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Flooding Resourcing Research



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Emilio Solis, Dom Oliver, Dr. Sean Heron, Katie Lloyd, Susannah Lynn, Cameron Shields / **Miller Research (UK) Ltd.**

For further information please contact:

Emilio Solis

emilio@miller-research.co.uk

Pen-y-Wyrlod, Llanvetherine, Abergavenny, Monmouthshire, NP7 8RG, UK

www.miller-research.co.uk | 01873 851880

Executive Summary

- i. In the face of escalating climate change impacts and growing threats of flooding and coastal erosion, Wales finds itself at a critical juncture in its pursuit of resilience and sustainability. The National Infrastructure Commission for Wales (NICW), a cornerstone in this effort since 2018, has commissioned Miller Research to explore the complexities of flooding and climate change resilience in Wales, focusing on the urgent need for effective flood risk management and infrastructure resourcing.
- ii. The 'Managing Flood Impacts in Wales 2050' project, initiated against this backdrop, seeks to create a cohesive strategy to enhance Wales's resilience to flooding within the context of climate change. It aims to develop a shared vision for 2050, establish a resilience and adaptation plan, and deepen stakeholder understanding of flood impacts and responsibilities. This approach has been supported through NICW's commissioning of targeted workstreams focusing on visioning, catchment/spatial planning frameworks, land use planning, and resourcing,
- iii. This report synthesises the findings from the resourcing workstream which adopted a mixed-methods research approach, including desk-based reviews, scoping interviews, and extensive stakeholder engagement through interviews and workshops, to provide a nuanced exploration of the legislative landscape, roles, responsibilities, and the multifaceted challenges confronting Risk Management Authorities and Local Lead Flood Authorities in Wales.

Challenges and barriers

- iv. The challenges and barriers facing FCERM in Wales are multifaceted, spanning financial constraints, skills shortages, capacity limitations, and governance issues. Financially, the sector grapples with difficulties associated with annual funding cycles, the end of ring-fenced funding for flooding, and the inefficient allocation of resources, hindering long-term strategic planning and execution of flood management initiatives. This is exacerbated by a reliance on reactive approaches and grey infrastructure, requiring significant maintenance, stretching already constrained workforce capacities, and limiting the exploration of nature-based solutions to flooding.
- v. In terms of skills, FCERM faces challenges in resourcing the broad spectrum of technical and soft capabilities necessary for the evolving demands of flood risk management. Recruitment and retention are significant challenges, complicated by private sector offerings and the perceived lack of career progression within the public sector. Moreover, there exists a critical gap between the skills provided by higher

education and those needed in the field, leading to an reliance on external consultants and underscoring a need for targeted training and upskilling programmes.

- vi. Capacity issues are closely linked to these financial and skill-related challenges, with organisational capacity in key public sector bodies stretched thin. The situation is compounded by legislative constraints and limited coordination and prioritisation for flood risk management across various levels of governance, making collaborative and catchment-scale approaches challenging to implement effectively.
- vii. Governance challenges include inconsistent prioritisation of FCERM, leading to a reactive rather than proactive approach to flood risk management. The sector’s governance is further hindered by a fragmented approach to regional and catchment working, with varying ambitions, structure, and levels of progress across Councils. Adapting to climate change and it’s impacts, while recognised as a pressing need, lacks a coherent policy framework, impeding the development of effective green finance mechanisms and private sector investment.
- viii. Addressing these challenges necessitates a strategic shift across financial, skill, capacity, and governance domains, incorporating long-term planning, diversified skill development, enhanced organisational and community capacity and resilience, and coherent governance frameworks to foster a more proactive, integrated, and collaborative approach to FCERM in Wales. The report recommends a series of strategic interventions across short, medium, and long-term horizons, aiming to foster collaboration, enhance community involvement, and reimagine Flood and Coastal Erosion Management in Wales.

Short-term recommendations (1-2 years)

<i>R1. Maintain ring-fenced funding for flooding</i>
Continue the practice of ring-fencing FCERM funding to provide financial security and ensure consistent budget allocation for RMAs, mitigating long-term costs due to underfunding.
<i>R2. Issue climate adaptation and flooding guidance to Local Authorities</i>
Provide clear guidance on climate change adaptation and flooding to Local Authorities to align strategies with national goals and legislative intentions.
<i>R3. Review terms of reference for three regional working groups to support deeper collaboration.</i>
Strengthen the operational frameworks of regional flood groups for effective collaboration, incorporating NRW for national leadership.
<i>R4. Establish an FCERM Resource Sharing Forum</i>
Create a central platform for RMAs to share resources and encourage collaboration.
<i>R5. Gather evidence of efficacy of nature-based solutions for different types of flooding</i>
Collect comprehensive evidence on the application and benefits of nature-based solutions for FCERM.
<i>R6. Ensure development/planning payments cover the cost of flood risk mitigation work</i>
Adjust planning payments to fully cover the costs associated with flood risk mitigation work.

<i>R7. Support the creation of community resilience groups</i>
Establish groups to empower communities in resilience building and risk mitigation efforts.
<i>R8. Review legislation around power and responsibilities over flooding</i>
Clarify legislation on flood management responsibilities to streamline response and recovery processes.
<i>R9. Assess council tax contributions to start a local levy for FCERM</i>
Explore the possibility of a local levy funded by council tax to support FCERM initiatives, inspired by similar models in England.
<i>R10. Compile list of projects completed, projects deferred and future projects to understand scale of infrastructure funding, including anticipated maintenance costs.</i>
Create an inventory of infrastructure needs and costs to understand funding gaps and prioritise projects effectively.
<i>R11. Provide funding to community resilience groups to invest in community flood management</i>
Allocate funds to community resilience groups to support their role in local FCERM efforts and enhance community engagement.
<i>R12. Empower Local Authorities to compel private owners of assets to maintain or upgrade them</i>
Legislate authority for local governments to require private asset owners to maintain or improve their flood defence assets.

Medium-term recommendations (2-5 years)

<i>R13. Underpin collaboration established in short-term section with legislation to ensure adequate prioritisation</i>
Formalise collaborative FCERM frameworks through legislation to ensure adequate support and prioritisation.
<i>R14. Make Climate Change Adaptation a statutory duty – link directly to flooding</i>
Mandate all public sector bodies to adapt to climate change impacts, specifically flood risk, as a legal obligation
<i>R15. Develop a national Adaptation policy, which includes resilience measures and framework</i>
Create a comprehensive policy outlining resilience measures, risk identification, and mitigation actions for climate adaptation.
<i>R16. Support NRW to develop a national approach to partnership funding including, large public sector estates, large private sector estates, infrastructure providers and green finance initiatives</i>
Assist NRW in creating a strategy for partnership funding with public and private sectors for flood resilience.
<i>R17. Integrate FCERM and Climate Change Adaptation into School Curriculum</i>
Revise the school curriculum to include FCERM and climate adaptation, fostering interest in these areas among students.
<i>R18. Create, or utilise an existing, multi-functional land use framework for Wales. Use the land use framework to co-ordinate land use decisions and ensure an adequate supply of public funding contributions to flood protection between different sectors</i>
Establish a framework to coordinate land use decisions and ensure funding for flood protection aligns with other sector needs.
<i>R19. Welsh Government to provide subsidies to private homeowners to build flood resilience and management at the property level</i>
Offer subsidies or guidance to encourage homeowners to implement flood resilience measures at the property level.
<i>R20. Establish advanced education 2-year diplomas or degree apprenticeships in climate sciences/FCERM</i>

Develop specialised educational programs in climate science and FCERM to prepare individuals for careers in this field.

Long-term recommendations (5-10 years)

R21. Prioritise nature-based solutions and natural flood management to reduce the exponential growth of infrastructure development and maintenance

Focus on incorporating nature-based solutions in FCERM strategies to align with environmental goals and reduce reliance on infrastructure.

R22. Collaborate with the insurance sector for Flood Risk Mitigation Funding

Engage with the insurance sector to understand the effects of flood protection on premiums and develop mutual risk mitigation strategies.

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Glossary

Acronym / Key word	Definition
EU	European Union
FCERM	Flood and Coastal Erosion Risk Management
LLFA	Local Leading Flood Authority
NICW	National Infrastructure Commission Wales
NRW	Natural Resources Wales
RMA	Risk Management Authority
SUDS	Sustainable Urban Drainage System
TAN15	Technical Advice Notice (Development and Flood Risk)
UK	United Kingdom

1. Introduction

- 1.1 In the face of escalating climate change impacts, Wales confronts a critical challenge; the increasing threat of flooding and coastal erosion. The National Infrastructure Commission for Wales (NICW), established in 2018, plays a pivotal role in steering the nation towards a sustainable and resilient future.
- 1.2 This report, commissioned by the NICW, explores the complexities of flooding and climate change resilience in Wales, focusing on the urgent need for effective flood risk management and infrastructure resourcing.

Context

- 1.3 Recent events have laid bare the vulnerability of Wales to climate-induced disasters, such as the extreme flooding caused by Storm Dennis in 2020 affecting over 1000 properties in Rhondda Cynon Taff. Over 245,000 properties currently face the risk of flooding from various sources, including rivers, the sea, and surface water, with additional properties threatened by coastal erosion. Increasing flood frequency and severity, compounded by ongoing sea level rises, underscores the urgency of proactive response.
- 1.4 The 2021 Co-operation Agreement and the NICW's mandate emphasise the need to minimise nationwide flooding risks by 2050. This goal requires a nuanced understanding of the interplay between climate change, flood risk, and infrastructure resilience.

Background to the research

- 1.5 The Managing Flood Impacts in Wales 2050 project aims to develop a comprehensive strategy for enhancing flood resilience and adaptation in the context of climate change. The project's objectives include crafting a shared vision for 2050, formulating a resilience and adaptation plan for homes, communities, businesses, and infrastructure, and fostering a deeper understanding of flood impacts and responsibilities among stakeholders. The project also seeks to

propose collaborative approaches and community involvement strategies to bolster resilience.

- 1.6 To inform NICW's thinking on flooding projects, it commissioned a scoping study in 2022/23 to highlight existing issues within flooding policy. Following this, NICW commissioned four workstreams to support the development of recommendations to Welsh Ministers in the following areas; Visioning, Catchment / Spatial Planning Frameworks, Land Use Planning, and Resourcing.
- 1.7 The scoping report revealed significant challenges in the flood sector, particularly in workforce capacity and financial resources. These constraints hinder the effective delivery of flood risk management functions and limit the potential for collaborative opportunities and effective asset management. This report scopes out the current issues regarding resourcing flood risk management in Wales. In order to do this, a mixed-methods approach was carried out, commencing with a thorough desk-based evidence and legislation review and data analysis, followed by initial scoping interviews and extensive stakeholder engagement.

Report outline

- 1.8 The report is structured as follows:
 - [Methodology](#): Presents an overview of the methodology used for this research.
 - [Policy, roles, and responsibilities](#): Discusses the legislative framework for Flood and Coastal Erosion Risk Management (FCERM) in Wales and highlights current stakeholder roles and responsibilities.
 - [Challenges; finance, skills, capacity, and governance](#): Presents an analysis of the challenges and barriers faced by Risk Management Authorities and Local Lead Flood Authorities.
 - [Recommendations and conclusions](#): Outlines a series of short, medium, and long-term recommendations for addressing challenges to flood resourcing in Wales and presents a vision for radical change to FCERM in Wales.

