



Llywodraeth Cymru  
Welsh Government

# Review of Local Government Section 19 and Natural Resources Wales' reports into extreme flooding in Wales, 2020-21

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# Foreword & Executive Summary

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Thank-you for instructing me to undertake this paper-based “independent review of the Local Government section 19 and Natural Resources Wales reports into extreme flooding in winter 2020-2021”.

The scope of this review was set by the Terms of Reference as agreed between the Minister for Climate Change and the Plaid Cymru Designated Member under the Co-operation Agreement/Programme for Government Commitment. Its remit is not to undertake a wide-ranging, fact-finding, evidence-taking, public enquiry into Local Authority and Natural Resources Wales' responses into the flooding events of the winter of 2020-2021. It is a review of the reporting of those events prepared under the provisions of section 19 of the Flood and Water Management Act 2010 (“section 19 reports”). It is my hope that this review makes a valuable contribution to an assessment of where and how section 19 reports sit within the wider flood risk management infrastructure and that it helps inform decisions as to whether any change to the current section 19 regime is necessary or desirable.

My conclusion is that changes are necessary and desirable. The full extent and nature of those changes depend on a number of factors identified later within this executive summary and my recommendations.

This review is informed by an awareness of the devastating impact of flooding on the people, businesses, places and communities of Wales. I also reference the Wellbeing of Future Generations Act 2015 as part of Wales' framework for designing future plans and ways of working between public bodies. The consequences of flooding can be immense and, often, devastating whether caused by the flooding itself or by a fear of flooding (seen as current risk and/or future blight) and whether arising from river, surface water, coastal, coal tip or other vulnerabilities. The review that I have been asked to undertake focuses on section 19 reports specifically through the lens of the extreme floods of the winter of 2020-2021.

To be effective the overarching objective of post-occurrence flood reports should be the delivery of clear and consistent information that helps feed into continuous improvement and enhanced integration across all elements of the risk management infrastructure. My recommendations are, of necessity, generalised. Specificity must depend on consultation and co-ordination between the bodies and agencies who carry responsibility for flood risk management and its mitigation. This review addresses one aspect of a much bigger picture. That bigger picture is being actively addressed in a number of different forums which include other reviews, audits and assessments.

I see this report as a piece in a jigsaw. In order to ensure that Wales' flood risk management is as robust and effective as possible, it is essential to fit all of the pieces together. As mentioned above, work is being undertaken to identify integrated, holistic approaches to flood risks with an emphasis on effective partnership working. It is important that this report and its recommendations are seen as part of a much wider comprehensive, end to end, risk management and response infrastructure review. It is, of course, essential that these separate pieces of work are brought together so as to ensure a joined-up, integrated, whole system approach which includes test, challenge and regulation as appropriate. Clearly this is the intention, and I can but emphasise the importance of delivering on this.

Section 19 of the Flood and Water Management Act 2010 provides (1) that a Lead Local Flood Authority on becoming aware of a flood in its area **must, to the extent that it considers it necessary or appropriate** (my emphasis), investigate which Risk Management Authorities have relevant flood risk management functions and whether each of those Risk Management Authorities has exercised or is proposing to exercise those functions; and (2) where an authority carries out such an investigation it must publish the results and notify any relevant Risk Management Authorities.

There are challenges in the statutory interpretation of this section. It does not set out a statutory framework as to the defined purpose or prescribed content of an investigation. It does not refer to the preparation of a report. On one view the requirement (“must” qualified by a subjective test as to what the Lead Local Flood Authority considers necessary or appropriate) is limited to “investigating” which flood Risk Management Authorities have relevant functions and whether they have exercised or are going to exercise those functions. On the whole, broader interpretations of the section have been adopted (in part, based on guidance and practice) but this lack of clarity inevitably results in different interpretations and differing approaches. Whatever view is taken as to the wording of section 19, in undertaking this review I have followed the accepted convention of referring to post flood event reports as “section 19 reports.”

Both during and after flooding events, Lead Local Flood Authorities (along with many other agencies, authorities and bodies) are engaged in undertaking and co-ordinating a range of essential activities such as emergency recovery operations, asset repairs, community engagements and other necessary responses. The level and nature of the demand placed on Lead Local Flood Authority resources will vary from incident to incident: but inevitably resource-allocation prioritisation will impact on the preparation of section 19 investigation reports.

The National Strategy for Flooding and Coastal Erosion Risk Management (October 2020) sets out a number of **subjective** criteria as to the suggested content of section 19 reports: e.g. Local Authorities to decide on length and complexity, with no mandated triggering threshold (expectation that reports be prepared where 20 or more homes impacted by internal flooding but different approaches taken). Whilst there is British Standards Institution guidance (BS 85600:2017) to assist in shaping flood risk management investigations again this is not mandatory, and the approach and level of detail remains for the reporting Local Authority to determine.

Issues such as capacity and capability (in terms of available “in-house” expertise) within Local Authority teams, prioritisation of demands (such as the delivery of emergency flood responses, the development of flood mitigation schemes, compliance with mandatory statutory functions may well be seen as greater priorities than preparing post flood reports) will inevitably impact on the preparation, size and shape of section 19 reports. The reports are not a necessary mechanism for seeking additional Welsh Government or other funding or for setting Local Authority prioritisations in addressing community needs and concerns. Any information contained within the reports may well help in informing “next steps” but is not a prerequisite.

What is absolutely essential is that the relevant Risk Management Authorities including all affected Local Authorities (lead, affected and impacting), water companies, and NRW work in full and close collaboration. This is not expressly reflected in the section 19 regime: but successful flood responses are clearly dependent upon close and effective inter-agency working.

As will be seen from the detailed body of this review a range of diverse approaches have been taken to the compilation of section 19 reports. This is inevitable where the reporting regime is largely subjective and leads to different and differing understandings as to purpose, prioritisation, preparation, expectation, style, content, authorship, interpretation, definitions, timescales, and available resources.

There has already been a recognition that a change to the section 19 regime is necessary. Measure 21 in the Summary of Measures (at paragraph 338) in The National Strategy for Flood and Coastal Erosion Risk Management in Wales (October 2020) includes the following: **“we want section 19 investigation reports to be simpler for Local Authorities to undertake and easier for the public to understand.”** This work is in hand. It is being led by the Independent Flood and Coastal Erosion Committee working with Local Authorities and the Welsh Local Government Association. I hope that my review will be of assistance in this work and I would, of course, be happy to discuss my recommendations. Whilst the scope of my review is relatively narrow, fundamental decisions as to the current role (if any) of section 19 reports is an important part of designing the flood risk management infrastructure in Wales.

This review was commissioned as a desk-based, paper exercise. However, with the agreement of the commissioning parties the remit allowed for written representations from specific cohorts of consultees. Some additional consultees were added by agreement of the commissioning parties and this helpfully extended the material available to me. I am grateful for all the submissions that I have received. They have contributed to an overview that can be used as a basis and framework for future consultation and decision making. As this report is desk and paper based, it is not informed by dialog, discussion or evidence exploration. I have looked at the section 19 reports prepared in relation to the extreme flooding in winter 2020-2021 but in contextualising these I have taken a broader look at the fitness and functionality of section 19 reports.

The Terms of Reference require me to consider all relevant material provided in the section 19 reports and NRW's own review (this does not fall within the section 19 provisions but is a useful additional source). They require that this review should be informed by other reviews, reports, findings and policies so as to make the best use of resources and maximise value for money. I am expressly required to avoid duplication with the Flood and Coastal Erosion Committee's reviews (both broad and detailed in their scope); the National Infrastructure Commission for Wales' review of long-term flood risk vulnerability of infrastructure; Audit Wales' assessment of flood risk management and the challenges and audits of delivery and the Law Commission's anticipated review of flood risk management legislation.

As indicated by those Terms of Reference this review has had to be carefully positioned within the context of a highly complex ecosystem of other reviews, bodies, organisations, reports, funding streams, lines of responsibilities and accountabilities. The section 19 reports are and have to be seen as intersecting with a much wider flood risk management and reporting ecosystem and infrastructure which is outside of the scope of this review. It is a highly complex landscape with much having been done, much being done and much yet to do. This review should be seen as a constituent part of that overall review landscape.

The National Infrastructure Commission Wales has a critically important role in analysing, advising and making recommendations to the Welsh Government on strategic economic and environmental infrastructure needs into the future. In 2022 its remit was amended to include a focus on the climate and nature emergency. Thereafter the Co-operation Agreement between Welsh Government and Plaid Cymru committed the National Infrastructure Commission to assessing how the likelihood of flooding of homes, businesses and infrastructure can be minimised by 2050. This work, too, is currently in hand. Clearly there are interdependencies between these different outputs of the Co-operation Agreement. The National Infrastructure Commission's remit is much broader than the one within which I am bound to operate.

Discussions I have had with the commissioning parties have reflected on both the scope and the limitations of the Terms of Reference. I emphasise the importance of ensuring that this review is not siloed, but is seen as a part of an overarching flood risk management infrastructure. It is important that all who are involved in shaping that infrastructure for the future specifically consider the role of the section 19 reports within the scope of their reviews and work-packages.

In my recommendations I have drawn on themes that emerge from the section 19 reports that fall within scope and the written submissions that I have received. I invite attention to the detail contained within the body of this review.

I would like to thank all of those who have contributed to and assisted in undertaking this work.



# Summary of Recommendations

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There are a number of fundamental decisions that need to be taken which focus on the purpose, role and status of section 19 reports. More granular recommendations as to the content of post incident reports are dependent on those decisions. Consequently my recommendations fall under two broad headings (although, clearly, there are significant degrees of overlap between them): strategic policy recommendations (such as the role, purpose and use of the reports) and technical operational recommendations (such as the content, methodology and levels of resource needed in the preparation of the reports). Clarity as to purpose will impact upon and inform other policy and technical operational decisions.

I also include two more general recommendations under a third heading of “Additional Recommendations.”

## Strategic policy recommendations

There needs to be clarity as to the purpose/s, role and status of section 19 reports. I suggest that these issues are best addressed by posing some fundamental questions. Are section 19 reports necessary? If so, are they seen as a subjective mechanism for information dissemination or should they be a part of a more objective, regulatory framework? There is already a recognition that change is needed (as evidenced by Measure 21): are modest changes sufficient or are more radical changes necessary? Does section 19 need to be amended or repealed? Are any desired changes ones that can be adequately effected by way of guidance and advice?

I recommend that, as part of the infrastructure reviews being undertaken, there should be consideration of the purpose, role and status of section 19 reports. If they are to be part of a regulatory framework which requires measurable performance indicators, objective comparators, and regulation then significant changes are necessary. If they are to continue to be, in effect, a means of reporting on flood responses then much less change is necessary. Defining purpose is key to all the other consequential decisions.

If post incident reports are to be part of a mandated regulatory framework, consideration must be given to a clearly articulated scheme that objectively identifies needs and outcomes. If they are to continue as a mechanism of post flood reporting there still needs to be greater clarity as to length, complexity and content.

As emphasised, any fundamental review of section 19 reports needs to be part of a wider flood risk management, monitoring and mitigation infrastructure overview which addresses questions as to purpose, use and positioning within that wider ecosystem. Some of the issues that arise relate to the positioning of section 19 reports within a series of complex intersections between the Independent

Flood and Coastal Erosion Committee, the National Infrastructure Commission, Local Authorities, Welsh Government, Natural Resources Wales, water companies and other stakeholders; between policy and implementation; and between responsibility and accountability. Clarity of where section 19 reports sit within these various intersections would clearly help define their purpose.

Policy decisions as to the future of section 19 reports should be taken as an integral part of the broader reviews. If section 19 reports are required, then their impact and value must be maximised and they need to be a meaningful part of the climate risks mitigation ecosystem. Answers as to the purpose, role and status of section 19 reports are not ones that can be determined in isolation: these questions need to be addressed as a part of the overall design of the flood risk management infrastructure.

As part of an assessment of the purpose of section 19 reports, there should be clarification as to the inter-relationship between the section 19 reports and the obligations and duties placed upon not only Lead Local Flood Authorities but also upon the other bodies and agencies involved. If section 19 reports are to continue in, broadly, their current form (with greater harmonisation – see below) it is necessary to determine whether responsibility for the compilation of the reports is broadened beyond Lead Local Flood Authorities. Again these interdependencies can only be assessed as part of a broader infrastructure review.

A decision needs to be taken as to whether there should be a mechanism for assessing the quality and acceptability of section 19 reports and the consequence/s (if any) arising from breaches and/or failures. This goes back to the question of purpose within the broader landscape of reporting mechanisms and overarching frameworks.

The wording of section 19, as currently drafted, requires careful consideration, potentially, amendment or revocation. Its interpretation is potentially confusing and leads to inconsistencies in understanding and approach. Having clarity and consistency as to when and/or where and/or why section 19 reports are required is essential.

## **Technical operational recommendations**

Pending a broader policy review of section 19 and/or post flooding reports the drafting and implementation of Measure 21 should be prioritised.

There should be greater harmonisation of the section 19 reporting process across all Lead Local Flood Authorities and within the broader Flood Risk Management Infrastructure.

There are relatively straightforward ways in which the drafting of section 19 reports can be better harmonised. This can be done through designing an objective framework that sets out expectations, defines triggering parameters, imposes a timeframe for completion, identifies essential content, specifies authorship and notes the expertise required in its preparation.

Additional considerations might include prescribed formatting and template requirements; consultation lists and feedback loops together with a schedule of key learning points in relation to specific issues.

