

# A Picture of Flood Risk Management

Report of the Auditor General for Wales

December 2022



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Mae'r ddogfen hon hefyd ar gael yn Gymraeg.

Para 5.18 of this report was amended on 29th March 2023 to correct an error

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# About this report

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- 1 In recent years, Wales has suffered devastating impacts from flooding. Despite continued investment, flooding continues to present significant risks to the country. Flood risk, and the costs of managing it are increasing with climate change. Extreme weather events like the storms in winter 2019-20 are likely to become more frequent but it is impossible to predict exactly where and when they will occur.
- 2 Flood risk management has been the subject of several reviews over the past ten years, including our own review of coastal flooding and erosion<sup>1</sup> in 2016. Our review found that the Welsh Government and partners were improving their approach to flooding and coastal erosion risk management, although the pace of change had been slower than planned. We said further improvements were needed to address capacity issues, plan for the long term, and ensure that spending provided value for money.
- 3 The Senedd Public Accounts Committee used our work to inform its own inquiry<sup>2</sup> and report in 2017. The Welsh Government's 2020 National Strategy for Flooding and Coastal Erosion<sup>3</sup> (the National Strategy), its second in this area, includes actions to address the findings of both reviews. Nevertheless, the flooding sector faces considerable ongoing challenges.
- 4 Also in 2020, the Senedd Climate Change, Environment and Rural Affairs Committee held a short inquiry into the Welsh Government's response to the winter floods in February 2020<sup>4</sup>. The Committee concluded that there are difficult conversations to be had between the Welsh Government and its partners, and with communities, about where and how to invest, and what can reasonably be achieved with finite resources.

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1 Auditor General for Wales, Coastal Flood and Erosion Risk Management in Wales, July 2016

2 Senedd Public Accounts Committee, Coastal Flood and Erosion Risk Management in Wales, June 2017

3 Welsh Government, The National Strategy for Flood and Coastal Erosion Risk Management in Wales, October 2020

4 Senedd Climate Change, Environment and Rural Affairs Committee, Flooding in Wales, December 2020

- 5 While we have been undertaking our work, several important reviews have been taking place or are proposed. In particular, the Wales Flood and Coastal Erosion Committee, which acts as an independent advisory body to Welsh Ministers, finalised a review of resources in May 2022<sup>5</sup>. It made 20 proposals to improve the national approach and the Welsh Government is currently considering its formal response.
- 6 This Picture of Flood Risk Management report explains how flood risk management works in Wales, including expenditure trends. Flood risk management is a complex area, and our report is not intended to be comprehensive. It also focuses on the management of flood risk rather than the emergency response when floods do happen. We set out what we consider to be some of the key issues, recognising that other commentators and review bodies will have their own perspective. **Appendix 1** describes our audit approach and methods.
- 7 The report is part of our ongoing programme of work looking at how public bodies are responding to the challenges of climate change. In July and August 2022, we published our first reports on public sector readiness to achieve the collective ambition to have net zero carbon emissions by 2030<sup>6</sup>. We will consider looking again at flood risk management in Wales over the next few years to see how well the Welsh Government, Natural Resources Wales (NRW) and local authorities are responding to the issues identified in the Flood and Coastal Erosion Committee's review of resources and the broader challenges facing the flooding sector.

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5 The report is available on request to the Flood and Coastal Erosion Committee.

6 Auditor General for Wales, Public Sector Readiness for Net Zero Carbon by 2030, July 2022; and Public Sector Readiness for Net Zero Carbon by 2030: Evidence Report, August 2022

# Key facts



**117,000** properties at 'high risk' of flooding (2019)



**3,130** properties known to be flooded in the February 2020 storms



**£81 million** estimated property damage from the February 2020 storms



**28** Risk Management Authorities including the Welsh Government, NRW, water companies and local authorities

**£59.6 million** Welsh Government funding for flood risk management, 2021-22 (at 2022-23 prices)



**48.7%** Real terms Welsh Government budget increase for flood risk management by 2024-25 (from 2021-22)

## Key issues

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We have seen the terrible impact of flooding on our communities and the economy and climate change means this is likely to happen more frequently. The issues are not new. Our previous audit work and other reviews have highlighted the need for action in long-term planning, adapting to climate change and building workforce capacity. Despite some positive developments, there are serious questions about whether public services can keep pace with the increasing risks and challenges associated with flooding.

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**Adrian Crompton**  
Auditor General for Wales



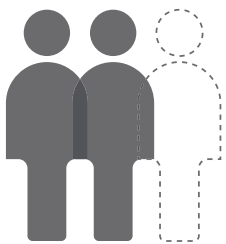
## Exhibit 1: key issues affecting flood risk management in Wales



### **Significant long-term investment will likely be needed to tackle the increasing flood risks associated with climate change.**

There are likely to be tough decisions about how to invest finite resources to manage flood risk.

Detail in **paragraphs 3.14 to 3.19.**



### **Increasing workforce capacity is the most immediate priority for the flooding sector.**

Without investment in the future flood risk management workforce, it will be difficult to achieve the ambitions in the National Strategy. A long-term, system-wide approach is needed.

Detail in **paragraphs 4.1 to 4.6.**



### **There are gaps in collective leadership and policy integration.**

There is no Wales-wide forum for senior leaders to discuss flood risk management and drive strategic change. There are also opportunities to better integrate policy and funding arrangements across public services to improve flood risk management.

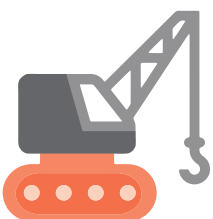
Detail in **paragraphs 5.6 to 5.10.**



### **There are gaps in flood risk data and the risks themselves keep changing with climate change.**

Understanding the impact of flood risk management activity is difficult. Firstly, the condition of Wales's flood defences is not clear because there is currently no complete single source of information on the condition of defences owned by all parties. Secondly, climate change is changing the risks. Building developments or new flood defences can also move flood risk from one place to another.

Detail in **paragraphs 5.11 to 5.17.**



### **Building development in high flood risk areas could be exposing households and businesses to avoidable flood risk.**

National data on planning consents shows significantly higher levels of development in high flood risk areas in 2016-17 to 2018-19 compared to 2015-16. However, beyond 2018-19 there is no national data to judge new risks resulting from development.

Detail in **paragraphs 5.18 to 5.21.**





# Flood risk management: context





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01

## Climate change is increasing the risks of flooding

- 1.1 For the Welsh Government, the term ‘flood and coastal erosion risk’ covers flooding from rivers, the sea, reservoirs, ordinary watercourses, groundwater, and surface water as well as coastal erosion. Flooding from water and sewerage systems also presents risks to property but is the responsibility of water companies. Former industrial sites, including coal mines, can also flood or suffer landslides<sup>7</sup>.
- 1.2 Flood risk is described using four categories based on the chance of flooding occurring in any given year (**Exhibit 2**). NRW estimates that one in eight properties in Wales (245,000 properties) are at some risk of flooding from either rivers, the sea or surface water with almost 400 of those properties also at risk from coastal erosion. Of the 245,000 properties at risk, 117,000 properties are at high risk<sup>8</sup>.

### Exhibit 2: flood risk categories

Risk	Chance of flooding in any given year
 <p>HIGH RISK</p>	Greater or equal to once in 30 years
 <p>MEDIUM RISK</p>	Less than once in 30 but greater than once in 100 years
 <p>LOW RISK</p>	Less than once in 100 but greater than once in 1,000 years
 <p>VERY LOW RISK</p>	Less than once in 1,000 years

Source: Categories set out in the 2020 Welsh Government’s National Strategy for Flood and Coastal Erosion Risk Management in Wales

7 Management of risk associated with Welsh coal mines is the subject of a UK Government Task Force and law commission review as well as a project to assess and record risks associated with mines by the Coal Authority, Welsh Local Government Association (WLGA), local authorities and NRW.

8 Flooding risk is based on modelled data. NRW cautions that the data comes with uncertainty due to limits of accuracy in measurement and modelling methods. [NRW’s website](#) provides information on flood risk. The most recent published data is 2019.

1.3 The number of households at risk of flooding is based on the levels assessed as at risk at a point in time and will change. The State of UK Climate 2021 report<sup>9</sup> describes higher average levels of rainfall and rising sea levels and says that sea levels are rising much faster than a century ago; an annual rise of between three and five millimetres. Rising sea levels and higher levels of rainfall resulting from climate change are likely to increase the chances of flooding occurring. The devastating storms of February 2020 were a stark example. 3,130 properties in Wales were known to be flooded<sup>10</sup> and river levels reached unprecedented heights. NRW categorised the storms as a 1 in 200-year event in some areas of Wales which overwhelmed some defences<sup>11</sup>. The floods highlighted the possibility that severe storms could become increasingly common due to climate change.

## Flooding can have a devastating impact on individuals, the economy and the environment

- 1.4 NRW reviews have set out the impact of recent flooding events. NRW's review of the February 2020 storms put the cost of household damage alone at £81 million (in cash terms). Businesses, non-residential properties and infrastructure also suffered significant damage. Positively, NRW said 19,000 properties benefitted from flood defences during the 2020 storms, representing £550 million avoided damages.
- 1.5 Besides physical harm, flooding puts huge pressure on the mental health of individuals long after their homes or businesses are flooded. Flooding can also cause irrevocable damage to habitats and ecosystems. For example, NRW found that the winter storms of 2013-14 damaged 37 Sites of Special Scientific Interest and 10 Special Areas of Conservation<sup>12</sup>.