2. Methodology

- 2.1 The methodology was designed to explore the challenges and opportunities in flood mitigation and adaptation in Wales. The project commenced with an inception meeting which served as an in-depth discussion of the project's scope, approach, and requirements.
- 2.2 Initial project scoping involved a comprehensive review of policies, legislation, and relevant documentation to understand the institutional mechanisms and gaps in flooding and coastal management. The stage also included scoping interviews with members of the Project Advisory Group to enhance understandings of the various aspects of flooding and coastal management, and to gather insights for the overall strategy. This was complemented by a scoping workshop with the Flood and Coastal Erosion Committee, aimed at attaining a holistic understanding of flooding in Wales, from risk identification to project finance and practical action delivery.
- 2.3 The fieldwork stage included qualitative interviews with 20 FCERM stakeholders, Welsh Government divisions, and community groups to explore gaps in resources, finance and skills, and issues affecting governance and risk management, as well as the potential for collaboration. This stage also involved an international review, engaging with agencies in England, to benchmark against capacity gaps and best practices in flood management. A final list of stakeholder engagement can be seen below:

Organisation	Number of stakeholders engaged	Format
Blaenau Gwent County Council	1	Workshop
Caerphilly County Council	2	Workshop
Cardiff City Council	1	Workshop
Cardiff University	1	Interview
Ceredigion County Council	2	Workshop
Denbighshire County Council	3	Workshop
Dwr Cymru	3	Interview
Environment Agency	2	Interview
Flood Re	2	Interview
Flooding Committee	8	Workshop
Gwynedd County Council	1	Workshop

Monmouthshire County Council	4	Workshop
Neath Port Talbot County Borough Council	3	Workshop
Neath Port Talbot County Borough Council	1	Interview
North Wales Coastline Group	1	Interview
Natural Resources Wales	2	Interview
Pembrokeshire County Council	2	Workshop
Pembrokeshire Coastal Forum	1	Interview
Powys County Council	1	Workshop
Rhondda Cynon Taff County Council	1	Workshop
Swansea Council	1	Workshop
Vale of Glamorgan County Council	1	Workshop
Wales Coastal Monitoring Centre	1	Interview
Welsh Government	7	Interview
Welsh Local Government Association	1	Interview

Table 1: Stakeholder engagement list

Source: Miller Research

- 2.4 A series of multi-stakeholder workshops were held, employing interactive research methods to facilitate discussions and evidence collection. These workshops involved various stakeholders, including Welsh RMA stakeholders, private sector consultants, regional Corporate Joint Committees, and educational institutions, aiming to understand current gaps in capacity, finance, and education, and to identify regional differences and collaboration opportunities.
- 2.5 Finally, the project concluded with the drafting of a comprehensive report. This report provides an in-depth overview of the findings, including visualisations and actionable recommendations. The draft report was reviewed by NICW for any amendments before finalizing and submitting the complete version. This methodology ensured a detailed, multi-faceted analysis of the complexities involved in managing flooding and climate change in Wales, with the aim of developing practical and sustainable solutions.

3. Policy, roles, and responsibilities

3.1 Managing flood risks, both fluvial and coastal, is a key priority for the Welsh Government. This chapter outlines the legislative framework, policy directives, and roles and responsibilities of key stakeholders in mitigating, managing, and adapting to flood risks in Wales.

Legislative framework

3.2 The legislative foundation for flood risk management in Wales was the Flood Risk Regulations 2009¹, the Flood and Water Management Act 2010, and the Environment (Wales) Act 2016. These key pieces of legislation collectively aim to mitigate and manage flood risks through a combination of defence mechanisms, resilience building, and stakeholder collaboration.

Pitt Review 2008

3.3 Following widespread flooding in the summer of 2007, which impacted over 50,000 households and caused damages exceeding £4 billion, Sir Michael Pitt conducted an independent review known as the Pitt Review (2008). The review highlighted the need for urgent and substantial changes in flood risk management practices in the UK and presented 92 recommendations aimed at various stakeholders including the UK Government, Local Authorities, and Local Resilience Forums. These recommendations emphasised the critical role of Local Authorities in managing local flood risks through coordination with relevant bodies. In response, the Flood and Water Management Act (2010) was enacted to address many of Pitt's recommendations, clarifying the roles and responsibilities among RMAs in England and Wales.

Flood Risk Regulations 2009

3.4 Transposing the European Union (EU) Floods Directive into domestic law, these regulations aimed to establish a consistent approach

¹ The Flood Risks Regulations was revoked by the Retained EU Law (Revocation and Reform) Act 2023 by the UK Government

across Europe, setting forth the responsibilities and reporting requirements of designated authorities, including the identification of LLFAs and their duties.

- 3.5 The Flood Risk Regulations mandated a six-year cycle for reporting to the European Commission, which included the creation of three key documents by all LLFAs and Natural Resources Wales (NRW). These documents are the Preliminary Flood Risk Assessment, which identifies areas at significant risk of flooding; Flood Hazard and Risk Maps, detailing all sources of flooding; and Flood Risk Management Plans for all designated flood risk areas.
- 3.6 NRW released their latest Flood Hazard and Risk maps under the Flood Risk Assessment Wales initiative. These maps assist LLFAs in refining and developing their Flood Risk Management Plans by offering a more detailed insight into local flood risks.
- 3.7 The Flood Risks Regulations was revoked by the Retained EU Law (Revocation and Reform) Act 2023 as the UK Government determined that its provisions were covered by other forms of domestic legislation such as The Flood and Water Management Act 2010. It was necessary to include The Flood Risk Regulation despite its revocation due to its centrality in establishing FCERM structures. Due to its central role the review of legislation recommended in recommendation R8 should consider any legislative gaps left by the UK Governments decision to revoke the regulation.

Flood and Water Management Act 2010

- 3.8 This Act mandates the creation of a National Strategy for FCERM by the Welsh Government. In addition it outlines the responsibilities of:
 - RMAs,
 - NRW,
 - Lead Local Flood Authorities,
 - a district council for an area where there is no unitary authority,
 - a highway authority wholly in Wales,
 - an internal drainage board for an internal drainage district that is wholly or mainly in Wales,

- a water company that exercises functions in relation to an area in Wales.
- 3.9 It emphasises the development of Local Flood Risk Management Strategies by LLFAs in collaboration with other RMAs. LLFAs are required to consult with the public on a draft Local Flood Risk Management Strategy, as well as publish a summary of the Strategy.
- 3.10 The legislation sets out the goals, strategies, and methodologies for flood risk management and mitigation. This includes the schedule for reviewing policies and laws, a framework and method to accurately consider climate change risks; and the defined responsibilities and obligations of Welsh Ministers concerning flood risk management.
- 3.11 As part of the Act, NRW is responsible for managing the risks of flooding from primary rivers and coastal areas, as well as regulating reservoir safety, while local authorities are tasked with action to prevent flooding and mitigate any damage caused by flooding at the local level.

Environment (Wales) Act 2016

- 3.12 The Environment (Wales) Act focuses on the sustainable management of natural resources, establishes emission reduction targets, and created the Flood and Coastal Erosion Committee to provide expert advice on flood risk management in Wales.

Planning Policy Wales (2021)

- 3.13 Planning Policy Wales (2021) serves as the principal land use planning policy for Wales, establishing a comprehensive policy framework to guide the development plans of local planning authorities. This primary policy document is further supported by Technical Advice Notes (TANs), with TAN15 (Development and Flood Risk) particularly significant in addressing flood risk management.
- 3.14 TAN15 offers technical guidance to augment Planning Policy Wales, focusing on how development projects should consider flood risk in line with sustainability principles. It presents a structured approach for evaluating risks associated with river and coastal flooding, as well as

runoff from development across any location, ensuring a coherent strategy for flood risk assessment within the planning process. TAN15 is currently undergoing a review to finetune it and identify areas that could be improved to better support and integrate with FCERM.

The National Strategy for FCERM in Wales (2020)

3.15 The National Strategy was published in 2020 as a replacement for the 2011 Strategy, both of which were developed in accordance with the Flood and Water Management Act 2010. The Strategy sets out the objectives and measures that FCERM is to work towards over the next decade, and updates the previous Strategy through its engagement with more recent legislation such as the Wellbeing of Future Generations Act. The key objectives identified by the Strategy are as follows:

- Improve our understanding and communication of risk
- Preparedness and Building Resilience
- Prioritising investment to the most at risk communities
- Preventing more people becoming exposed to risk
- Providing an effective and sustained response

3.16 The Strategy recognised various areas of improvement required in FCERM in Wales, including the difficulty in identifying roles and responsibilities in legislation, and the need for greater clarity in legislation. The key changes to the Strategy since the last iteration are the new objectives on improving understanding and preventing exposure to risk, highlighting the importance of effective planning and good information, and clear direction on how investments should be prioritised. The Strategy will act as a guide to all other LLFAs and RMAs when carrying out their duties, in particular Local Flood Risk Management Strategies which must be consistent with the National Strategy.

Further Legislation and Support

3.17 Supplementing these core legislative pillars, policies such as the Wellbeing of Future Generations Act, Taking Wales Forward, The

National Development Plan 2040, and Planning Policy Wales 2021, offer strategic direction, emphasising sustainable development, long-term planning, and the integration of flood management approaches. Welsh Governments action on climate change recognises the threats posed by increasing severity and frequency of flooding events.

3.18 Collectively, these policies advocate for:

- Long-term strategic planning
- Collaborative and integrated resource management
- Adaptive measures to ensure resilience
- Natural Flood Management and nature-based solutions.
- Enhanced knowledge and awareness of flood risks.

Stakeholder roles and responsibilities

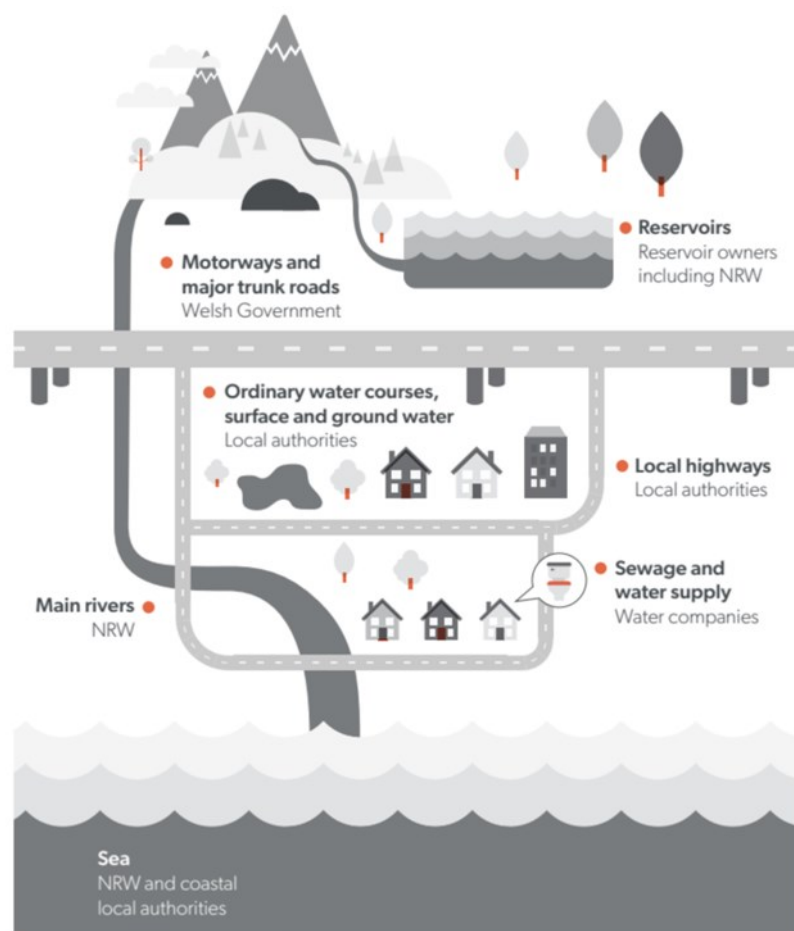


Figure 1 Roles of FCERM RMAs in Wales

Source: NRW

LLFAs

- 3.19 LLFAs, constituted by the 22 Local Authorities in Wales, are charged with formulating Local Flood Risk Management Plans focusing on surface water and ordinary watercourses. They identify risks, set objectives, propose local flood risk management measures, and ensure alignment with the national strategy.
- 3.20 LLFAs maintain a register of infrastructure that affects wider flood risk, assess the impacts of new development on flood risks, and as of 2019, function as SUDs (sustainable urban drainage systems) Approving Bodies, mandating sustainable drainage systems in new developments. The image above, produced by NRW, offers an

accurate and visual representation of the key tasks under each RMA and the interlinkages between them.