These are all potential ways in which the process might be harmonised. It is impossible to be prescriptive as to these recommendations without clarity of purpose and process going forwards.

Consideration should be given as to whether a post flood incident reporting regime needs to be aligned to section 19 or can be delivered in other, non-statutory, ways.

There should be an assessment of the expert and resource requirements, including the range and nature of the skillsets needed, in the preparation of section 19 reports.

Close partnership working across all of the relevant bodies and agencies is essential to ensure effective, joined up, coherent reporting and planning. This applies not only to defining what is needed in post incident reporting but also in ensuring its delivery. For the purposes of this review I recommend that there is clarification of areas of individual and joint responsibilities and accountabilities as between the responsible authorities, agencies and bodies.

## **Additional recommendations**

Consideration should be given to requiring the reports to be deposited in a central repository such as a publicly accessible webpage. It would be appropriate to have transparent progress updates and any completed reports accessible to the public (and, of course, to other bodies). This would assist in monitoring, transparency and accessibility. Where effort and resource has been put into the preparation of reports it seems appropriate that they are easily available.

The Law Commission should be invited to build on their work to date and assist in undertaking a review of the flood risk management legislation in Wales. In advising this, I should refer to the fact that I am a member of the Law Commission's Wales Advisory Committee. Whilst I do not believe that this poses any conflict of interest, it is appropriate that it is formally noted.

# Introduction

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1. The Co-operation agreement is a commitment between The Welsh Government and Plaid Cymru to work together to address and resolve issues that can make a difference to communities and the people of Wales.
2. Supporting how Welsh Government respond to the challenges caused by climate change, I have been asked to carry out a review of flood risk reporting, specifically covering the area of section 19 of the Flood and Water Management Act 2010 and the report into the February 2020 floods carried out by Natural Resources Wales.
3. Risk Management Authorities carry out investigations following flooding both informally and formally and it is important that they do this to learn from the past, invest in reducing future flood risk and ensure that communities are better prepared for future challenges caused by climate change.

## A Summary of Flooding in Wales during 2020 and 2021

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### Introduction

4. Recent years have seen named storms bringing strong winds and rain to Wales and the rest of the UK. Storm naming was launched in 2015 by the Met Office to help communicate instances of severe weather to the public and are used when there is the potential of severe weather to cause an amber or red weather warning for wind, rain or snow. Each year in September a new list of names is announced for the coming winter running through to August of the following year.
5. Wales has seen the impacts of many storms systems. Those of most recent significance include storms Ciara; Dennis; and Jorge in February 2020 which caused the most significant floods to affect Wales since 1979 impacting many communities across Wales. In January 2021 storm Christoph gave rise to flooding from historic mine workings in Skewen, Neath Port Talbot, while storm Eunice in February 2022 saw red weather warnings for strong damaging winds combined with the risk of coastal flooding.

## February 2020 – the weather situation

6. The winter of 2020 (December 2019, January, February 2020) was characterised as mild and wet, with the Met Office reporting the period as being the 5th wettest winter for UK as a whole since records began in 1862 and also the 5th mildest on record.
7. February saw three named storms cross the UK in quick succession resulting in heavy and persistent rain throughout the month. Storms Ciara and Dennis resulted in the greatest impacts on communities with some notable and significant rainfall being recorded across Wales. Four times the long term average rainfall for the month of February was recorded in Bala, Gwynedd while 51 of 231 river gauging stations across Wales recorded new highest ever levels according to NRW.
8. Storm Ciara was the first of the February named storms but the third and most severe of the winter at the time. Persistent heavy rain resulted in some significant flooding in north Wales over the weekend of the 8 February, affecting the catchments of the Conwy, Upper Dee and Elwy. Communities of Llanrwst, Llanfair Talhairn and St Asaph were affected while the highest river levels since records began were recorded on the river Elwy in St Asaph.
9. Storm Dennis, the fourth named storm, followed on the weekend of the 15 February, once again bringing strong winds and persistent heavy rain on what was already saturated ground. Amber weather warnings for rain were issued by the Met Office on the 13 February, updated to Red on the 16 February indicating dangerous weather was expected with the potential of risk to life. Extreme, intense rainfall resulted in record river levels across many south Wales rivers including on the River Usk and River Taff. Smaller watercourses and surface water systems were also impacted by the volume of water resulting in widespread flooding across many communities.
10. A coal tip landslide was recorded in Tylorstown, Rhondda Cynon Taf, resulting in thousands of tonnes of spoil impacting the Afon Rhondda Fach and damaging local sewage infrastructure. This incident highlighted the potential flood risk associated with such events and resulted in the formation of the Coal Tip Safety Task Force in Wales.
11. Storm Jorge was the fifth and last of the February storms bringing further heavy rain and strong winds on the 28 February. Although less severe than both Ciara and Dennis, the rain fell on already very saturated ground causing further localised flooding and travel disruption across areas that were already dealing with the impacts from storms Ciara and Dennis.
12. Natural Resources Wales reported that almost a quarter of all their 231 river gauges in Wales recorded their highest water levels ever in February 2020 with the Met Office also recording it as the wettest February on record for the UK and the fifth wettest winter on record since records began in 1862.

**Table 1: Key Dates**

Storm	Date Named	Date Impacted
Ciara	5 February 2020	8-9 February 2020
Dennis	11 February 2020	15-17 February 2020
Jorge	7 February 2020 (Named by AEMET, Spain's Meteorological Agency)	28 February – 1 March 2020

## Flooding

13. The February floods impacted many parts of Wales affecting property within communities, the flooding of transport infrastructure such as the highway networks and damage to rail infrastructure. Flood defences across Wales reduced the impact of flooding and provided protection in many areas but defences can never eliminate the risk all together. Defences can over top or become damaged, smaller watercourses and surface water drainage systems can become overwhelmed from the volume and intensity of rain, often leading to flooding and the impacts that were seen across Wales.
14. The impacts of flooding to homes and businesses can be devastating and are experienced long after the water has receded. Flooding not only impacts lives, homes and businesses directly, it can also have an indirect impact on the health and wellbeing of those affected.

## Flooding impacts – homes, businesses and infrastructure

15. The severity of the flooding in February 2020 was such that the impacts to communities and to properties across Wales was the worst recorded flooding since the late 1970s with a reported total of 3,130 properties affected.
16. Most recorded properties affected were reported in more heavily populated areas, but the distribution aligns closely with the movement of each storm and the river catchments that experienced some of the most significant rainfall intensities.
17. Data provided by Local Authorities indicate that of the 3,130 properties reported to have flooded, 224 occurred during Storm Ciara, 2,765 occurred during Storm Dennis and 141 occurred during Storm Jorge.
18. Storm Ciara saw almost three quarters of the average monthly rainfall falling in less than 24 hours in the upper Conwy, Clwyd and Elwy catchments resulting in property flooding across north Wales with the community of Llanfair Talhairn being one of the worst impacted. River levels in St Asaph peaked higher than those recorded in November 2012 when 300 homes were flooded but new flood defences constructed since, reduced the impact on this occasion.

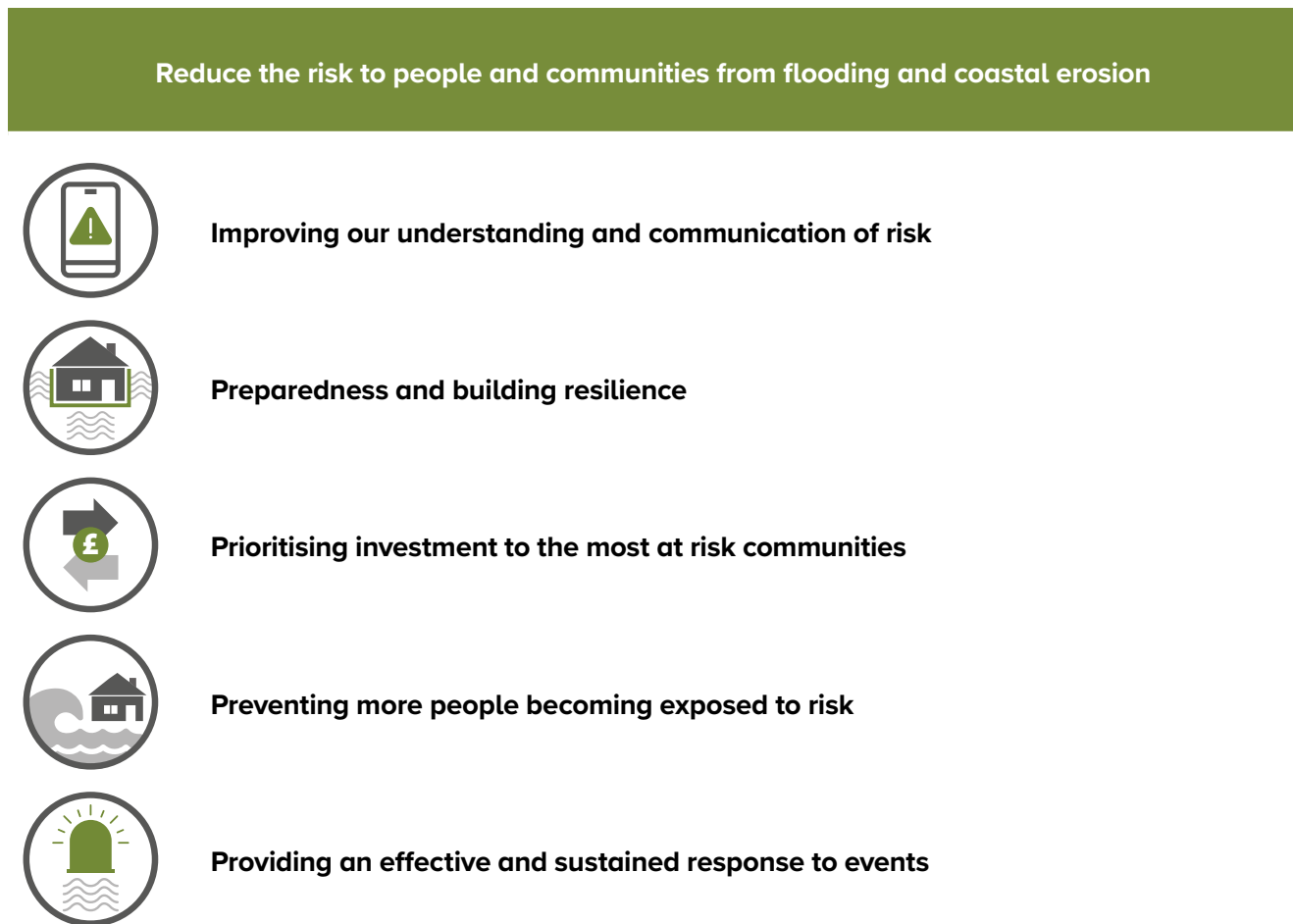
19. The greatest impact to properties occurred following Storm Dennis where 2,765 properties were reported to have been flooded with the largest concentration of these located in south Wales. The most intense rainfall was recorded over the head waters of the south Wales valleys and the Bannau Brycheiniog/Brecon Beacons where 72% of the monthly rainfall was recorded within a 24hr period.
20. Communities across south Wales valleys were affected by flood water with Local Authorities reporting impacts to transport infrastructure, businesses, town centres, business parks and leisure facilities. Watercourses responded quickly to the high intensity rainfall, carrying large amounts of debris contributing to the damage and significant flooding across many areas including Pontypridd, Treherbert, Nantgarw, Taff's Well, Pentre, Brecon, Crickhowell, Llanfoist amongst others.
21. In many locations, sewer infrastructure became overloaded from surface water and river water entering the sewer systems resulting in the overflow from manholes and gullies onto the highway, land and into homes and other premises. Damage caused by the power of the water was recorded along both highway and rail networks, with significant areas of erosion and deposition across Wales causing blockages and threatening properties and infrastructure.
22. The record rainfall from Storm Dennis brought instability to some of south Wales legacy mining areas causing some minor landslides on disused coal tips. A significant landslide in Tylorstown, Rhondda Cynon Taf, resulted in the movement of 60,000 tonnes of material causing damage to sewer infrastructure, the burying of a strategic water main and blockage of the river Rhondda Fach.
23. Recovery and remediation work is estimated to be in the region of £20 million. The wider issue of the safety of Wales' industrial mining sites led to immediate ground investigations work across legacy mining sites by the Coal Authority and the establishment of the Coal Tip Safety Task Force.
24. The Task Force, led by Welsh Government, brings together the Coal Authority, Natural Resources Wales and Local Authorities, including the Welsh Local Government Association to work collaboratively to review the safety of coal tips across Wales. Inspecting, carrying out maintenance work and the use of technology as part of ground investigation work continues to better understand the scale of the challenge, the potential risks, future work and the development of legislation managing coal tip safety.

# National Flood Strategy Aim and Objectives

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- 25. The National Strategy for Flood and Coastal Erosion Risk Management sets out how it proposes to manage flood and coastal erosion risk. It sets out 5 objectives with the overarching intention to reduce the risk to life through strategic priorities that work with or alongside each other covering the flood risk landscape in Wales.
- 26. The measures described in the National Strategy will help to deliver the objectives and reduce the present and future risk for people, homes and businesses from flooding and coastal erosion.

