

The response to recent storms

September 2025



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About the Committee

The Committee was established on 23 June 2021. Its remit can be found at:
www.senedd.wales/SeneddClimate

Current Committee membership:



Committee Chair:
Llyr Gruffydd MS
Plaid Cymru



Janet Finch-Saunders MS
Welsh Conservatives



Delyth Jewell MS
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Julie Morgan MS
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Carolyn Thomas MS
Welsh Labour



Joyce Watson MS
Welsh Labour

The following Member attended as a substitute during this inquiry.



Heledd Fychan MS
Plaid Cymru

Contents

Chair’s foreword 5

Recommendations 6

1. The impact of storms Bert and Darragh..... 9

2. The adequacy of forecasting and warnings12

3. Responding to severe weather events30

4. Support for communities and individuals.....44

5. The resilience of infrastructure49

6. Preparing for a more disruptive future55

Annex 1 : List of oral evidence sessions.63

Annex 2: List of written evidence65

Chair's foreword

Over a three-week period in November and December 2024, storms Bert and Darragh battered Wales. From Pontypridd to Holyhead, there was severe damage. Homes were flooded. Infrastructure was overwhelmed. Tens of thousands of people were left without power.

The purpose of our inquiry was to see what lessons can be learned as we face a future with more frequent and severe storms. This report sets out a series of recommendations to strengthen Wales's resilience in the face of such storms. We call for the adoption of the latest forecasting technologies, more consistent and clearer public warnings, and improved data sharing to protect vulnerable residents. We also call for actions that we believe can deliver significant long-term benefits - nature-based solutions and catchment-scale flood management are the tools with the best potential to address the challenges we are facing.

We considered the impact on residents whose homes were damaged by storms Bert and Darragh. We have asked the Welsh Government to look again at the emergency funding for households, to improve signposting to the Flood Re insurance scheme, and to embed mental health support for people who are struggling in the aftermath of storms. Looking to the future, we've called on the Welsh Government to introduce grants for households and businesses to fund resilience measures, so that they are better protected from future storms.

I would like to thank everyone who contributed to the Committee's inquiry, particularly those members of the public whose lives were so severely affected by storms Bert and Darragh during the winter of 2024.

As the impacts of climate change intensify, extreme weather events are expected to become more frequent. We must learn the lessons from storms Bert and Darragh, so that Wales is better prepared to deal with this uncertain future.



Llyr Gruffydd MS

Chair, Climate Change, Environment, and Infrastructure Committee

Recommendations

Recommendation 1. The Cabinet Secretary must ensure that NRW has immediate and ongoing access to the latest flood forecasting technologies and systems. The Cabinet Secretary should ensure that a programme of funding is available for this purpose, and to ensure that Wales is able to influence research and development priorities. The Cabinet Secretary should also ensure that NRW is able to access and participate in ensemble forecasting trials. Page 28

Recommendation 2. The Cabinet Secretary should ensure that a systematic approach is introduced for cross-agency lessons-learned exercises following storm events such as storms Bert and Darragh..... Page 29

Recommendation 3. The Cabinet Secretary should work with partners to ensure that the Common Warnings Framework is implemented, so that flood warning language is consistent and clearly understood by both the public and responder organisations..... Page 29

Recommendation 4. The Cabinet Secretary should work with NRW and relevant partners to increase public engagement with flood and weather warnings, with a particular focus on low-income and digitally excluded households..... Page 29

Recommendation 5. NRW should update the Committee on the promotion, reach, and impact of its weather warning service, including how success is being measured and what actions are being taken to improve sign-up rates and accessibility..... Page 29

Recommendation 6. The Cabinet Secretary should ensure that the Flood Response Framework is reviewed and updated to reflect the learnings from flooding events that have taken place since 2016.....Page 43

Recommendation 7. The Flood Response Framework should define roles and responsibilities, including those in leadership roles, across all levels of government and responder agencies, to improve understanding and accountability.....Page 43

Recommendation 8. The Cabinet Secretary should provide an update on the additional funding provided to LRFs to support multi-agency coordination.
.....Page 43