Welsh Government

- 3.21 The Welsh Government is pivotal in developing and maintaining the national strategy for FCERM, drawing strategic advice from the Flooding Committee. This national strategy serves as a foundation for LLFAs to develop their Local Flood Risk Management Plans. Welsh Government play a critical role in allocating funds for flood management initiatives and overseeing the implementation of policies and strategies across Wales.

NRW

- 3.22 NRW is instrumental in managing flooding risks from the sea and main rivers, providing strategic oversight, and offering technical advice to RMAs and the community. As one of the key stakeholders at the national level, NRW deliver crucial aspects of FCERM, such as mapping and modelling flood risks (serving as a primary source for flood-related data and modelling), operating and maintaining 500 Km of defences, running a flood warning service, incident management and development control advice, amongst others.
- 3.23 The Environment (Wales) Act (2016) mandates NRW to report on the state of natural resources, including flooding and coastal erosion risks. NRW holds regulatory powers, including information requests and designating structures affecting flood risks. They play a lead role in the creation and dissemination of Flood Risk Assessment Wales maps and the development of Area Statements, which guide sustainable resource management and flood risk prioritisation.
- 3.24 Stakeholders, guided by legislative and policy frameworks, engage in a multifaceted approach to flood risk management that includes:
- Infrastructure Development: Implementing engineering solutions and sustainable urban drainage systems to mitigate flood risks.

- **Community Engagement:** Enhancing public understanding and preparedness for flood events through education, information dissemination, and community-based planning.
- **Environmental Management:** Adopting nature-based solutions, such as wetland restoration and afforestation, to enhance natural water retention and reduce runoff.
- **Collaborative Planning:** Facilitating cross-sectoral and inter-agency collaboration to ensure a coherent and integrated approach to flood risk management.

Water companies

- 3.25 In Wales, the management of water resources is primarily overseen by two key entities: Dŵr Cymru/Welsh Water and Hafren Dyfrdwy. Dŵr Cymru/Welsh Water operates as a non-profit organisation, devoid of shareholders, and is responsible for the comprehensive management of water supply and wastewater services across the majority of Wales. On the other hand, Hafren Dyfrdwy operates as part of the larger Severn Trent group. It specifically oversees the management of water resources within the catchments of the rivers Dee and Severn that are situated in the north-eastern region of Wales.
- 3.26 Currently, water companies are legally tasked with the control and management of sewage systems and water supplies. This means that they oversee the extensive networks of drainage infrastructure (encompassing sewers, culverts, and pumping stations), maintaining these systems to peak efficiency, effectively mitigating the threat of surface water flooding within urban regions.

4. Challenges; finance, skills, capacity and governance

- 4.1 This section outlines the main challenges faced by FCERM affecting resourcing and finance. These were determined from an extensive literature review and desk-based research of existing evidence (such as the Flood and Coastal Erosion Committee resources sub-committee report)², and corroborated during the engagement stage of the fieldwork. The stakeholders operating in FCERM form a small pool meaning that identifying challenges inevitably risks repetition and duplicating previous research.
- 4.2 We have tried to mitigate this as much as possible (for example, by limiting the inclusion of widely-known issues, highlighting where some of the pre-established challenges can be found elsewhere), but have included issues where they are necessary to provide context to a wider issue, or we feel we can provide a useful insight into the challenge. In order to improve the experience for the reader the challenges have been split into four subsections: finance, skills, capacity and governance. However, it should be noted that there are clear links between these categories which we have highlighted in the recommendations section.

Finance

- 4.3 The financial challenges faced by the public sector in Wales are a longstanding issue, impacting all areas of service provision, including flood risk management. There are no simple or immediate solutions to these challenges. This section aims to detail the specific financial challenges afflicting the current flood management system, relate these challenges to the broader strategy, and outline viable solutions. Challenges are categorised into three key areas; existing funding mechanisms, the distribution of public funds and strategies for flood defence, and the role of the private sector.

² <https://www.gov.wales/sites/default/files/publications/2023-02/resources-for-flood-and-coastal-erosion-risk-management-in-wales-final-report.pdf>

Current funding

- 4.4 The first issue to discuss is the current approach to funding flood risk management which focuses on;
- The length of funding cycles
 - The approach to funding cycles
 - The end of ring-fenced funding for flooding
- 4.5 A primary obstacle for FCERM activities is the dependence on annual funding cycles. The Welsh Government, through funding received from Westminster on an annual basis, is tasked with implementing all flood management initiatives. This annual funding model was repeatedly identified as a significant barrier to enhancing flood management. The current approach of building new infrastructure or updating and improving existing assets consists of multi-year capital projects from design and procurement to completion. Forecasting budgets for long-term infrastructure projects is a challenge when the investment budget is approved on an annual basis. This issue is particularly inconvenient given the central role that has been allocated to flood risk management and infrastructure protection in the Wales Infrastructure Investment Strategy (2021)³. This challenge also impacts revenue funding, which is vital for staff retention and recruitment. This aspect is explored further in the discussions on skills and capacity.
- 4.6 The reduced staff capacity at the local authority level directly influences the inefficient allocation of revenue funding due to annual cycles. Each year, the Welsh Government allocates revenue funding equally among Local Authorities⁴ based on funding applications they submit. Local Authorities with extensive experience in flood management, often with dedicated capacity, will mostly secure their full share of funding annually through the submission of detailed applications outlining precise plans. However, authorities with less

³ <https://gov.wales/sites/default/files/publications/2021-12/wales-infrastructure-investment-strategy-2021.pdf>

⁴ For the financial year 2022/2023, this was £225,000

exposure to flooding and coastal erosion risks face challenges in fully utilising their FCERM revenue funds due to limited capacity and a lack of past experience and knowledge. As a result, ring-fenced revenue funds for some authorities are not fully utilised and the Welsh Government, often unaware of unutilised funds due to capacity and capability gaps, misses potential opportunities to reallocate resources effectively.

- 4.7 Despite the shift towards multi-year budgeting, as evidenced by the production of a three year draft FCERM budget by a number of Local Authorities⁵, the challenges of annual funding remains a key barrier to effective flood risk management for all RMAs, and a key influence on the approach to staffing, capacity, and overall governance of flood risk management.
- 4.8 A further hurdle, compounding financial challenges, is the discontinuation of ring-fenced FCERM funding. Stakeholders expressed concerns over the integration of what was once a dedicated FCERM budget into a general revenue support grant, without specific directives for flood protection spending. Given the competing priorities within public sector bodies, especially against a backdrop of strained finances, there remains apprehension that FCERM funding may be deprioritised, exacerbating existing challenges and complicating the planning of multi-year projects.
- 4.9 Our work suggests that prevailing funding approaches are unsustainable, with competing demands on local authorities and FCERM teams placing considerable limitations on achievable work. Addressing these issues requires more than just an influx of funds but necessitates a strategic shift in project execution and sector governance.

⁵ Resources for Flood & Coastal Erosion Risk Management in Wales: Final Report of the Resources Sub-Committee

Approach to flood risk management

- 4.10 A further concern is the traditional approach to flood protection and its impact on public funding allocations, including;
- A reactive approach,
 - Emphasis on construction of infrastructure,
 - Disjointed public funding
- 4.11 Flood management has traditionally focused on reactive mitigation measures, ensuring post-event mitigation and management rather than pre-emptive action. This narrative has been shifting towards a more proactive, systemic and holistic approach, aimed at minimising the likelihood and severity of flooding. Effective implementation of this approach necessitates long-term planning working with future flood risk projections as well as stable, multi-year funding.
- 4.12 The bulk of public sector spending in flood management is directed towards capital funding for new infrastructure or the maintenance and upgrade of existing assets. Flood risk mitigation has predominantly been undertaken through the construction of grey infrastructure as key flood defence mechanisms. This reliance on physical (grey) infrastructure for flood defence has imposed a significant maintenance burden, escalating annual maintenance needs and stretching the capacity of the workforce. This approach not only requires a substantial resource commitment but is also hindered by the slow nature of review and maintenance work in flood defence assets (for example, in North Wales, only three publicly-owned flood defence assets were effectively reviewed in ten years due to the slow and lengthy nature of these projects) and the complexity of managing such projects (civil engineering, project management, bookkeeping, legislative considerations). Our work found growing stakeholder concern over shrinking FCERM workforces and growing numbers of publicly-owned assets.
- 4.13 The adoption of nature-based solutions presents an alternative approach to traditional emphasis on grey infrastructure, promising

benefits beyond flood management, such as biodiversity enhancement. Despite some concerns around the proven effectiveness and longevity of nature-based solutions compared to grey infrastructure (such as scalability or suitability for larger flood events), stakeholders recognised the requirement of lower maintenance and faster deployment times. There are a range of nature-based solutions methods each with multiple benefits for other areas such as biodiversity. Exploring funding beyond flood risk management could unveil cost-effectiveness for FCERM funding.

- 4.14 The traditional emphasis placed on the construction of grey infrastructure has contributed to a compartmentalised view of flood risk management as solely a civil engineering issue. Shifting towards nature-based solutions and viewing flood management within the broader context of climate adaptation opens funding avenues and the possibility for cross-sectoral coordination. An example of this is reflected in the FCERM funding criteria which NRW noted offered a narrow view of “benefits”, focusing primarily on the protection of homes, which constrained potential funding for alternative schemes. Stakeholders recommended that wider or multiple benefits should receive greater weighting in the funding criteria, as they currently receive a lower rank, reflecting this narrow view of ‘benefits’.
- 4.15 Opportunities for better coordination of funding abound, particularly with the development of post-EU agriculture policy and developments in biodiversity policy. This has been shown in England and Wales, where the Environmental Land Management and Sustainable Farming scheme has introduced actions specifically relating to flood risk management. However, while farmers may take up these actions the effect on local authority finances will be limited if they are unaware of them and cannot co-ordinate with farmers to develop flood risk management solutions at landscape/catchment scale. This speaks to the need for skills beyond technical, and increases in capacity required to allow local authorities the time to co-ordinate these approaches, as well as guidance and centralised support.

- 4.16 A more integrated alignment of public funding could become a key element of FCERM expenditure. Moreover, increasing the direct contribution of other economic sectors into FCERM can also be a suitable way of alleviating the constraints of annual funding cycles. For example, at the time of writing this report, natural flood defences are being predominantly funded in conjunction with flood and rural departments through the Natural Flood Management Accelerator Programme over a period of two years⁶. Although this funding is not destined to improving flood and coastal erosion resilience at the household level, it does offer a practical example of how other economic sectors could share the financial burden of FCERM.
- 4.17 Staffing disparities amongst local authorities further complicate effective flood management, with those in lower-risk areas often lacking dedicated flood management roles (this is discussed further in the Capacity section of this report). Instead, flooding may be resourced by a single officer with multiple portfolios. This arrangement, while pragmatic under current financial constraints, results in sub-optimal solution development and overlooks the interconnected nature of flood risk, particularly in catchment-scale management. This is further discussed in the section exposing challenges under governance.
- 4.18 Integrating flood risk management into broader infrastructure projects presents an opportunity for a more collaborative and efficient use of public funds. Given the protection offered to key infrastructures and public (or private) sector estates from effective flood risk management, prioritising flood risk in public sector developments and encouraging partnership approaches holds potential to alleviate financial pressures on RMAs. In addition to this flood risk management should become a priority across the public sector when considering developments such as regeneration projects and city initiatives. These receive substantial funding from the Government

⁶ £2m has been provided for the entire program

and should be developed in such a way that they improve flood protection rather than result in additional costs for the flood management department of the local authority. While revisions to flood risk governance aiming for more integrated and prioritised flood management across various government and public sector initiatives are discussed further, adjustments to funding criteria to foster mixed-use projects, match funding, and partnerships, can ensure flood risk management is a key consideration in public and utility sector projects.