**Figure 1: National Strategy Aim and Objectives**



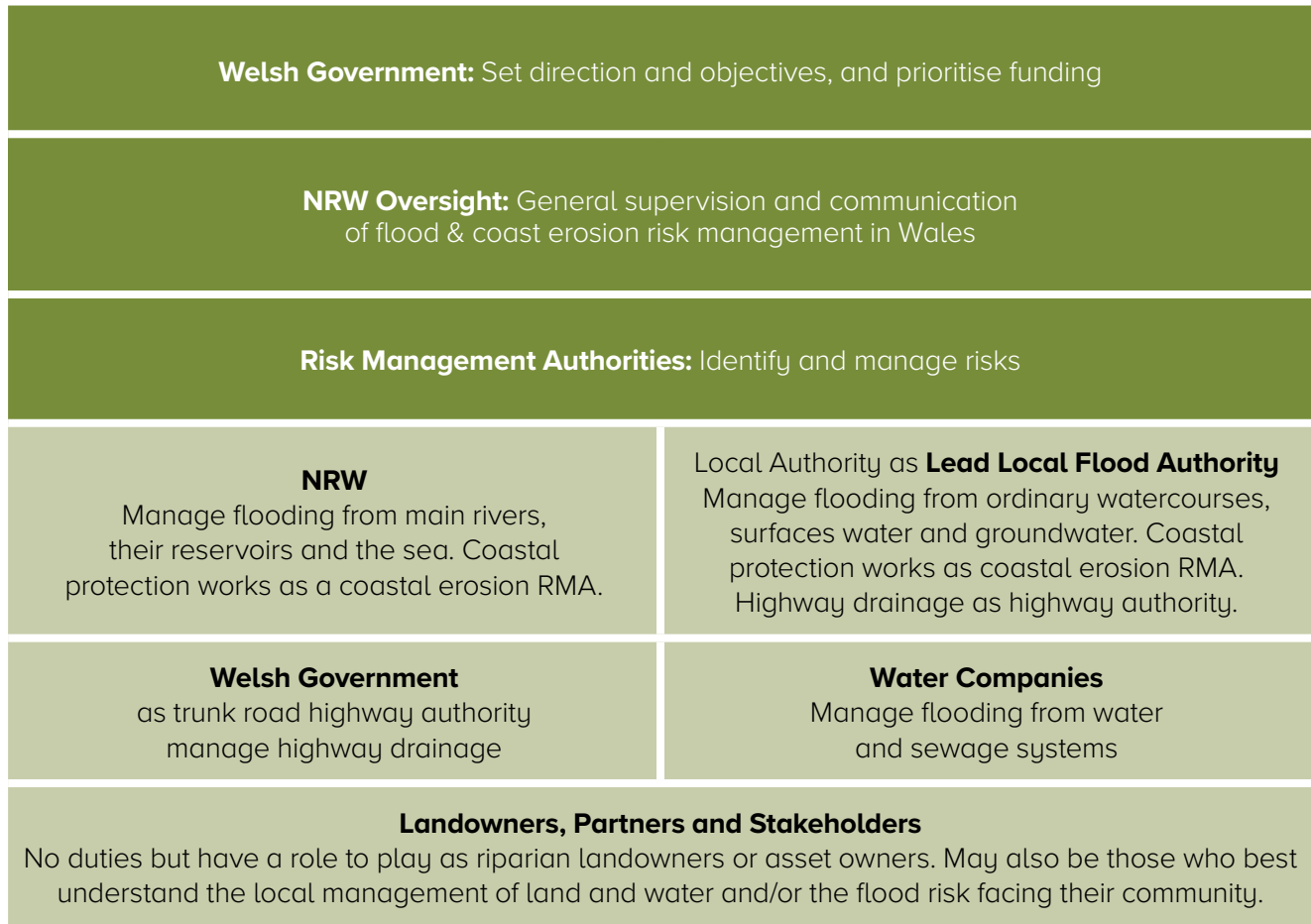


# An Overview of Flood Risk Management in Wales

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27. Flooding has devastating impacts on those affected, both in terms of material loss and damage to buildings, businesses, and belongings but also their physical health and wellbeing. I am acutely aware that the damage and repair process can take months and years but also that the unseen scars that are experienced by those affected can last long after waters have receded, and repairs have taken place.
28. Risk Management Authorities (RMA) in Wales have a role to identify and manage the risk from a variety of sources of flooding. It's widely recognised that the roles and responsibilities are not entirely straightforward, many of the powers available to support NRW and Local Authorities in undertaking this role come from the Water Resources Act (1991) and the Land Drainage Act (1991). RMAs have a duty to co-operate with each other and share data when exercising their flood and coastal risk management functions.
29. Under the Wellbeing of Future Generations (Wales) Act (2015), public bodies are also required to work together to improve the social, cultural, environmental and economic well-being within communities in Wales. The changes being experienced globally as a result of climate change directly affect the work of the RMAs across Wales. It is therefore increasingly important that work takes place at a catchment scale bringing forward more long term, sustainable projects. Collaboration on a community scale will support more innovative solutions and thus support adaptation needs and reduce future problems occurring with our changing climate.
30. The management of flooding in Wales involves several organisations each with specific roles and responsibilities.

**Figure 2: Overview of Roles and Responsibilities**



31. There are no statutory duties on RMAs to carry out works to manage risk, however there are many permissive powers which derive from Water Resources Act (1991) and Land Drainage Act (1991) to undertake such works to manage risks from certain sources. There is also no duty to compensate those who have been affected by flooding. However, understanding what happened and learning lessons from flood events is a requirement for all Lead Local Flood Authorities (LLFAs). Under section 19 of the Flood and Water Management Act 2010, LLFAs are required to undertake investigations following floods and publish the results. These flood investigations record the circumstances of a flood event and identify which parties have a role in managing the flood risk. The investigations may also identify the need for further work to mitigate flood risk at the location in question.
32. The Welsh Government wants RMAs to use section 19 reports as part of local evidence in support of business cases for future investment where appropriate, alongside detailed modelling and assessment of future flood risk. This work supports the steps needed towards tackling the impacts of Climate Change and reducing the risk of flooding where possible.

33. Flood and Coastal Erosion Risk Management in Wales involves many organisations including 28 Risk Management Authorities (RMAs), Landowners, Partners and Stakeholders. All have a part to play in the management of flood risk and delivering objectives outlined in the National Strategy for Flood and Coastal Erosion Risk Management in Wales.
34. Welsh Government has an overall responsibility for flooding and coastal erosion policy in Wales. It sets out the vision and long-term policies for managing flooding, as well as the measures which will be taken by organisations like Natural Resources Wales, Local Authorities, and water companies to reduce the risks to people and communities from flooding, coastal erosion, and climate adaptation over the coming century.
35. Funding for flood risk management work in Wales is delivered through the Flood and Coastal Erosion Risk Management Programmes. Funding is allocated to Risk Management Authorities to support delivery of flood risk activities and Welsh Government also support Local Authority schemes and programmes of investment that deliver against policy objectives.
36. The aim of the National Strategy is to reduce the risk to people and communities from flooding and coastal erosion. It is recognised that increasing risk, frequency and consequence are impacting communities across Wales. These impacts and issues will affect all parts of society in some way and is not something that can be tackled purely through traditional means but requires a combined joined up approach involving communities. There is a need to encourage communities to adapt to this risk and build greater resilience to support future generations to be prepared for flood events.
37. Natural Resources Wales has three defined roles within the flood risk management arena:
  - Strategic oversight role. NRW has general supervision and communication of flood and coastal erosion risk management matters in Wales. This includes having a Wales wide understanding of all sources of flooding, coastal erosion and associated risks, advising and supporting Welsh Government, RMAs and the public.
  - NRW carry out activities on behalf of, or in collaboration with, other Risk Management Authorities.
  - Activities they deliver in the management of flooding from main rivers<sup>1</sup> and the sea and managing coastal erosion.
38. NRW develops and publishes national level information on flood and coastal erosion risk, including provision of a flood warning service, national available risk mapping and public advice on what they can do before, during and after a flood.

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<sup>1</sup> Watercourses designated as 'main river' are generally the larger stream or rivers but some are smaller watercourses of significance. All other open water courses in Wales are designated as an 'ordinary watercourse'. On these watercourses the Lead Local Flood Authority or, if within an Internal Drainage District, the Internal Drainage Board have similar permissive powers as NRW.

39. Lead Local Flood Authorities (LLFAs) make up 22 of the 28 RMAs across Wales. They take the responsibility for the management of flood risk from smaller watercourses known as ordinary watercourses (non-main river), surface water and groundwater. Where an authority has a coastline, they also take the responsible lead on coastal protection work as a coastal erosion risk management authority.
40. Local Authorities are also the local highway authority and therefore take the responsibility for highway drainage. Where the highway is classified as trunk road, Welsh Government take the responsibility for drainage on these roads. The North and Mid Wales and South Wales Trunk Road Agencies are responsible for managing the trunk road network on behalf of Welsh Government.
41. Water and sewerage companies and operators are responsible for drainage through public sewer networks. This includes, foul, surface water and combined networks. Close working and collaboration is required with Local Authorities in their role as highways and planning authorities.

## Risk Management Process in Wales

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42. Wales has a variety of flood risk assets across Wales, all under different ownership. While many of the defences protecting the most at risk communities in Wales are managed and maintained by RMAs, there are a large number of privately owned flood risk structures that are not managed or inspected in the same way as those managed by RMAs. Where inspections are carried out and work is identified as required on flood risk grounds, RMAs can notify the registered owner and request that this takes place. This can be particularly important around the coast of Wales where lengthy sections of the rail network borders the coast and can act as a barrier between the coast and communities. While Network Rail are not identified as an RMA or have any other official role in terms of flood risk, they are an important partner in managing flood risk and the impacts of climate change across Wales.

# Flood and Coastal Erosion Risk Management Funding and Investment

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43. Flooding in Wales is a devolved function and decisions made about funding for flood risk management are made by Welsh Ministers. Ministers may choose to provide funding to support both revenue and capital grant funded activities to NRW and Local Authorities through a grant application process to support RMAs in carrying out their flood and coastal risk management activities.
44. The funding is available to support in areas such as the management and investment of flood risk assets around Wales, improving our understanding of risk through improved digital mapping and modelling, improving the flood warning capability and raising awareness in communities of the risks and what communities can do to lessen the impact should the worst happen. The full eligibility criteria and grant rates are set out in the FCERM Grant Memorandum ([Flood and coastal erosion risk management: grant memorandum | GOV.WALES](#)).
45. The FCERM investment programme works with RMAs in the development of business case applications for interventions which reduce the risk of flooding from any source (except sewer related flooding for which water companies have a statutory duty to deal with) and/or coastal erosion to homes.
46. Investment is prioritised to the most at risk communities supporting large scale catchment schemes including Natural Flood Management and community level programmes that may be more small scale but equally important in reducing local risk such as the installation of flood gates or provision of property level resilience measures.
47. Local Authorities develop business cases to submit to Welsh Government for consideration using the FCERM Business Case Guidance. Applications are reviewed and appraised on their merits against a pre-defined criteria outlined in the guidance. NRW manage and review their own programme of Business Cases using the same guidance process.
48. Business case development varies depending upon scale, complexity, financial and staff resourcing within RMAs to move them forward. To support this process Welsh Government provides 100% funding towards the business case development process and 85% toward projects that successfully reach construction.
49. Smaller flood mitigation schemes can be promoted by Local Authorities annually through Welsh Government's Small Scale Works Grants scheme. This allows Local Authorities to apply for a grant up to £200,000 per scheme for delivery of measures that can demonstrate a reduction in flood risk to properties. All applications are reviewed against a pre-defined criteria using published guidance.

# Emergency Response – Category 1 and 2 Responders

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50. Under the Civil Contingencies Act 2004, Category 1 responders have a core responsibility to respond during an emergency such as flooding. There are 6 defined duties including; the need to assess the range of potential risks; plan for emergency situations including training and exercising, including the development of business continuity plans that ensure arrangements are in place to maintain service delivery. Responders must develop measures to warn and inform before and during emergency incidents and work together to share information and provide a co-ordinated response. Category 1 responders in Wales are:
- Local Authorities
  - Police forces, including the British Transport Police
  - Welsh Fire and Rescue Services
  - Welsh Ambulance Services NHS Trust
  - NHS Wales Health Boards and Trusts, Public Health Wales
  - Natural Resources Wales
  - HM Maritime and Coastguard Agency
  - Port Health Authorities
51. Category 2 responders are not considered a 'primary' responder however, they have the potential to play an important role in emergencies that involve their specialist area. As a Category 2 responder, they have a duty to co-operate and share information with other responding partners in planning and responding to major incidents. Category 2 responders are:
- Utilities – Water companies, gas and electricity distributors and telecommunications companies
  - Transport – Airport and rail operators, Network Rail and highways Agency
  - Harbour authorities
  - Health and Safety Executive
  - Met Office

52. Both Category 1 and 2 responders come together and form Local Resilience Forums (LRF) defined by Police force boundaries in Wales. There are four multi-agency partnerships groups bringing together the wide range of experience, including that of the military and voluntary sector, to plan and prepare for emergencies. The four LRF groups in Wales are South Wales, North Wales, Dyfed-Powys and Gwent.
53. Before during and after a flood incident, LRF partners will collaborate and co-ordinate knowledge, information, and resources to support a multi-agency response on the ground and in recovery.

## **Review of Section 19 Reports and NRW's Report into its Response to the February 2020 Storms**

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54. These intersections include, but are not limited to, the Flood and Coastal Erosion Committee, their reviews, the National Infrastructure Commission, its review (as required by the Labour-Plaid Cymru 2021 Co-operation Agreement), Audit Wales' assessment and audit and the Law Commission's potential considerations in this space.
55. The terms of reference (ToR) directed me to build upon previous reviews and I was expressly invited to make the best use of resources and maximise value for money for the taxpayer. The ToR also imposed on me a requirement for me to avoid, in so far as possible, duplication with other reports undertaken, underway or planned which may be relevant to the scope and objectives of this review.

