effort to attract pension fund investment, it falls short of what is required as it is a wish

7 House of Commons Library (2014), *Flood Defence Spending in England*, 12 February 2014.

8 Dominczak, P. (2014), 'UK floods: homes 'left exposed' by Environment Agency job cuts', The Telegraph, http://www.telegraph.co.uk/topics/weather/10548207/UK-floods-Homes-left-exposed-by-Environment-Agency-job-cuts.html, website accessed 31 March 2014.

9 Committee on Climate Change (2014). *Policy Note: Flood and Coastal Erosion Risk Management Spending* (London: Committee on Climate Change).

10 HM Treasury (2013) *National Infrastructure Plan 2013* (London: HM Treasury).

list of individual projects rather representative of system planning (i.e. strategic, integrated and long-term). The Institute of Directors estimates that at least £500bn is needed to be spent on the UK's energy, transport, water and ICT infrastructure up to 2020.[11] Of this, £50 billion is for water. By contrast, HM Treasury sets a total target of £377 billion. Of this, £19 billion is for water (£4 billion for flooding and coastal management, £19 billion for water supply and sewerage). The infrastructure funding gap – between what is needed and what can be financed by the public sector – is big and so there needs to be a surge in infrastructure investment at a time when the public sector is least able to afford it. Of further concern then, is the fact that the funding mix varies considerably across and within infrastructure sectors. In terms of the water sector, flooding and coastal management is more dependent on the taxpayer compared to water and sewerage which relies more on consumers.

Figure 4: Total national infrastructure investment (£ billions)

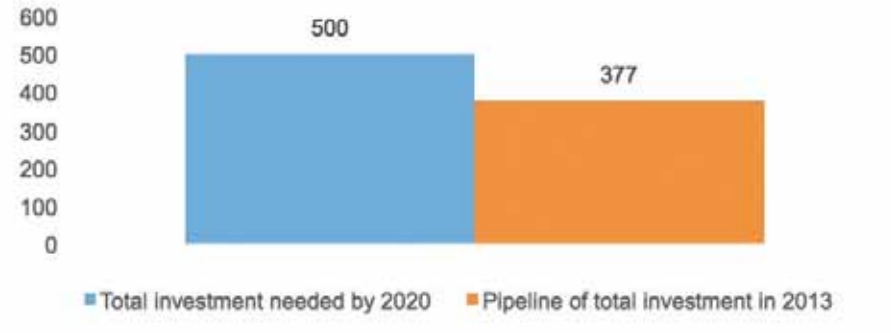
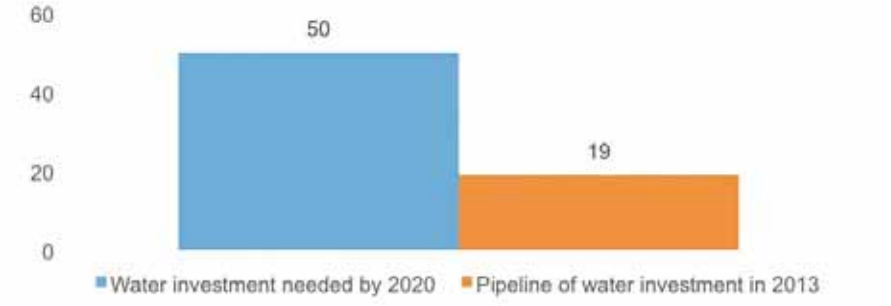


Figure 5: Water national infrastructure investment (£ billions)



(Sources: author analysis from data by HM Treasury and Institute of Directors).

Despite the dilemma of dealing with these multiple hazards, there are lessons from leaders in councils up and down the country on developing strategies to defend local residents and businesses from flood risk.

The role of local authority officers and councillors, alongside those from other public service providers, is fundamental in the way flooding events have been managed over recent years. There are many and varied examples of how they have stepped in to provide an emergency response to meet the urgent needs of the local population. The first problem everyone has during a flood of course is getting to work. Road closure, abandoned vehicles, silt and other debris, fallen trees and a lack of public transport affect council staff and councillors just as they affect everyone else. General contributions that local authority staff and councillors made during flooding episodes over recent years include the things we have now become accustomed to - catering staff running emergency kitchens to support local people especially the elderly and vulnerable; the provision of basic water supplies; working alongside the emergency services to evacuate and rescue stranded residents; the provision of hundreds of thousands of sandbags and other equipment. For those left temporarily homeless, staff at leisure centres have set them up so they can provide emergency accommodation or as rest centres for people who have been flooded out; whilst housing staff have found and allocated accommodation to those in need. Some local authorities have appointed designated officers on a 24/7 shift to identify immediate problems and provide information and reassurance to local people. In Surrey alone 3,000 homes were

11 Institute of Directors (2010) *Infrastructure – Mind the Gap!* (London: Institute of Directors).

visited with flooding advice on evacuation.

There has been a big focus on communications with many thousands more people accessing data via council websites and social media where information is published on road closures, weather forecasts, details of available support and help as well as contact points. Councils have also put in place arrangements so local residents can pass back information about specific local incidents or where the data the council has provided might be out of date or inaccurate.

Work has been undertaken prior to the floods or to alleviate potential problems with examples of council staff working with soldiers to build temporary reservoirs to slow and divert flood waters or installing large scale pumps.

Local authorities are also involved in the job of clean up after floods too. Making sure roads, open spaces, town squares and parks are clear of water, debris and often sewerage falls to council highways and cleansing staff who spend hours on such clean ups. There are also environmental health staff who get involved in this work to ensure water supplies remain pure and stop illness and disease spreading. Councils are recognising that they need to allocate capital and revenue resources to or repair coastal walls and protection and provide funding for emergency infrastructure repairs whilst waiting for, or in the absence of, support from central government. The examples of council tax discounts and business rates relief for residents and businesses who have been unable to return to their homes or premises again reflects the fact that local authorities recognise the wider and long term problems that flooding causes and are able to put financial support in place to bolster the practical help they have provided. There are also examples of councils offering low interest flood loans to owners whose homes have been flooded or subject to severe storm damage.

There is an obvious link between the stories noted above and the ensuring council model. Most of what is mentioned here depends upon having access to people – people to cook, people to talk, people to lift, move and carry and to do 'things'. These are 'things' which can never be written into a contract, can never be costed and can never be proceduralised. That is one of the benefits of having a flexible resource which can be moved and managed to deal with emergencies without the need to go through a third party contractor. There are a number of things in short supply during a flood, or any emergency and time is one of them. Being able to direct your workforce exactly where it is needed, immediately and without the worry of contractual arrangements or cost, makes best use of time.

Lessons from leaders in councils up and down the country show that an effective frontline response to flood risk is being achieved through one or a combination of measures related to multi-agency and cross-boundary partnerships to build local capacity for self-help and innovations in finance and asset management. With respect to partnerships that involve a host of agencies and that cross area boundaries to build local capacity, Cheshire East Highways and Belfast are pooling their efforts in unique ways with the Environment Agency, utilities, local enterprises and community groups alike.

Cheshire East Council

As required for a Lead Local Flood Authority (LLFA) and Local Planning Authority, Cheshire East Council is embarking on the journey to embed flood risk into core business activity. Flood risk awareness raising and joint action with members, communities and other partners is key to integrating its approach into operational activity.