Private sector and public contributions

- 4.19 A significant challenge in flood risk management is the underutilised role of the private sector, characterised by:
- Minimal engagement with private sector investment
 - Developer contributions not adequately compensating for the work undertaken
- 4.20 Flood risk management has traditionally been regarded as a public sector responsibility, leading to limited private sector engagement. This gap hinders the exploration of novel financing methods and reduces private investment potential. The reluctance from the private sector often stems from unclear incentives or visible benefits, alongside uncertainties over investment returns, regulatory frameworks, and liability concerns (as well as absence of firm requirements to do so). The absence of appealing risk-reward structures dissuades private sector involvement in flood management financing. Stakeholders highlighted that current schemes fail to reflect the value of the contribution and impact of the scheme on the economy, with current risk levels deemed unacceptable by many landowners and investors. Our work indicates a disconnect between the perceived risks and benefits of flood risk and flood risk management. Benefits highlighted by stakeholders outline opportunities for re-aligning public and private perspectives;

- The opportunities for increased land value through reducing flood risk which opens up further development opportunities,
- Direct damages and cascading risks reduced - upstream supply chain and downstream customer impacts reduced,
- Insurance premium reduction or increase avoided insurability
- Reducing risk to assets from climate change risk,
- Corporate social responsibility and publicity through investing in public good, carbon net neutral schemes, promoting biodiversity and supporting communities.

4.21 To attract private investment, the introduction of structured green finance is essential, yet Wales faces a deficiency in such schemes. The limited availability of such finance further exacerbates challenges with accessing private sector funding for flood risk management. Green finance offers a pathway for directing private funds into environmentally sustainable projects, but the lack of specific initiatives for flood risk management limits private sector participation. Examples from elsewhere include, Biodiversity Net Gain, carbon offsetting through Nature-Based Solutions, climate change adaptation schemes, and tax-deductible investments in flood risk mitigation with the Environment Agency in England, illustrate potential models for Wales.

4.22 The insurance and construction and development sectors are closely related to flood risk management. Insurance represents a significant grey area in the financing of flood protections as they offer various schemes to maximise the insurance coverage of areas with high flood risk, and through improved flood defences have lower potential payouts or exposure to risk themselves. However, as insurance payments are based on risk, any investments and reductions should be reflected in reduced premiums, meaning that the insurance company should not see the benefit or profit from this investment, instead it is the property owner who sees the benefit of reduced payments. This represents a conundrum as although the evidence suggests that flood protection has a limited effect on house prices, it is clear that it impacts insurance premiums, therefore while there are

limited opportunities for working with the insurance industry to invest in flood protection there is the possibility of working with those with high insurance premiums.

- 4.23 The planning process attempts to recoup some costs through planning fees, but these often do not cover the full extent of development management services or the preparatory flood protection work to allow the development to reach planning stages, and the funds are not always retained by the responsible local planning authorities. There is also the need for accountability, transparency and scrutiny to avoid inequalities in pursuing private sector contributions.
- 4.24 The crux of the issue lies in the significant financial support provided to private sector development without adequately funding the underlying support system. This underscores the need for a more equitable approach to funding flood risk management, ensuring private sector contributions are aligned with the costs and benefits of development and flood protection efforts. It should be noted that it is highly discouraged to facilitate and promote any development in flood-risk areas; likewise, and although current evidence showcases no clear influence over property price, it's likely that this may change as flood severity and occurrence increase over time.

Skills

4.25 There is an overarching concern with the limitations around skills for effective risk management and service delivery that most FCERM teams in the public sector are facing. Broadly, these issues could be summarised as follows, and are discussed in detail throughout the section:

- Unidimensional view on skills needed
- Incomplete skillset within teams
- Staff retention and recruitment
- Upskilling and retraining

Lack of soft skills

4.26 A core challenge within FCERM across various levels is the scarcity of individuals possessing the broad spectrum of skills necessary for the diversity of actions required. As risk management shifts from traditional grey infrastructure to a more holistic approach, the demand for a broader range of skills, including 'soft' skills, has become increasingly evident. While technical skills in civil engineering remain crucial for constructing and maintaining flood defences, the evolving nature of FCERM requires additional competencies that facilitate collaborative work and community engagement.

4.27 The need for these soft skills arises from the growing emphasis on partnership and collaborative strategies, which not only demand significant time but also rely on abilities beyond the conventional engineering skills set. This shift towards a more integrated approach to build collaboration and integration highlights the critical role of soft skills in facilitating effective teamwork and project execution within the realm of flood risk management.

4.28 Engaging communities in flood risk mitigation efforts is vital. An informed and proactive community is more likely to incorporate flood risk considerations into its decision-making process. Enhancing community awareness and participation can also help address the issue of inconsistent political prioritisation of flood management,

making mitigation and adaptation measures more acceptable and understood by the public. Our work identified a need for ongoing community engagement, although capacity and capability for this are currently limited.

Staff retention and recruitment

- 4.29 RMAs face significant challenges in recruiting and retaining qualified staff, exacerbated by competition from the private sector, which often offers more attractive salaries and career progression opportunities. Stakeholders also expressed that technical degrees were often geared more towards private sector employment. The shift towards remote working since Covid-19 has intensified these challenges, with professionals now having the flexibility to work for organisations outside of Wales, including those in England where compensation may be higher. This further aggravates the challenge of recruiting for technical and experienced professionals in rural areas.
- 4.30 While financial compensation is a primary concern, the perceived lack of career advancement within the public sector also contributes to recruitment and retention difficulties. For example, Neath Port Talbot has invested in further education and certifications for its FCERM team, demonstrating how opportunities for professional growth can positively impact staff retention.
- 4.31 The issue of retention is compounded by the need to develop in-house expertise, essential for efficient FCERM management. The reliance on external consultants due to a lack of internal experience perpetuates a cycle of underdeveloped internal capabilities.

Unidimensional view of skills needed

- 4.32 Although engineers are essential to effective flood management, authorities recognise the importance of a varied team composition, including environmental scientists and geographers, indicating a shift towards valuing practical experience alongside or even over formal academic qualifications.

- 4.33 The public sector's broadening perspective on necessary skills suggests that many FCERM roles may not require extensive university education. Local authority flooding teams have observed that new hires, including graduates, often require additional training to adapt their academic knowledge to the specific needs of local authority work. The need to retrain graduates to fit the local authority context further underscores the disconnect between current academic training and the real-world demands of FCERM work. Consequently, the time invested in academic preparation for FCERM roles can exceed the practical demands of the job. Despite the need for specialised technical knowledge in FCERM, there appears to be a gap between the skills currently being acquired through higher education and those genuinely needed within the public sector, highlighting a challenge in both attracting and retaining the necessary talent.
- 4.34 This gap has led to a notable decline in technical expertise within many councils, with a growing preference for generalists capable of handling a variety of tasks. Over time, this shift has resulted in smaller teams, a simplification of roles, and an increased reliance on "jack of all trades" professionals. Consequently, there's an ongoing reliance on external consultants to perform specialised technical and expert functions, underscoring a critical need to reassess and realign the skill development and recruitment strategies within the public sector, particularly in the context of FCERM.

Training and upskilling

- 4.35 A significant issue identified by various authorities and public sector entities is the necessity for upskilling and training both existing staff and new hires. This need arises partly as FCERM roles within the public sector demand a unique skill set that diverges from private sector requirements. Additionally, the move towards a more diversified approach to FCERM, which seeks to lessen reliance on traditional engineering skills, has prompted a search for candidates

from a broader talent pool to enhance recruitment and retention success.

- 4.36 Some RMAs, such as NRW and Neath Port Talbot (which boasts one of the largest FCERM teams amongst LLFAs), have underscored the effectiveness of upskilling and educational advancement for career progression and demonstrating long-term commitment to staff. Their investment in team members' education, including funding for part-time master's degrees, has not only consolidated the team's collective expertise but also improved job satisfaction and retention, fostering a robust in-house FCERM skill set.
- 4.37 However, the implementation of upskilling and retraining programmes faces challenges, primarily due to the associated costs. Financial constraints, especially with the diminishing FCERM-specific funding, mean that budget allocations for training are often determined by each RMA's priorities and corporate strategy around FCERM.
- 4.38 The particular barrier to upskilling and retraining, as noted by numerous authorities, is the scarcity of high-quality courses or awareness of such opportunities. This issue is not universally acknowledged, indicating a disparity in perceptions among LLFAs regarding the availability of suitable training and upskilling programs. This highlights a disconnect within the sector and suggests a need for better communication and resource sharing to address the gap in professional development opportunities.

Capacity

- 4.39 The effectiveness of the Welsh Government and Local Authorities in managing flood risk is heavily dependent on the availability of financial resources and skills. Other crucial elements influencing capacity and its development include communication, legislation, prioritisation, and responsibilities assigned to external/private stakeholders. This section aims to outline the key challenges in flood risk management capacity, identify existing obstacles to enhancing this capacity, and discuss hindrances to collaborative efforts.
- 4.40 The key challenges and barriers identified for capacity and capacity building are as follows:
- Organisational capacity in Welsh Government, Welsh Local Government Association, NRW and Local Authorities
 - Specialist time used inefficiently by carrying out administrative tasks
 - Opportunities in pooling capacity is limited by legislation
 - Lack of capacity beyond FCERM
 - Infrastructure asset management and maintenance is time and skill intensive and is exponentially increasing

Organisational Capacity

- 4.41 A primary concern for flood risk management capacity in Wales is the resource limitations faced by key organisations such as the Welsh Government, Welsh Local Government Association, and NRW. Local Authorities also report a lack of capacity, expressing concerns about maintaining minimum service delivery standards, emphasising the close link between capacity issues and challenges discussed in the skills section of this report.
- 4.42 Limited administrative capacity affects timely business case development, hindering Local Authorities' ability to secure funding and complete capital projects efficiently. Specialists, such as engineers, are often diverted to administrative tasks, leading to delays in other critical processes and impacting the overall efficiency of flood risk

management, particularly in smaller teams with lower corporate flood risk prioritisation. Alternative ways of working which may alleviate some of these challenges are discussed in the Governance section of this report.

- 4.43 Despite potential opportunities to leverage existing capacity, such efforts are frequently overlooked, hindered by obstacles such as insufficient corporate working or priority, legislative constraints, capability, or the initial lack of capacity for developing collaboration (which are further discussed in the following section). For example, while all 22 Local Authorities have community engagement personnel, only a handful focus on flood related engagement. This indicates a broader need to utilise already available resources more effectively. Yet despite these opportunities, there remains a reluctance to do so. Collaborating on a regional level presents a viable option, yet it requires shared resources, trust, and aligned priorities to succeed. An innovative approach seen in Caerphilly involves the local authority running a regional consultancy for SUDS, providing services to other Local Authorities. This model suggests that pooling specialist skills and resources could alleviate the workload on individual local authorities and cut down the expenses related to hiring private sector consultants. Although many Local Authorities prefer to build their in-house expertise and capacity, the challenge of forecasting the scope of work needed for capital projects or planning applications often pushes them towards external consultants more frequently than desired.