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9 Kendon et al., State of the UK Climate 2021, International Journal of Climatology, The Royal Meteorological Society Journal of Climate Science, July 2022

10 Natural Resources Wales, February 2020 flood review (Storm Ciara and Dennis), October 2020

11 River and main water course defences are typically built to withstand a 1 in 100-year flooding event (an event only likely to occur once in 100 years). Flooding categories are based on past data which is updated when new floods occur.

12 Natural Resources Wales, Wales Coastal Flooding Review Phase 1 Report – Assessment of Impacts, January 2014

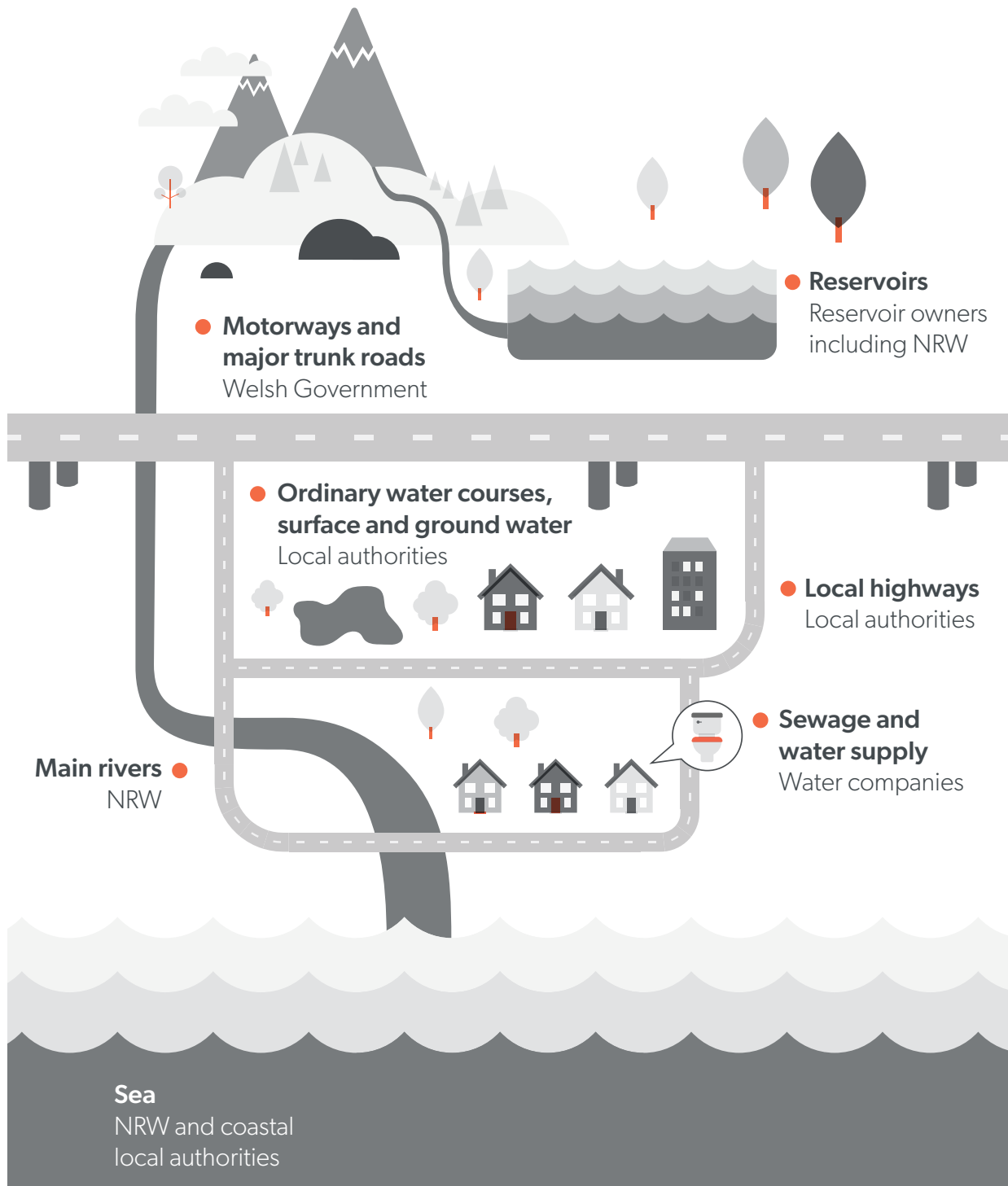
## Roles and responsibilities are complex and may require legislative change

- 1.6 Legal responsibility for managing flood risk differs depending on the area of land at risk of flooding, or the source of the flood risk. In broad terms, the Welsh Government and NRW have system-wide roles to support flood risk management. The Welsh Government sets the national direction and allocates funding. NRW has national strategic oversight of all sources of flooding and coastal erosion and provides technical advice to other Risk Management Authorities (RMAs). Local authorities are designated Lead Local Flood Authorities. They manage flooding from ordinary watercourses, surface water and groundwater. The Welsh Local Government Association (WLGA) is not an RMA. Through its Welsh Government grant funded post (see **footnote 24**), the WLGA coordinates and supports local authorities in their functions and helps steer national initiatives. The Welsh Government, NRW, local authorities and water companies<sup>13</sup> have discretionary powers for managing flood risk in different places as RMAs (**Exhibit 3**).

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<sup>13</sup> There are currently four water companies operating in Wales: Welsh Water, Hafren Dyfrdwy, Albion Eco and Leep Utilities.

**Exhibit 3: Risk Management Authority lead roles for flood risk management by location**



Note: Some private landowners such as the National Trust are responsible for protecting their assets from flooding but are not RMAs.

Source: Audit Wales

1.7 Organisations with a role in managing flood risk come together in several forums in Wales. **Exhibit 4** sets out membership and purpose of key flood risk management forums in Wales. There are other forums to manage the emergency response to flooding events which are not included here.

**Exhibit 4: key flood risk management forums in Wales**

Forum	Purpose	Membership
The Flood and Coastal Erosion Risk Programme Board	Oversees delivery of the Welsh Government's capital programmes: the Flood and Coastal Erosion Risk Management Programme and Coastal Risk Management Programme	Members include representatives from the Welsh Government, NRW, the WLGA, local authorities, Dŵr Cymru Welsh Water, the Institution of Civil Engineers, and the Chair of the Flood and Coastal Erosion Committee.
The Flood and Coastal Erosion Committee	Provides advice to Welsh Ministers and RMAs on flood and coastal erosion risk management	Members are appointed by Welsh Ministers. The Committee includes representatives of NRW, the WLGA, local authorities, agriculture, the water industry, academia and relevant professional bodies.
Regional Flood Groups: North, Southeast, and Southwest Wales	Share knowledge and information about flood risk and develop joint programmes of work	Membership includes local authorities, NRW, water companies and the WLGA.
Coastal Groups: West of Wales, Liverpool Bay, Severn Estuary, and Swansea and Carmarthen Bay	Lead on producing and implementing Shoreline Management Plans	Coastal local authorities, NRW, the Welsh Government and other bodies with coastal responsibilities.
Wales Coastal Group Forum	Represents the collective interests of the Coastal Groups	Chairs of each Coastal Group plus representatives from NRW, the WLGA, Network Rail and the National Trust.

Source: Audit Wales

- 1.8 Different pieces of legislation set out powers and duties relating to the management of flooding and coastal erosion<sup>14</sup>. The Flood and Water Management Act 2010 clarified some powers and responsibilities. In response to a recommendation in our 2016 report (see **footnote 1**) on clarifying roles and responsibilities, the Welsh Government tasked the Flood and Coastal Erosion Committee with reviewing current legislation. The Committee finalised its review in September 2022 and submitted proposals to Welsh Ministers.
- 1.9 The Law Commission<sup>15</sup> is also considering whether to review statutory responsibilities for flood and coastal erosion risk management in England and Wales.

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<sup>14</sup> The main pieces of legislation relating to flood risk management in Wales are the European Union Floods Directive 2007 – which forms part of UK law, Flood Risk Regulations 2009, the Flood and Water Management Act 2010, Water Resources Act 1991, Land Drainage Act 1991, and the Coastal Protection Act 1949.

<sup>15</sup> The Law Commission is the statutory independent body created to keep the law of England and Wales under review and recommend reform where needed.



# Flood risk management: strategy

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02



## The Welsh Government's Programme for Government commits to improving flood protection

- 2.1 In its June 2021 Programme for Government<sup>16</sup>, the Welsh Government stated it would embed its response to climate change and nature emergency in everything it does and made specific commitments to flood risk management:
- to fund additional flood protection for at least 45,000 homes; and
  - deliver nature-based flood risk management (see **Exhibit 6**) in all major river catchments to expand wetland and woodland habitats.
- 2.2 The Welsh Government updated its Programme for Government in December 2021<sup>17</sup> to reflect its cooperation agreement<sup>18</sup> with Plaid Cymru. The agreement committed to more investment in flood risk management to respond to the increased risk. The updated programme included two new commitments to:
- commission an independent review of the local government section 19 and NRW reports<sup>19</sup> into winter floods; and
  - ask the National Infrastructure Commission for Wales to assess how the nationwide likelihood of flooding of homes, businesses and infrastructure can be minimised by 2050.

## The Welsh Government's National Strategy sets national objectives for flood risk management and highlights challenges facing the sector

- 2.3 The Welsh Government's 2020 National Strategy aims to reduce the risks to people and communities from flooding and coastal erosion underpinned by five objectives (**Exhibit 5**). The Strategy highlights tough questions facing flood risk management. Not all flooding can be prevented, and the Strategy emphasises the need for approaches to help communities adapt and become more resilient to severe weather events and rising sea levels.