Led by Cheshire East Highways, in 2012 the Council produced a Strategic Flood Risk Assessment (SFRA). The aims and objectives of the SFRA included:

To inform part of the evidence base and inform the Sustainability Appraisal (incorporating the Strategic Environmental Assessment) for the Cheshire East Local Plan

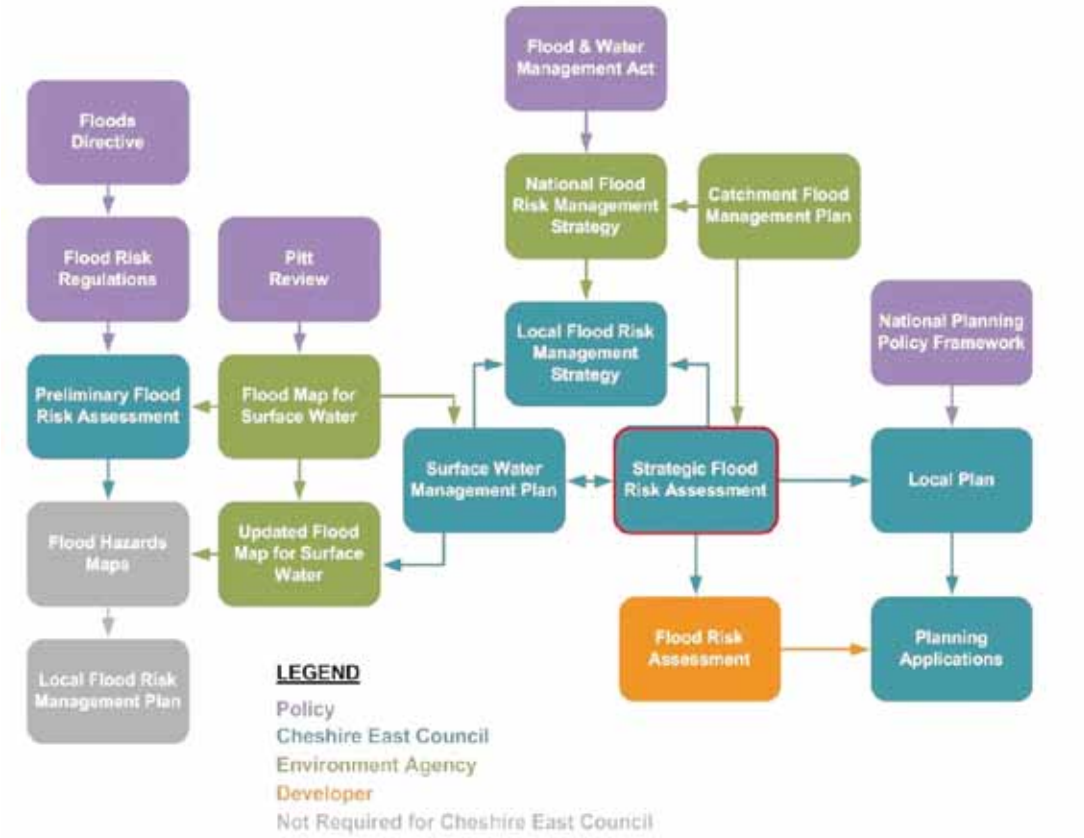
- To assist in the preparation of, and to make recommendations for, appropriate policies for management of flood risk within the Cheshire East Local Plan. This assessment enables the Council to steer development away from those areas where flood risk is considered greatest, ensuring that areas allocated for development can be developed in a safe, cost effective and sustainable manner
- To enable the Council to meet its obligations under the National Planning Policy Framework

(NPPF) and technical guidance

- To provide reference and a policy development user guide, to advise and inform wider stakeholders, including the public, private and commercial developers in order for them to understand their obligations under the latest planning guidance.

The SFRA helped establish the link between legislation, national policy and local partner roles and responsibilities (e.g. the Council, the Environment Agency, developers) to provide a comprehensive and planned approach to asset record keeping and improving flood risk management within communities. This is depicted in the figure below.

Fig. 6: Cheshire East's Flood Risk Assessment Plan



Cheshire East's flood risk programmes are heavily reliant on grant in aid. Given the limited human resources now in place (2 full time equivalent staff), Cheshire East Highways' focus has been on delivering statutory 'must dos' identified through the SFRA such as consenting, asset register and flood investigations; and development of a formal flood risk improvement programme. Importantly, this is being delivered as part of a wider Cheshire and Mid Mersey Partnership approach and coordinated via existing Environment Agency and Regional Flood and Coastal Committee Flood Risk Management programmes such as the Medium Term Plan (capital Flood Defence Grant in Aid (FDGiA) and Local Levy) and the Catchment Flood Management Plan. Close working with partners like the Environment Agency and United Utilities is essential to coordinate and compliment programmes and to organise multi-agency response and recovery.

The scale of national flood risk, competing priorities and lack of flexibility in partner funding arrangements, means that Cheshire East is challenged to secure the necessary resources or does not have the freedom locally to spend for its work, such as delivering its role as statutory approval body for Sustainable Urban Drainage (SUDs). For instance, cost of the FDGiA and Local Levy money received is early stage feasibility work; and the Council is not eligible under the funding criteria for the recent emergency support package following the 2013-14 winter floods. Consequently, Chester East Highways is piloting new ways to leverage funds. This includes linking highways infrastructure investment to flood risk in order to achieve mutual benefits to both highways and properties at risk.

Belfast City Council

Belfast City Council has no legal civil contingencies responsibility for coastal management, drainage, rivers or roads. To help protect the city's residents and businesses, to continue to attract inward investment and be badged as a safe place to visit, the Council's leadership has chosen to work closely with statutory lead authorities and services for flood management under the EU Water Directive. This activity is led by Council's Emergency Planning Unit, through their involvement in the Belfast Resilience Forum.

The Belfast Resilience Forum brings together representatives from more than 50 different organisations to agree in advance how they will work together to help the public in an emergency. Its role is to prepare emergency plans for major disasters, both manmade and natural, such as severe weather, fire, industrial accidents, major transport accidents and widespread human and animal health problems. Through Belfast Resilience the organisations also: train and practice how they would respond in an emergency, evaluate past emergency responses to try to improve how they work together and work together to encourage people to be more prepared for emergencies. Members of the Forum include emergency services (e.g. police, fire and rescue, coastguard), health services (e.g. Belfast Health and Care Trust, Department of Health, Public Health Agency), industry (e.g. city centre management, airport, freight, shipping, rail and coach operators), local and regional government department and agencies (e.g. Civil Contingencies Policies Branch, Department of Agriculture and Rural Development, Department for Regional Development Rivers Agency, Roads Service), utilities (e.g. BP, BT, NI Electricity, NI Water) and voluntary and faith groups (e.g. Red Cross, Salvation Army, St John's Ambulance).

The Council's contribution to the Forum and its work dates back to 2005, which started with the production of a Community Resilience Plan and now focuses on developing the first two Flood Risk Assessments (FRAs) for East Belfast and South Belfast. There is no single agency with a single budget that is responsible for water management in Northern Ireland, so as the only full established Forum in Northern Ireland, Belfast is pioneering how to coordinate efforts with a number of government departments and agencies which are responsible for different elements of flood risk. The Council receives no dedicated grant in aid directly from government for its voluntary work on flooding, but its residents do benefit e.g. Individual Property Protection which offers limited insurance to households at risk of minor flooding. Given the fact that resources are tight in the current austere financial climate, a key emphasis of the Forum's work is on better collaboration for the common good. This ranges from identifying alleviation opportunities through the FRAs to information sharing on money to be invested that affects drainage so it can be pooled or coordinated, through to taking it in turns to speak to deliver a consistent message to the media about the collective work of the Forum partners.

Like-minded partners joining forces locally in Belfast to defend against flooding has informed recent changes to ensure more joined up action by central government. DRD has established a Water Policy Unit with a Flood Investment Planning Group. The Group's remit includes identifying gaps to lead, such as no designation of infrastructure ownership by a statutory organisation (e.g. if private sector pipes have been installed) and reviewing design standards for climate adaptation (to protect national infrastructure).