Infrastructure asset management and maintenance

- 4.44 Traditional approaches to FCERM involve the installation and maintenance of flood protection infrastructure, which then contribute to an existing legacy of assets requiring ongoing maintenance and management. This maintenance requires substantial time, limiting the ability of flood management teams to devise and implement innovative strategies due to the pressing needs of these assets. These assets are owned and maintained by various entities, and

LLFAs often have limited influence over private owners (such as riparian owners). This situation exacerbates the capacity challenges local authorities face, highlighting that without community or private interest in investing in flood protection, simply enhancing capacity, finances, and skills may not affect significant change. This issue is related to limitations in soft skill capabilities and capacity for community engagement and underscores a broader challenge of inadequate community engagement and community flood resilience.

- 4.45 Enhancing local resilience to flood risk can significantly reduce the strain on Local Authorities over time. Efforts are underway to increase community capacity in coastal areas, but such initiatives need to expand to include catchments, cities, and other at-risk communities. Identifying methods to improve community capacity and providing the necessary tools are crucial steps forwards. For instance, the climate change adaptation plan developed in Pembrokeshire benefited from considerable community engagement, which fostered a deeper understanding and ownership of necessary actions.
- 4.46 Although flood risk management might seem daunting without technical expertise, equipping communities and businesses with simple resilience frameworks could empower them to contribute effectively. Developing these tools and fostering partnerships across the public sector at a national level, should alleviate pressure on local authorities while increasing resilience and capacity of those involved. Innovative and experimental approaches to FCERM should also be explored and encouraged, similar to the Flood and Coastal Resilience Innovation Programme⁷ developed by the Environment Agency in England.

⁷ <https://engageenvironmentagency.uk.engagementhq.com/innovation-programme>

Governance and policy

Inconsistent prioritisation of flooding and coastal erosion management

- 4.47 A notable challenge that emerged through the research is the irregular and often lack of political and corporate prioritisation of FCERM local authorities. As described under the Skills and Finance section of this chapter, prioritisation is often driven by exposure to present risk. This aligns with the reactive predisposition of councils, which have to balance budget allocation diplomatically navigating the tensions between all the present needs of the authority, which often leads to a logical prioritisation of short-term and immediate pressures.
- 4.48 In terms of skills and capacity, lack of corporate prioritisation a key impediment to embedding a proactive approach to FCERM. Currently, councils with larger teams (which inherently means a wider range and better distribution of skills) can plan ahead of the most immediate short term, but those with reduced capacity are continuously outpaced by immediate needs, falling into an action cycle driven by reaction to flooding and coastal erosion events. Effectively, as has been mentioned, this is proportional to the level of present risk and exposure, as opposed to a broader aspiration to ensure a holistic and long-term resilience, and this comes down to political and corporate prioritisation.
- 4.49 The basis of FCERM teams are built using revenue funding (since capital expenditure is not guaranteed on a yearly basis, long-term planning for staff recruitment is not entirely compatible with this funding mechanism), and then further completed using the public body's own spend. In this sense, councils that are committed to FCERM and view this as a key focus area spend more of their own resources on ensuring the team has sufficient capacity and is fit for purpose. As has been discussed throughout this section, this in turn lends more resources to develop capital grant applications, recruit and retain staff, plan beyond the short-term, and adopt proactive risk management approaches.

- 4.50 Inconsistent prioritisation is also a key impediment for a streamlined and effective catchment management approach and solidifying regional working to deliver resource and financial benefits for councils. This was raised by some flooding teams across local authorities, noting that often a distinct contrast in FCERM approaches usually eliminate a common ground for conversation and collaboration. Moreover, a noticeable difference in ambition, team structure and roles and overall progress and dedication to FCERM (and different levels of risk and exposure) make it difficult for councils to have similar and shareable narratives around what should be a common goal despite differing local contexts.
- 4.51 As has been discussed throughout Chapter 4, insufficient community engagement and awareness around the risks of flooding and coastal erosion is currently a substantial barrier to increasing the effectiveness of FCERM. More accurately, active involvement of communities needs to be an essential element of FCERM. Unclear political leadership permeates into communities, and corporate inaction (or uninterest) translates into individual and community apathy. Although there are great examples of bottom-up driven changes, direction from above (or at least predisposition to replicate community-led initiatives) is likely to be a more direct and impactful actor for change. There is also a need for a plan that does not stop at provision of information, but rather enables support and capacity building in communities. There has to be opportunities for enhanced involvement of the civil society in decision making, taking on the viewpoints and necessities of communities and building trust and willingness to contribute. This should clearly take into consideration which communities and individuals do not have the capacity for action and who is at a socio-economic disadvantage (in other words, is less resilient) when faced with flooding and coastal erosion.
- 4.52 Throughout the fieldwork, it has been highlighted that community engagement is a resource-intensive process, takes time, and awareness and support does not happen overnight. While this is true,

without clear and ambitious corporate leadership at the council level, this process will inevitably be lengthier and costlier.

Inconsistent and misused regional and catchment working

- 4.53 It is worth restating that in Wales, there currently exists three regional flood groups, and flood team leads in councils come together on a semi-regular basis to share approaches, best-practice and general overview of each's FCERM progress. Nonetheless, it was broadly shared that, despite this unofficial intention to regional working, this should serve a bigger purpose and be better tailored to fulfil the needs of the local authorities, particularly given the often transboundary impacts of flooding and coastal erosion.
- 4.54 There are challenges within this approach. Firstly, and this was generally corroborated by most local authorities (not so much by other public sector bodies), regional working is often presented as a “silver bullet” solution, a one-size-fits-all approach that could lead to a generalised solution to most of the issues faced by FCERM bodies. This is not considered to be the case; in fact, councils and flood team representatives argued that effective regional working groups need additional funding, staff, and resources. Establishing partnerships is recognised as a resource-demanding process, involving extensive discussions and agreements on partnership terms. The challenge is particularly pronounced in Wales, where the scale and budget of schemes are limited, making the lack of formalised partnership funding a significant barrier. Despite the demonstrated effectiveness of a catchment-based approach, the associated costs present a substantial obstacle to its broader adoption.
- 4.55 Other barriers hindering effective regional working have already been presented, notably differing levels of priority at the council level and the lack of capacity and capability needed to develop partnership working. Besides this, there was an additional barrier highlighted during the workshops; regional approaches might make sense on paper, but local differences relating mainly to culture, socio-economic

context, geography, and the environment often act as roadblocks. In addition, a lack of a shared vision, or at the very least, a common ground to start from is a considerable obstacle in regional working.

- 4.56 Acknowledging these barriers, there was an agreement that more could indeed be done. There is a shared belief that an enhanced regional approach to FCERM could in fact lead to an improved and more streamlined service delivery, if underpinned by the right structure and delivered in a way that does not result in additional bureaucratic and resource vacuums. The appetite for collaboration to ease capacity constraints is prevalent amongst leading organisations such as NRW who have ambitions to work more effectively with Local Authorities to deliver partnership and collaborative working.
- 4.57 While successful joint service models exist, flood risk management collaboration faces impediments due to prioritisation issues. The need for time, resources, and commitment for catchment-level collaboration is acknowledged, but, as previously noted, organisational and individual capacity limitations present significant challenges. Regional coastline groups, though valued for their utility in securing funding for localised projects, rely heavily on personal networks rather than formalised structures for coordination. This reliance on informal connections obscures the process for those not already involved in such groups, complicating the integration of efforts into a cohesive strategy.
- 4.58 The absence of regular and effective platforms for decision-making in regional or catchment flood risk management further complicates collaborative efforts. As existing collaborative platforms have no agreed or legislated decision-making responsibilities, they are often attended by technical officers with limited capacity and lacking the seniority required for decision-making. This is expanded upon in recommendations 3 and 4.

Inconsistent approach to adaptation

- 4.59 Climate change mitigation and adaptation currently have different levels of focus. Whilst the first is more developed, both politically and financially, and has substantial traction and understanding at the wider societal level, the second is still in its infancy and is generally either entirely omitted or substantially overlooked in policy. Generally speaking, flooding has usually fallen under the umbrella of climate adaptation, and this is expected to be more so the case as FCERM approaches become increasingly underpinned by proactive measures, rather than reactive ones.
- 4.60 There currently is a national adaptation plan (Prosperity for All: A Climate Conscious Wales⁸, informed by the Climate Change Risk Assessment and UK Climate Change Committee), in which flood risk management and threats from flooding and coastal erosion are notably presented as the more urgent climate risks and key areas for action. Under this plan, the Welsh Government is required to provide progress update reports, that will feed into a third adaptation plan, published in 2025. This has however not permeated into tangible actions and decision-making.
- 4.61 This is in itself a noticeable barrier to effective FCERM, both at the governance and the financial levels. Due to the underdeveloped political narrative and overarching lack of focus, there are no clear adaptation measures, guidelines, and indicators to assess progress, nor is there a framework to underpin socio-economic and political decision-making in a cohesive and coherent manner. Moreover, this unstructured approach at the national level hinders its prioritisation at lower levels of the public sector, meaning that adaptation interventions have been for the most part non-existent or poorly supported.
- 4.62 As was raised at different stages of the research, there are no expectations with regard to adaptation; there isn't a narrowed scope that delineates what is 'good' adaptation and establishes a Wales-

⁸ <https://gov.wales/sites/default/files/publications/2020-03/prosperity-for-all-a-climate-conscious-wales-technical-annex.pdf>

wide project that can cascade across all levels of government and the public sector (the UK Climate Change Committee has published an Adaptation Monitoring Framework⁹; these are seldom utilised at the sub-national level, and the indicators relating to flooding are limited to percentage of households with property flood management (PFM) and number of properties with flood insurance). This creates a very inconsistent approach and prioritisation of adaptation measures, which leaves public sector bodies and local authorities to proceed without accurate guidance. It was also noted during the research that this leads to individual passiveness, which in turn leads to collective inaction, as there are no measurable indicators to guide progress or a framework to foster initiatives (or hold the public sector accountable). In fact, a key area for action that was identified in *Prosperity for All* was to review the statutory guidance and implication of the national adaptation plan.

- 4.63 Understandably, this has also had a negative impact on the maturity of financial and economic mechanisms available to drive adaptation interventions. Recently, novel markets operating within the realm of climate mitigation have emerged, such as the carbon and renewable energy markets, or the development of commercially viable biodiversity net gains. Comparatively, public funding is also far more structured and geared towards supporting mitigation rather than adaptation, particularly when it comes to decarbonisation.
- 4.64 One particular issue with this is that while there are also silos when it comes to climate change mitigation and decarbonisation, there is however one overarching narrative that creates common goals and standards, to which numerous sub-facets feed into. For example, rethinking urban planning under the banner of decarbonisation is effectively underpinned by a multitude of sub-facets of climate change mitigation actions, such as reducing urban heat island effects,

⁹ <https://www.theccc.org.uk/publication/ccc-adaptation-monitoring-framework/?chapter=3-how-we-monitor-progress-on-preparing-for-climate-change#3-how-we-monitor-progress-on-preparing-for-climate-change>

increasing open and green spaces to create biodiversity hotspots, and lowering the total number of cars to abate congestion and increase pedestrianised areas. Irrespective of what the key driver is behind an urban restructuring, there is a common framework that showcases the linkages between the numerous potential interventions that together ensure an effective climate change mitigation strategy. This one common resilience standard and guidance does not currently exist for adaptation (nor for flooding), at least not to the level, reach, and influence of climate change mitigation and decarbonisation. This is a considerable impediment in delivering FCERM in a cross-cutting and multifaceted approach that incorporates elements from a wider adaptation vision and enables long-term resilience measures. Failing to deliver schemes in such an integrated approach puts them at risk of perpetuating maladaptation and further segmenting policy and decision-making. Ultimately, this is currently a blockade in activating effective financial mechanisms for FCERM specifically and climate change adaptation generally.