## Terms of Reference

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56. Establishing and agreeing the final terms of reference was a matter for myself, the Minister for Climate Change and the Plaid Cymru Designated Member. They are as follows:

- The Review should consider all relevant material provided in section 19 reports and NRW's own review into the flooding that occurred in Wales in the winter of 2020 and 2021, its impacts and how this might inform priorities for flood risk management in future.
- The Review should be led by an independent, suitably qualified and authoritative person who is empowered and resourced to discharge their responsibilities in leading the review in an impartial and objective manner.
- The Review should focus in particular on assessing and prioritising the recommendations made in the available section 19 reports and the NRW review along with any other relevant reports the chair deems necessary (for example those of water companies) setting out associated recommendations for action by the relevant body. It should consider key findings, shared concerns, identify areas for improvement and good practice, successes and lessons learned.
- The Review should seek written representations from relevant stakeholders specifically public bodies and elected representatives.
- The Review shall, as appropriate, be informed by and build upon previous reviews in relation to flooding, other relevant reports, Senedd Committee findings and national policy including, in particular, Wales' Flood Strategy, making best use of resources and maximising value for money.
- The Review shall, in so far as possible avoid duplication with the following:
  - i. The Flood and Coastal Erosion Committee (FCEC) review exploring optimal approaches for accessing finance and RMA collaboration to deliver flood and coastal erosion risk management outcomes;
  - ii. The FCEC review of delivery of statutory flood risk management functions;
  - iii. The anticipated National Infrastructure Commission for Wales' review of long-term flood risk vulnerability of infrastructure;
  - iv. Audit Wales' anticipated 'state of the nation' assessment of flood risk management challenges and subsequent audit of delivery (the scope of which is being considered by Wales' Auditor General currently);
  - v. The Law Commission's anticipated review of flood risk management legislation in England and Wales.
- If the Reviewer deems any amendment necessary to these ToR the issue will be brought back for consideration by the commissioning parties.



## Section 19 Investigations

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57. During extreme weather events, Local Authorities activate phone “hotlines” to log all incidents reported to them by the public, their own officers or public sector partners. Internal flooding of a property is investigated by Local Authority flood officers to understand the scale and nature of the issue. In the initial stages, the follow-up action may consist of a phone call by Local Authority flood officers to the householder(s) affected or a physical inspection of the property and surrounding area. This may not necessarily trigger a section 19 investigation.
58. Following a flooding incident, a Local Authority may identify the need for remedial work to flood risk management infrastructure to reduce future vulnerability. If the work identified falls within its remit (ie the source is from surface water, ordinary watercourses etc.), the Local Authority may opt to carry out the remedial work as soon as possible. Under those circumstances, funding for reparatory works to damaged infrastructure, or improvement works to existing assets, may be made available by the Welsh Government.
59. Following the February 2020 storms, the Welsh Government provided £8.9m to Local Authorities – over and above the 2020-21 allocation to Risk Management Authorities for flood delivery. This supported the repair of damaged flood infrastructure and assets.
60. Section 19 of the Flood and Water Management Act 2010 requires Lead Local Flood Authorities (Local Authorities in Wales) to undertake investigations following significant flooding and to publish the results:

### Local Authorities: investigations

- (1) On becoming aware of a flood in its area, a Lead Local Flood Authority must, to the extent that it considers it necessary or appropriate, investigate —
  - (a) which Risk Management Authorities have relevant flood risk management functions, and
  - (b) whether each of those Risk Management Authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- (2) Where an authority carries out an investigation under subsection (1) it must —
  - (a) publish the results of its investigation, and
  - (b) notify any relevant Risk Management Authorities.

61. Section 19 investigations can be useful in understanding the full extent of flood impacts, improving data models and may inform maintenance regimes or further alleviation works, measures or support future funding bids. There is no statutory timeframe for undertaking and completing section 19 investigations, but the **National Strategy for Flooding and Coastal Erosion Risk Management** (published in October 2020) makes clear that the length and complexity of section 19 reports is for Local Authorities to decide and should be proportionate to the scale of flooding, take account of the understanding of the issues (if the cause of flooding is already well understood, for example), or the type of remediation measure required.
62. The section 19 requirement applies to Local Authorities only in Wales (ie. the provision applies to neither Natural Resources Wales nor Dwr Cymru Welsh Water). While there is no statutory threshold for triggering a section 19 investigation, the National Strategy makes clear the Welsh Government's expectation that section 19 investigations be undertaken where 20 or more homes in one area are impacted by internal flooding. The National Strategy makes clear also that Local Authorities should notify NRW and the Welsh Government once the investigation report is published.
63. While a threshold for initiating a section 19 investigation as set out in the National Strategy is where 20 properties or more experience flooding, 8 Local Authorities have determined a lower threshold for investigating instances of flooding under the Act.
64. Section 19 reports can vary in size and complexity. The British Standards Institution have published standard BS 85600:2017 (Post-event flood assessments — Guidance on investigating flooding incidents) to assist flood Risk Management Authorities. The BSI standard sets out a methodology for investigating flood events, but the level of detail is ultimately a decision for the Local Authority.
65. In carrying out an investigation report, Local Authorities must notify relevant Risk Management Authorities (RMAs) who deliver flood risk management functions in relation to the flood incident under investigation. The National Strategy makes clear that the Welsh Government expects other RMAs (NRW, water companies and neighbouring Local Authorities), to collaborate fully.
66. Local Authorities do not necessarily compile reports for every flooding incident and there is no statutory obligation to do so beyond the section 19 requirement (ie. where the authority deem it is "necessary or appropriate"). While recognising this, the National Strategy sets out an expectation on Local Authorities to undertake section 19 reports where '20 or more properties in one area experience internal flooding'. Local Authorities can adopt a lower threshold for triggering section 19 investigation to that outlined and this does vary across authorities in Wales. Current thresholds can be found in table 4, (Annex A).
67. The decision to launch a formal investigation is typically informed by the scale of event, capacity and capability within the relevant teams leading flood management activities in each authority. Many of those staff will also be meeting other demands including emergency flood response, inspection of flood assets, development of new schemes and delivering statutory functions such as the Sustainable Drainage Systems (SuDS) Approval Body (SAB). In some cases, external support will be sought to assist with these investigations.

68. There is nothing to prevent Local Authorities from acting to address community needs and risks in relation to flood prevention irrespective of whether a section 19 investigation is undertaken or not. Some Local Authorities will record instances considered as a 'near miss', providing a historical record of flooding in their area. Access to Welsh Government funding (including for new schemes) is not predicated on formal section 19 report findings, although this evidence can be helpful in informing future need.
69. The Welsh Government's National Strategy includes a specific measure (21) to improve the implementation of section 19 provisions: **we want section 19 investigation reports to be simpler for Local Authorities to undertake and easier for the public to understand**. Welsh Government officials are working with Local Authorities, WLGA and Wales' independent Flood and Coastal Erosion Committee to address this Measure.

## State of play: section 19 investigations

70. Welsh Government officials work closely with Wales' RMAs to monitor delivery, track emerging issues, and provide the necessary support, guidance and funding. As of the end of April 2023, the 22 Local Authorities have advised Welsh Government that there is a requirement for 154 section 19 investigations for the period February 2020 through to October 2021. These investigations cover multiple flooding incidents and are not limited specifically to the February 2020 storms (Storms Ciara, Dennis and Jorge).
71. As part of this review, work has been carried out to determine the status of relevant section 19 reports and their availability. Local Authorities have been encouraged to complete investigations and publish associated findings as quickly as possible. Report status can be 'in progress', 'yet to be approved', 'completed but won't be published' or 'published'. It should be noted that some of the hardest hit Local Authorities following the February 2020 storms have prioritised operational repair and recovery work over progressing formal investigations.
72. Early assessments provided by Local Authorities indicated that approximately 150 section 19 investigations would be required in relation to the February 2020 storms alone. However, this number has reduced subsequently; a number of authorities have consolidated large numbers of investigations initially identified, some have taken the decision not to undertake formal investigations (having delivered remediation measures since), while others have increased the threshold required to trigger a formal investigation. The decision to increase the threshold to trigger a formal investigation may have been a pragmatic one: one Local Authority initially indicated that 50 separate reports would be required in relation to the February 2020 storms alone.
73. Aside from the impact of flood risk management demands, many section 19 investigations were impeded by COVID-19 restrictions and the associated demands on local government. Working in enclosed spaces (to inspect drainage and flood assets) and restrictions on gathering information and engaging residents affected progress with investigations in 2020 and 2021.

74. Table 4 (Annex A) summarises the latest position with these investigations and the associated reports:

- 84 published
- 43 completed (but Local Authority not intending to publish)
- 8 awaiting approval
- 34 ongoing investigation or in draft
- 2 investigations yet to commence.

Five Local Authorities have confirmed they will not be instigating any section 19 investigations.

75. Details of the section 19 investigations by flood incident are provided in Table 4 (Annex A). The majority of investigations (89) have arisen in relation to the February 2020 storms. Storm Christoph (January 2021) triggered 36 investigations.

## Learning from Flood Events and Reducing Flood Risk

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### Local Authority update including section 19 investigations

76. In support of the review, all Local Authority lead flood risk management officers were invited to share their experience of flood investigation work and section 19 flood investigation reporting, where this has been carried out. As part of this request, they were asked to respond to three specific questions:
- i. What do you feel are the key learning points you have taken away from compiling these reports?
  - ii. How successful have you been in progressing post event actions and recommendations? (These may be actions identified before, during or after publication of any s19 report)
  - iii. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

77. Of the 22 Local Authority RMAs contacted, 14 responses were received from across Wales. These ranged from authorities with knowledge and experience of the process having completed multiple reports such as Conwy and Rhondda Cynon Taff who have completed 34 and 19 respectively; to those with less experience such as Blaenau Gwent who completed their first section 19 report following the February 2020 storms.
78. The responses indicate benefits to both the RMA as well as the wider community in compiling these reports. They are used as a key record document of the flood event, identifying sources of flooding, the Risk Management Authorities involved but also set out what immediate actions may be required in the short, medium or long term to reduce the risk in future.
79. As a comprehensive record of an event, it is recognised that the work carried out to compile these reports helps understanding within affected communities and assists with conversations amongst RMAs, elected representatives, and their communities. These reports act as a useful tool, helping to set out what further actions may follow and identify lessons learned that can then be taken forward.
80. Managing expectations in terms of the level of detail to be included in the reports and the time it can take to conduct investigations is identified as a challenge. This can differ between each Local Authority given that the legislation requires investigations to take place 'to the extent that it (the LLFA) considers necessary or appropriate'. This therefore leaves it up to each Local Authority to determine the scope of investigation and reporting following an incident of flooding.
81. The sheer scale of the flooding experienced across some Local Authority areas, affected the time it took to complete investigations and publish reports. Flooding in February 2020 has been described as 'the worst in a generation' in terms of the number of properties flooded and new records set across the river level archives.
82. All RMAs highlight the benefits in securing key information in these documents that can also be used to support future business case development and funding applications to Welsh Government's Flood and Coastal Erosion Risk Management Investment Programme.
83. All responders highlight the challenges that are experienced in investigating and collating flood event information. Whether this is carried out internally or through consultancy support, this can be a resource intensive process, often requiring specific local knowledge in addition to the skills required to collate and compile the reports themselves. This could include knowledge of asset management, highways and drainage networks but also in specialist areas such as hydrology.
84. Challenges associated with the Covid pandemic impacted the investigation process following February 2020 storms. Prioritisation and precautions as a result of the pandemic did have an impact on the investigation process in some cases and consequently the reporting process was impacted. However in many cases the process of addressing the short-term emergency repairs continued. The business case development process also continued, and RMAs have commented that developing a successful business case is key to securing flood risk investment funding from Welsh Government and therefore is sometimes prioritised ahead of publishing a section 19 report.

## Blaenau Gwent County Borough Council

### (1 s19 report)

85. In 2021, Blaenau Gwent CBC (BGCBC) published its first s19 Flood Investigation Report that examined the surface water flooding incident that took place in Meadow Street and Railway Street, Llanhilleth, between the 15th and 16th February 2020, following Storm Dennis and one of the wettest winters on record. The flood event affected over 80 homes in the area. The investigation found that the flood event occurred as a result of three issues within the flood site, including a blocked manhole and insufficient drainage capacity within the surface water drainage infrastructure.

### Key learning points:

86. The importance of record keeping and information sharing pre, during and post flood events, including weather forecasts, river level data, site photographs, culvert inspections, witness statements and emergency call logs.
- This was particularly pertinent to this report as shortly after the flood event occurred, Covid emerged, and the subsequent lockdown measures were implemented. Lockdown measures, plus resource issues delayed the flood investigation. When the investigation resumed over 9 months later, it relied on the records kept pre, during and post event. Much of the data was kept by other departments within BGCBC or external organisations.
  - Even though the s19 Flood Investigation report deals with factual circumstances of the flood event, the impact that the flood event has on the local community cannot be ignored and this could possibly be captured in the reporting template for any future flood events. Residents and businesses affected by the flood event need an outlet to express how the flood event impacted them.
  - The importance of community engagement pre, during and post flood events.
  - The importance of engagement/collaboration with key stakeholders, including DCWW and NRW.
  - The importance of good knowledge and understanding of the catchment area and the watercourses within it.
  - The importance of cross-departmental collaboration within BGCBC and the need for overall coordination – the flood event required the input from different departments throughout BGCBC, including Civil Contingencies, Engineering, Highways and Resources.