In terms of novel models for investing and managing water assets, Glasgow and Oxford are local authorities which take the economic value of blue and green infrastructure very seriously indeed.

Glasgow City Council

Glasgow City Council has applied a number of innovative financial instruments to leverage investment in water management: to avoid the huge cost of flood clean up and to reduce operating bills from Town Hall buildings.

White Cart River is a shallow, fast flowing river which is prone to flash-flooding and where water levels can rise by 6 meters in only 12 hours of rain (there have been more than 20 significant incidents since 1908). In 2011 the White Cart Flood Prevention Scheme was launched, which is Scotland's largest, to reduce the risk of flood damage protecting 1,750 homes and 45 businesses. The new dams hold

back the water at peak for floods up to a 1 in 200 year event. The scheme will prevent £100 million of damage along the river through an investment of £53 million. In addition to economic benefits it also has ecological benefits through the restoration of 90,000m^2 of bio-diverse habitat including new species-rich woodland and ponds with fish, birds and otters.[12] The scheme is supported by the Metropolitan Glasgow Strategic Draining Partnership (MGSDP), which includes the Council, Scottish Water, the Scottish Environment Protection Agency, the Scottish Government and British Waterways. The overarching aim of MGSDP is to provide a holistic approach to managing surface water to reduce flood risk, unlock development potential, improve water quality and protect natural landscape.

Glasgow City Council is also keen to exploit big potential savings through better water management, but its inability to invest in efficiency measures during an economic recession threatened to put the benefits out of reach. To overcome this barrier, the Council entered into a commercial partnership with Business Stream, a leading non-domestic water supplier. Business Stream has funded investment in new water efficiency infrastructure through a Gainshare model which will allow Glasgow to benefit from the associated financial savings without the need for up-front capital expenditure and labour required. Water saving devices have been introduced including urinal controls, water saving taps and toilet flush volume reducers. Business Stream engineers also worked with the Council's Corporate Procurement (Utilities) team to deliver services such as leak detection and repair. The Gainshare model means that Glasgow and Business Stream share the expenditure savings made each year – thus it is a win-win situation for all concerned. This will result in operational savings of £1 million in water and wastewater costs over four years and a reduction of 1,105 tonnes of CO2 emissions.

Oxford City Council

Fig. 7: illustration of the Western Conveyance Channel in Oxford

Oxford City Council has joined forces with national and regional agencies and 40 politicians across the political spectrum in the county of Oxfordshire to help secure government backing for a major flood defence project that would protect Oxford and surrounding areas including Abingdon.

Councils including Oxfordshire County Council (the Lead Local Flood Authority) and South Oxfordshire District Council as well as Oxford City Council, want to improve the area's flood flow capacity by building a Western Conveyance Channel (The illustration below shows how the Western Conveyance Channel might look when built). This channel would function in a similar way to the Jubilee River in Windsor and Maidenhead by allowing water to pass through and around Oxford more efficiently and significantly reduce flood risk to premises and transport infrastructure. The channel, along with a

12 Edie.net (2011) Scotland's largest flood prevention scheme launches, http://www.edie.net/news/news_story.asp?src=nl&id=21211 (website accessed March 2014).

scheme further down the river for Abingdon, could cost up to £125 million.

The turmoil of the 2013-14 winter's flooding in Oxford had a huge impact on the south east economy, with an estimated £50 million lost per week within the city of Oxford. This means the full benefit to the regional economy of the recent City Deal and its goal of creating and maintaining 39,000 jobs could be undermined by failing to invest in adequate flood defences. A lack of resilience to flooding puts jobs at risk with small and larger companies alike. BMW employs 4,500 people and supports a further 10,000 through its supply chain so it is vital it renews its commitment to remain in the area. The car maker was hit badly during the floods to such an extent that its stock of parts for its Mini fleet was exhausted and could not be replenished due to the closure of road and rail links. In short, the contribution of major employers like BMW to the economy more than outweighs the cost of investing in the Channel.

In March 2014 a Flooding Summit brought together local and national stakeholders including Thames Water and the Environment Agency, who committed to find ways to make the Western Conveyance Channel happen. The Environment Agency and the Thames Regional Flood and Coastal Committee have already committed £38 million and £12 million respectively. This means a shortfall of £75 million needs to be raised from local councils, private sponsors or from public funds. At least eight years will be needed to complete the Channel, with two to three years required for preparatory work and planning approval (identifying the best route, establishing land ownership and consulting on the options).

Impact of recent flooding in Oxford

The Great Flood of 2007

Scenes from the "Great Flood" of Oxford in 2007

Private property was damaged, roads were blocked – causing diversions and delay

Oxford, as its name suggests, rests within a flood plain. A few miles south of the city the river valley narrows at a geological pinch-point. This means the valley carrying seven rivers, including the upper Thames, contracts to a width of 320 metres. Every one centimetre of rainfall in the catchment upstream to this narrow gap has the potential of directing 2.5 billion litres of water towards it.

For most of those directly affected, the scale of the flooding of 2007 was beyond anything experienced in their lifetime. The key lessons learned in Oxford during those floods led to improved demountable and temporary defences. Together with other adaptations, delivered through the first phases of the Oxford flood strategy, an investment of £2.5 million reduced the risk of future flooding to over a thousand homes.

Impact of flooding in 2014

Oxford University's weather observatory confirms 14.69 cm of rainfall fell in Oxford in January 2014. This overtook the previous high of 13.87 cm, then a record which stood from January 1852. The average rainfall for a January in Oxford is 5.25 cm. But, parts of the catchment were subject to even

higher rainfall, with north Oxfordshire receiving 17.52 cm of rain – breaking a century-long record. This record breaking rain was more to do with the very high number of very wet days in January 2014, rather than the lesser number of stormy days. During January 2014, Oxford had only one rain-free day.

The resulting swelling of rivers in and around Oxford proved challenging, despite the improved defences and additional pumps. The City Council's direct works staff put in a massive and exhausting effort to respond to the emergency – co-operating with Environment Agency and Fire Service staff to do what needed to be done in a co-ordinated and pragmatic approach, which saved homes and business premises from rainwater and river flooding. Yet, all of this effort to prevent economic damage is not reflected within the scoring mechanism for funding.

A huge disappointment for the City Council rested with the lack of engagement of the water company - with few homes being flooded, lots had water contaminated by sewage lapping into gardens. It was difficult for the City Council to get any meaningful response from the water company. This needed action, because Fire Service staff must stop pumping once sewage contamination is identified.

The significant cause of economic damage in Oxford during the floods of 2014 is attributed to the closure of road and rail links. For significant periods, two of Oxford's five main arterial roads were impassable. The consequent diversion of buses added to commuting delays for workers – the closure of the rail line caused disruption of deliveries to the BMW Mini Plant and stopped the export of completed cars.

Seeking a long-term solution

The kind of persistent rain causing problems for Oxford is happening, not once in 50 years, but once or twice every decade. It is not acceptable to the City Council to have homes flood and roads and the railway in and out of Oxford regularly closed. Flooding with the scale and frequency the area has seen recently casts a shadow across the huge economic potential of Oxfordshire. Hence the City Council making the case that it has to be a matter for national and local concern.

As a long-term solution, building flood walls to try to defend parts of the city simply will not work because the ground under Oxford is very permeable – water can just seep beneath such defences. Of course improving flood defences, planting trees upstream, widening channels and dredging rivers and ditches, will all help. Hence the Western Conveyance, as recommended by the Environment Agency experts, will increase river capacity safely and make the big difference for Oxford and Oxfordshire's economy.