Lack of a clear Green Finance Policy

- 4.65 The lack of an adaptation policy framework and targeted action plan has hindered adaptation efforts and the development of green finance mechanisms. This presents a challenge for growing private capital investment and the valuation of green assets in financial markets as their economic contribution is not recognised. UK government has taken steps to resolve this challenge through the creation of the nature markets framework. The establishment of financial mechanisms provides certainty to the market, encourages green finance, and ensures that flood services and infrastructure are effectively valued. The environmental land management scheme identifies payment values per hectare for different flood management activities which can provide private investors with the clarity they

require and provides an indication of value. Long-term government policy can help derisk capital investment in green assets.¹⁰

4.66 Stakeholders noted that for a green finance policy to be effective and enable adaptation, it needs to identify what common resilience is, and its value. In other words, expand understandings of what good adaptation and resilience look like, and draw a baseline framework for a unified national adaptation and resilience plan. Until this comprehensive policy package is agreed, investment and green finance is unlikely to develop and mature into a key contributor to the development of climate change adaptation. There is a clear necessity to develop green taxonomy across all climate change finance, but particularly around adaptation.

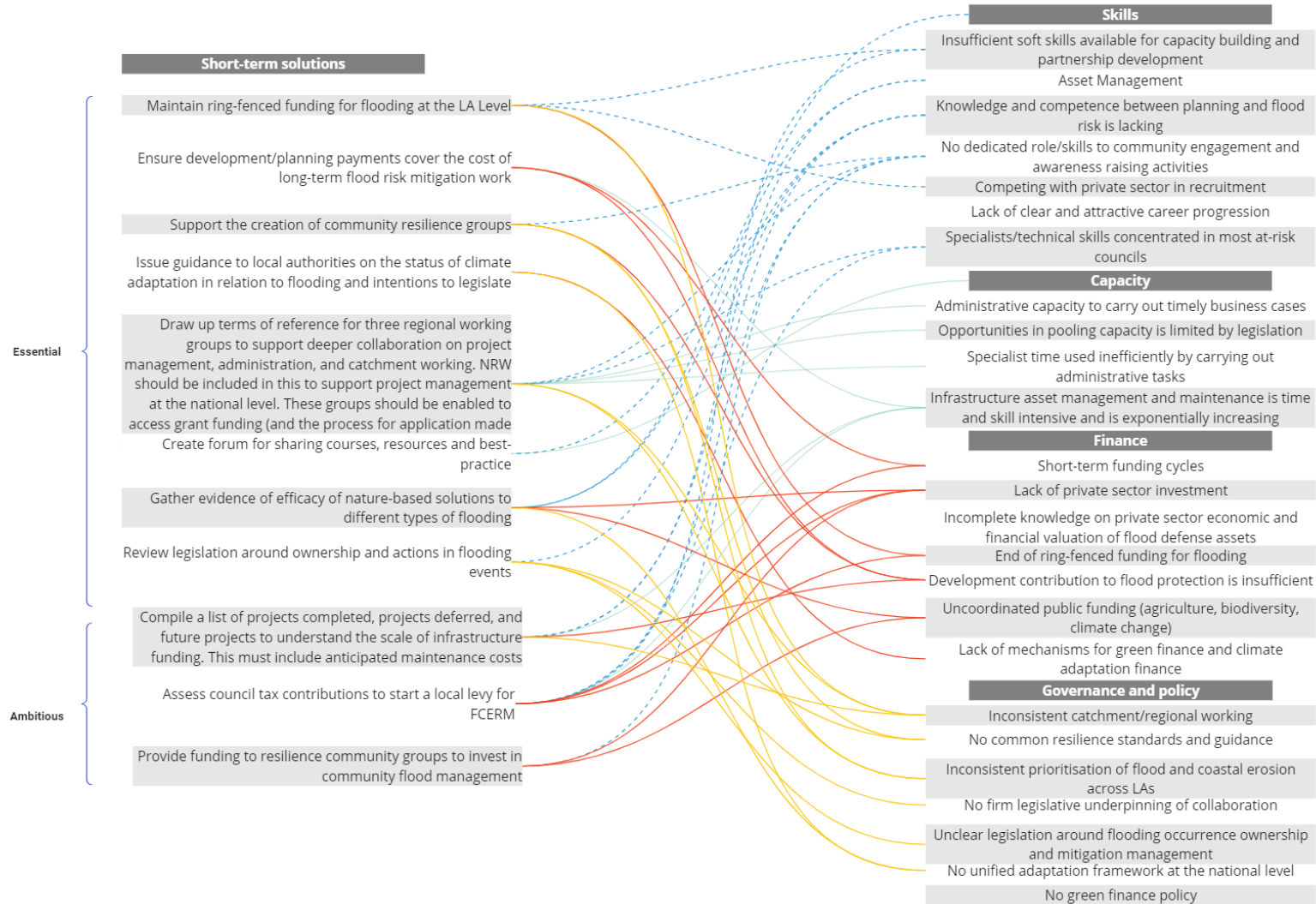
¹⁰ <https://assets.publishing.service.gov.uk/media/643583fb877741001368d815/mobilising-green-investment-2023-green-finance-strategy.pdf>

5. Recommendations and conclusions

- 5.1 This chapter offers a series of recommendations to address the challenges identified in this report. Recommendations are based on the fieldwork findings, desk-based research, and comprehensive stakeholder engagement. To ensure practicality and relevance, recommendations have been categorised into short-term (2 years), medium-term (2-5 years), and long-term (5-10 years ¹¹) actions. This categorisation is informed by hydrological and climatic models predicting intensification in the severity and frequency of flooding and sea level rise, particularly around the year 2040. It is critical that steps are taken to proactively address the challenges identified in this report well in advance of 2040 to ensure Wales is adequately prepared for the escalating impacts of flooding and coastal erosion. Recommendations have been categorised as ‘essential’ and ‘ambitious’, highlighting the distinction between those that are impactful and feasible within the specified timeframes and those that may be more innovative but require more time to implement and/or are more disruptive.

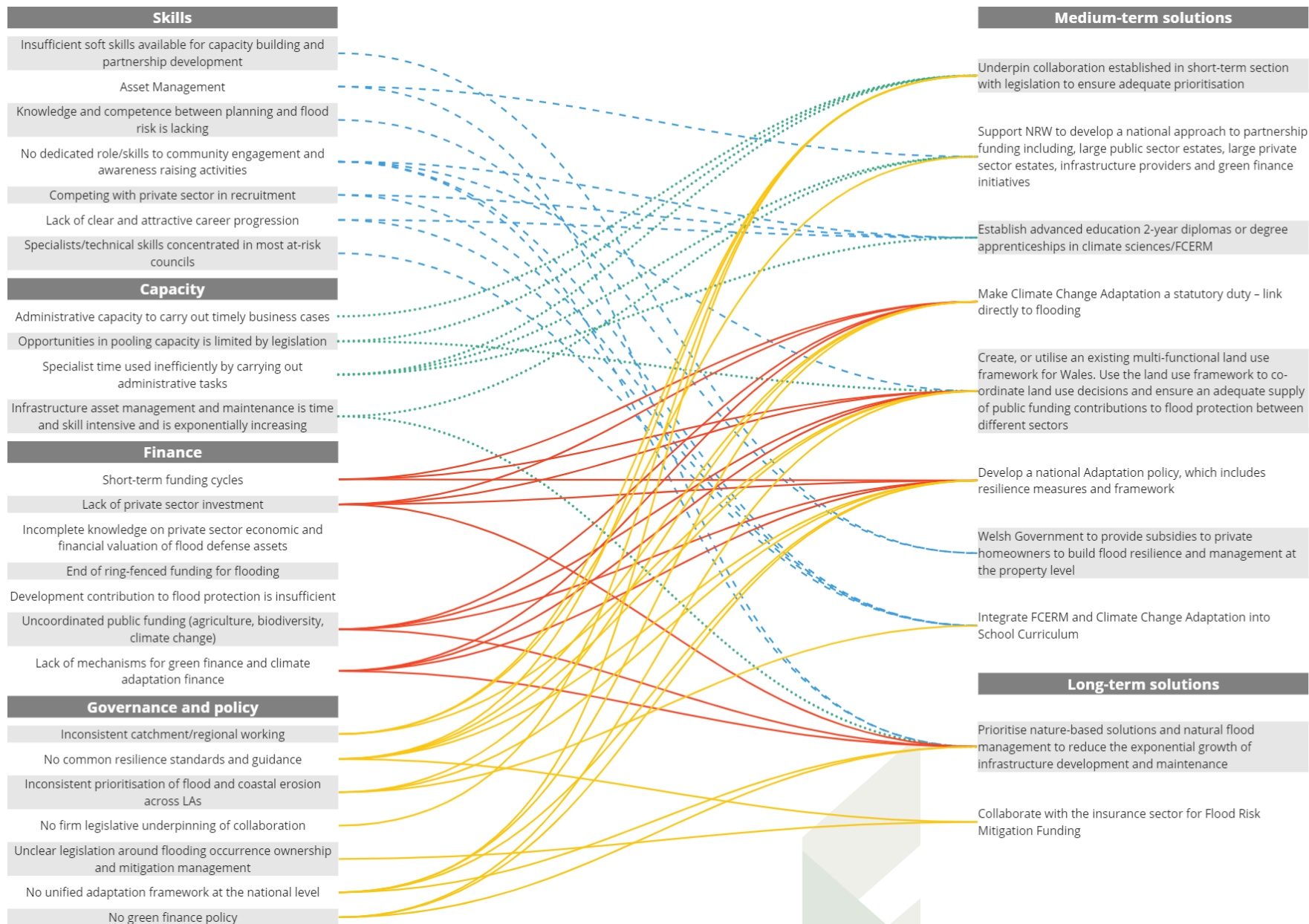
¹¹ a 10-year period is referred to as a long-term recommendation to highlight the urgency of required actions. Current policies refer to long-term as the year 2100.

Figure 2 Short-term Recommendations¹²



¹² Colour codes: dashed blue – Skills; dotted green – Capacity; straight red – finance; straight yellow – governance and policy

Figure 2 Medium and Long-term Recommendations



Short-term (1-2 years)

Essential

R1. Maintain ring-fenced funding for flooding

- 5.2 Given the key role ring-fenced funding plays in providing security to RMA, particularly LLFAs and NRW, it is recommended to continue this practice. In the absence of ring-fencing, FCERM activities risk underfunding in local authorities where FCERM is not prioritised, likely leading to higher long-term costs. Welsh and UK government can enact policies to protect FCERM funding from reallocation and ensure consistent budget allocation.

R2. Issue climate adaptation and flooding guidance to Local Authorities

- 5.3 Climate change adaptation is not a priority across the majority of Local Authorities, with uncertainty over future government action. Local Authorities require definitive guidance on climate change adaptation and flooding to align their strategies with national goals and understand expectations and roles. This includes legislative intentions and possible frameworks for governance and funding. The Welsh Government is currently drafting their new national adaptation plan and should consider this recommendation upon its completion.

R3. Review terms of reference for three regional working groups to support deeper collaboration.

- 5.4 Revise and strengthen the operational frameworks of the three existing regional flood working groups to ensure deeper, structured collaboration throughout Wales, incorporating NRW for cohesive national leadership and project management support. This recommendation seeks to formalise the roles of these groups beyond their current unofficial basis to effectively address FCERM challenges through systematic regional cooperation.
- 5.5 Enhanced regional collaboration can generate long-term efficiencies, streamline resource uses, and generate Knowledge sharing

(Examples of regional collaboration include regional hubs which have been used to manage transport and infrastructure) despite challenges to effective cross-regional working outlined in this report and potential short-term financial implications. The establishment of formalised regional groups aims to distribute workloads and financial costs among local authorities and RMAs, optimising resource usage and technical expertise. Options for leadership include the rotation of responsibilities amongst senior LLFA members or creation of independent coordinator roles, possibly supported by NRW¹³, to maintain impartiality and national focus.