Recommendation 9. The Flood Response Framework should set out clear escalation protocols for Tactical and Strategic Coordination Groups.....Page 43

Recommendation 10. The Cabinet Secretary should clarify the use and effectiveness of the JIGSO project, including whether it could serve as a reliable alternative to, or complement, the existing PSR systems. The Cabinet Secretary should set out how he will improve awareness of the tool among emergency responders.Page 43

Recommendation 11. The Cabinet Secretary should ensure that LRFs develop formal, standardised agreements with third-sector organisations, ensuring these partners can be mobilised quickly and effectively during emergencies.....Page 43

Recommendation 12. There should be a stronger recognition of the role of community groups. The Cabinet Secretary should work alongside NRW to explore opportunities to provide sustainable funding for community resilience groups.Page 43

Recommendation 13. The Cabinet Secretary should update the Committee on steps being taken by the Welsh Government or NRW to embed community participation in flood resilience planning processes, including through citizen forums and co-designed local plans.....Page 43

Recommendation 14. The Cabinet Secretary should review the adequacy of current emergency funding provided by the Welsh Government for households affected by flooding, to ensure that funding support better reflects the costs arising from severe weather events.....Page 47

Recommendation 15. The Cabinet Secretary should introduce grant funding to enable individual homes and businesses to put in place preventative resilience measures, such as floodgates.Page 47

Recommendation 16. The Cabinet Secretary should report back to the Committee on how, in his view, existing insurance schemes such as Flood Re, can be better promoted to residents of high-risk flood areas in Wales.Page 48

Recommendation 17. The Cabinet Secretary should take steps to ensure that mental health support is integrated into local flood response and recovery strategies.Page 48

Recommendation 18. The Welsh Government should ensure that national guidance on riparian responsibilities, including for culverts and ditches, is updated and promoted. The guidance should be supported by mapping tools, a register of owners, and compliance assistance for landowners.Page 54

Recommendation 19. The Cabinet Secretary should review the Emergency Financial Assistance Scheme (EFAS) to ensure that the thresholds of the scheme reflect the financial capacity of local authorities responding to repeated severe weather events.....Page 54

Recommendation 20. The Cabinet Secretary should consider whether a 10-year strategy, such as the National Strategy for Flood and Coastal Erosion, is sufficient to ensure improved long-term planning and investment..... Page 62

Recommendation 21. The Cabinet Secretary should provide an update on the implementation of the recommendations of the Section 19 review, led by Elwen Evans KC..... Page 62

Recommendation 22. The Cabinet Secretary should review the Section 19 flood investigation process to ensure it better supports local resilience planning.
..... Page 62

Recommendation 23. The Cabinet Secretary should provide an update on the development of the catchment planning roadmap, including timelines and stakeholder involvement. Page 62

Recommendation 24. Given their potential impact, the Cabinet Secretary should prioritise scaling-up nature-based solutions, and make sure there are appropriate levels of funding available for that purpose. Farmers and landowners should be provided with support to understand their responsibilities and the opportunities in this policy area..... Page 62

Recommendation 25. The Cabinet Secretary should provide an update on the steps being taken to expand the use of nature-based solutions, including details of how these are being embedded into policy frameworks and reassurance that these schemes will continue to be funded beyond 2025-26. Page 62

1. The impact of storms Bert and Darragh

1. In the space of a few weeks in late 2024, storms Bert and Darragh hit Wales. Communities from Pontypridd to Holyhead experienced flooding, landslides, and severe winds.

Storm Bert

2. From Friday, 22 November, to Monday, 25 November 2024, Storm Bert caused serious damage in parts of Wales. In the South Wales valleys, total rainfall during Storm Bert was between 50% and 100% of the average expected during the whole month of November. Some rivers, such as the Ebbw at Aberbeeg, reached their highest level ever recorded. More than 700 properties were flooded across Wales.

3. The River Taff flooded extensively, and Pontypridd, which had been badly hit by Storm Dennis in 2020, was again one of the most severely affected towns.