2.2 Water security and efficiency

The APSE publication *Stronger Resource Efficiency for Desirable Economies* established the powerful drivers for councils to take better care of scare assets: avoiding cost risk, reducing operating costs, keeping money local and boosting local competitiveness. The business case is equally compelling for water. Interventions here range from: the introduction of sustainability Supplementary Planning Guidance in the Local Plan to raise the bar for all new construction (e.g. London Borough of Hounslow); the recovery and harvesting of grey water in buildings and street cleaning or parks (e.g. Cambridge City Council); the procurement of water efficient technologies in Town Hall premises (e.g. Wirral Borough Council); through to green neighbour campaigns to educate the public on the benefits of saving water in the home or office (e.g. Portsmouth City Council).

Making the current 'linear' model of take-use-dump more efficient is simply bad economic policy however. This only slows unsustainable consumption and is a poor use of limited resources. Instead, the ensuring council supports an approach to water efficiency that focuses on a 'circular' method whereby, through stewardship of place, no waste is generated as all water is valued. This is depicted in Figure 5 below. However, water conservation is not considered an end itself here. Rather, it frees up resources which service leaders and residents can use to create more resilient and desirable communities. North Tyneside Council and Eastleigh Borough Council are prime examples of councils who support this goal.

North Tyneside Council

When looking at the future growth of the area and the development of more buildings for residential and employment purposes, it is vital to consider the impact upon the existing water and sewage infrastructure. In 2013 North Tyneside produced a Water Cycle Strategy (WCS) to guide the most appropriate methods to improve the infrastructure, if necessary, or indicate whether certain development proposals be adjusted to reduce costs where possible. As well as considering the risks of potential flooding, a key area of investigation was sewerage and over-abstraction: to ensure the growth points would be well served or did not exacerbate a sanitation or water supply problem.

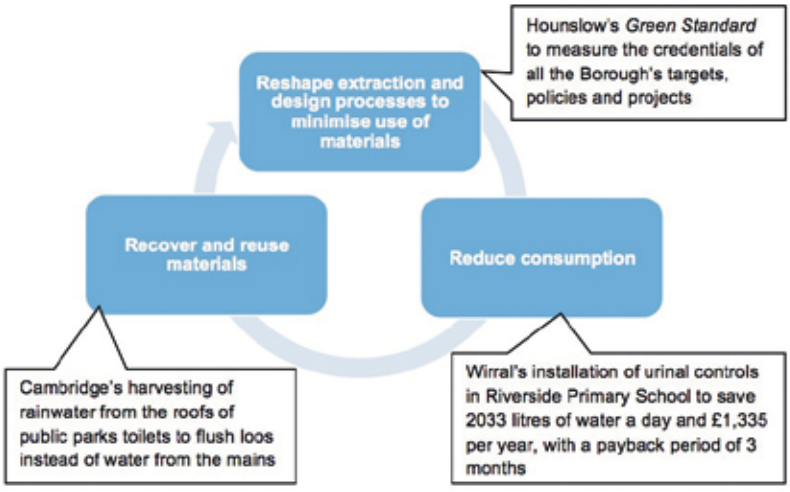
A major spur for the Council to take greater action on local water management was the terrible thunder storms of 2012 when over 500 properties were flooded. This was an unprecedented event for the borough, and much of the wider region, with many residential areas of North Tyneside experiencing flooding for the very first time. This coincided with new obligations under the Flood and Water Management Act and the outsourcing of engineering operations to Capita. The emergency response involved mobilising teams from across the Council from Contact Centre staff, Leisure Centres, Sheltered Accommodation teams, Highways, North Tyneside Homes and Environmental Services who managed the practicalities of supporting businesses and residents.

The Council subsequently invested £4.7 million in capital expenditure over 4 years to reduce flood risk and this will be embedded for the next 25 years through local services, plans and partnerships. The Council has subsequently developed robust partnerships such as the Emergency Response Leadership Group the Surface Water and Drainage Partnership, all of which have contributed to the borough Flood Risk Management Strategy.

In order to enhance the community capacity for self-help, the Council provides regular communications as part of the Council's Flood Ready Flood Safe campaign and is working with affected communities to build resilience. For example, by working in neighbourhoods and producing flood action plans as well as recruiting a network of community flood wardens who will be the council's eyes and ears on the ground. The Resilience Team has also developed a Flood Risk Management Policy for schools and all other Council buildings around the borough. The policy guides building managers through the process of conducting their own flooding risk assessments; identifying what they can do to prepare for flooding; and planning their own response. By reducing the demand for an operational flooding response from Council services to its own buildings, the Council can divert these valuable resources to help the most vulnerable people and properties in the borough.

This is not the end of the story, it is just the beginning. North Tyneside is looking closely at all of its internal building management and operational processes with the aim of mapping and managing water consumption. The approach builds upon its successes in energy reduction and carbon budgets and is providing a step change model to internal water efficiency. This has been especially valuable in the 'Wet Leisure Centres' where water, carbon and costs have been reduced.

Figure 8: Local interventions for water efficiency in a circular economy



(Source: adapted from APSE, 2012)

Eastleigh Borough Council

In partnership with Southern Water, Eastleigh recently initiated a borough-wide water efficiency campaign for residents and businesses. Water metering was recently rolled out across 99% of the area and the Council is focusing on reducing the cost of living for residents. The new campaign includes low cost water butts (to collect grey water for reuse in the garden or washing the family car) in the first instance to attract interest in the initiative and will then be developed in subsequent months to include other water saving measures.

Each person uses about 150 litres of water every day in the South East of England, which is equivalent to taking two baths, flushing the toilet 20 times, taking five showers and washing two full loads of washing. By following easy-to-do water saving tips, people can shave hundreds of pounds off their bills. Tips for inside the home published by the campaign include:

- Do not leave the tap running when you brush your teeth
- Fully load your washing machine before using it and consider updating it with a water efficient model
- Do not take a bath, take a five minute shower instead and try finding out whether you can install a low flow regulator to your shower head
- Use a low flush bag in your toilet cistern if it is older than 2001
- Put the plug in the basin when you are washing your face
- Invest in aerators for your taps to reduce flow without making it feel like you are skimping on water
- Consider investing in a water efficient dishwasher, fill it up before you turn it on and use the eco or economy settings
- Fill a kettle only with as much water as you need

Tips for outside are:

- Mulch your plants to help keep soil moist
- Use a watering can instead of a hosepipe
- Install a water butt and use the water on the garden
- Pressure washers and garden irrigation systems can work with most water butts
- Water your garden when it's cool to avoid evaporation i.e. early morning or in the evening
- Do the washing up in a bowl and then water the garden with the waste water
- Install a bath water diverter
- Plant drought resistant varieties in your garden
- Do not use a hosepipe to wash your car - use a bucket of water instead.

On the basis that nearly a quarter of domestic energy bills come from heating water, an average of £228 per year for a typical family – if people spend less time in the shower, dial the washing machine to 30 degrees and only ever wash on a full load and use a bowl when washing up - this would result in cost savings on bill of up to £138 in total per year on the household energy bill. Eastleigh provides open access to a 'water use calculator' so residents can work out exactly how much water they are using, then how much they could save on bills.

2.3 System planning of multiple low-carbon infrastructure

System planning of water assets has the potential to deliver multiple infrastructure benefits. Systems planning is an approach to dealing with complexities and unintended consequences through strategic, holistic, integrated and long-term thinking. Councils up and down the country are already applying system planning to pioneer ways to harness water as an asset to develop and manage wider low carbon infrastructure. Examples include: generating renewable energy from wastewater or water (e.g. Derby City Council, Argyll and Bute); leveraging land use investments in highways, housing and green spaces (e.g. Cheshire East Council, Glasgow City Council); and using the nation's inland waterways for sustainable freight (e.g. East Riding of Yorkshire Council, Flintshire County Council).