### Success of implementing post event actions:

- One of the key actions that BGCBC implemented following the event was the upgrade of the existing drainage network between Railway Street and Meadow Street using funding secured from WG. The upgrade works were completed in 2022 and so far no further surface flooding has occurred in the area. The other actions that were identified during the investigation was to continue the regular inspection and maintenance of its drainage infrastructure and regular inspections of the Nant Cuffin Culvert inlets and removal of debris as necessary.

### **Raising the Profile of Flood Risk Issues in Blaenau Gwent:**

- The flood event in Llanhilleth and the subsequent report has helped raise the profile of flood risk management and the need to mitigate flood risk as far as is reasonably practical. This has been seen within the local area, where the upgrade works were undertaken and across Blaenau Gwent, where areas with similar characteristics to Meadow Street and Railway Street have been identified and its drainage infrastructure investigated to identify if any improvements are required. In addition, we keep a register of all flood incidents within the borough – this also helps to identify areas that could be at future risk of large scale flood events.

## **Bridgend County Borough Council**

### **(1 s19 report)**

87. No return. No s19 reports carried out as a result of February 2020 storms.

## **Carmarthenshire County Council**

### **(1 s19 report)**

88. No return. No s19 reports carried out as a result of February 2020 storms.

## **Cardiff Council**

### **(0 s19 reports)**

89. Cardiff Council have not completed any section 19 flood investigations as their threshold has not been met.

## **Ceredigion County Council**

### **(0 s19 reports)**

90. Ceredigion CC as the Lead Local Flood Authority does (to the extent they consider necessary) investigate incidents of flooding to establish:

- which flood risk management authority has responsibility
- what actions are proposed and are arising that should be taken to improve the flood risk strategy before, during, and after an event
- the source and scale of the flooding

- record information on flooded properties – local evidence
  - who responded to the incident/event?
  - consider a partnership approach with other Risk Management Authorities
  - publish the results of the investigation.
91. The option for LLFAs to investigate has led to LLFAs using different thresholds. Ceredigion CC will produce and publish s19 reports if more than 10 properties in one location are flooded internally.
92. The report helps the Authority to investigate the management of flood risk that Ceredigion CC undertook during the flooding event.
93. The report provides a summary of the actions being carried out by each of the Flood Risk Management Authorities involved, together with an indication of suggested future actions.
94. S19 reports can strengthen business cases for funding, submitted by LLFAs as local evidence alongside detailed modelling.
95. The completion of the report raises factors such as resource availability, operational issues, and interpretation of flood risk and does ensure the risk of future flooding is mitigated as far as possible.
96. The report helps to identify current challenges faced by lead officers delivering the function of the LLFA.
97. This approach enable a better understanding of survey responses while also offering opportunities to share good practices and think of ways of improving.
98. The reports do highlight the lack of capacity to manage the flood risk and technical tasks which are the main factors impacting the ability of officers to carry out their flood risk duties. There appears to be a disconnection between lead officers and decision-makers. That is further impacting service improvement and support.
99. The s19 reports still highlight a lack of awareness and ignorance of flood risk management of the general public and riparian owner:
- that the primary responsibility for protecting property from flooding rests with the property owner
  - must maintain any culvert, or the bed and banks of any adjacent watercourse
  - clear away any debris from the watercourse or culvert, even if it did not originate from their land.



## Conwy County Borough Council

(34 s19 reports)

100. What do you feel are the learning points you have taken away from compiling these reports?

- An exhaustive template was originally developed to standardise report production. In many cases this was too in-depth, particularly with the low threshold for report production, and also meant time was spent populating information that may have been irrelevant or unnecessary for the understanding of the issues. Simplified templates have subsequently been produced which are more efficient although they then to be used for reports below the threshold for publishing.
- The low threshold for producing reports means that under normal circumstances some minor localised issue may have more chance of resolution, however, after significant flood events, all publishable reports have the same deadline making prioritisation of the most significant issues more difficult and resources perhaps not targeted in the most efficient manner.
- The need to publish all eligible reports also raised the issue of what personal information can be included and the need to avoid using specific addresses can be more time consuming or lose some accuracy in reporting and potentially in developing actions if the report is used instead of more detailed background information (particularly if being taken forwards by consultants who may not have easy access to this data).

101. How successful have you been in progressing post event actions and recommendations?

(These may be actions identified before, during or after publication of any s19 report)

- Actions within the powers of the LLFA have generally progressed well although this has probably not been significantly different than the progress made prior to s19 reports being required.
- The greater consultation between RMA has improved the knowledge of actions being taken by others although it is not clear that this has had a significant change in what is being done or that similar knowledge would not be equally shared through collaborative groups set up following F&WMA.
- There has probably been greater communication of residents own powers and duties although these actions are still the least likely to be progressed.
- Having formally laid out and published actions does make the process of tracking and progressing actions easier and more transparent, but the publication of all reports can mean that there is pressure to progress actions based on the most vocal parties rather than through impartial analysis of priorities.

102. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- The prioritisation and decision making in the authority was already pro-active in this area. The equal status and deadlines for all reports for publication may detract from prioritisation although this doesn't seem to have been a significant issue. However, the reporting is often used to support applications to the FCERM team in WG for schemes to progress to BJC or OBC stage.

- The reporting certainly raises the profile of the Department with Councillors who are always interested in occurrences within their ward.
- Given that the same deadlines are given for all reports and major flood events lead to a sudden but unsustainable increase in workload they lead to use of consultants instead of authority staff and are detrimental to resourcing. As consultants tend to be used on the more significant issues this can reduce the experience of authority staff in investigating the highest priority events.

## Caerphilly County Borough Council

### (4 s19 reports)

103. While Caerphilly CBC did not respond to all the questions raised, they provided a helpful insight to some of the challenges within RMAs in the preparation, publication and progression of measures in s19 investigation and reporting.
104. Following the February 2020 flooding, the main work in relation to the s19 investigation reports was carried out by external consultants due to resource capacity within the team. This has enabled all work reviewing flood mechanisms to be completed along with discussions with neighbouring RMAs about the event and its impacts.
105. Maintaining continuity through the process has been challenging with difficulties highlighted around the impact of Covid on collating and preparing information, community engagement and resource priorities; and changes linked to both Senedd and Local Government elections. Since consultants were engaged to carry out the s19 reports, there has also been two changes to the role of Principal Engineer within the Lead Local Flood Authority (LLFA) and three changes to the role of Cabinet Member with portfolio responsibility for the area of flood risk management.
106. The challenges outlined above, do mean that currently the four section 19 reports carried out are yet to be published however, this doesn't mean that work is not being progressed in the locations identified in the draft reports. Three of the four sites are currently being progressed through the flood and coastal erosion risk management business case process as summarised below:
- Birchgrove, New Tredegar – currently at Business Justification Case (BJC) stage; pipeline application approved to progress to detailed design in 2023/24 financial year (subject to approval of BJC).
  - Edward Street, Ystrad Mynach – currently at Full Business Case (FBC)/detailed design stage.
  - Lon yr Afon, Llanbradach – currently at Outline Business Case (OBC) stage.
107. The fourth site at Machen was identified as having been flooded from the main river finding its way up the ordinary watercourse and then flood waters finding its way behind the main river defences. NRW have already carried out repairs and improvements in this area.

108. Capacity and prioritisation within the LLFA alongside maintaining continuity has also impacted on business case development but progressing these is not dependent upon the publication of section 19 reports which will be published in due course.

## Denbighshire County Council

(2 s19 reports)

109. No return. Reports published on Denbighshire County Council website.

## Flintshire County Council

(1 s19 report)

110. No return. No s19 reports carried out as a result of February 2020 storms.

## Gwynedd Council

(21 s19 reports)

111. What do you feel are the key learning points you have taken away from compiling these reports?

- In the past, Gwynedd Council has attempted to produce section 19 for every single flood incident, however as time has gone on we have learned that this is not always achievable within a reasonable timescale. As a result, Gwynedd made the decision to alter its policy and only prepare a section 19 report for more significant flooding events (but specific thresholds have not been set), based on the scale of the event and the need to share information with other RMAs. For events that don't trigger a full section 19 report, a summary report will be produced to capture basic details including as a minimum the receptors and source of flooding.
- Compiling both section 19 and Summary reports has allowed Gwynedd Council to better understand the various risks facing our communities, and has allowed us to map all flood incidents, which in turn has helped us to shape and prioritise our local flood risk management strategy. Our investigation findings have helped the team identify actions that, could reduce the likelihood of similar events or identify measures to lessen the impacts. A key function of the reporting process is that it identifies problem areas and can therefore inform future investment programs.

112. How successful have you been in progressing post-event actions and recommendations?  
(These may be actions identified before, during, or after the publication of any s19 report)

- Section 19 or Flood Summary reports have been invaluable in gathering information not only for Gwynedd Council as the LLFA but also as a way of informing other relevant RMAs. While we actively remind property owners that they are ultimately responsible for protecting their property

from flooding, Gwynedd may decide to follow the outcome of the flood investigation with one of the following:

**Advise:** No clear action for the Council to take following the completion of the flood investigation (no clear case for a flood improvement and no reason to consider the application of LDA powers). In these cases, the customer should be advised of property-level measures which could be considered to increase flood resistance/resilience in the future.

**Monitor:** Flood investigation is inconclusive and therefore further monitoring of the situation is required in the future. The customer should be encouraged to assist with the monitoring and share useful information with the Council.

**Application of powers:** If the flood investigation has identified that negligence of maintenance or riparian responsibilities is contributing to flood risk, the Council should follow this up with the relevant parties to ensure that the situation is corrected as soon as possible – this could be a private landowner, or another organisation or Council department.

**Improvement:** The investigation may identify that flood risk could be managed through an intervention that is proportionate to the flood risk. Section 19 should not make recommendations for improvements as the ability to deliver capital works is not always within the Council's control.

**Study:** The nature of the problem may warrant a detailed study to better establish the scale and level of flood risk (possibly including survey or modelling work) and identify potential improvement options.

**Transfer:** Pass on to another RMA or another department within the Council.

113. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?
- Yes. Reporting on the number of s19s has become an integral element of our function within the Authority. Albeit that as a measure, it simply outlines a work demand but this also indicates the resources required to meet or underachieve our aspirations.
  - It also forms an important element within our prioritisations of catchments which form our mechanism for seeking funding for interventions. We also hope to apply monitoring regimes post interventions so that we are able to demonstrate positive impacts. For example, a defined event at a particular location generated 'x' number of s19 reports pre-intervention, whilst a similar event had a reduced impact post-intervention.
  - S19 are used as a truthing component within a methodology which prioritises catchments on a theoretical risk.

## Isle of Anglesey Council

### (36 s19 reports)

114. What do you feel are the learning points you have taken away from compiling these reports?

- That a partnering approach between Risk Management Authorities is essential, for there to be swift and effective action to reduce flood risk and to provide the best service to the customer.
- That, in some cases, we have learned that the compiling of a full report is not required. Recording the incident may be sufficient. Historically, we have had a very low threshold, but this will be reviewed as our local Flood & Coastal Erosion Risk Management Strategy is refreshed.
- The sooner the better the information is captured the more effective the report can be. The first engagement and furthering subsequent engagement is critical for action to be effective. Some people quickly forget that they are at risk.
- We believe that a standardised template for section 19 FIRs might be beneficial. It would enhance reports by learning from good practice across Wales.
- To try and keep reports brief, clear and concise.

115. How successful have you been in progressing post event actions and recommendations?  
(These may be actions identified before, during or after publication of any s19 report)

- We feel we have been reasonably successful, most of our s19 FIRs have resulted in some action to reduce flood risk. We, on Anglesey, are also quite successful in drawing down WG grant funding to carry out works and we feel this is directly related to our investigation work.
- We have, however, found that recommendations within the section 19 report, to relevant homeowners, are not always taken seriously by homeowners that are not immediately affected. Especially when the cause of the flooding may be in the curtilage of a neighbouring property (to that flooded) that is less prone to flood risk.
- We believe that the preparation of an FIR can have a positive effect when liaising with other RMAs on an issue where the risk is shared.
- It has not always been possible to progress some actions, due to limited staff resources within the FCERM team. With the increases and some longer term certainty in the revenue grant allocation, this matter is being addressed and we have recently appointed a new Senior Engineer and new Community Engagement Officer to assist.

116. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- Yes. We have perhaps been overly ambitious in preparing reports for smaller issues, but we feel that this has helped, particularly when evidencing Small Scale Scheme applications. We are reviewing this, as flood incident recording can be sufficient, if data is captured effectively. However, we feel FIRs have been vitally important in prioritising larger schemes.

## Merthyr Tydfil County Borough Council

### (1 s19 reports)

117. What do you feel are the learning points you have taken away from compiling these reports?

- Due to s19 thresholds not being breached previously, the internal flooding to properties encountered during Storm Dennis triggered the first s19 investigation that had been undertaken by MTCBC. It can't be underestimated how important bringing these reports together is.
- The report is a mandatory mechanism for regulatory bodies to look at all sources of flooding. As many LLFAs are also involved in operational issues and carrying out reactive schemes to address immediate flooding problems, the s19 investigation allows the regulatory body to step back from the aftermath and look at what the issues are on a wider scale.
- The reports offer an insight to various stakeholders of the immediate issues and highlights to the LA, what went wrong, what needs improvement and where further investment is required.
- The report highlights some failings across multiple RMAs/organisations and should be a catalyst for improvement on a catchment scale. Mandatory input from RMAs/relevant organisations/riparian owners in drafting these reports is essential for any future flood events.