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16 Welsh Government, Programme for Government, June 2021

17 Welsh Government, Programme for Government – Update, December 2021

18 Welsh Government, The Cooperation Agreement, 2021

19 Section 19 of the Flood and Water Management Act 2010 requires local authorities in Wales to investigate serious flooding events and publish the results. NRW also undertakes its own reviews into serious flooding.

## Exhibit 5: Welsh Government National Strategy aims and objectives for flood and coastal erosion risk management

Reduce the risk to people and communities from flooding and coastal erosion



Improved understanding and communication of risk



Preparedness and building resilience



Prioritising investment to the most at risk communities



Preventing more people becoming exposed to risk



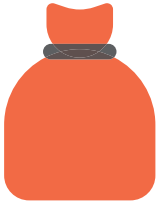
Providing an effective and sustained response to events

Source: Objectives set out in the 2020 Welsh Government National Strategy for Flood and Coastal Erosion Risk Management in Wales

2.4 The Strategy recognises that building ever higher flood walls is not always sustainable and does not remove all risk. Even high walls can breach and there is a greater risk of rapid and severe flooding when they do. It can be detrimental to wildlife and the appearance of landscapes and communities. There is also a risk that building higher walls to protect one community will push flood water on to other communities. The Strategy builds on the previous national strategy by emphasising different approaches to flood risk management. In particular, the 2020 Strategy describes the importance of building community preparedness and resilience to flooding, using natural flood management and adapting to climate change (**Exhibit 6**).

## Exhibit 6: key concepts in the National Strategy

### Building community preparedness and resilience



Raising awareness and preparing communities to respond to flooding can reduce the impact on property and individuals. Preparedness can include talking to communities about flood risk and promoting flooding warning systems. It can also include advising people of individual measures they can take to protect their home such as installing flood doors. An important part of building community resilience is working with them to understand the risks in their area and develop ways to prepare for, and adapt to, those risks.

### Natural flood management or 'nature based solutions'



Natural approaches can reduce water flows in flood risk areas. Approaches can include tree planting, offline storage areas which return water to rivers after floods have passed, and creating wetlands. Natural approaches can be especially effective when they are developed around whole river catchments, but may not work in isolation or during extreme flood events. Integrated 'Green Grey' infrastructure can have a positive impact on the environment and increase biodiversity. Green Grey approaches combine natural materials with traditional 'hard engineered' flood defences such as concrete walls.

### Adapting to climate change



Not all flooding can be prevented. The risks can be reduced but communities and infrastructure need to adapt and be prepared for severe weather events. Adaptation involves maintaining and improving defences but also better land management and planning in towns and cities to manage the impact of flooding and move 'out of harm's way'.

Source: Audit Wales summary based on the 2020 Welsh Government National Strategy for Flood and Coastal Erosion Risk Management in Wales

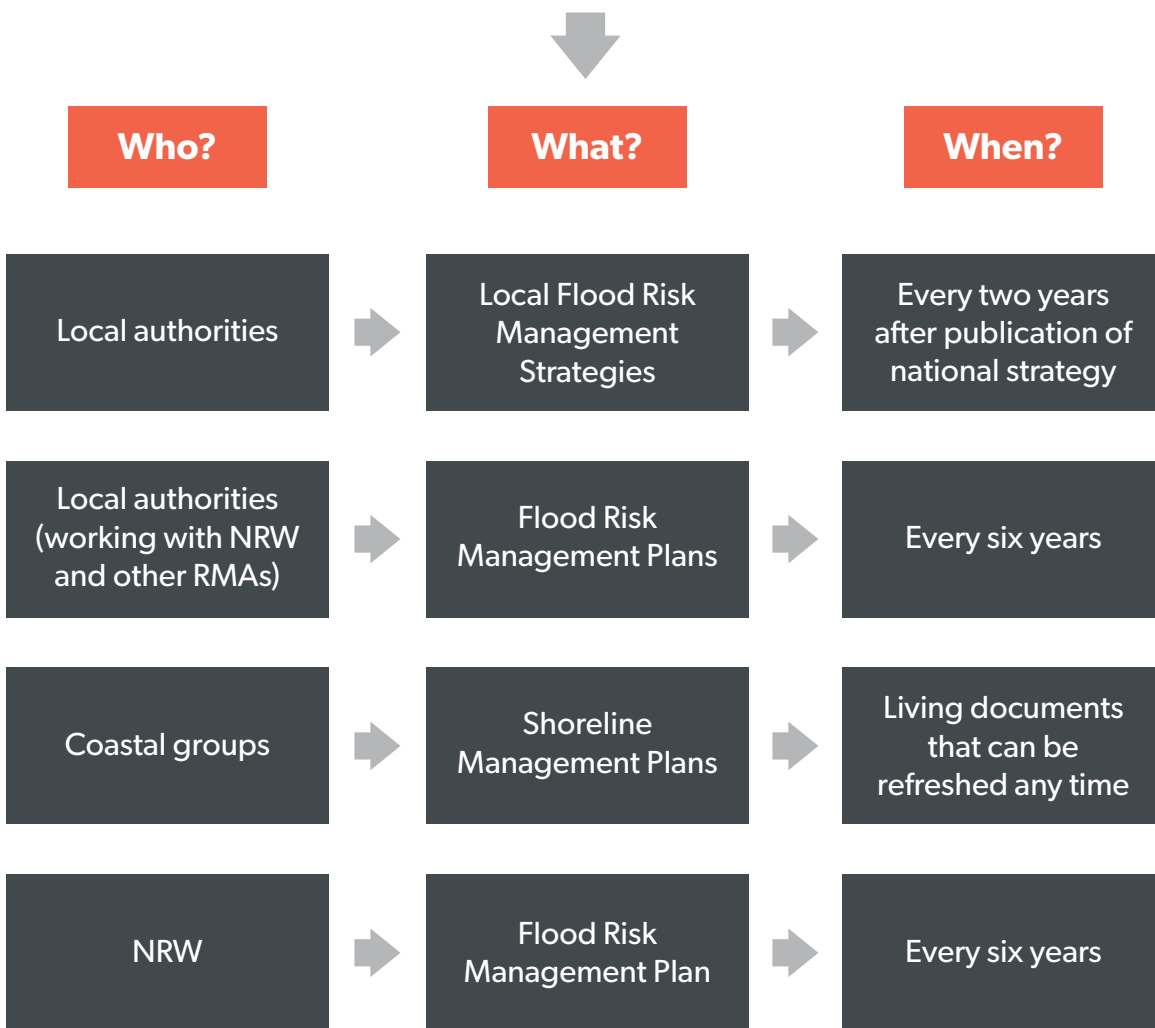
- 2.5 The Strategy emphasises that investment in flood risk management must be maintained. But it recognises the need to adapt to the increasing risks associated with climate change which may demand difficult decisions about where to direct investment.
- 2.6 The Strategy encourages regional and partnership working to improve the effectiveness of flood risk management and to secure alternative funding. In response to the Senedd Public Accounts Committee (see **footnote 2**) recommendation on regional working in 2017, the Welsh Government tasked the WLGA with exploring options for regional working with local authorities. The WLGA completed its review in July 2018, but the Welsh Government and local authorities have not yet set out specific actions to develop mechanisms and guidance for joint delivery in practice. The Flood and Coastal Erosion Committee's review of resources found that more could be done to improve regional working and collaboration and made proposals to address these issues.
- 2.7 The Senedd Climate Change, Environment and Rural Affairs Committee's 2020 report (see **footnote 4**) recommended that the [then] Minister for Environment, Energy and Rural Affairs should set out her view on how well the National Strategy is operating and whether changes need to be made to the national approach. The Minister accepted the recommendation explaining that any changes to the national approach would be informed by NRW's commentary on the implementation of the Strategy via its section 18 report (see **paragraph 5.3**). NRW's report was due in autumn 2022 but has been postponed until autumn 2023 due to workforce pressures.

## The National Strategy is underpinned by other strategies and plans

2.8 The overall strategic planning framework for flood risk management includes several strategies and plans at different levels, flowing in part from requirements set out in legislation. **Exhibit 7** provides an overview.

**Exhibit 7: strategic planning framework for flood risk management**

### Welsh Government National Strategy October 2020



Note: The WLGA and Welsh Government are working with local authorities to combine Local Flood Risk Management Strategies and Flood Risk Management Plans into one document.

Source: Audit Wales summary

- 2.9 Local authorities must produce their own statutory Local Flood Risk Management Strategies<sup>20</sup> that reflect the National Strategy. Local authorities also work with NRW and other RMAs to produce Flood Risk Management Plans for surface water and ordinary watercourses<sup>21</sup>. NRW also produces its own Flood Risk Management Plans for main rivers and the sea. The local authority and NRW Flood Risk Management Plans are produced every six years, while the latest Local Flood Risk Management Strategies were due to be published two years after the National Strategy, in October 2022. However, they have been delayed as the WLGA and the Welsh Government are developing proposals to combine the local authority strategies and plans in one comprehensive local flood risk management document. Individual plans are underpinned by collaborative activities such as flood mapping and learning from previous approaches.
- 2.10 The Welsh Government also expects Coastal Groups to produce Shoreline Management Plans. The plans are non-statutory assessments of the risks associated with coastal flooding and erosion. The plans aim to identify the most sustainable policies for each area over the next 100 years using four policy options:
- maintaining or improving existing defences in their current position (known as hold the line);
  - building new defences on the seaward side of the existing defence (known as advance the line);
  - allowing the shoreline to move backward through ‘managed realignment’ or ‘managed retreat’, which may mean relocating some communities; and
  - do nothing (known as no active intervention).
- 2.11 NRW has recently produced supplementary guidance<sup>22</sup> to assist Coastal Groups in ‘refreshing’ their existing plans to focus more on medium and longer-term policy approaches.