- 5.6 Regional collaboration could benefit from the development of specialised regional taskforces providing the following;
- Assistance with administrative elements of FCERM grand applications, offering support to both individual authorities and cross-regional projects.
 - Enhanced community engagement and awareness around FCERM efforts and identification of gaps,
 - Coordination, and overview of project management and delivery in a coordinated, regional and catchment-led approach to proactive FCERM, under NRW's guidance to align with Wales-wide objectives.
- 5.7 Despite possible upfront costs, best-practice examples demonstrate long-term impact. The North West and North Wales Coastal Group have adopted a partnership approach to coastal management through embedded collaboration across the different lead authorities. This commitment to regional working has led to a joint bid to establish a regional centre for excellence in effective management of the coastal area.
- 5.8 Case studies and pilot partnerships can be used to inform the design and creation of catchment and regional working groups. These could

¹³ With support from ring-fenced funding

be facilitated by Welsh Government, with support from NRW and the Welsh Local Government Association.

- 5.9 The focus of Workstream 2 of this commission explored the intricacies of catchment partnership working and provides targeted recommendations regarding the best way to implement this approach. It is encouraged to contemplate this recommendation within the wider findings outlined in the report of WS2.

R4. Establish an FCERM Resource Sharing Forum

- 5.10 Establish and promote a centralised platform for RMAs to share educational materials, best practice, updates, resources and encourage direct communication among RMAs. While such exchanges occur informally, a formalised platform would amplify the effectiveness of FCERM initiatives by providing a comprehensive resource hub. Facilitation of an annual FCERM conference for all of Wales could further encourage collaboration and engagement across the sector. This initiative builds on the success of platforms such as The Flood Hub, and it's Knowledge Hub, established by the North West Regional Flood and Coastal Committee, which provide a model for effectively pooling and disseminating valuable FCERM resources and information¹⁴. Initiatives could be led by Welsh Government with support from the Welsh Local Government Association.

R5. Gather evidence of efficacy of nature-based solutions for different types of flooding

- 5.11 Recognise the potential of nature-based solutions in addressing the challenges of FCERM. These solutions counteract the rising costs and management complexities associated with traditional infrastructure projects and ensure alignment with wider environmental and climate change mitigation goals. Natural flood management and nature-based solutions can form part of a short to medium-term solution with a range of key benefits. While the benefits of nature-based solutions include cost of development and maintenance,

¹⁴ <https://thefloodhub.co.uk/knowledge-hub/>

community support, and alignment with climate change actions there is a need for comprehensive evidence gathering regarding their practical application, maintenance requirements and costs, effectiveness, financial and technical viability across varied ecosystems and sized watercourses, success rates, and incentive approaches (e.g. Sustainable Farming Scheme or Rural Development Fund). LLFAs and RMAs should leverage existing research and further the knowledge base on the large-scale implementation of Nature-Based Solutions, ensuring long-term sustainability in FCERM practices.

R6. Ensure development/planning payments cover the cost of flood risk mitigation work

- 5.12 Financial contributions from developers fall short of covering the expenses incurred in flood risk mitigation by planning departments during the planning process. Reviewing planning payment structures to accurately reflect and cover these costs can ensure funds are appropriately allocated to the departments responsible for this work. Adjustments will help ensure that the financial burden of implementing flood risk mitigation measures is equitably shared and directly supports the necessary departmental efforts.

R7. Support the creation of community resilience groups

- 5.13 With community engagement and community-led intervention in resilience-building and risk mitigation widely regarded as key elements to ensuring effective and proactive FCERM, this recommendation advocates for the establishment of community resilience groups. Inspired by the success of the Pembrokeshire Coastal Forum¹⁵, these groups should focus on empowering communities to actively participate in resilience building and risk mitigation efforts. The Pembrokeshire Coastal Forum's innovative approaches, such as using QR-coded posts for real time

¹⁵ An independent body that emerged to collaboratively address issues facing the Pembrokeshire coastline.

environmental monitoring, exemplify how community engagement can significantly contribute to understanding and managing local environmental challenges. The creation of community resilience groups could enhance local capacity for FCERM, potentially integrating into the broader framework of regional taskforces to ensure cohesive, community-led environmental stewardship across Wales. Such groups could be facilitated by the Welsh Local Government Association with support from Welsh Government.

R8. Review legislation around power and responsibilities over flooding

5.14 This recommendation reiterates a crucial action from the latest FCERM review¹⁶, emphasising the necessity to review and clarify the legislation surrounding the responsibilities, ownership, and powers in relation to flood risk management. The existing legal framework presents a complicated picture of accountability, particularly when determining ownership of flooding occurrence (i.e. who takes responsibility in the event of flooding from a certain flood source), leading to delays and inaction in response efforts. For example, confusion arises when surface water flooding overflows into sewer systems, causing additional flooding issues. The segmented approach to managing watercourses under current legislation complicates both response and recovery processes, making it challenging for affected individuals to know whom to contact during flood events.

5.15 A comprehensive review by the Welsh Government's legal departments is advocated to move towards a more streamlined and unified legislative approach. This would simplify the management of flood risks across various watercourse, making the process more manageable for both authorities and the public. Furthermore, future legislation and policies should explicitly define the roles of individuals and communities in flood risk management, ensuring clear distinctions between the responsibilities of the public sector and the

¹⁶ <https://www.gov.wales/sites/default/files/publications/2023-02/resources-for-flood-and-coastal-erosion-risk-management-in-wales-final-report.pdf>

community. Such clarifications will facilitate a more coherent and effective response to flooding, emphasising collective ownership and action in flood management strategies.

Ambitious

R9. Assess council tax contributions to start a local levy for FCERM

- 5.16 To address budgetary constraints, funding uncertainties, and the discontinuation of ring-fenced funding, Local Authorities should explore the feasibility of a localised levy funded through council tax contributions, aimed at bolstering FCERM financial resources and ensuring medium to long-term fiscal stability. This approach mirrors successful implementations in England, where contributions have significantly supported new flood defence initiatives, maintenance, and risk management and warning strategies. Despite raised concerns from Local Authorities representatives around taxpayer pushback in the event of a rise in council tax contributions, strategic community engagement and clear communication of benefits could foster public support and emphasise the long-term cost savings and benefits of early FCERM investments.
- 5.17 Evidence suggests that such levies could be integrated without raising overall council tax rates, through the careful reallocation of existing budgets to reflect FCERM priorities more accurately. Emphasis should extend outside current legislation focusing on aligning contributions with broader community benefits, extending beyond home protection to include businesses and the wider economy. Implementation of such a levy would require sensitive consideration of socio-economic factors and equitable contribution structures to ensure fairness and efficacy. To better align funding with comprehensive community benefits, a proposed local levy through council tax contributions, inspired by the English model, aims at securing and enhancing FCERM initiatives. This levy could initially target business contributions, reflecting their direct and indirect benefits from effective FCERM.

5.18 Acknowledging potential resistance to changes in council tax, strategies must consider socio-economic disparities and aim for equitable contributions. Furthermore, it's vital to clarify the public sector's role in managing flood risks—not to eliminate flooding but to mitigate its severity and occurrence. Therefore, this levy should accompany a broader strategy, including legislative review on flood management responsibilities (R8), funding for community resilience efforts (R11), and incentives for private flood resilience measures, ensuring a balanced, fair, and effective approach to enhancing Wales's FCERM capabilities (R19).

5.19 Ultimately, while legislative support for a local levy exists, its successful implementation hinges on a holistic approach that combines legislative clarity, community investment in flood management, and proactive measures at the individual and community levels.

R10. Compile list of projects completed, projects deferred and future projects to understand scale of infrastructure funding, including anticipated maintenance costs.

5.20 The compiling of a comprehensive inventory of the full spectrum of infrastructure needs is necessary to understand the gap between what Local Authorities have had to prioritise against what is required to adequately reduce risk. This includes projects that have been completed, deferred, or are envisioned for the future, including a thorough assessment of anticipated maintenance costs. This initiative aims to provide a whole system view of infrastructure demands and costs, paving the way for identifying efficiencies and potential synergies between projects.

5.21 The Long Term Investment Requirements report published by NRW, detailing future funding needs, serves as a key reference point for this analysis offering a foundation for informed decision-making and strategic planning, particularly in aligning efforts with evidence-based evaluations of nature-based solutions for their efficacy and cost

effectiveness. The approach emphasises the importance of catchment-level prioritisation, ensuring that cross-border benefits and collaborative opportunities are maximised. The production of such an inventory should be coordinated by WG or NRW, with Local Authorities tasked with the compilation of local infrastructure requirements.

R11. Provide funding to community resilience groups to invest in community flood management

5.22 Expanding upon the recommendation to support the creation of community resilience groups (R7), this recommendation aims to allocated targeted funding towards community-led FCERM efforts. Funding of community resilience groups can contribute to their effective role in enabling community engagement and support for FCERM activities alleviating capacity challenges on public sector bodies and ensuring the engagement of local insights in crafting and executing risk mitigation strategies.

5.23 Careful consideration must be given to the defining the operational scope and integration of technical expertise within these community groups to ensure their appropriateness and effectiveness. Typically, community groups leverage their funding to mobilise local engagement, pinpoint critical issues, and subsequently collaborate with technical teams from Local Authorities or LLFAs. Encouraging the relationships between community insights and professional expertise can result in community-led initiatives that enhance local flood resilience.

R12. Empower Local Authorities to compel private owners of assets to maintain or upgrade them

5.24 To address the challenge that not all flood and coastal erosion protection assets are publicly owned, and the current lack of mechanisms to ensure private asset maintenance to necessary standards, it is recommended that the Welsh Government consider legislation granting Local Authorities the authority to mandate private

asset owners to maintain or upgrade their flood defence assets. Drawing on recent advancements in legislation for coal tip safety in private ownership, this could include the establishment of a comprehensive asset register, mandatory risk assessments, and enforceable maintenance agreements with asset owners.

- 5.25 This approach necessitates the creation of enforcement and monitoring capabilities, likely at regional or catchment levels, to ensure compliance. Such an initiative should be integrated with existing policies targeting privately-owned assets to ensure a cohesive approach to asset management (including the Sustainable Farming Scheme). Successful models, such as the Capital Grants 2023: Countryside Stewardship scheme, illustrate how public sector collaboration with private asset owners can lead to broader environmental and flood management benefits. This recommendation should align with broader strategies to enhance community resilience and leverage private sector contributions to flood risk management (R11, R19).

Medium-term (2-5 years)

Essential

R13. Underpin collaboration established in short-term section with legislation to ensure adequate prioritisation

- 5.26 Building on the initial establishment of collaborative frameworks as recommended, the subsequent phases involves the formalisation of these arrangements through legislation. Legislation should ensure that regional working groups receive the necessary support, clarifying their operational structure and financial backing. A legislative framework that elevates climate change adaptation and FCERM as corporate priorities within Local Authorities can assist in addressing barriers to effective regional collaboration.
- 5.27 The Welsh Government has a role to play in facilitating the necessary funding, potentially through mechanisms such as matched funding, but also in guiding the optimal support structure for flood management

on a national scale. This recommendation aims to secure the institutionalisation and prioritisation of FCERM effort, ensuring a sustained and cooperative approach across regions.

R14. Make Climate Change Adaptation a statutory duty – link directly to flooding

- 5.28 Building upon initial efforts to clarify policy intentions and communications, it is recommended that the Welsh Government include a duty to adapt to climate change impacts, with a specific focus on flood risk, as a statutory obligation for all public sector bodies. This recognises flood risk as a significant threat to Wales. Although Public Service Boards are currently mandated to address climate change adaptation under the Well-being of Future Generations Act, there is a need for a comprehensive review of the existing frameworks (indicators, mechanisms, narratives, and support structures) to ensure that they are ambitious and effectively aligned with this duty. This measure is intended to prioritise and embed flood risk management and climate change adaptation across all levels of public administration, ensuring a unified and proactive approach to safeguarding Wales' future against escalating flood risks.