118. How successful have you been in progressing post event actions and recommendations?

(These may be actions identified before, during or after publication of any s19 report)

- MTCBC have been successful in addressing the recommendations within the report although there are areas that require further time and investment. For a small authority where investment in flood prevention hasn't always been a priority, it has performed well.
- Of the 51 flood alleviation/ground remediation schemes identified within the s19 report, 47 of these schemes have now been completed or are under construction. The emergency funding provided by WG to support these schemes will be discontinued in April so the four remaining schemes are unlikely to be completed using this funding stream. Use of WG's pipeline funding stream will be required in order to complete them.
- A review of necessary emergency equipment has been undertaken and MTCBC's flood emergency action plan has been updated accordingly.
- Many of the flooding events that occurred during the storms of 2020, were as a result of poor inspection/maintenance of assets/features under the jurisdiction of other regulatory bodies (NRW DCWW/TfW). Essential ongoing maintenance of water bodies and flood defences are yet to be addressed. e.g. severe flooding was experienced from the Glamorganshire canal during storm Dennis. 2 years on and no maintenance regime has been implemented by DCWW and flooding is still at high risk on this water body.
- Ensuring riparian owners carry out regular inspections and maintenance continues to be a challenge.
- Flooding from sections of the river Taff remain at high risk. NRW have now formed a Taff catchment masterplan partnership to look at addressing short/long term plans with RMAs.

- Engagement within the highest risk communities continues to be an area where MTCBC should look to invest resource.

119. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- The creation of the report has highlighted to politicians and stakeholders, the complex nature of flood risk problems. Flood risk problems are not unique to ordinary watercourses and rivers but need to be assessed from other sources e.g. ground water from mine workings and sewers already running at full capacity.
- Due to responsibilities for these sources varying across different land owners or organisations, trying to achieve a holistic approach and getting “buy in” from responsible parties to resolve certain issues is often difficult to achieve.
- The Local Authority invests heavily in maintaining its own flood defences/assets but unless riparian owners make the same commitment, sometimes the good work that is done, doesn't necessarily address all of the flood risk.
- We understand where the priorities should be but addressing flood risk is usually catchment wide and problems can't always be fixed by carrying out localised flood alleviation schemes.
- Investment tends to be reactive to flood events and due to normal budgetary constraints, lack of resource as well as the many responsibilities placed on already stretched LLFA departments, strategic planning for managing flood risk always proves a challenge.

## Monmouthshire County Council

(10 s19 reports)

120. What do you feel are the learning points you have taken away from compiling these reports?

- Writing, sign-off and publication of the section 19 reports was very time consuming and resource intensive, particularly when having to produce multiple reports from the same flood event.
- Collating information from multiple sources such as flooded residents, businesses, other RMAs was particularly time consuming and often required several requests being sent.
- We would consider using a shortened version of the current s19 report template, particularly for the final published report, should a need arise to produce multiple reports in future.

121. How successful have you been in progressing post event actions and recommendation? (These may be actions identified before, during or after publication of any s19 report)

- Upon completion of all reports we compiled a schedule of recommendations. We are working through the recommendations assigned to us as Lead Local Flood Authority, with the most urgent having been addressed at the time of writing or immediately after publishing the report. Some actions are longer term and will require additional resource and/or funding.

- At times we have found it difficult to get updates from other RMAs on the progress of recommendations assigned to their organisation. This can be frustrating for us and local communities who wish to be updated on future actions/intentions.

122. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- Yes. A number of schemes are now being advanced following the findings and recommendations of the s19 reports. The reports have provided a sound evidence base for flood scheme grant applications, senior officers and the general public.
- The reports also offer an excellent account of the flood events which will be of use to future engineers should repeat events occur.

## Neath Port Talbot Council

### (8 s19 report)

123. What do you feel are the learning points you have taken away from compiling these reports?

- Ensuring there is a plan in place to collect good quality information during the event. Flood Risk Officers are often involved during an event, with the emergency clear up and talking to those effected. It is critical that officers collect and record as much data as possible that will aid with the development of a s19 report, post event. I.e. Home owner accounts, flow paths, water level depths, flood water extents, mechanisms for flooding, pictures, number of property's flooded internally, number of properties effected, Rainfall information leading up to and during the event, what measures/actions were put in place to alleviate the flooding during the event etc. The more information recorded the more detailed and informative the s19 report can be. We utilise the NRW's 'Addressing floods' database and use their forms to fill in information for each property affected.

124. How successful have you been in progressing post event actions and recommendation? (These may be actions identified before, during or after publication of any s19 report)

- For all published s19 reports we have actioned all recommendations. We feel we have performed well at developing and actioning s19 reports. We have published 6 reports since 2016 and currently have 2 in draft which should be published in the spring 2023. We have a template report set up so each report reads similar and contains (what we believe) is relevant information.

[www.npt.gov.uk/8057](http://www.npt.gov.uk/8057) **Link to Reports**

125. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- We find local council members and residents are interested in the information contained within the reports, outcomes and recommendations provide assurances to those affected that the council are taking actions to mitigate flooding happening again. It also provides those affected with information on who's responsible for managing flood risk in a particular area, which they may not have previously known about. Furthermore, we find s19s are very useful to report to WG officials as well as internal management. They are also used as supporting documentation/ evidence for FCERM grant applications for project development.



## Newport City Council

### (1 s19 reports)

126. No return. No s19 reports carried out as a result of February 2020 storms.

## Pembrokeshire County Council

### (1 s19 reports)

- On Friday 3rd January 2014, following a period of prolonged gale and storm force winds and low pressure systems, large wave formations and tidal surges were generated along the Pembrokeshire coast. This, coinciding with High Astronomical Spring Tides, resulted in a flood event occurring at Lower Town, Fishguard, Pembrokeshire.
- Whilst not reaching the threshold to instigate a section 19 response, the event was discussed (early December 2014), with the Senior Engineer and Coastal and Rivers Engineer (both now retired) where it was decided that a section 19 investigation would be beneficial, since it would raise awareness of what was required to prepare a report and that it could be used as a future template for other flood events. It was agreed that the Land Drainage and Flooding Officer would carry out this task. It was not intended to publish the Report to the public domain.
- It was decided that once completed, the report could be published into the public domain which was carried 01/02/2016. It is understood that there was no obligation to do this.
- There have been no incidents of flooding in Pembrokeshire where it has been considered that the trigger levels for a section 19 report have been reached.

127. What do you feel are the learning points you have taken away from compiling these reports?

- What information is required to compile the report
- How to present the report
- Identification of stakeholder
- Communication with stakeholders

128. How successful have you been in progressing post event actions and recommendation? (These may be actions identified before, during or after publication of any s19 report)

- Post event actions have been implemented to the satisfaction of the Authorities Senior Engineer and Coastal/Rivers Engineers (Both Retired).
- The expectations of residents were not met. They felt that the report should highlight what measures the Authority should take in preventing future events. I.e. tidal barrier and other schemes which were deemed not to be practicable.

129. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- As a consequence of the report, public meetings were held between residents, Mr Paul Davies (AM), Flood Officers for Natural Resources Wales (NRW) together with senior Officers from Pembrokeshire County Council (PCC). The purpose of the being to discuss the Flood Investigation Report brought out by PCC on the topic of the serious flooding which occurred in 2014. Drop in surgeries were also held and it is understood were attended by officers from PCC, Mid & West Wales Fire & Rescue Service, NRW, South Wales Trunk Road Agency and Dwr Cymru Welsh Water.
- The report which was widely publicised raised awareness amongst other communities in relation to their vulnerability to flood events due to climate change.
- As a result of raised awareness it is understood that support from residents enables the Authority to secure funding for the installation of flood gates at Little Haven.

## **Powys County Council**

**(4 s19 reports)**

130. No return.

## **Rhondda Cynon Taff County Borough Council**

**(19 s19 reports)**

131. What do you feel are the learning points you have taken away from compiling these reports?

- Although the actual reporting requirements of s19 are relatively straightforward, the public expectation on how much detail is included is very high. There is a balance between meeting this expectation and simply doing enough to discharge the requirements of section 19.
- Through building up the investigatory information in a structured manner with; internal officers, consultants and contractors, whilst keeping the main authoring within the expertise of the RCT FRM team, who have local and operational knowledge enabled decisions and actions to be dynamic throughout the whole process. See Question 2 below. In our opinion, this process would not have been as dynamic if the s19 reports were authored by consultants, as feedback would have been slower.
- Based on public feedback it was apparent that publishing a s19 report was reassuring to the public, that the responsible RMA understood the cause of flooding and the actions that have and will be taken.

132. How successful have you been in progressing post event actions and recommendation? (These may be actions identified before, during or after publication of any s19 report)

- Through the support of the Welsh Government grants and RCT Capital, funding we believe RCT has been very successful.
- The investigations provided an ongoing thought process and structure to prioritise actions into short, medium and longer term and these were summarised at the point of publication. A summary of ALL the actions as of October 2022 are listed below:

RMA	Total number of actions	Total number of actions completed	Completed %	Total number of actions ongoing	Total number of actions yet to commence
LLFA	380	267	70.26%	89	24
Highways Authority	95	85	89.4%	10	0
Totals	475	352	74.11%	99	24

- The 99 ongoing and 24 awaiting actions are mostly strategic, investment or longer term.
- It is envisaged that most will be incorporated into the **Local Flood Risk Management Strategy Review** required under the Flood and Water Management Act 2010, which commenced in **December 2022**, for completion by March 2024.
- The next generation of the Local Flood Strategy will also contain a 1-6 year action plan which will effectively replace the **Flood Risk Management Plan** completed under the Flood Risk Regulations (EU floods Directive).
- This will provide not only an opportunity to integrate the **National Flood Risk Strategy**, but also the Council's new **Climate Change Strategy**, short, medium and longer term investment strategy and partnership working as identified in section 19 reports and any strategic policy around surface water flood risk feeding into development planning (TAN15 revised).

133. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- The s19 reports together with the report to Cabinet in October 2020 '**Review of regulation, awareness and enforcement of flood and water legislation**' has raised awareness, which in turn has increased FRM as a corporate priority. It has also provided evidence for increased resourcing with an additional 2 full time members of staff added to the FRM team and a further 3 temp posts, a Graduate Officer, Apprentice and an Asset Technician supported by WG revenue grant to build resilience. In addition, a dedicated Pluvial Drainage Maintenance Team has been created as well as a Central Control Room.
- The Council now has a 4-5 year investment program based on actions prioritised from the s19 reports. In December 2021, the Council bid for the 'Approval in Principle' (AIP) of 17 major project stages as a part of the **Flood and Coastal Erosion Risk Management Programme 2022-23**. There has been a total investment of £13m from Storm Dennis to April 2021 with the investment program continuing. A further Submission has been made in December 2022 for a further 15 project stages.

## Swansea Council

(1 s19 reports)

The Authority has completed one s19 report which has been published and link is provided accordingly. [www.swansea.gov.uk/floodinginvestigations](http://www.swansea.gov.uk/floodinginvestigations)

134. What do you feel are the learning points you have taken away from compiling these reports?

- The cost for the producing the s19 reports for Beryl Road was in the sum of £17k which required WG funding to support the production of the report. The Authority has no internal resource to undertake work of this nature and awarded a contract to Atkins in August 2020 and was completed in Oct 2021. Effectively it took over 12 months to complete the investigation.
- The need for public consultation and questionnaires produced to obtain feedback on experiences and to obtain information on possible causes of flooding. These had to be translated which incurred delays.
- Collaboration with DCWW was necessary as part of the works as DCWW apparatus also contributed to the flooding.

135. How successful have you been in progressing post event actions and recommendation? (These may be actions identified before, during or after publication of any s19 report)

- Numerous actions were necessary during the production of the report.
- CCTV surveys and asset data collection was needed on drainage systems serving the catchment.

- Historical flooding information was collected to inform the s19 report.
- Numerous site visits were undertaken and discussions held with third party landowners to gain permission to undertake ditch clearance works to improve the conveyance properties of the ditched serving the catchment. i.e. to improve flow conditions.
- Engagement of specialist contractor to undertake confined space entry to assess the condition of a large diameter culvert system which served the area. The culvert needed clearance works and this was completed in order to improve conveyance.

In summary if minor works could be achieved through increased maintenance then this was undertaken.

136. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- The completion of the s19 report has enabled the Authority to understand the extent of the flood risk and causes which contribute to the flooding to the local community.
- Further decisions have been made, to apply for a Business Justification Case, WG grant funding, in order to determine what enhancements are necessary to mitigate against the risk of flooding, over and above the minor maintenance works as mentioned above which have subsequently been completed.

## **Torfaen County Borough Council**

**(1 s19 reports)**

137. No return. No s19 reports carried out as a result of February 2020 storms.

## **Vale of Glamorgan Council**

**(2 s19 reports)**

138. What do you feel are the key learning points you have taken away from compiling these reports?

- The s19 process provides a clear framework for justifying resource/time to properly investigate and compile the results.
- Care needs to be taken not to overly delay reporting pending ongoing evidence gathering/ cleansing/inspections but at the same time enough information must be gathered to make the reports comprehensive and not result in incorrect assumptions around RMA responsibility.
- Care must also be taken that the implementation of urgent recommended actions doesn't adversely affect delivery of outstanding s19 reports at other locations.
- The LLFA must undertake community wide follow-up investigations rather than assume that other RMAs are capturing a comprehensive record of the event.