These developments not only help to decarbonise our energy and transport supply, but also increase energy security and reduce dependence on imported fossil fuels.

The Renewable Energy Roadmap, published in 2011 sets out how the UK will reach the legally binding goal of generating 15% of UK energy from renewables by 2020. Renewable energy from water can play a part in this: hydro, tidal and wave. According to Renewable UK the country is currently a leader in marine energy for instance, with more wave and tidal stream devices installed than the rest of the world combined. This leading position is built on an established marine engineering heritage. The UK has created ground-breaking testing facilities and the best marine energy resource in Europe. It has the potential to deliver up 60GW of electricity, 75% of the UK's current needs. Commercial viability is just around the corner and the UK is well placed to capture a significant share of the global market, forecast to be worth £50 billion by 2050.[13] Hydro is another part of the energy from water mix: a resource which Derby is already tapping into.

Derby City Council

A Derby hydroelectric power plant which opened in 2013 generates 1.3m kilowatt hours of electricity a year, enough electricity to power the equivalent of 300 homes. The low carbon, renewable energy supplied by Derwent plant is reducing the financial and environmental costs of energy demands on Derby City Council. For every 1.2 million kWh units (average production for the hydro for 1 year) 4.8 tonnes of CO2 is emitted, compared to the equivalent 563 tonnes from gas fired power or 1,140 tonnes produced from coal fired power. At full capacity the plant will generate up to 50% of the electricity needs of the Town Hall, depending on demand and water level. The hydroelectric plant will continue to generate energy, even when the Town Hall is unoccupied i.e. at night or on weekends and, critically, this excess will be sold back to the grid. The initial cost for the scheme was £1.7 million, but projected income from the project fully covers its financing costs so it has not diverted resources from other Council capital projects.[14]

The inland waterways of England and Wales are extremely diverse and comprise a wide variety of natural and artificial watercourses and other waters. There are over 1,000km of waterways in England and Wales regularly used for freight transport.[15] In 2010, traffic on UK inland waterways increased by 4% from 2009 to 43 million tonnes, accounting for 3% of total goods moved that year. The government supports the shift of freight from road to water, where it is practical and to do so in terms of cargo load, value and urgency. This is partly to reduce congestion and partly to reduce the environmental impact of road transport. Inland waterways have the potential to assist in both these objectives. Currently, most of the freight traffic carried on the inland waterways is 'traditional', that is high bulk, low value and non-urgent. Examples include coal, fuel oil, aggregates, steel, timber, grain and waste. Councils such as East Riding of Yorkshire are seeking to join forces with like-minded peers to capitalise on this alternative traffic potential, as an asset to lever for rural regeneration.

East Riding of Yorkshire Council

Established in 2011, the East Riding & North Yorkshire Waterways Partnership brings together over 60 different organisations united by their interest in leveraging the area's under-used inland waterways for economic, social and environmental development. Hosted by East Riding of Yorkshire Council, the Partnership covers the city of Hull, along with parts of Scarborough Borough Council and Ryedale District Council in North Yorkshire. The partnership covers 15 waterways which are managed and maintained by a range of statutory agencies, independent trusts, navigation authorities and local amenity associations. The Partnership's collaborative approach has allowed it to overcome any previous conflict or competition between the organisations and achieve a high level of ongoing engagement

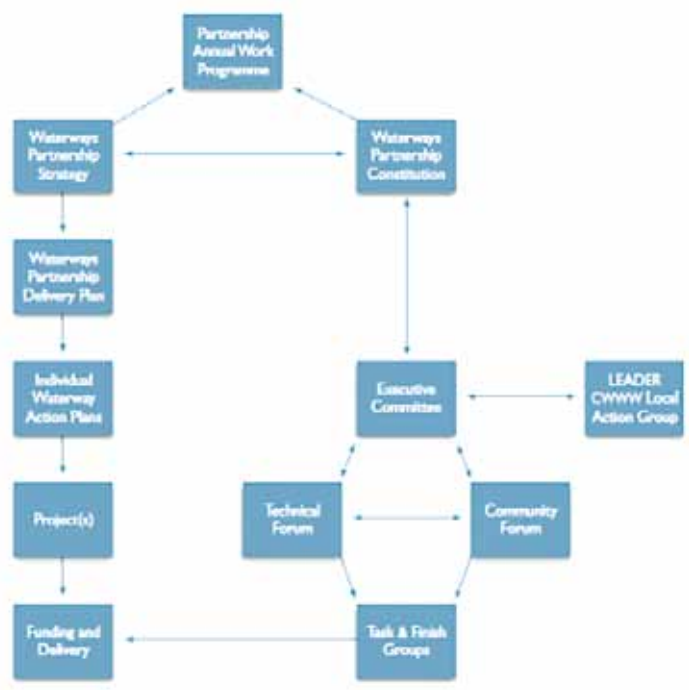
13 Renewable Energy UK (2014) http://www.renewableuk.com/en/renewable-energy/wave-and-tidal/index.cfm, website accessed March 2014.

14 DECC (2010) 'Derby is a frontrunner to cash in on new rules allowing councils to sell electricity', https://www.gov.uk/government/news/derby-is-front-runner-to-cash-in-on-new-rules-allowing-councils-to-sell-electricity, website accessed March 2014.

15 The Inlands Waterway Association (2014) 'IWA Policy on Freight on Inland Waterways', https://www.waterways.org.uk/pdf/freight_policy, website accessed March 2014.

since its establishment. This culminated in the launch of its 'Waterways Strategy 2012-2020', which sets out a long-term term vision and a portfolio of projects for the areas inland waterways. This working approach is set out in the figure below.

Fig. 9: East Riding's Waterways Strategy



One stated priority of the strategy is to support waterway based and associated local industries, particularly agriculture and freight transportation. For instance, the Aire & Calder Navigation is one of only nine inland waterways in England designated as a 'commercial waterway' by the 1968 Transport Act. This means it is required to be maintained in suitable condition for use by freight carrying vessels by the waterway's owners, the Canal & River Trust. The Navigation connects the tidal River Ouse, River Humber and North Sea directly to a range of inland towns and cities, including Wakefield and Leeds. Almost 80% of all national waterborne freight is currently carried on the Aire & Calder Navigation. This makes the waterway a key sustainable trade route and the national 'premier freight waterway'. Due to its available capacity, geographic links and versatile facilities, the Aire & Calder Navigation is well placed to take advantage of opportunities to transfer more freight to inland waterways from lorries on the road.

The partnership was originally funded through a £200,000 EU programme grant (the LEADER Coast, Wold, Wetlands & Waterways Local Action Group) which has now come to an end. Leveraging external funds in an age of austerity is vital to the ongoing viability of the partnership. This includes, for instance, an Action Plan on the Pocklington Canal that has been used to submit a successful Stage I funding application to the Heritage Lottery Fund. A Stage II application will be submitted in September 2014, which if successful, will secure the £600,000 needed for the project to commence in 2015. In recognition of this partnership's achievements to date it has received a Water Renaissance Award.

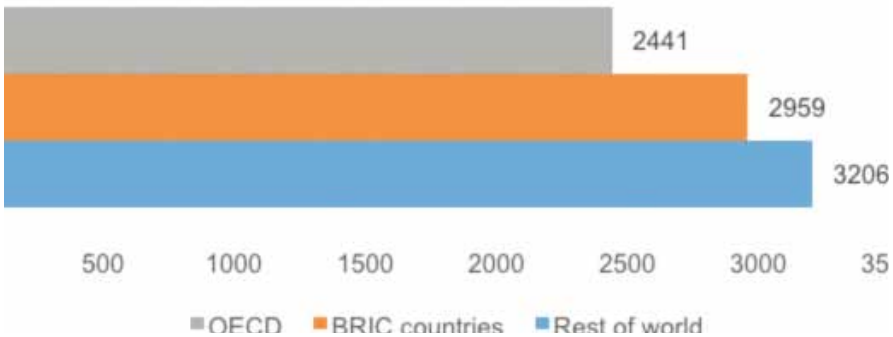
2.4 Water enterprise

Many councils are rethinking their approach to stewardship of place when it comes to water, having made a new connection between water enterprise and local economic development. An exciting proposition is the opportunity to turn a water challenge into an export industry, to compete in the $3.3 trillion market for low carbon goods and services.