4. At Cwmtillery, Blaenau Gwent, a disused coal tip partially collapsed, forcing the evacuation of around 40 homes as rock and mud flowed onto residential streets.

5. A large sinkhole opened on a residential street in Merthyr Tydfil after boulders damaged a Victorian-era underground culvert.

6. In north Wales, one person died in floodwaters in Trefriw, Conwy.

7. Flooding and infrastructure damage led to widespread disruption of railways, including the closure of the Heart of Wales and Marches lines. Several roads were also closed due to flooding and landslides, including the A479 in Powys and the A4042 in Monmouthshire.

8. After the storm, the Welsh Government funded grants of £500 and £1000 to households impacted by flooding. Some local authorities also offered financial support, including Rhondda Cynon Taf Council, which provided £1000 grants to affected residents and businesses.

Storm Darragh

9. Storm Darragh arrived two weeks after Storm Bert and was characterised by extremely high winds. The Met Office issued a rare red 'take action' warning for wind covering west Wales and the Bristol Channel coastline. The UK Government

also issued an emergency alert by phone to those in affected areas, marking the first deployment of this system in Wales since its introduction in 2023.

10. There was substantial damage to the low-voltage electricity distribution network across Wales, which delivers power directly to properties. These networks are maintained by the private companies National Grid Electricity Distribution (NGED) in the south, and SP Energy Networks (SPEN) in the north.

11. Approximately 95,000 homes were without power on 7 December. SPEN said fewer than 500 of its customers remained without power by 12 December. An NGED spokesperson said power had been restored to all of its customers by 14 December.

12. The 150-year-old Llandudno pier suffered damage as several kiosks were ripped from their foundations.

13. Damage to berthing infrastructure during Storm Darragh forced the Port of Holyhead to close entirely for over a month.

The Committee's inquiry

14. In February 2025, the Committee received correspondence from Andrew RT Davies MS and Heledd Fychan MS, calling on it to undertake an inquiry into the Welsh Government and relevant agencies' responses to Storm Bert.

Terms of reference

15. The Committee agreed to consider the case studies of storms Bert and Darragh to gain an overarching view of the current storm preparation and response framework in Wales, and to identify any gaps. In addition, the Committee would consider:

- Whether preparation, forecasting, warning, and alert systems were adequate.
- The resilience of infrastructure such as water and sewerage systems, electricity distribution infrastructure, and transport networks to storm impacts, including flooding landslips, culvert damage and sinkhole formation.
- The impact on communities, and the role of landowners, community groups, and third sector organisations.

- The response of public and private authorities.
- Whether relevant organisations have learnt lessons following previous winter storms, particularly Storm Dennis in 2020, and how these lessons inform the current approach.

16. The Committee held oral evidence sessions with forecasting bodies, public authorities, energy suppliers and water companies. A full list of those who contributed is included in an Annex to this Report.

17. In addition, the Senedd's Citizen Engagement Team undertook an engagement programme to hear the experiences of individuals from communities most affected by storms Bert and Darragh. The full report of this work is available on the Senedd's website. Excerpts from the findings have been reproduced throughout this Report.

National Infrastructure Commission for Wales (NICW) report - Building Resilience to Flooding in Wales by 2050

18. In October 2024, the NICW published its report "Building Resilience to Flooding in Wales by 2050". Although the breadth of the Report exceeds the remit of the Committee's inquiry, it includes several relevant recommendations, which are referenced in this Report. The Cabinet Secretary wrote to the NICW on 17 April 2025, with a response to its recommendations.

Economy, Trade and Rural Affairs Committee

19. In April 2025, the Senedd's Economy, Trade and Rural Affairs Committee published a report of the initial findings of its work on "Holyhead Port Storm Damage and Closure", which had been caused by Storm Darragh.

2. The adequacy of forecasting and warnings

“We get regular warnings which often don’t even affect us. We get warnings for the whole of Powys. If I took notice of every time it went off, I’d never be opening my shop.”