- Other RMAs will limit their investigations to their requisite flooding responsibilities and may not fully capture information around the interaction of different causal factors, e.g. surface and foul flooding likely caused by individuals lifting covers to try and alleviate fluvial flooding upstream.
- We cannot solely rely on NRW providing a comprehensive assessment of the magnitude and extent of fluvial flooding but by working collaboratively and sharing data a common position can be reached and captured in the s19 report.
- For larger investigations such as in Dinas Powys new eyewitness reports were received and unknown surface water assets still being identified 18 months later. Although not required to date, a clear process for correcting or updating reports may need to be developed as our understanding of flooding mechanisms evolves at each site. Delayed reporting on sites where surveys and information held by other RMAs was critical resulted in significant pressure from community members or elected representatives.
- The public and elected members often assumed the s19 report would contain a solution to resolve flood risk rather than documenting the flooding that had occurred. Clear messaging and communication can help manage these expectations and, where justified, generate political support for the subsequent development of schemes.

139. How successful have you been in progressing post event actions and recommendations?  
(These may be actions identified before, during or after publication of any s19 report)

- Regular monitoring of non-LLFA led actions is not currently undertaken.
- At the two sites (Sully and Dinas Powys) where s19 reports were published after flooding in December 2020 a total of 21 actions were recommended of which 9 were LLFA led (2 of which shared with another RMA). Of the LLFA led actions, 5 are completed, 3 are progressing and 1 has not been progressed. It should be noted that different actions require significantly different levels of resource and time to complete, with some dependent on other actions being completed as a precursor.
- Significant success has been achieved installing PFR measures in Sully utilising Welsh Government small-scale scheme funding and a SOC for a community level scheme is in development.
- Likewise, a BJC has been completed for the installation of PFR to 180 properties in Dinas Powys with tender returns due early in 2023.

140. Has the completion of these reports helped in raising the profile of flood risk issues and supported decisions in areas such as prioritisation and resourcing within your authority?

- The reports have influenced the prioritisation of scheme delivery, resulting in some lower priority schemes being deferred due to internal resourcing constraints.
- To date no additional internal funding has resulted from the s19 investigations. However, additional Welsh Government capital funding has been obtained using the s19 reports as evidence.

## Wrexham County Borough Council

(0 s19 reports)

141. No return. No s19 reports carried out as a result of February 2020 storms.

# Natural Resources Wales Response to Section 19 Flood Event Reporting

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142. As part of the wider review following the events of February 2020, NRW undertook a review of its own performance and to identify areas to be improved including in the areas of post event reporting, reporting on flood impacts and on sections 19 reports conducted by the Lead Local Flood Authorities (LLFA).

143. NRW identified eight areas specific to section 19 reporting where it feels further consideration is required.

- No consistent format or specification used by LLFAs or those carrying out on their behalf.
- No consistent threshold used to instigate a section 19 investigation.
- No fixed timescales for publishing section 19 reports.
- Limited use of British Standard guidance on investigating flooding incidents by LLFAs in Wales.
- No single repository for published section 19 reports in Wales.
- Limited sight of report and identified actions ahead of publication.
- Section 19 reports identify actions on another RMA or third party which in some cases is not agreed, not realistic, not prioritised potentially leading to falsely raising expectations for the reader.
- No overarching or independent governance of producing reports or assuring content or recommendations.

# Implementing the Recommendations of NRW's Review of its Response to the February 2020 Floods

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144. The February 2020 storms resulted in the worst flooding in living memory in large areas of Wales, impacting 3,130 properties across Wales. The scale was such that many rivers across Wales saw new highest recorded levels with NRW issuing the largest number of flood warnings in Wales (Alerts, Warnings and Severe Flood Warnings) totalling 430.
145. Following the February 2020 flooding, NRW undertook its own review into the events and its response. These reports were aimed at reviewing NRW's internal performance to the response, their assets and staff, and for it to be an open and honest report identifying learn lessons from this significant event. The review published 3 reports in October 2020 along with a summary report and a 'storymap' that provided information in a more easily accessible way. All reports are published and are available on NRW's website – [Natural Resources Wales/Our response to Storm Ciara and Storm Dennis](#):
- February 2020 Floods in Wales: Natural Resources Wales' Response
  - February 2020 Floods in Wales: Flood Event Data Summary
  - February 2020 Floods in Wales: Flood Incident Management Review
  - February 2020 Floods in Wales: Land Estate Management Review
  - February 2020 Floods in Wales: Flood Recovery Report
  - Storymap: [February 2020 floods in Wales \(arcgis.com\)](#).
146. The review identified 50 core issues covering 10 key areas, from communications and flood warning disseminations to operational capacity, response, and recovery. From these 74 specific flood actions were identified for improvement which have been taken forward by NRW to address. In addition, there were 20 actions identified as part of recovery work. As part of this review, NRW has provided an update on its Flood Review and Review Implementation Programme (FRRIP) along with progress against the identified actions.



# Main Findings

147. NRW summarised the main issues in the following areas:

- Flood Warning Service shortfalls.
- Capacity to warn effectively and on the ground response.
- Need for greater resilience in NRW's response to major incidents.
- A need for improvements in the preparation ahead of a major incident and also in the recovery phase.
- A discussion is required about the implications on the service level NRW can currently provide and the service level that may be expected of it.

148. Following publication, NRW developed a project governance structure to address the total of 94 flood actions split over 12 functional work areas reporting regularly to NRW's Board, Flood Risk Management Committee and Executive Team (table 3). NRW have reported 79 of the 94 flood recovery and review actions to have been completed with 15 actions remaining to be completed and in various stages of delivery.

**Table 3: Summary of Work Areas**

Work Area (WA)	Number of recommendations
WA01 – Improving Communications	4
WA02 – Recovery Community Engagement and Resilience	4
WA03 – Flood Warning Service Review	6
WA04 – Hydrometry & Telemetry	6
WA05 – Flood Forecasting	7
WA06 – Incident Management procedures	23
WA07 – Recovery Planning for Future Incidents	6
WA08 – Operational Capacity – people	3
WA09 – Operational Capacity – Tools & Equipment and Services	9
WA10 – Local Operations	7
WA11 – Flood Defences and Strategy	5
WA12 – Oversight of Our Ongoing Recovery	14
<b>Total</b>	<b>94</b>

149. A key internal deliverable was to review and add capacity to incident management response capability across the organisation. The ability to maintain pace with the size and scale of the event and the requirements of the flood warning service was highlighted by their review and in feedback from communities and others. This has resulted in a full internal consultation process and change in contractual agreements within NRW to ensure there are increased numbers of trained staff available to take part in incident response activities.
150. NRW identified a clear governance structure to deliver specific actions with some considered as being delivered through normal business activities. The 15 outstanding actions have been identified as requiring longer term delivery profiles due to scale, cost and complexity however there is no timeframe outlined for the completion of these remaining actions. Some improvements are linked to the delivery of a new flood warning service system across Wales. A project is underway to deliver this new system which will lead to improvements identified within the flood warning service review.
151. While good progress has been made against the 94 recommendations, as with actions identified through section 19 reviews carried out by Local Authorities, the speed at which these can be addressed is dependent upon capacity, resourcing and against the delivery of other 'business as usual' activities within NRW.

## Senedd Members Consultation

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152. As part of this review, it was felt important to hear the voices of those communities who have been directly affected by the flooding events of 2020 and 2021. Although bound by the agreed terms of reference and as not to unreasonably extend the timeframe to complete the review, it was agreed that elected officials at the Senedd would be approached to submit feedback directly, from constituents and other stakeholders. In agreement with the Minister for Climate Change and Designated Member for Plaid Cymru, it was felt the most appropriate and practical way to do this was through inviting joint party group submissions.
153. Through party leaders or directly (if not affiliated to a specific party), Members of the Senedd were invited to contribute to the review and specifically consider the following 5 questions:
- i. Do you support the requirement for Local Authorities to carry out investigations following instances of flooding?
  - ii. What do you feel are the benefits/disbenefits in carrying out s19 flood investigation reporting?

- iii. Do you feel improvements could be made in the current s19 reporting process? If so, where?
- iv. How important do you consider the completion of these reports in the wider prioritisation and awareness raising of flood risk management within communities?
- v. What alternative approaches would you suggest to the current s19 flood investigation process?

154. A broad range of information and views were received in response to the invitation. Many provided direct responses to the questions raised with others also provided additional information in the form of case studies, reports and individual testimonies of those who had been directly impacted by flooding.

155. These include details of specific personal challenges from specific instances of flooding, performance of individual defences and structures, concerns regarding the cost and availability of insurance in flood affected areas, discharges from combined sewer overflows and flooding of infrastructure.

156. All information is welcomed and helps to build a broader picture of the challenges that communities face in response to flooding and provides useful context on the variety of impacts flooding has when affecting communities. While of interest and of use, some of this information falls beyond the scope and agreed terms of reference for this review. It does, however, emphasise the broader challenges facing flooding and water management in communities and across catchments.

157. In addressing some of these specific issues, it should be noted that parallel audits and reviews are taking place that has either covered some of these aspects or will be going forward and therefore in line with the agreed terms of reference they would be considered outside the scope of this review. This includes work carried out by the Audit Wales, National Infrastructure Commission Wales and Flood and Coastal Erosion Committee.

158. Reviewing the information submitted, there are six common key themes specific to the reporting process but that are also linked to the wider delivery of flood risk activities across Risk Management Authorities:

- Timeliness of reporting
- Consistency in reporting and thresholds for instigating a s19
- Openness and transparency
- Feedback on reports and their accessibility
- Ability for public to be involved
- Skills and Capacity within RMAs

159. Many of the themes identified correlate with those identified in responses by NRW and from within Local Authorities themselves. The themes are recognised and have been a challenge for RMAs since the implementation of the section 19 reporting under the Flood and Water Management Act in 2010.
160. Within the current National Strategy for Flood and Coastal Erosion Risk Management in Wales a measure has been identified specifically to address the issues that have been raised. **“We want section 19 investigation reports to be simpler for Local Authorities to undertake and easier for the public to understand”**. Under Measure 21 there is a requirement to develop high level requirements and supporting guidance for section 19 flood investigation reports.
161. Work to progress this measure is identified to be led by FCEC working alongside WLGA and Local Authorities. The ability to carry out these reports efficiently relies upon adequate levels of staff with the required knowledge, skills and technical expertise within Local Authority teams. Boosting these skilled resources has been identified as an industry wide issue, one which is already being prioritised by all RMAs and FCEC through flood specific training opportunities and working with academia, education providers and specialist providers.
162. Simplifying the reporting, reviewing the thresholds at which section 19 are carried out and providing an opportunity for public input, and a more consistent approach amongst Local Authorities are highlighted as a confusing area within the process. The legislation itself allows for a wide range of flexibility in many of these areas. Local Authorities can determine themselves the extent they may wish to investigate, identify the source of flooding and, where appropriate, publish findings.
163. The extent to which Local Authorities may choose to do this will be driven by many factors, not least the capacity to do so. Feedback indicates there may be an expectation that all flooding should be investigated, but there is no threshold set in legislation that would require this to happen. However, in Wales there is an expectation by Welsh Government that these investigations should take place where more than 20 homes in one area are affected.
164. In terms of greater consistency within the reporting process across Wales, there also remains a question around the purpose of these reports. Given that the legislation identifies the need for publication there is potentially a higher expectation from the wider public as to the content of a section 19 investigation. Whether they are purely a factual report of the flooding event, identifying the RMAs involved and whether they propose to exercise their functions or whether they should include greater detail and outline what future work may follow.
165. British Standard Institute has developed a standard supporting post event flood investigation. It is unclear whether Local Authorities follow this guidance however, Measure 21 of the National Strategy again deals with the issue of consistency by identifying the need for the ‘establishment of high-level requirements and supporting guidance for section 19 flood investigation reports’ supporting a drive to consistency.

166. Timeliness of investigations being published and the ability for consultation once again support the development of consistent approach. It is unsurprising those affected by flooding would like to share their experiences and would like to see their views considered as part of the process. Under the current legislation, there is no reason that this cannot already take place and would be up to each individual LLFA to decide the extent to which they may wish to investigate. Some authorities do choose to gather feedback from affected areas using questionnaires to better understand flooding mechanisms and document affected extents.
167. This may require additional resources to carry out effectively and consequently may also lead to an elongated timeframe slowing down the process however the decision would rest with the LLFA as to how they carry out any review.
168. Where investigation reports are published the Local Authority should notify NRW and Welsh Government. They should also notify other RMAs who may have a flood risk management function linked to the event. The decision on how to publish would be a decision for each Local Authority and while many are available on Local Authority websites, some are not. This can often mean that the public and those communities directly affected are not aware of the outcomes of an investigation, whether any further actions are likely to follow and when they may take place.
169. A consistent approach to the publishing and accessibility of reports would support those communities affected and the delivery of any proposed further actions. Having all published reports in one location would also help address the issue of openness and transparency although it is recognised that any such centralisation would require alignment with individual Local Authority policies and guidance.