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20 A requirement of the Flood and Water Management Act 2010

21 The plans are a requirement of the Flood Risk Regulations 2009 whereby countries identify Flood Risk Areas, map improvement activities, and develop Flood Risk Management Plans. Six local authorities in Wales are required to produce the plans because Flood Risk Areas have been identified in their area (Swansea Council, Neath Port Talbot Council, Monmouthshire County Council, and Merthyr Tydfil, Rhondda Cynon Taf, and Wrexham County Borough Councils). However, the remaining 16 local authorities have also agreed to produce the plans on a voluntary basis.

22 Natural Resources Wales, Shoreline Management Plans: Supplementary guidance for their ongoing maintenance and delivery – Wales, December 2021



# Flood risk management: finances

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03

## Real terms funding for flood risk management has been broadly stable between 2016-17 and 2020-21 and the Welsh Government is planning a substantial increase by 2024-25

3.1 This section looks at public spending and funding for flood risk management. It is based on the funding provided by the Welsh Government, most of which goes to NRW and local authorities. For NRW and local authorities, it covers the use of Welsh Government funding provided specifically for flood risk management. It does not include spending on flood risk management from other local authority budgets.

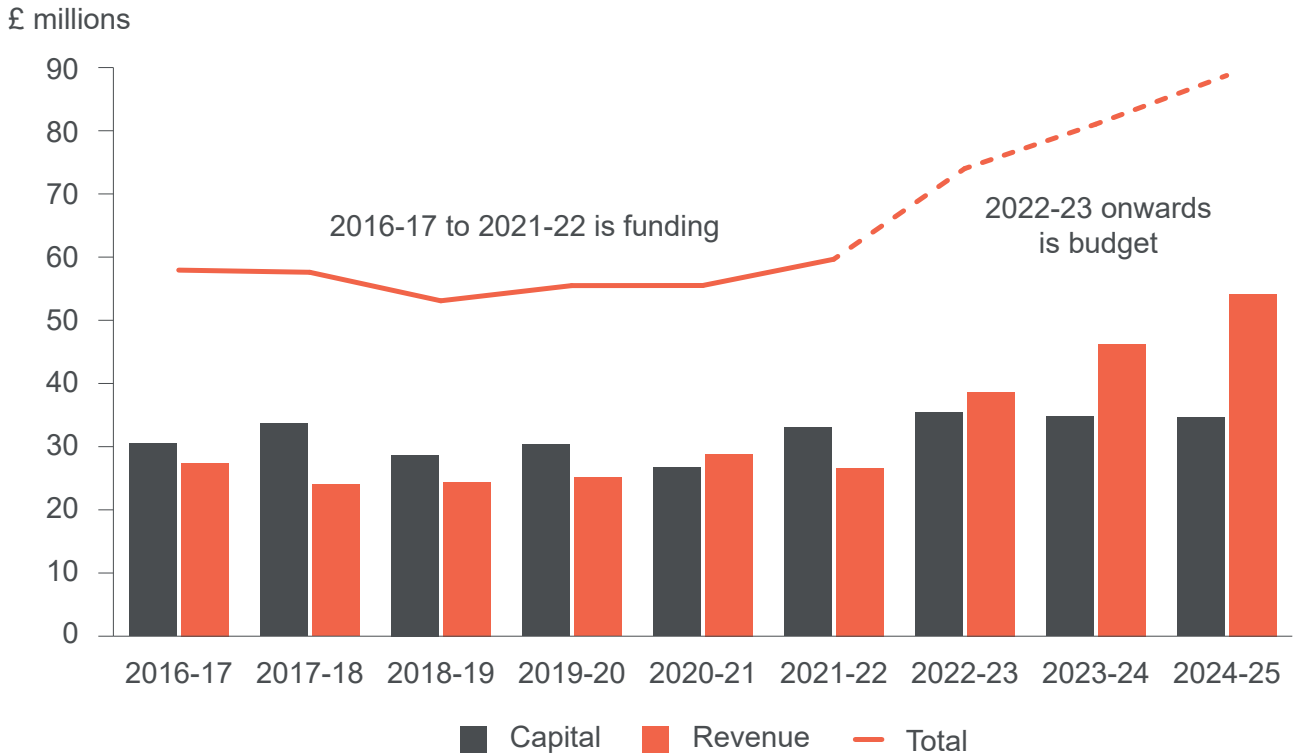
### The Welsh Government

3.2 The Welsh Government's funding for flood risk management includes capital and revenue. Historically, capital has largely been used for building new flood defences or large-scale improvements to existing defences. Revenue mostly funded staff and running costs as well as regular maintenance work. However, the Welsh Government is now also using revenue to help local authorities to invest in coastal infrastructure projects.

3.3 From 2016-17 to 2020-21, the Welsh Government's real terms annual funding of flood risk management was between £53.1 million and £57.9 million (**Exhibit 8**). Revenue funding varied between £23.9 million and £28.8 million. Capital funding varied between £26.6 million and £33.6 million. The increase in capital funding in 2021-22, to £33.0 million, was largely because the Welsh Government provided additional money to repair damage after flooding in December 2020 and January 2021.



**Exhibit 8: Welsh Government funding of flooding and coastal erosion in real terms, 2016-17 to 2021-22 including budgets to 2024-25 (2022-23 prices)**



Note: Real terms figures are adjusted to take account of inflation. We used HM Treasury GDP deflators at market prices and money for 2022-23, September 2022.

Source: Audit Wales analysis of Welsh Government data

3.4 The Welsh Government’s budget shows an increase in total real terms funding on flood risk management. It is set to rise from £59.6 million in 2021-22 to £88.7 million (48.7%) in 2024-25. The underlying picture is complicated. Capital funding is set to rise in 2022-23 but then fall in 2023-24 and 2024-25. The substantial increase in revenue is partly driven by repayments as part of Coastal Risk Management Programme (**Exhibit 9**). However, after accounting for likely repayments, there is still a substantial increase in revenue funding in 2023-24 and 2024-25.

## Exhibit 9: the Welsh Government's Coastal Risk Management Programme

The Welsh Government set up the Coastal Risk Management Programme in 2016-17. It initially planned to fund £150 million (in cash terms) on coastal flood defences but the final level of investment may amount to more once all local authority schemes have been finalised and actual costs approved.

Under the programme, the Welsh Government provides the local authority with 100% of the costs of developing a project, through a capital grant. The Welsh Government has agreed to fund 85% of construction costs via annual increases in local authorities' Revenue Support Grant over 25 years. To pay for the actual works, local authorities can use their capital reserves or borrow money from the Public Works Loan Board, a part of HM Treasury, at low interest rates. The local authority pays back the loan over 25 years.

The Welsh Government intended that the programme would close to new projects in 2021, but due to delays in the design and development of capital projects it extended the deadline to March 2023.

To date the Welsh Government has agreed to fund schemes with an estimated value of £98 million through the programme.

Source: Audit Wales summary

3.5 The Welsh Government provides the majority of its capital funding to local authorities and NRW via its separate Flood and Coastal Erosion Risk Management Programme. In 2021-22, the Welsh Government spent £33 million at 2022-23 prices through the Programme. The Programme funds local authority schemes, including partnerships with other RMAs, and NRW schemes. The Welsh Government provides 100% of funding for NRW schemes under its core programme and for the design and development stages of local authority schemes. It provides 85% of funding for the construction work for local authority schemes. The Welsh Government has produced a map<sup>23</sup> showing schemes allocated funding at the start of the financial year. The level of expenditure each year depends on the preparedness and progress of projects in local authority and NRW pipelines.

- 3.6 In 2020-21, over three-quarters (£22.2 million) of the Welsh Government's £28.8 million revenue funding (at 2022-23 prices) went to NRW. The Welsh Government provided local government with £4.5 million revenue. It spent £0.4 million on its own flood risk management branch<sup>24</sup>. The proportion of revenue going to local government will increase in future years as a result of work being funded through the Coastal Risk Management Programme.