Water is a cherished asset under pressure, not just in the UK but around the world too. Public and private leaders are increasingly faced with water quality and water security challenges which threaten the prosperity or survival of the community. Such challenges present a significant opportunity for researchers and businesses to develop innovative products and services that improve water

management. Already the world market for water products and services is valued at $300 billion. This figure is set to leap to $8,606 billion by 2050, in response to a number of inter-related global mega-trends including: feeding the world's growing population in an age of rapid urbanisation; 'innovating to zero' as resources become scarce; upgrading poor drinking water and wastewater infrastructure; the need for higher water standards; and adapting to climate change.[16] Consequently, there are four key investment clusters that have emerged and matured in the water sector: water distribution and management (upgrading water mains and sewerage, developing systems for freshwater supply); advanced water treatment (disinfection of drinking water, treatment of wastewater and sea water and provision of control systems or analytical instruments); demand-side efficiency (products and services for households and industry); and food and farming (improve efficiency and decrease pollution in crop irrigation and food production). Figure 6 details the geographical demand for water expenditure around the world, indicating key export markets for UK enterprise in emerging economies and the fast growing developing world.

Fig.10: Required water expenditure to 2050 ($ billion)



(Source: OECD, 2011)

Today the UK's share of the global market in water technology is just 3% (£1.5 billion) involving around 15,000 jobs in 400 small and medium-sized enterprises (SMEs). In March 2014 a fresh vision for UK water technology was launched by the Government Office for Science: 'HtechO' sets out a roadmap for the UK to establish itself as an innovation powerhouse in the global water technology sector, driving sustainable growth and creating thousands of jobs across the country.[17] HtechO's ambitious vision is to increase the UK share of the global market to 10% by 2030, generating £8.8 billion in sales (485% increase), providing 71,000 jobs (375% increase) and involving 960 SMEs (140% increase). Immediate next steps to achieve this include appointing a 'UK plc' executive leadership team and board from the public-private sectors and establishing a not-for-profit test bed for water innovation.

Liverpool and Peterborough are examples of pioneering councils which have realised the 'upside of down' by turning a water emergency into a competitive advantage in collaboration with their respective Local Enterprise Partnership (LEP). Most notably through the development of enterprise clusters to incentivise businesses to physically locate or to promote agglomeration benefits from concentrating industries in one geographical area.

Liverpool City Council

The 2011 Heseltine and Leahy report, 'Building on its Strengths', identified water as a defining feature of Liverpool's City Region, citing flagship projects such as the decades long River Mersey clean-up, the £10 billion Peel Waterways development, the broader Super-Port redevelopment and the proposed Mersey Barrage. The themes of regionally-driven economic development and low-carbon and water sector growth opportunities also come together in the Liverpool City Region's Low Carbon Economy Action Plan 2011-15, which identified 400 companies in the area operating in the sector, with the potential to create 12,000 new jobs by 2020.

Taking forward the recommendations of the Heseltine and Leary report, in 2013, Liverpool City Council through the Liverpool City Region LEP undertook a study to investigate the water innovation capacity

16 WSP and Infrangilis (2014) *Understanding Water Innovation Capacity in the Liverpool City Region* (Manchester: ENWORKS).

17 UK Water Research Innovation Partnership (2014) *HtechO: Tapping the Water Potential* (London: UKWRIP).

to determine the area's collective industrial and academic expertise to identify practical ways that the sector could be further supported and leveraged to contribute to the city region's regeneration. Importantly, the study was intended to inform the evidence base for the green economy work stream of the LEP's new Competitiveness Strategy timed to support a major ERDF funding package for 2014-2020. A key criterion for this funding package is alignment with the European Commission's 'Smart Specialisation' policy (RIS3), which defines innovation as that which supports an 'integrated, place-based economic agenda'.

The study concluded that there were over 90 organisations working in the water sector in the area, with representation across the private, public and third sectors (As depicted in the map below, with blue markers indicating business and yellow pins indicating research institutions and other support organisations). This included: 55 local companies responsible for £122 million in sales activity, £22.5 million in export activity and 962 jobs; and across its Universities' campuses, over 143 scientists, post-doctoral or doctoral researchers. For example, the new Centre for Aquatic Science and Technology (CAST) is commercially exploiting its leadership research in the booming aquaculture sector (the resource-efficient farming of seas organisms such as fish and shellfish as a solution to 70% of the world's wild fish stock being at risk) with over 40 companies such as the British Trout Association and Norks Bioenergi.

On the basis of the study, Liverpool City Council and the LEP concluded that there was a significant opportunity to develop a place-based, economic transformation agenda around water technology: the world's first 'Sustainable Coastal City Region' cluster, specialising in marine impacts, river clean-up and water smart infrastructure.

Fig. 11: The Liverpool region showing businesses, research institutions and other support organisations working in the water sector

(Source: Google Earth)

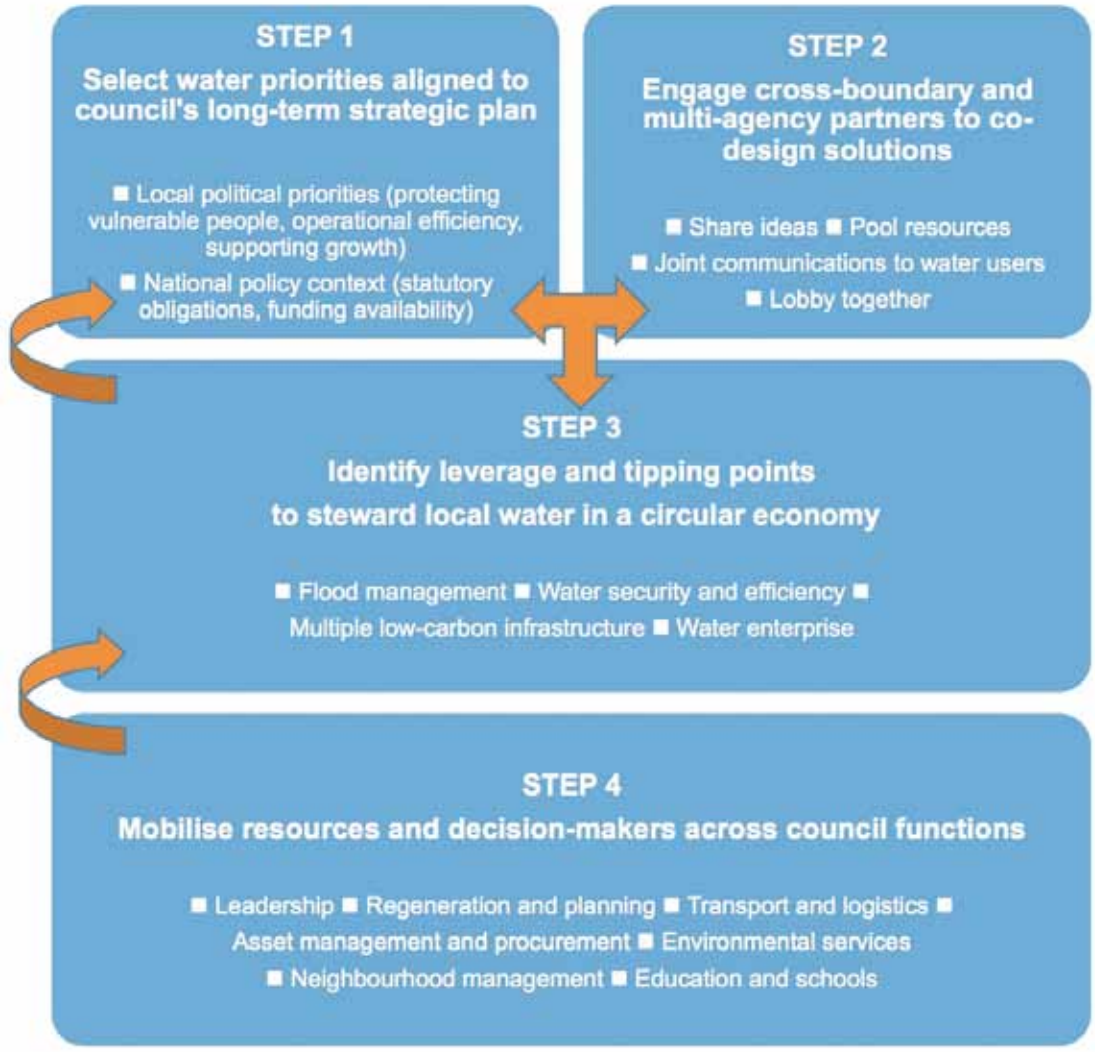
3. A decision-making framework for integrated local water stewardship