## Conclusions and Next Steps

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170. This review was initiated to meet the specific commitment set out in the 2021 Labour-Plaid Cymru Co-operation Agreement to support and inform wider work to reduce and address the risk of flooding to communities and businesses. The Review was given clear terms of reference in Summer 2022 and has delivered against those. The Review process now comes to an end.
171. The terms of reference direct me to build upon previous reviews (see ToR paragraph 56 e) and I am expressly invited to make the best use of resources and maximise value for money. There is also a requirement for me to avoid, in so far as possible, duplication with other reports undertaken, underway or planned (see ToR paragraph 56 f) which may be relevant to the scope and objectives of this review. These intersections include, but are not limited to, the Flood and Coastal Erosion Committee, their reviews, the National Infrastructure Commission, its review, Audit Wales' assessment and audit and the Law Commission's work. On any view this is a highly complex landscape with much having been done, much being done and much to do.

172. NRW's internal review identified a clear governance structure to support the delivery of 94 identified actions. Through the information provided, they have made good progress against these actions with remaining 15 outstanding. There is however no timeline set out in relation to the delivery of these remaining actions, only that due to the scale, cost and complexity, they will take longer to deliver. I recognise that with complexity comes uncertainty and consequently may well impact on delivery timeframes, but I would recommend that NRW provide a realistic forecast for the delivery of the remaining 15 actions along with any constraints that might impact any timeframe.
173. The section 19 reports are a small part of that much bigger picture, one piece in the jigsaw of the wider flood risk management landscape. They are just one part of the reporting process, yet an important part that plays multiple roles in providing a degree of explanation as to the 'why' and 'how' flooding may have occurred but also providing a detailed, sometimes, technical historical record that can be used by Risk Management Authorities to support the use of their permissive powers to reduce future risk.
174. My focus is the people, businesses, places and communities impacted by flooding and it is this that has informed my approach. Focusing on technical issues outlined in specific reports rather than considering the strategic issues and overarching frameworks will not achieve change.
175. A recurring theme through this review continues to be a lack of harmonisation in the drafting of reports. A lack of consistency in the approach taken in the investigation and compilation of the section 19 reports. These variations are likely to arise from differing understandings as to purpose, preparation, expectation, style, content, authorship, interpretations, definitions, timescales, available and allocated resources. Something that is not helped by the openness in which the legislation is drafted. I recommend that discussions take place with the Law Commission to determine whether there would be a benefit in reviewing the wider flood risk legislation in Wales as a result of the increasing threat from climate change.
176. There is a need for a pan Wales approach to provide consistency and clarity to the process. To compile guidance and/or design a statutory framework that sets out clear expectations, defines triggering parameters, imposes a timeframe for completion, identifies essential content, advises as to resource, specifies authorship, indicates the expertise required, and guides expectations.
177. The National Strategy measure 21 identifies the need for a review of the section 19 investigation process, and I would support and recommend that they consider the requirements identified above in the completion of this work.
178. This however would not address fundamental questions that arise, such as purpose, use and positioning within the wider flooding monitoring infrastructure/s. Critically the nature and quality of the reports is dependent on skills, knowledge, capacity and resource. Core issues that are beyond the remit of this independent review but identified within Audit Wales recent report and highlighted as work areas to be addressed within other work being considered by Flood and Coastal Erosion Committee (FCEC) and National Infrastructure Commission Wales (NICW). I recommend that these should be priority areas for both Committees.

179. It should also address the issue of openness and accessibility, the ability for those affected to easily access any published reviews and understand conclusions that may have been reached. However, it is evident that expectations associated with the content of a section 19 report vary widely between practitioners, elected officials and members of the public emphasising the need to address the core issue around the purpose of these reports.
180. Other questions arise as to who would assess the quality and acceptability of the section 19 reports, what is the framework for monitoring any outcomes or future actions following the publication. Sharing any lessons learned and common issues across the rest of Wales needs to be a tangible benefit from the production of these reports. This directs back to the central point of defining the purpose, but also highlights the need for Wales wide co-ordination between Risk Management Authorities and a lead to be established that can review progress and share common issues.
181. In support of the issue of openness and transparency I would recommend that the issue of publication needs to be looked at and included within the scope of Measure 21 identified in the National Strategy. Published reports and the information detailed within should be easily accessible to all and would benefit from access from a single point. How this could be achieved should be explored and whether this should form part of a wider flood risk management reporting frameworks.
182. In summary, I advise that there needs to be an overarching view as to purpose, role and status of the section 19 reports. There needs to be clarity as to where in reality they fit into the risk management ecosystem. The current ecosystem is predicated on complex intersections and relationships which are, in reality, excluded from the ambit of this review: for example, between Local Authorities, WG, NRW and other stakeholders; between Policy and Flood Strategy and Flood Implementation; between the section 19 reports and NRW's reporting; between risk and blight; between responsibility and accountability and between flooding and other extreme weather events.

## Views and Comments

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183. As this is an independent, desk-based review, Professor Evans is not seeking to consult formally on the findings or recommendations made in this report. The Review has benefitted however from written evidence and views from elected officials, Natural Resources Wales and Lead Local Flood Authorities. Further information submitted beyond the questions posed including case study information, provided useful context but fell outside of agreed scope. Many people may have views on the points made in this report. These should, in the first instance, be directed to the Welsh Government: [FloodCoastalRisk@gov.wales](mailto:FloodCoastalRisk@gov.wales)

## Annex A

**Table 4: Number of S19 reports produced between February 2020 and October 2021 by each Local Authority (April 2023)**

Local Authority	Section 19 Report Status						S19 Reporting Threshold
	Not Started	Ongoing/ in draft	Awaiting Approval	Completed, not intending to publish	Published	Total	
Blaenau Gwent County Borough Council					1	1	20
Bridgend County Borough Council					1	1	20
Carmarthenshire County Council		1				1	20
Cardiff Council						0	20
Ceredigion County Council						0	10
Conwy County Borough Council			0	23	11	34	5
Caerphilly County Borough Council			4			4	20
Denbighshire County Council					2	2	20
Flintshire County Council	1					1	10
Gwynedd Council				18	17	35	1
Isle of Anglesey County Council		20		2	14	36	1
Merthyr Tydfil County Borough Council					1	1	20



Local Authority	Section 19 Report Status						S19 Reporting Threshold
	Not Started	Ongoing/ in draft	Awaiting Approval	Completed, not intending to publish	Published	Total	
Monmouthshire County Council					11	12	20
Neath-Port Talbot Council		1			2	3	5
Newport City Council		1				2	20
Pembrokeshire County Council	0	0	0	0	0	0	20
Powys County Council		4				4	NA
Rhondda Cynon Taff County Borough Council					20	20	20
City and County of Swansea			1		1	2	5
Torfaen County Borough Council						0	20
Vale of Glamorgan Council		2			3	5	9
Wrexham County Borough Council						0	
<b>Total</b>	<b>2</b>	<b>34</b>	<b>8</b>	<b>43</b>	<b>84</b>	<b>164</b>	

# Annex B

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## Useful Links

National Strategy for Flood and Coastal Erosion Risk Management in Wales – [National Strategy for Flood and Coastal Erosion Risk Management in Wales | GOV.WALES](#)

Flood Risk Assessment Wales (Flood Map) – [Natural Resources Wales/Check your flood risk on a map \(Flood Risk Assessment Wales Map\)](#)

Flood and Coastal Erosion Risk Management Programme 2022 to 2023 – [Flood and Coastal Erosion Risk Management Programme 2022 to 2023 | GOV.WALES](#)

Flood and Coastal Erosion Risk Management Programme 2023 to 2024 – [Flood and Coastal Erosion Risk Management Programme 2023 to 2024 | GOV.WALES](#)

Lead Local Flood Authority Flood Information and Reporting

- Blaenau Gwent County Borough Council – [Appendix 1.pdf \(blaenau-gwent.gov.uk\)](#)
- Bridgend County Borough Council – [Flooding – Bridgend CBC, Flooding Incident – Erw Hir, Coychurch Road, Brackla 1/11/12 – 3/11/12 \(bridgend.gov.uk\)](#)
- Conwy County Borough Council – [Completed Flood Investigations](#)
- Caerphilly County Borough Council – [Caerphilly – Caerphilly County Borough](#)
- Cardiff Council – [Flood and Coastal Risk Management \(cardiff.gov.uk\)](#)
- Carmarthenshire County Council – [Flood Risk Strategy and Management Plan \(gov.wales\), s19-storm-callum-vp223.pdf \(gov.wales\)](#)
- Ceredigion County Council – [Local Flood Risk Management – Ceredigion County Council](#)
- Denbighshire County Council – [Denbighshire County Council – Decision – SECTION 19 INVESTIGATION REPORT ON THE FEBRUARY 2020 FLOODS IN DENBIGHSHIRE](#)
- Flintshire County Council – [Floods \(flintshire.gov.uk\)](#)
- Gwynedd Council – [Flood investigation reports \(llyw.cymru\)](#)
- Isle of Anglesey County Council – [Flood investigation reports and asset register \(gov.wales\)](#)
- Merthyr Tydfil County Borough Council – [S19 Report Storm Dennis Version 3 \(merthyr.gov.uk\)](#)
- Monmouthshire County Council – [Flood Investigation Reports – Monmouthshire](#)

- Neath Port Talbot Council – Investigations into Flooding – [Neath Port Talbot Council \(npt.gov.uk\)](http://npt.gov.uk)
- Newport City Council – [Flooding | Newport City Council](#)
- Pembrokeshire County Council – Flooding – [Pembrokeshire County Council](#)
- Powys County Council – [Dealing with emergencies – Floods – Powys County Council](#)
- Rhondda Cynon Taf – [Flood Investigation Reports | Rhondda Cynon Taf County Borough Council \(rctcbc.gov.uk\)](#)
- Swansea Council – [Investigations into flooding – Swansea](#)
- Torfaen County Borough Council – [Flood Investigation Report – Cwmbran | Torfaen County Borough Council](#)
- Vale of Glamorgan County Council – [Flood Investigation Reports \(valeofglamorgan.gov.uk\)](#)
- Wrexham County Borough Council – [Links – Flooding | Wrexham County Borough Council](#)

NRW 2020 review – [Natural Resources Wales/February 2020 flood review \(Storm Ciara and Dennis\)](#)

Flood & Coastal Erosion Risk Management in Wales Final Report of the Resources Sub-Committee – [resources-for-flood-and-coastal-erosion-risk-management-in-wales-final-report.pdf \(gov.wales\)](#)

Audit Wales – [A Picture of Flood Risk Management](#)

Climate Change, Environment, and Infrastructure Committee – [Completed work and Published Reports – Climate Change, Environment, and Infrastructure Committee \(senedd.wales\)](#)

## List of Consultees

Natural Resources Wales

Blaenau Gwent County Borough Council

Bridgend County Borough Council

Carmarthenshire County Council

Cardiff Council

Caerphilly County Borough Council

Ceredigion County Council

Conwy County Borough Council

Denbighshire County Council

Flintshire County Council

Gwynedd Council

Isle of Anglesey County Council

Merthyr Tydfil County Borough Council

Monmouthshire County Council

Neath Port Talbot Council

Newport City Council

Pembrokeshire County Council

Rhondda Cynon Taff County Borough Council

Swansea Council

Torfaen County Borough Council

Vale of Glamorgan Council

Wrexham County Borough Council

Conservative Party Group (Andrew RT Davies MS)

Labour Party Group (Mark Drakeford MS)

Liberal Democrats Group (Jane Dodds MS)

Independent Plaid Cymru (Rhys ab Owen MS)

Plaid Cymru Party Group (Adam Price MS)

Plaid Cymru (Heledd Fychan MS)

## Useful Acronyms

BJC	Business Justification Case – To enable proportionate application of appraisal methods for smaller, simpler and less contentious FCERM projects, a Business Justification process has been developed as an alternative to the full three-stage process for FCERM-BCG.
FBC	Full Business Case – contains the market prices obtained from the procurement exercise, final conditions of any legal agreements or consents, and a completed delivery and management plan.
FCEC	Flood and Coastal Erosion Committee – An independent committee set up to provide advice to the Minister.
FCERM	Flood and Coastal Erosion Risk Management
Fluvial	Flooding caused by river
FWMA	Flood and Water Management Act (2010)
LLFA	Lead Local Flood Authorities – in Wales these are the 22 Local Authorities
NRW	Natural Resources Wales
OBC	Outline Business Case – summarises the appraisal of the Short List of options and the selection of the Preferred Option. A Business Case developed to the OBC level is the basis from which a decision to FCERM Business Case Guidance 5 progress to further (more detailed design) and procurement of the Preferred Option can be taken. The combination of SOC and OBC stages is broadly equivalent to Project Appraisal Report (PAR) previously used in FCERM appraisals.
PFR	Property Flood Resilience (includes: Resistance Measures & Recoverability Measures)
PLR	Property Level Resilience (Recoverability Measures)
Pluvial	Surface water flooding
RMA	Risk Management Authorities – These are defined under the Flood and Water Management Act. For us this is usually referring to Local Authority Teams and NRW (28 in Wales – NRW, 22 x LAs, 4 water companies & Welsh Govt as the highway authority for trunk roads.
SOC	Strategic Outline Case – is prepared at the start of a project to provide the strategic case for change, identify the objectives of the project, identify and appraise a Long List of options to demonstrate the viability of a project. A Business Case developed to the SOC level is the basis from which a decision to progress to a fuller project appraisal can be taken.
	SOC and OBC will often be funded together under one grant, however Local Authorities will be required to complete an SOC and submit for approval, prior to continuing to OBC.
	An SOC/OBC or a BJC will be completed, not both.
SuDS	Sustainable Drainage Systems