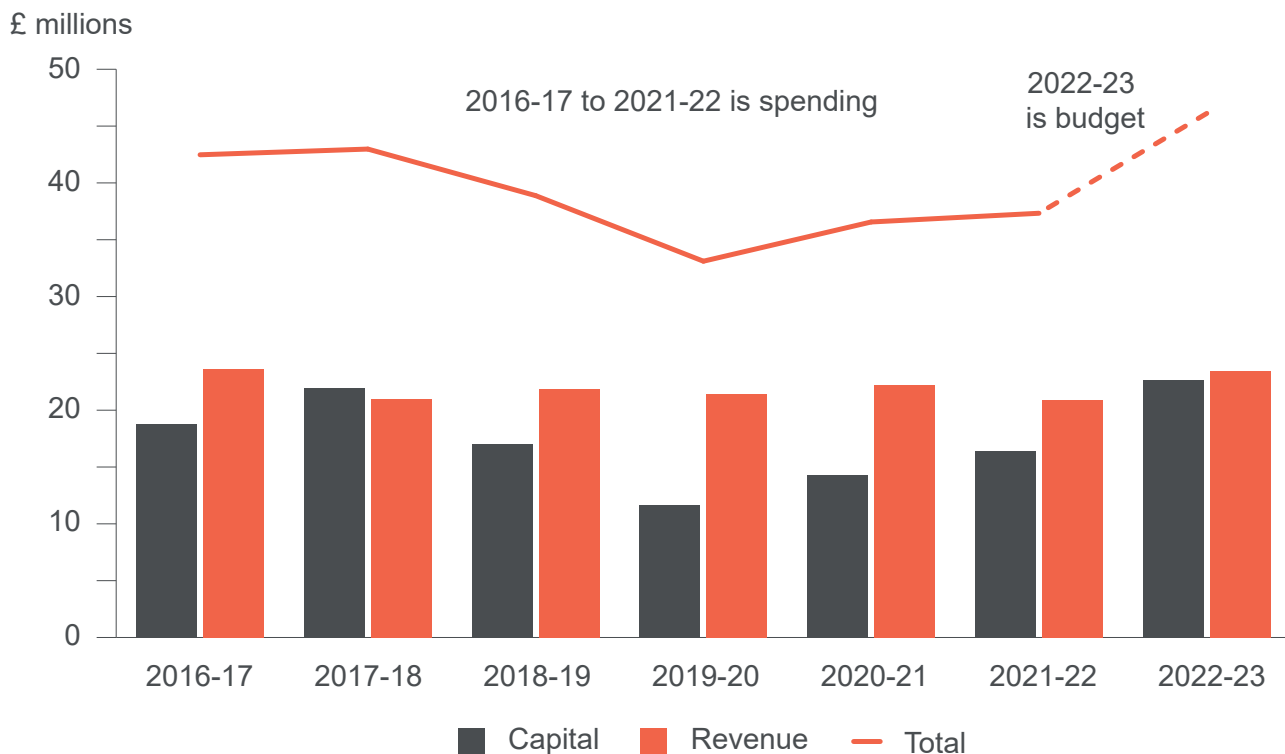
## Natural Resources Wales

- 3.7 The Welsh Government provides NRW with revenue funding through its Flood Defence Grant. In real terms, NRW revenue spending on flood risk management decreased from £23.6 million in 2016-17 to £20.9 million in 2021-22. The Welsh Government and NRW are currently carrying out a baseline review of NRW's resources to deliver flood risk management priorities.
- 3.8 NRW's capital spending varies year-on-year depending on the number and type of capital projects it is working on in any given year and what stage each project is at. From 2016-17 to 2018-19 NRW's capital spending ranged between £17.0 million and £21.9 million at 2022-23 prices. Real terms spending fell sharply in 2018-19 when NRW underspent its capital budget by around £5 million. The £5 million was rolled-over into 2019-20 but capital spending remained lower than previous years due to NRW having a smaller programme of capital works. Real terms capital spending has increased since 2019-20 and is set to be slightly higher in 2022-23 than in 2017-18. The Welsh Government's total capital and revenue budget allocation to NRW in 2022-23 is £46.0 million (**Exhibit 10**).

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<sup>24</sup> Funding to the Welsh Government's flood risk management branch includes funding for the Flood and Water Officer at the WLGA and some consultancy fees.

**Exhibit 10: NRW spending on flooding and coastal erosion in real terms, 2016-17 to 2021-22 including the 2022-23 budget (2022-23 prices)**



Notes:

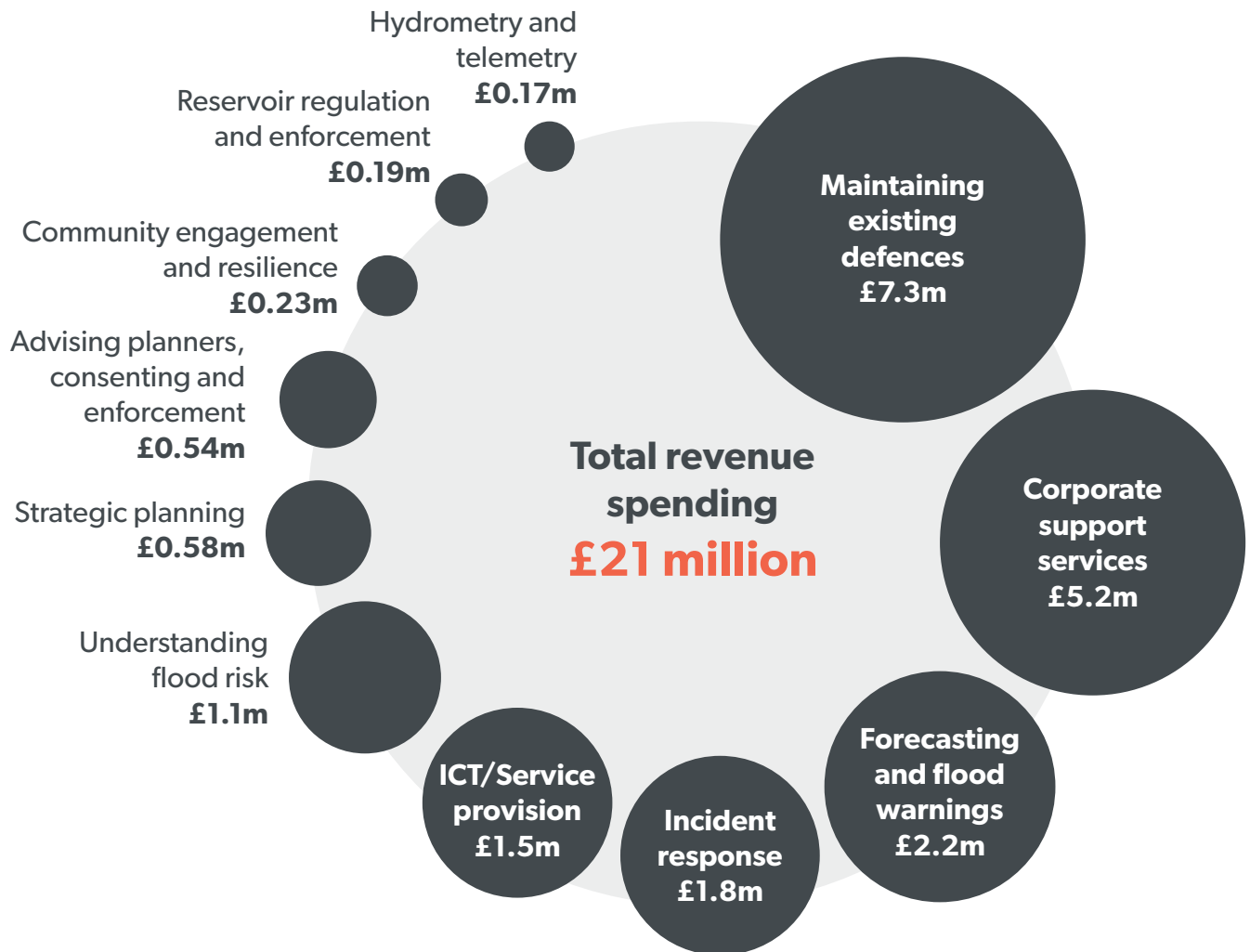
- 1 Real terms figures are adjusted to take account of inflation. We used HM Treasury GDP deflators at market prices and money for 2022-23, September 2022.
- 2 Information on budget allocations beyond 2022-23 is not yet available.

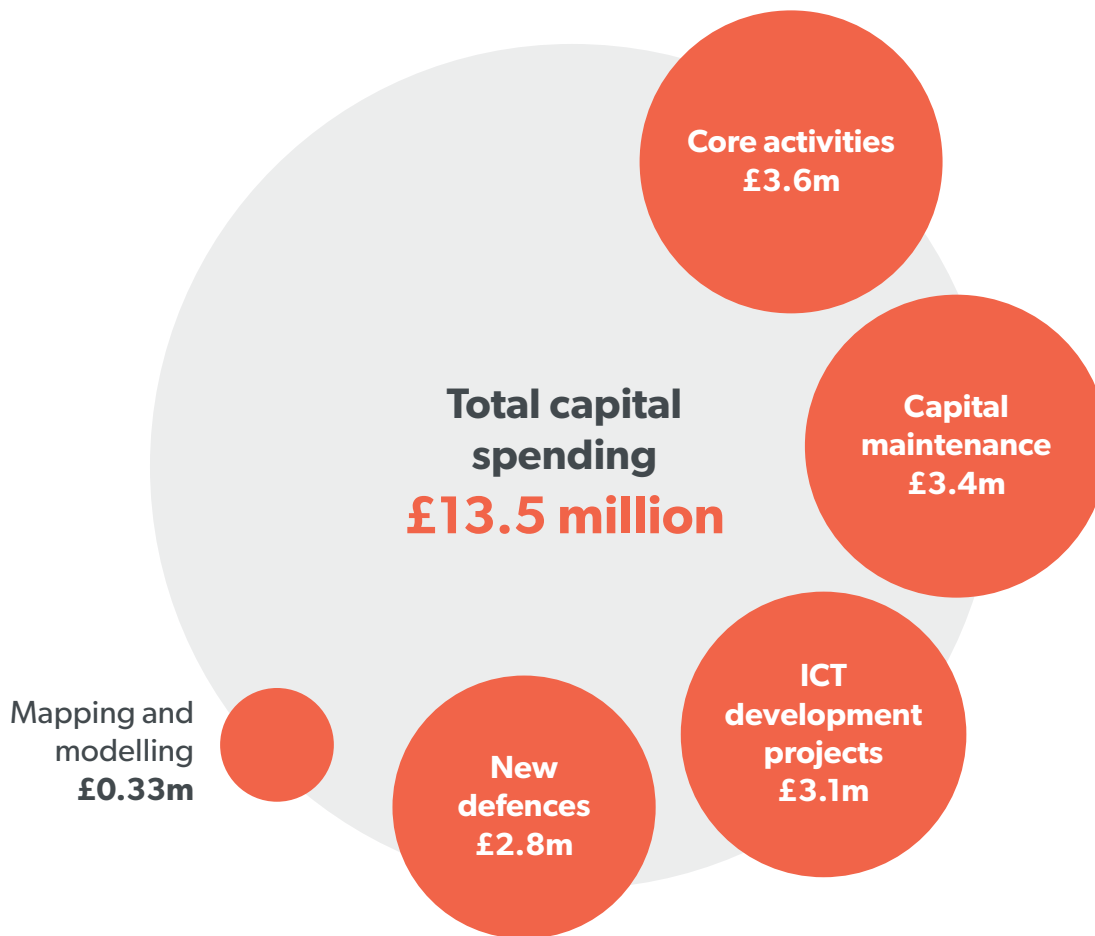
Source: Audit Wales analysis of Welsh Government data

3.9 NRW's Flood Risk Management Annual Report 2020-21<sup>25</sup> breaks down its spending on flood risk management in cash terms, explaining that it spent 35% of its £21 million revenue on managing its flood risk assets or defences, and 25% on corporate support services. Forecasting and issuing flood warnings accounted for 11% and 9% went on responding to incidents. NRW spent 47% of its £13.5 million capital on flood defences, with 26% spent on maintaining existing defences and 21% on building new ones. 27% was spend on core activities and 23% of spending went on flood risk management ICT projects (**Exhibit 11**).