R15. Develop a national Adaptation policy, which includes resilience measures and framework

- 5.29 The Welsh Government is advised to develop and finalise a comprehensive national adaptation policy which includes a list of resilience measures and a framework for risk identification and mitigation actions applicable to public sector organisations, local authorities, and private entities. Building on prior assessments of significant risks and public sector priorities and expectations, the policy should delineate the roles of the private sector and communities in supporting these efforts.
- 5.30 The policy should introduce a unified adaptation framework, establishing clear goals and indicators to guide public sector decision-making and investment. It will underscore the interconnected nature

of climate risks, promoting a collaborative, cross-sectoral approach to climate change adaptation and mitigation. The overarching aim is to position climate change adaptation and mitigation as foundational elements of socio-economic development, integrating these considerations into a comprehensive vision for Wales that leverages partnership and collaborative efforts.

- 5.31 This strategic framework will not only streamline governance processes but also address the challenges hindering green finance through the closer alignment of public funding with private investment opportunities. Welsh Government should consider these recommendations in their forthcoming adaptation plan to ensure a robust, inclusive, and effective strategy for climate resilience.
- 5.32 JBA is currently undertaking a similar piece of work with the Environment Agency in England, exploring how adaptation and resilience indicators could be developed to ensure tangible, actionable and effective measures are implemented.

R16. Support NRW to develop a national approach to partnership funding including, large public sector estates, large private sector estates, infrastructure providers and green finance initiatives

- 5.33 The Welsh Government is encouraged to assist NRW in formulating a comprehensive national strategy for partnership funding. This strategy should encompass engagement with both the public and private sectors, focusing on large estate owners and infrastructure providers. The aim is to identify and facilitate collaboration opportunities that align with the risk management objectives of these stakeholders and harness their risk management efforts to enhance flood resilience, promoting a unified approach to enhancing flood resilience and reducing the dependency on local authority resources.

R17. Integrate FCERM and Climate Change Adaptation into School Curriculum

- 5.34 Addressing the pressing need for future flood risk management professions, it is recommended to review and revise school curricula

to emphasise the significance of FCERM, alongside climate adaptation. This move aims to develop interest amongst younger generations in pursuing careers in this field, addressing gaps in enthusiasm and understanding among potential future professionals.

5.35 Incorporating a focused narrative on the importance of FCERM and climate change adaptation, aligned with current predictions from climate modelling for the UK, can ensure that students are informed about global climate change impacts, understand the localised effects and requirements for action to mitigate and adapt to these effects, and are aware of the skills required to do so. This approach aims to make the issue more tangible and relatable, providing a compelling motivation to individuals in at risk communities and guiding a diverse range of students towards a rewarding career in the field.

5.36 Achieving this will require a comprehensive national review of the school curriculum, drawing on past reforms and consultations. Collaboration with the Flood and Coastal Erosion Committee and engagement of an independent entity to conduct this review will ensure the curriculum is accurately aligned with the need to build future resilience against climate change and flooding. Ambitious

R18. Create, or utilise an existing, multi-functional land use framework for Wales. Use the land use framework to co-ordinate land use decisions and ensure an adequate supply of public funding contributions to flood protection between different sectors

5.37 To tackle the complex challenges faced by landowners and rural businesses in Wales, stemming from the diverse demands on land use and current lack of cohesive support mechanisms, it is recommended that the Welsh Government establish, refine, or utilise an existing multi-functional land use framework. This framework should serve a critical tool for decision-makers, enabling the strategic identification and optimisation of land use, alongside ensuring that

public funding contributions effectively support flood protection and other public goods.¹⁷

- 5.38 A multi-functional land use framework recognises the many demands on the land and provides a clear way for decision makers to consider all of their aims in a shared frame of reference. Implemented at the local level this will result in a land use management strategy for Wales which delivers national policy at the local level.

R19. Welsh Government to provide subsidies to private homeowners to build flood resilience and management at the property level

- 5.39 In response to the critical role of community and individual action in climate change adaptation, particularly in flood risk management, there is a case for the Welsh Government to provide subsidies and/or guidance for homeowners to implement flood resilience and management measures at the property level. This initiative could empower individuals in high-risk and densely populated areas to take proactive steps towards embedding flood mitigation systems, such as green roofs and rainwater harvesting, directly into their homes.
- 5.40 Drawing parallels with the approach to (full or partial) subsidisation of private and individual renewable energy generation, the objective is to scale low-impact, sustainable flood management solutions, thereby easing the burden on urban drainage systems and reducing the overall impact of surface flooding. The schemes success hinges on strategic implementation, including a risk-based prioritisation, consideration of socio-economic factors for eligibility, and establishing a regulatory framework for suppliers and installers.
- 5.41 Although initial costs may appear substantial, the long-term benefits, ranging from reduced flooding occurrence and severity to enhanced public awareness of climate risks, can contribute to addressing the immediate challenges of flood risk management whilst building long-term community and environmental resilience.

¹⁷ <https://ffcc.co.uk/publications/the-multifunctional-land-use-framework-report>

R20. Establish advanced education 2-year diplomas or degree apprenticeships in climate sciences/FCERM

- 5.42 To address the need for specialised skills in FCERM the Welsh Government should partner with educational institutions to establish two year advanced diplomas, focused on climate science and FCERM, specifically designed for public sector employment. This initiative, guided by the insights of NRW and the Flooding Committee, aims to streamline the entry of qualified individuals into the FCERM workforce by offering a curriculum directly aligned with public sector needs.
- 5.43 RMAs are encouraged to facilitate internship and apprenticeship opportunities from this course, ensuring practical experience and a smooth transition into professional roles. Benefits of this innovative educational pathway include a quicker entry into the FCERM field, education closely matched to public sector requirements, a broader pool of applicants, and enhanced workforce diversity.
- 5.44 This approach promises to enrich community and engagement and comprehension of FCERM issues over time, while reducing competition with the private sector due to the programmes public sector focus. Success hinges on detailed coordination amongst RMAs, Welsh Government, and academic institutions to ensure the programmes objectives meet FCERM's specific needs and that opportunities are made available to graduates.

Long-term (5-10 years)

Essential

R21. Prioritise nature-based solutions and natural flood management to reduce the exponential growth of infrastructure development and maintenance

- 5.45 In the long-term, it is crucial for both government and the public sector to shift their focus towards integrating nature-based solutions within FCERM strategies. This approach offers close alignment with environmental ambitions as well as multifunctional benefits across

sectors, potentially easing both capacity and financial pressures, and opening up a range of funding avenues.

- 5.46 Whilst acknowledging that engineered defences remain necessary for managing significant risks, an emphasis on natural flood management within a cohesive, catchment-based strategy is encouraged. This approach aims to utilise community-level mitigation efforts and prioritise natural flood management wherever feasible, promising to mitigate long-term financial and operational challenges faced by FCERM efforts.

Ambitious

R22. Collaborate with the insurance sector for Flood Risk Mitigation Funding

- 5.47 The Welsh Government should proactively engage with the insurance sector and other devolved administrations and the UK government, to understand the impact of flood protection measures on insurance premiums and to identify effective investment strategies. This collaboration aims to ensure mutual benefits from public investments in flood risk mitigation, necessitating improved dialogue and alignment on resilience measures between governments, insurers, and property owners.
- 5.48 Building on previous recommendations, the establishment of common resilience standards, and their periodic review to mirror evolving risk profiles (R15), could serve as a foundation for adjusting insurance premiums with a potential tax on high premiums that could be used to fund projects to reduce those premiums. This approach encourages the incorporation of both public and private risk mitigation investments into the insurance evaluation process, fostering a more comprehensive and equitable approach to flood risk management.

Redefining FCERM: a vision for radical change

- 5.49 A key aim of the project was to stretch beyond conventional boundaries and envision a transformative future for FCERM in Wales (outside of current standards, legislation, approaches, and socio-economic and political structures), challenging existing norms and prompting a paradigm shift towards long-term effectiveness and sustainability.
- 5.50 This is a considerable challenge, since the research reflects the existing structures, barriers, and challenges around the management and mitigation of flooding and coastal erosion. There are a range of examples of discussed above of consciously breaking away from traditional approaches; including the shift from reactive to proactive risk management, acknowledging that effective risk management is a multi-skilled and cross-cutting service, or apparent appetite to reduce the reliance on built infrastructure for risk mitigation in favour of nature-based solutions. This chapter presents a radical vision for how FCERM could be carried out in the future based on the range of challenges and barriers to effective action outlined in this report.
- 5.51 Central to this vision is the active engagement and empowerment of communities. Recognising the invaluable contribution of local knowledge, community-led initiatives should become the cornerstone of FCERM strategies. Local knowledge, and a engaged and supportive community is a key contributor to successful delivery of FCERM schemes and long-term viability. This involves fostering community ownership over climate adaptation efforts, akin to the model of community-owned renewable energy projects, ensuring that each initiative resonates with and is supported by the communities it is built to protect. Any change to FCERM has to be underpinned by effective community engagement and leadership.
- 5.52 The vision also calls for a significant shift towards nature-based solutions and multifunction flood defences that seamlessly integrate with broader climate change mitigation and adaptation efforts. In

doing so, FCERM not only becomes a critical element of Wales' climate response but a model for delivering financial, ecological, and social sustainability. For authorities it is not so much a matter of financial efficiency, as it is of ensuring a holistic, unified approach to addressing some the key threats facing Wales over the coming decades. FCERM should be prioritised alongside climate change mitigation and adaptation efforts.

- 5.53 Governance structures require a comprehensive overhaul to eliminate segmentation and siloed working. Current responses see water courses and flooding occurrences legally managed by different organisations, limitations to collaborative working, and uneven prioritisation of FCERM across Wales. The vision suggests moving away from geographic or administrative boundaries towards a catchment-based system that reflects the natural flow of water, supported by a governance model that fosters collaboration across Local Authorities and key stakeholders, underpinned by equitable funding mechanisms and strategic leadership. To deliver this, attention to the supportive infrastructure for these groups is essential. Funding models could encourage LLFA commitments, with additional funding or match funding provided by Welsh Government to support overseeing organisations, aligning with a national framework for climate change mitigation and adaptation.
- 5.54 The primary objective of these collaborative entities should be to alleviate the administrative load associated with securing funding and developing business cases, whilst developing a coordinated and impactful community engagement and the proliferation of awareness raising initiatives. The centralisation of efforts and resources can address bureaucratic challenges whilst amplifying the effectiveness of FCERM strategies across Wales, ensuring an aligned and comprehensive national response to the challenges posed by climate change and flood risk management.
- 5.55 Legislation should seek to clearly define the roles and responsibilities regarding water course management, with a move towards a more

unified system. While this suggests a more centralised approach to FCERM, it does not detract from the existing roles and responsibilities of current bodies such as NRW, Welsh Water, and local authorities. Instead, these bodies support a lead organisation, ensuring a cohesive approach to water management with reduced legislative confusion.

- 5.56 Current short-term approaches to budget allocation is hindering the full realisation of FCERM benefits over the medium to long term. The Wellbeing of Future Generations Act exemplifies the necessary political commitment, highlighting the urgent need for a national strategy to address climate threats such as sea-level rise and increased precipitation. A long-term financial strategy is essential to effectively manage these environmental challenges.
- 5.57 Development control in flood-prone areas needs stricter regulation. Despite existing controls, many properties are still built in high-risk zones. FCERM should have a stronger influence over development decisions. This approach aligns with recommendations to ensure properties at high flood risk are equipped with individual flood mitigation systems, akin to renewable energy subsidies, thereby reducing reliance on public infrastructure and engaging communities in flood resilience building.
- 5.58 This vision for FCERM in Wales calls for a transformative shift towards community-driven, nature-based solutions, integrated governance, and sustainable long-term funding strategies, to establish a path for a resilient, collaborative, and environmentally conscious future in facing the challenges of climate change and flood risk.