The previous chapter set out why and how councils around the country are grappling with the challenge and the prize of local water management in unique and difficult circumstances. This chapter distils lessons learned to present a model to guide elected members and senior service managers in their decision-making on the stewardship of water within the context of place.

3.1 Step-by-step process for constructing an integrated approach

A major factor in successfully constructing a strategy and policy for stewardship of local water by a council is adopting an integrated approach on water management that considers an array of complex issues. Illustrated in Figure 7 below is a four-step framework to help a council embed the right kind of decision-making in its system planning, governance and leadership team. It is intended to act as a virtuous circle, to drive ever higher standards and performance on local water stewardship.

Figure 11: Process steps for constructing an integrated approach to local water stewardship



(Source: author 2014. Credits: World Bank 2012; SWITCH 2011)

Step One: 'Select water issues aligned to your council's long-term strategic plan'

is about ensuring the business case proposal focuses on close-to-home issues for leaders, local business and voters alike. Leaders may require different data to voters or business to be persuaded about the strength of the evidence, as it may involve them making trade-offs between competing priorities. Whilst monetisation of costs and benefits is usually a powerful approach it is not universally necessary, indeed it can be counter-productive if it is not handled correctly when dealing with an emotive issue such as death as a result of flash flooding.

It is essential that this strategic planning is done in a holistic way and for a long-term period. Single issue strategies fail to recognise inter connectivity and the value of wider policy integration for current and future generations of communities.

Building the organisational capacity of the council's area as a whole to take all future decisions on water management in a strategic, effective and accountable way may mean ensuring water stewardship is formally stipulated as a priority in a council's constitution, governance rules, corporate plans and risk register, staff induction and performance reward packages.

Step Two: 'Engage multi-agency and cross-boundary partners to co-design solutions'

recognises the importance of bringing together key delivery agents, from the public and private sector, at the beginning of the process to ensure the choice of solutions is the best available and to avoid procurement problems later in the process. At this stage it is vital to determine if any insights arising during Step One of the Framework will require revisiting, for instance if its decided there is an opportunity to pool resources then the council may need to re-rank its choice of priority issues to ensure there is mutual benefit for all partners. After all, different partners may have control or influence over different parts of the water cycle (e.g. a water company issuing a hosepipe ban or an environment agency issuing a flood hazard alert).

Step Three: 'Identify key leverage and tipping points to steward local water in a circular economy'

requires determining how the council can make specific interventions given the priority areas. For instance, new design standards in the council's Local Plan requiring all commercial and residential buildings to be flood and drought resilient or joint procurement frameworks with other council buyers on sandbags or water butts to make operational savings. An important consideration is a System thinking approach to dealing with complexities and unintended consequences. Systems thinking refers to how a small shift in one thing can produce big changes elsewhere (e.g. a reduction in household water bills that results in people spending more money on water-intensive luxury goods). The leverage points allow a council to select the best places to make adjustments and changes within the system, such as resource constraints, information flows, rules and powers. To do this also means understanding what conditions or tipping points within a water cycle will bring pressure (e.g. how many drought days will cut off supply or how much flooding will reduce supply of good quality water). At this stage, again, it is vital to determine if any insights arising during Step One and Step Two of the Framework will require revisiting, for instance if the council decides there is an opportunity to harness water for power or freight. Again, different partners may have control or influence here (e.g. a Distribution Network Operator charging a free for the connection of decentralised energy systems to the national grid).

Serious consideration here needs to be given to the right type or mix of investment model given a council's particular financial or regulatory context. For instance, some interventions may incur nil costs to a council whilst others could involve lots of time-consuming grant applications or major levels of debt. It is also crucial to be clear on who funds the intervention, who benefits from it and also when this benefit occurs over time. Regarding the latter point, there are pros and cons for weighting costs and benefits at different points in time. Investments can produce a stream of net benefits that run into the future. For some, a pound earned today is worth more than pound earned tomorrow, on the basis there is risk or uncertainty with waiting for the return on an investment (e.g. inflation or defaulting on debt), which means the value of money is discounted over time. In order to calculate how much an investment is currently worth, a comparison can be made between the net benefit received in one time period with the net benefit received in another. Linking or weighting of the costs and benefits

that occur over a period time is referred to as the Net Present Value (NPV). A positive NPV indicates than an investment's benefits outweigh its costs. One limitation of the NPV approach is that it assumes resources are abundant - i.e. that is there is no rationing. In an age of resource scarcity, there may be an opportunity cost by failing to invest for the future. A good example of this is the on the economics of climate change, given that if the UK does not invest now, not only will the cost of adaption increase, but it will be too late to reverse the climate chaos that is contributing to extreme weather.

Step Four: 'Mobilise resources and decision-makers across council functions'

underlines the necessity of bringing senior managers along with you on the journey of change. Winning support from political leaders will not deliver results on its own. Service directors across a number of functions need to be engaged and convinced too given the unique expertise, experience and legitimacy their teams will bring. This will help to guarantee control, central coordination and oversight for the implementation of a multi-disciplinary process.

This also recognises the fact that once a business case has been accepted, it may require regular interim reports on outputs before a final outcome is realised and may also need to be re-submitted as circumstances change (e.g. economic downturn or a change of leadership): support of senior managers will be essential to this process. As such, pilots that are scalable as well as customised to a council's needs can be a powerful way for political leaders to justify the investment to voters. A satisfaction survey amongst residents can be one helpful way to validate a business case. At this stage, once more, it is vital to determine if any insights arising during Step Three of the Framework will require revisiting, for instance if pilots identify more effective education campaign approaches to persuading residents to prepare for storms or drought. This, in turn, will further inform and shape what the council's priorities are or should be, returning us full circle to Stage One of the Framework.