<sup>25</sup> NRW publishes a breakdown of how it spends its capital and revenue spending in its flood risk management annual reports. At the time of writing, it was still finalising its 2021-22 report but told us spending per category was unlikely to change substantially from the previous year.

**Exhibit 11: NRW spending on flood risk management in 2020-21 in cash terms**





Notes:

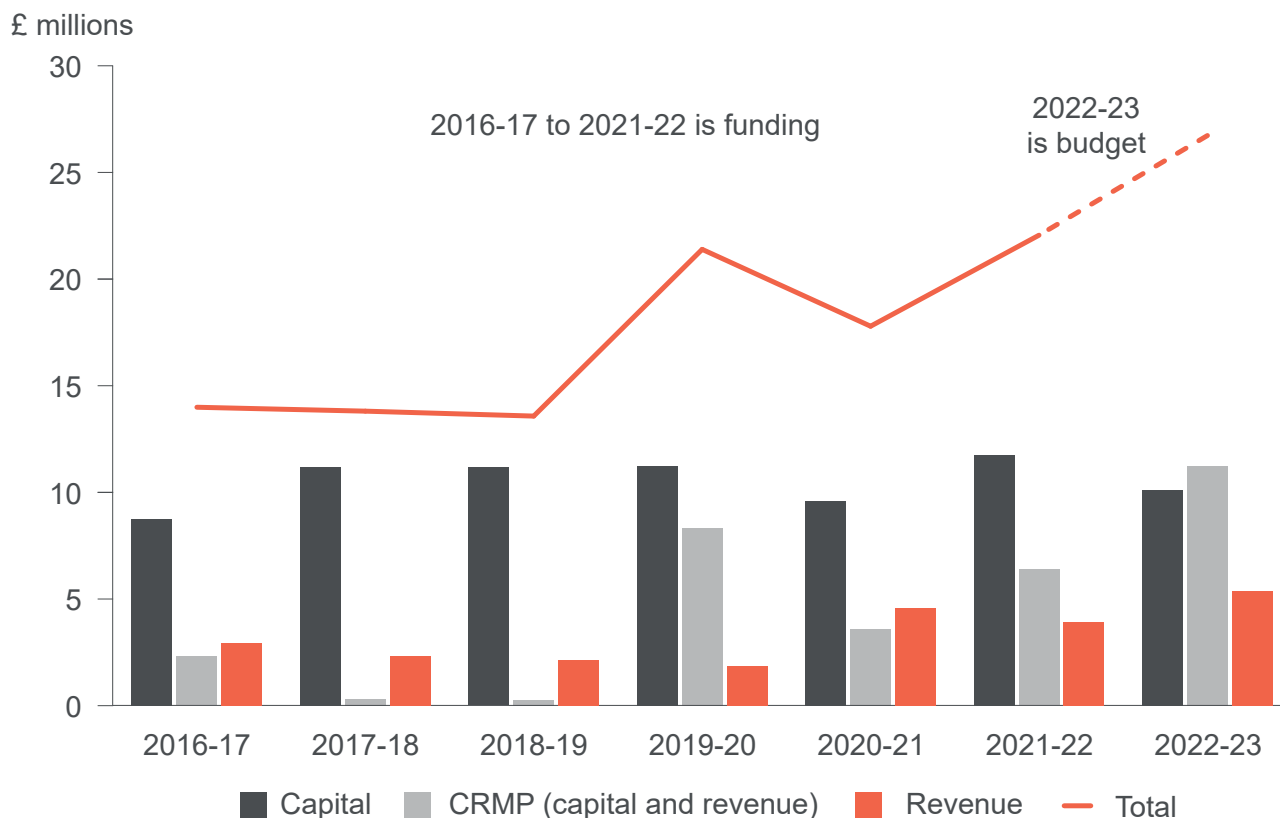
- 1 Core activities include capitalised salary costs, corporate overheads and fleet, plant, and equipment purchase.
- 2 NRW delivers hydrometry and telemetry services which collect, analyse and report data on things like water flows and rainfall to support the flood warning service and provide online information to the public and partners.
- 3 The figures above are in cash terms, which means they have not been adjusted to take account of inflation. The overall spending figures for capital and revenue therefore differ slightly from those in **Exhibit 10** which have been adjusted for inflation.

Source: NRW, Flood Risk Management Annual Report 2020-21, December 2021

## Local authorities

- 3.10 The main source of Welsh Government revenue funding to local authorities is its core Flood and Coastal Erosion Risk Management Revenue Grant. Currently each local authority can bid for an equal share of the Grant each year. In 2020, the Senedd Climate Change, Environment and Rural Affairs Committee recommended that the Welsh Government review its revenue allocation formula for flood risk management (see **footnote 4**). In its response to the Committee's recommendation, the Welsh Government consulted local authorities and increased the amount of baseline grant funding available from £65,000 in 2018-19 to £225,000 per local authority for 2022-23 as a result. Developing a risk-based formula is complicated and requires robust information about the level of flood risk in each local authority area. The Welsh Government is waiting for improvements to local data before revisiting the idea of a risk-based allocation in the future.
- 3.11 Local authorities can choose to add to the revenue funding from their general funds. However, there is no data available on total local authority spending on flood risk management, including discretionary spend, so we have not been able to include it in our analysis. Without such data there is no comprehensive picture of investment across Wales.
- 3.12 In real terms, core Welsh Government revenue funding across all local authorities fell from £2.9 million in 2016-17 to £1.8 million in 2019-20 (**Exhibit 12**). Revenue funding more than doubled to £4.5 million in 2020-21 when the Welsh Government allocated extra funding as a result of underspends from the Coastal Risk Management Programme. After a fall in 2021-22 to £3.9 million, revenue funding is set to rise to £5.3 million in 2022-23.
- 3.13 In real terms, local authority core capital funding increased from £8.7 million in 2016-17 to £11.1 million in the following year. Capital funding stayed around £11 million each year up until 2021-22 with the exception of a drop in 2020-21 where funding was below £10 million. It is set to fall to £10.1 million in 2022-23. The Welsh Government's Coastal Risk Management Programme (**Exhibit 9**) is adding substantially to funding for infrastructure projects. As a result, total Welsh Government funding for local government is set to rise from £13.9 million in 2016-17 to £26.7 million in 2022-23.

**Exhibit 12: Welsh Government flood and coastal erosion funding to local authorities in real terms, 2016-17 to 2021-22 including the 2022-23 budget (2022-23 prices)**



Notes:

- 1 The chart does not include local authority funding of flood risk management from other sources including their contribution to infrastructure schemes. Sometimes, part of the contribution is provided by other beneficiary partner organisations but generally it is the local authorities who contribute.
- 2 Real terms figures are adjusted to take account of inflation. We used HM Treasury GDP deflators at market prices and money for 2022-23, September 2022.
- 3 Information on budget allocations beyond 2022-23 is not yet available.

Source: Audit Wales analysis of Welsh Government data



## Significant long-term investment is likely to be needed to tackle the increasing risks associated with climate change while inflation will put pressure on existing budgets

- 3.14 The Wales Flood and Coastal Erosion Committee's review of resources (see **footnote 5**) said that capital funding needs to increase to tackle the impact of climate change. NRW is modelling potential long-term investment requirements associated with maintaining existing coastal and inland flood assets over the next 100 years. NRW presented a draft report on its findings to the Welsh Government and the Committee in September 2022 and is working with the Welsh Government to agree a publication date for the final report. The final report will likely point to the need for a significant increase in spending to keep pace with climate change. The draft report suggests there may be parts of Wales where the costs of maintaining flood defences could outweigh the benefits.
- 3.15 The Committee's review of resources highlights the need for longer term capital funding settlements to improve planning and collaboration on capital projects. It also calls for longer term revenue settlements to support a longer term approach to the maintenance of flood defences and other revenue funded work<sup>26</sup>. Our report on the 21st Century School building programme<sup>27</sup> described the transformative nature of long-term funding on large scale investment programmes.
- 3.16 Construction prices have increased considerably in recent years – and by 10% from June 2021 to June 2022<sup>28</sup>. However, the WLGA believes the increase to be much higher because some RMAs have reported substantially higher costs. Some recent market analysis has forecast that infrastructure construction inflation could reach 12%<sup>29</sup>. The analysis suggests that in the medium term, inflation in the construction sector could stay at around 3% to 5% even if inflation in the wider economy returns to more 'normal' levels of 2% to 3%. Capital budgets in particular therefore look set to be squeezed in the coming years with increasing building and maintenance costs.

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26 Many important flood risk management activities are revenue funded including mapping and modelling and flood warning systems.

27 See Auditor General for Wales, The 21st Century Schools and Education Programme, May 2017 which describes the Welsh Government's long-term commitment to the school building programme over at least two 'bands' each covering five years.