3.2 Ten things you should be doing now …

1. Make long-term planning a fundamental element of your local authority's financial and planning cycle so that the cycle has elements which are planned for over different time periods. This will include annual, medium and longer-term plans with projects and ongoing work which will only be fully realised in 50 -100 years' time (e.g. Corporate Plan, Local Plan and City or LEP competitiveness strategy). For instance, it might include a section within the Corporate Plan or its equivalent which addresses long-term issues and that makes a commitment to addressing climate change for current and future generations of communities
2. Establish a pan-council project group with other relevant agencies to oversee an integrated water management framework: elected member leadership and scrutiny is key here
3. Consider collaborating with other local authorities and support agencies before refreshing or instigating your 'all-in-one' water management framework
4. Identify opportunities for shared services to enable you to do more with less: pool skills and budgets
5. Prepare a water cycle baseline for your area so you are clear on the local challenges and prizes: you may have a flood problem today, but you may also have a drought problem tomorrow
6. Ensure floodable assets – parks, town squares, open spaces, play area and other accessible public space – are designed or allocated (after appropriate work) so that they operate both as community assets under normal circumstances and water stores in times of flooding. Consideration of this type of asset can and should be built into the design stage of major development schemes or as part of works to address potential flooding
7. Calculate how much your area spends on all types of water products and services (e.g. sandbags, water butts, flood gates, SUDs, water efficient white goods, etc.), determine how much is locally sourced and if you can get more 'bang for your green buck'; there could be a significant multiplier economic affect
8. Raise internal awareness amongst your council colleagues and peers on the water emergency by

sharing this APSE publication with them

9. Ensure you bring local residents, businesses and local MPs along with you on your journey: flood management may be a clear priority to them if they are a recent victim of severe rainfall but investing in other issues such as water conservation may be less obvious if there has not been a recent incidence of severe drought
10. Commit to issuing regular performance reports – internally and externally – so colleagues, voters and national government alike recognise the problem and value of the progress which your are making on stewardship of place on water.

3.3 Synergy with APSE Energy

This is a timely opportunity for local authorities to make use of APSE services to harness water to leverage inward investment in green energy: APSE Energy is already working with 33 member councils on pooled buying and selling of local power and heat. Launched in 2014, APSE Energy's vision is to form an effective collaboration of a large number of local authorities to enable and facilitate the municipalisation of energy services. By this APSE mean the public and community, as well as private, ownership and managerial control of local energy generation, distribution networks and delivery of energy efficiency works. Local authorities working together in this way have greater influence and are able to deliver economies of scale in green energy to promote economic growth and combat fuel poverty.

4. Policy recommendations for national government

This final chapter concludes with a list of policy proposals that the government should commit to delivering in order to help local government go even further when it comes to strong local water stewardship. Based on discussions with councils amongst its 229 member network, APSE strongly believes there are actions national government can take to support local authorities to overcome barriers to stewarding local water. APSE will be writing to the relevant Ministers to gauge their support for these recommendations.

National Infrastructure Plan

Private and public sector concerns about the National Infrastructure Plan stem from an under estimation of the required investment costs for flood and drought defences and insufficient system planning to prioritise a pipeline of major projects. To ensure the National Infrastructure Plan remains fit for purpose, HM Treasury should refresh its approach by setting out a long-term vision for UK infrastructure on water. This strategy should establish a national asset register for UK water on a regional basis, highlighting key areas for development and investment against this vision. Key areas for investment should not be confined to the current narrow definition of projects with an expenditure of £50 million or more as this frames what is valuable in terms of financial cost only. Instead, full value capture should be framed as multiple benefits related to supporting growth, protecting vulnerable people and avoiding the huge bills for cleaning up after extreme weather damage. The government should also make a long-term commitment to adequately budget for the higher cost of maintaining existing levels of flood defence, which is estimated to be over £1 billion per year by 2035 (up from an average £579 million spending per year budgeted by the government for the period 2011-15).

Government's emergency response committee and budget trade-offs

The UK's civil contingencies committees which lead responses to national crises need to adequately understand and value the enormous drain on council resources when water emergencies occur. When councils pull out all the stops and ensure all hands are on deck to safeguard local residents and businesses this often results in trade-offs, diverting resources from other frontline services. It is of national interest for central government to do more to support councils in this regard by: ensuring the voice of local government is represented at emergency response committee meetings (e.g. COBRA); establishing a pool fund for cost-recovery; and consulting councils on the effectiveness of policy implementation to prevent or mitigate emergencies (e.g. concerns over a lack of practical guidance for those councils which are a statutory approval body for SUDS).

Grant in Aid for multiple benefits and low-carbon infrastructure

Funding criteria for UK and EU funding of local authority activities can be very narrow when it comes to channelling resources for investing in local water stewardship. This represents bad value for public money. System planning should be supported by incentivising the development of water management approaches and projects which deliver multiple benefits. Specifically, prioritising and rewarding water management initiatives that contribute to multiple low-carbon infrastructure development: flood defences, water supply and efficiency, renewable energy and sustainable freight. This should also allow for greater local flexibility and self-determination for how the money is spent. By doing so, the government will get more 'bang for its green buck' in an age of austerity.

Restructuring of environmental agencies

Environmental agencies across the UK – the Environment Agency, NIEA, Natural Resource Wales and SEPA - play a pivotal role in protecting and developing national green infrastructure and water assets. The government should clarify and regularly report on a region-by-region basis how its support for

each respective agency is aligned to its obligations under Civil Contingencies and Climate Change Acts and its vision for a National Infrastructure Plan. On the basis that £8 is saved for every £1 invested in preventing flood damage, this should include the ring-fencing of agency budgets and staff dedicated to flood or drought defence. If and when these staff and budgets are changed, the government needs to disclose the impact of doing so against its National Infrastructure Plan. For instance, bringing forward or delaying prioritised flood defence projects (e.g. the pipeline of projects to use forestry and land management to hold back water in the upper reaches of rivers, as well as dredging for the lower reaches).

National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2012 needs to be revisited to ensure stronger incentives and restrictions for local water stewardship. The NPPF is intended to act as guidance for local planning authorities in drawing up plans and making decisions about planning applications. At the heart of the NPPF is a presumption in favour of sustainable development. For plan-making this means that local planning authorities should positively seek to meet the development needs of their area unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits. In terms of water, this includes guidance on promoting better surface water run-off and water efficiency. So for house building, for instance, this is intended to compliment the government's national standard for sustainable new homes the Code for Sustainable Homes (CSH) which covers nine design principles and uses a star rating system to communicate overall performance of a residential dwelling. This is not sufficient to avoid the huge cost of clean-up arising from extreme flood damage however. DCLG should refresh planning regulations so that all new commercial and residential buildings in water sensitive zones are required to be flood and drought resilient. For instance, a NPPF requirement for planning applications to stipulate at design stage the location for fitting water butts and grey water harvesting features in all buildings. At the same time, to support multi-agency collaboration, local planning authorities should commit to reporting back to the Environment Agency on the results of all objections made by the Agency on planning applications in water sensitive zones (i.e. whether the planning application was rejected, or if it was amended then accepted, or it was accepted without any amendment).

Utility accountability

In the unfortunate event of contaminated freshwater or sewerage damage to public properties arising from errors by water companies at a time of extreme weather, these companies are obliged to provide compensation to customers. However it is not always clear how the utilities are accountable to locally elected members or residents for any corrective action. To assist better multi-agency working, OFWAT and the Consumer Council for Water should consult local government networks on suitable arrangements for mandatory action in this area and practical implementation. This includes utilities' being required to share details of their climate adaptation plans as well as their emergency plans (regardless of their commercial sensitivity).

HTechO vision for UK water technology exports

The Office for Science's new roadmap to support UK companies and researchers in securing a greater share of the global water market will benefit greatly by having a strong voice from local government at the top table. The appointment of an Executive Team and Board should include representation from council member networks and relevant Local Enterprise Partnerships which are already shaping and driving the water enterprise agenda through local economic transformation plans. This will ensure better value for public money as it helps to align strategies and pool resources through City Deals and the Regional Growth Fund.

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