28 Office for National Statistics, Construction Output Price Indices, Quarter 2, August 2022

29 Arcadis, UK Autumn Market View: September 2022

## Public bodies are struggling to secure funding from other sources, including developers and the beneficiaries of flood risk management schemes

- 3.17 In response to our 2016 recommendation (see **footnote 1**) about investigating options for partnership funding, the Welsh Government tasked the Flood and Coastal Erosion Committee with exploring ways to maximise partner contributions and investment. The Committee's review of resources described a lack of strategic focus on exploring wider mechanisms for funding and limited staff capacity to secure alternative investment. It also cites examples where the Welsh Government could better align policy and funding streams to maximise financial contributions from partners such as Welsh Water, Network Rail, and in forestry and agriculture.
- 3.18 The Committee said that opportunities to secure funding from elsewhere are largely being missed. Many organisations and individual property owners benefit from flood risk management schemes, but few contribute financially to those schemes. In particular, there are opportunities to secure funding for flood risk management from land developers.
- 3.19 The Welsh Government's national development framework: Future Wales<sup>30</sup> recognises that parts of National Growth Areas<sup>31</sup> are susceptible to flooding. Some re-development may be permitted in National Growth Areas subject to appropriate mitigation against flood risk. Planning authorities may require developers to bear the costs of developing new or improving existing flood defences. The Committee's report recognised that planning authorities could do more to secure funding from developers but found that workforce capacity in planning authorities limits their ability to do so. **Paragraphs 5.18 to 5.21** consider building development in more detail. There may also be opportunities to secure funding from the UK Government Shared Prosperity Fund, for example.

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30 Welsh Government, Future Wales: The National Plan 2040, August 2019

31 Future Wales identifies Cardiff, Newport and the Valleys; Swansea Bay and Llanelli; and Wrexham and Deeside as National Growth Areas where there will be growth in employment and housing and investment in infrastructure.



# Flood risk management: capacity

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04

## In the short term, workforce capacity is the biggest issue facing the flooding sector

- 4.1 The public sector flooding workforce<sup>32</sup> in Wales is spread across Welsh Government, local government and NRW:
- there are 12 staff in the Welsh Government's flood risk management branch, most of whom work full-time.
  - local authorities typically employ one or more full time equivalent (FTE) flood risk management officers as part of their wider drainage or highways teams. However, some have been unable to recruit any flooding officers adding more pressure on existing teams. Other local authority staff not directly employed as flooding officers will also be involved in flooding related work if the need arises.
  - NRW employs 350 FTEs in flood risk management across Wales, including work on national functions such as mapping and modelling flood risk, the flood warning service, and development advice.
- 4.2 Flood risk management is a specialist area which requires broad skills which are hard to find. NRW and local authorities find it difficult to recruit professionals with the right technical skills to manage flood risk and have struggled to recruit to some roles. In one case, we are aware of a local authority that was unable to submit funding applications for flood risk management schemes and revenue funding because of an unfilled vacancy.
- 4.3 NRW and some local authorities have commissioned support from the private sector. However, we heard that even some parts of the private sector are struggling to recruit skilled flooding professionals. The flooding sector is also suffering from a lack of succession planning to ensure a suitable pipeline of appropriately qualified people for the future.
- 4.4 The Flood and Coastal Erosion Committee's review of resources (see **footnote 5**) explained the consequences of insufficient workforce capacity including:
- lack of sufficient and meaningful engagement with communities;
  - lack of time for RMAs to collaborate effectively with each other and other sectors;

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<sup>32</sup> Flooding staff at the water companies are not included in our analysis because they are not directly funded by the Welsh Government.

- slow progress developing the evidence base on the benefits of nature-based solutions, catchment-based approaches and how to adapt approaches to respond to climate change; and
  - lack of innovation and partnership working to create wider social and economic benefits and secure additional external funding for flood risk management schemes.
- 4.5 NRW also told us that insufficient workforce capacity is impacting on aspects of its core work, including its assessment of the condition of flood defence assets, flood warning work and planning advice.
- 4.6 The flooding sector in Wales understands its weaknesses but lacks the human resources to address them. The Committee's review proposes the Flood and Coastal Erosion Risk Programme Board (see **Exhibit 4**) directs a resource improvement programme to establish current and future workforce requirements and address training and career development needs. Universities and professional training institutions have expressed interest in working with the flooding sector to address skills gaps but developing the next generation of flood risk management professionals will take time. Developing and delivering any such improvement programme will either require additional staff capacity or draw from existing capacity which is already stretched.



# Flood risk management: performance and delivery

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05

- 5.1 This section looks at performance from two angles. Firstly – we look at reviews of progress delivering the actions the public bodies set out in their strategies and plans. Secondly, we consider information on what difference the investment and efforts to manage flood risk is making.

## Information on progress implementing shoreline management plans and local flood risk strategies and plans is not easily accessible to the public

- 5.2 Progress implementing strategies and plans to manage flood risk is reported in different ways and sits in several different documents. NRW's State of Natural Resources Reports on the sustainable management of natural resources give some broad insight on flood risk management performance. The reports are a requirement of the Environment (Wales) Act 2016 and must be updated by the end of the calendar year preceding every Senedd election. They comment on the extent to which natural resources are being managed sustainably. In 2020, the latest report<sup>33</sup> concluded that Wales is not yet meeting its aim to have healthy places for people, protected from environmental risks, due in part to the number of properties at risk of flooding.
- 5.3 NRW reports on collective progress implementing the National Strategy in Section 18 reports<sup>34</sup> every two years after publication of the Strategy. The Flood and Coastal Erosion Committee reviews the reports. Publication of the first report on the current National Strategy has been delayed from autumn 2022 to autumn 2023 (see **paragraph 2.7**).
- 5.4 Coastal Groups report progress implementing the Shoreline Management Plans annually to the Wales Coastal Group Forum. In 2020-21, the Coastal Groups revised their plans to reduce and prioritise activities to make delivery more manageable. Currently, there is no public information to show progress implementing the plans. By 2025, the Coastal Groups are due to set out their plans to implement the next 20 years of the Shoreline Management Plans.

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33 Natural Resources Wales, State of Natural Resources Report for Wales 2020, December 2020

34 Section 18 of the Flood and Water Management Act 2010 sets reporting requirements.

- 5.5 Currently, there is no consistent approach to monitoring and reporting local authorities' progress delivering Local Flood Risk Management Strategies or management plans. Each authority decides the method and frequency with which it reviews performance. There are no national indicators to measure and compare how well flood risk is being managed locally. However, the Welsh Government and the WLGA are working with local authorities to develop a template for monitoring flood risk objectives, measures and action plans across Wales in a consistent format.

## Gaps in collective leadership and policy integration are hampering delivery

- 5.6 In 2020, NRW published a section 18 report<sup>35</sup> on progress implementing the previous national strategy. The report described challenges engaging with communities and implementing nature-based solutions (see **Exhibit 6**). The new 2020 National Strategy reinforced the importance of community resilience but two years on, little progress has been made. Later that year, the Senedd Climate Change, Environment and Rural Affairs Committee's inquiry (see **footnote 4**) recommended that the Welsh Government set out how it will support local authorities and NRW to engage effectively with communities. The Welsh Government's response to the Committee explained arrangements at the time. But it did not say who would lead efforts to address the capacity and capability issues that are widely known to hamper community engagement.
- 5.7 The Flood and Coastal Erosion Committee's 2022 review of resources says the flooding sector is still not good at involving the public in flood risk management. In the Committee's view, public bodies are not doing enough to prepare the public for flooding nor for the impact of long-term decisions about managed realignment. The general public will increasingly be required to adapt and develop resilience to the impacts of climate change, particularly communities at high risk of flooding. There has also been slow progress in other areas of work including workforce resilience and succession planning and regional collaboration.
- 5.8 Lack of joined up policy and funding arrangements is restricting RMAs' collaboration with each other, with other public services, and with the private sector. The Flood and Coastal Erosion Committee identified agriculture and planning policy as key areas to integrate with flood risk management. There are many more opportunities to join up policy with flood risk management to achieve wider benefits such as economic development, recreation, and improved biodiversity. The Committee described collaboration as ad hoc, and said the sector lacks clear expectations of what collaboration should deliver.

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35 Natural Resources Wales, Flood Risk Management in Wales 2016-19 – Report to the Cabinet Secretary for Environment, Energy and Rural Affairs under Section 18 of the Flood and Water Management Act 2010, June 2020



- 5.9 We think there is a gap in governance structures because there is no forum for senior leaders to discuss and elevate the profile of flood risk management across public services. Flooding can present a serious threat to public services including schools and healthcare facilities. But we heard from key stakeholders in the flooding sector that it is too often seen as an issue for flooding departments to manage alone. Stakeholders also said that varying levels of senior ownership of flood risk management across RMAs mean that it is a lower priority in some places. The Flood and Coastal Erosion Committee's report also describes a lack of regular engagement between senior leaders in RMAs.
- 5.10 A review published by the Environment Agency England as part of the joint England and Wales research programme<sup>36</sup> found that the Regional Flood Groups in Wales lack strategic direction and influence over wider regional decisions such as economic development. The review found that membership lacked seniority and existing members were often unable to make corporate commitments. We found that the same issue extends to other flood risk management forums (see **Exhibit 4**).

## Understanding the impact of flood risk management activity on levels of risk is difficult

- 5.11 NRW models the number of properties at high, medium and low risk of flooding and has a commitment in the National Strategy to update flood maps every six months. The risk categories are based on the likelihood of flooding occurring. They do not reflect the consequences or impact of flooding if it happens. To provide a fuller picture when prioritising its resources, NRW uses its Communities at Risk Register to consider the potential consequences of flooding.
- 5.12 In the future, the Welsh Government wants to use information on the number of properties at risk of flooding to monitor the reduction in risk over time because of its investment. Measuring impact by monitoring changes in risk does not necessarily indicate how well those risks are being managed. Firstly, the baseline picture of risk across Wales is incomplete. The picture of risk has improved in recent years, particularly through NRW's Wales Flood Map<sup>37</sup> which sets out the likelihood of flooding from the sea, rivers, surface water and small watercourses. However, there are gaps in data from some local authorities.

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36 Environment Agency England, Evaluating the Effectiveness of Flood and Coastal Erosion Risk Governance in England and Wales, November 2021

37 A collective term to describe the Flood Risk Assessment Wales Map, National Coastal Erosion Risk Management Map and Flood Map for Planning which are maintained by NRW.

5.13 Secondly, the risks keep changing. Changes in one part of a river catchment area, such as building development or new flood defences, can displace flood risk. Climate change is also changing the risks. The Wales Flood Map now includes a planning map which uses climate change projections to model future flood risks over the next century. As a result, the map showed significant increases in the size of high-risk flood zones including in some town and city centres. Flood maps give an indication of increased risk but cannot predict exactly where and when flooding will occur, or how bad it will be.

## The overall picture of the condition of flood defences is not clear

- 5.14 Different organisations and landowners are responsible for maintaining the network of flood defence structures across Wales. The location and ownership of flood risk assets is set out in the National Flood Asset Database, which NRW has volunteered to manage on behalf of the RMAs in Wales. The database does not include privately owned assets. In addition, some infrastructure such as roads and railway lines provide some level of protection from floods but are not designed or recognised as flood defences. Such assets are not included in the Database<sup>38</sup>.
- 5.15 The level of protection provided by flood defences or ‘assets’ depends on their condition and fitness for purpose. Weaknesses in one asset may compromise the effectiveness of other flood defences. RMAs assess the condition of their assets. For instance, NRW prioritises tracking the condition of its high-risk assets on a continuous basis. A snapshot at the end of March 2022 highlighted that 98% of NRW’s high-risk assets were within target condition.
- 5.16 Currently, there is no single source of information on the condition of Wales’s flood defences. The National Strategy sets the ambition that the National Flood Asset Database will include information on the condition of defences to act as a single source of information on flood defences owned by RMAs. NRW plans to start including some information on the condition of defences from other RMAs from November 2022. Developing the Database is complicated and relies on RMAs providing timely access to robust information.

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38 The National Asset Database is intended as a source of information on larger, strategic assets and does not include every single flood risk management asset such as manholes.

- 5.17 Another source of information on the condition and performance of flood defences is the reviews of serious floods<sup>39</sup>. The reviews give an indication of how well defences have performed in affected areas, where they may have been breached, and possible reasons why.

## Building development in high flood risk areas could be exposing properties to avoidable risk but a lack of current national data makes it difficult to know

- 5.18 Not all flooding can be prevented, but there are obvious opportunities to prevent avoidable risks by restricting development and re-development in areas at risk of flooding. Welsh Government data<sup>40</sup> shows that the number of planning consents for residential developments in high-risk flood areas increased dramatically from 23 in 2015-16 to 686 in 2016-17 and 1,221 in 2017-18. Although the number of consents reduced to 652 in 2018-19, this was still significantly higher than the 2015-16 figure. Some local authorities did not supply data to the Welsh Government during 2015-16 to 2018-19 so the number of consents may in fact be higher. The Welsh Government suspended some data collection during the pandemic. As a result, since 2018-19, there is no up-to-date national data, which makes it difficult to gauge current levels of development and risk.
- 5.19 To restrict development in high flood risk areas, the Welsh Government planned to implement a revision of Technical Advice Note (TAN) 15 in November 2021. TAN 15 requires planning authorities to consider the impact of climate change on their decisions. However, the Welsh Government has delayed the implementation of TAN 15 until June 2023 to allow planning authorities more time to prepare their approach. In the meantime, this means that planning consents could be being granted without due consideration given to the impact of climate change. However, despite the delay in TAN 15 being implemented, we would expect local authorities to be balancing short and long term considerations and taking into account climate change projections as part of their duty in discharging the sustainable development principle under the Well-being of Future Generations Act (Wales) 2015.

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<sup>39</sup> Known as 'section 19 reports' reflecting the requirement for lead local flood authorities to investigate flooding events under section 19 of the Flood and Water Management Act 2010. There is no duty to publish the reports. NRW reports on its own investigations of significant flooding events and publishes the information on its website.

<sup>40</sup> From the Welsh Government's Planning Services Annual Reports

- 5.20 The Flood and Coastal Erosion Committee's review of resources suggests that lack of resources in local planning authorities is restricting their ability to prevent development in high flood risk areas. Also, the Committee found that it is hindering local planning authorities' ability to ensure appropriate flood risk measures are included where development takes place. As noted in **paragraph 4.5**, NRW told us that staffing constraints have also affected the way it responds to planning authorities as a statutory consultee because it has had to limit the extent of its planning advice.
- 5.21 Lack of capacity in the planning workforce is also affecting local authorities' ability to monitor and ensure all construction works in Wales with drainage implications have Sustainable Drainage Systems<sup>41</sup>. The WLGA has voiced concern that lack of expertise and capacity in local authorities is resulting in some applications not meeting statutory deadlines and increasing numbers of building works without Sustainable Drainage Systems approval.

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41 A requirement since January 2019 under the Flood and Water Management Act 2010.



# Appendices

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## 1 Audit approach and methods

# 1 Audit approach and methods

## Audit approach

There are currently several important reviews of flood risk management underway, and some which have recently been completed (**Exhibit 13**). Rather than adding another review to the list, we chose to focus our work on explaining how flood risk management works and identifying key issues facing the flooding sector. The report is intended to help the public and those with a scrutiny function to understand the flooding sector and challenge delivery. The scope of our work did not include consideration of the flooding events in winter 2019-20 because the investigation reports into the winter floods are part of a separate independent review. It included the following areas of focus:

- the risks and impacts of flooding and coastal erosion;
- the strategic approach to flood risk management in Wales;
- investment in flood risk management;
- workforce capacity; and
- factors impacting performance and delivery of flood risk management, including the planning system.

### Exhibit 13: previous, current and anticipated reviews of flood and coastal erosion risk management

Review	Reviewer	Publication date (actual or planned)
Coastal Flood and Erosion Risk Management in Wales	Auditor General for Wales	July 2016
Coastal flood and erosion risk management in Wales	Senedd Public Accounts Committee	June 2017
Flooding in Wales	Senedd Climate Change, Environment and Rural Affairs Committee	December 2020
Review of resources	Flood and Coastal Erosion Committee	Presented to the Committee in May 2022. Available on request to the committee
Review of flood risk legislation and associated policy	Flood and Coastal Erosion Committee	Approved by the Committee in September 2022. Available on request to the committee
Independent review of investigation reports relating to flooding events of winter 2019-20	Led by Professor Elwen Evans KC	Summer 2023
Review of long-term flood risk to infrastructure arising from climate change	National Infrastructure Commission for Wales	2023-24
Possible review of flood risk management legislation in England and Wales	Law Commission	To be confirmed

Source: Audit Wales summary

We also used this work to review progress addressing the recommendations of our 2016 review and those of the Senedd Public Accounts Committee in the 2017. We found that the Welsh Government and its partners have completed all but one of the actions the Welsh Government committed to in its response to the recommendations<sup>42</sup>. Some of the issues identified in our report and that of the Public Accounts Committee are complex. As a result, although most of the actions in the Welsh Government's previous response are complete, the issue they sought to address is the subject of further work by the Welsh Government and its partners. Areas of ongoing work are:

- ensuring adequate revenue funding
- clarifying roles and responsibilities; and
- developing approaches to regional working.

We will consider conducting further work over the next few years to examine how well the Welsh Government, NRW and local authorities are responding to the challenges facing flood risk management.

## Audit methods

**Document review:** we reviewed a range of documentation including the following

- minutes from previous meetings of the Flood and Coastal Erosion Committee
- guidance on adaptation to climate change and sustainable management of natural resources
- the findings of other research and reviews regarding flood and coastal erosion risk management.

**Observations:** we attended the May and September 2022 meetings of the Flood and Coastal Erosion Committee.

**Semi-structured interviews:** we interviewed Welsh Government officials and staff from Natural Resources Wales and the Welsh Local Government Association. We also interviewed the chair of the Wales Flood and Coastal Erosion Committee.

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<sup>42</sup> The Welsh Government tasked NRW with creating a website as a single point of information for flood awareness in response to the fifth Senedd Public Accounts Committee's review. NRW has started but not yet completed work on the website.



**Data analysis:** we reviewed financial data on the Welsh Government's expenditure on flood and coastal erosion risk management. We analysed how the Welsh Government funding specifically for flood risk management had been spent by Natural Resources Wales and local authorities. Our financial analysis does not include any local discretionary spending on flood risk management on top of the specific grant funding from the Welsh Government.

**Feedback sessions:** we met with the Welsh Government, Natural Resources Wales, the Welsh Local Government Association and the chair of the Wales Flood and Coastal Erosion Committee to discuss what we considered to be the key issues facing the flooding sector.



Audit Wales

24 Cathedral Road

Cardiff

CF11 9LJ

Tel: 029 2032 0500

Fax: 029 2032 0600

Textphone: 029 2032 0660

We welcome telephone calls in  
Welsh and English.

E-mail: [info@audit.wales](mailto:info@audit.wales)

Website: [www.audit.wales](http://www.audit.wales)