Many members of the public who contributed to our work felt that warnings, particularly flood alerts, are too often generalised and do not cater to specific geographic locations. This makes it difficult to anticipate when to take action.

Some felt let down by the flood alert systems, which they were promised had been improved since Storm Dennis in 2019. Having been told that “fantastic things had been put in place” since this storm, they were disappointed to have encountered the same challenges.

The forecasting system

20. Several organisations are involved in forecasting extreme weather events, and issuing warnings.

21. The Met Office is a UK Government-owned body that provides the Public Weather Service and the National Severe Weather Warning Service. It provides a daily hazard assessment to responder organisations and is embedded into Local Resilience Forums (LRFs)¹ as a Category 2 responder organisation under the Civil Contingencies Act 2004. In 2015, a “Name our Storms” initiative was introduced by the Met Office, Met Éireann and the Royal Netherlands Meteorological Institute (KNMI). The purpose was to improve public awareness of severe weather events.

22. The Flood Forecasting Centre (FFC) was established in 2009. The FFC is a “strategic partnership between the Met Office and the Environment Agency”². The FFC explained that it “helps maintain and improve national flood models and systems, working closely with institutions across the country and promoting and sharing best practice around the world”³. It added that it is “largely funded by Defra with a funding contribution from Welsh Government via funding to NRW”⁴.

¹ Local Resilience Forums (LRFs) consist of all responder organisations that have a duty to co-operate under the Civil Contingencies Act.

² Written Evidence.

³ Written Evidence.

⁴ Written Evidence.

23. Simon Brown, from the Met Office, summarised the multi-organisation approach to forecasting and warning as a “team sport”. He said:

“So, we’ve got to get the weather forecast right, the flood models have got to show the impact, the responder community has got to work, and local communities have got to take action. So, that whole jigsaw puzzle has to work, to really make sure we’re looking after the citizens of Wales.”⁵

24. The Met Office issues yellow, amber, and red warnings when disruptive weather is forecasted, using a ‘forecast matrix’ based on a combination of likelihood and potential impact.

25. The FFC produces a daily Local Authority-level Flood Guidance Statement (FGS), which provides “a summary of flood risk from all natural sources out to five days for emergency responders.”⁶ Natural Resources Wales (NRW) explained that “the 5-day FGS is shared with Civil Contingencies Act partner organisations (e.g. Local Authorities and emergency services) to enable preparations for flood events.” The FFC also prepares a Flood Outlook document, which “provides a flood forecast for the coming month in England and Wales. It is issued twice a month and is now available widely on the Cabinet Office’s Resilience Direct and the Met Office’s Hazard Manager Systems”⁷.

26. NRW uses information from the Met Office and FFC to forecast flood risk in Wales. The Met Office explained that it “works closely with Natural Resources Wales, supporting their work managing flood risks and taking action based on severe weather warnings”. It added:

“We provide automated feeds of weather data directly into Natural Resources Wales local models, ensuring accurate and timely information for decision-making. Daily communication between Natural Resources Wales and the Met Office, including a 24/7 direct line for urgent queries, ensures continuous coordination, especially during severe weather events. The Met Office also offers guidance and scenarios, adding human insights to complement model outputs, which

⁵ Oral Evidence, 20.2.2025

⁶ Written Evidence

⁷ Written Evidence

helps Natural Resources Wales in planning and response activities.”⁸

27. NRW explained that, in practice, it “takes the information from the Met Office and FFC and combines that with observed data from our network of river and rain gauges, to forecast flooding. In many locations (but not all), there are forecast models, which process the input data and forecast what is likely to happen”.

28. NRW issues three tiers of flood alerts and warnings when there is a risk of flooding:

- Flood alert. Be prepared to take action.
- Flood warning. Take immediate action.
- Severe flood warning. Danger to life.

Case study: Storm Bert

29. On Wednesday, 20 November, the Met Office issued a yellow warning for rain covering almost all of Wales for a 24 hour period starting from 6am on Saturday, 23 November. This is the lowest of the three tiers of weather warnings. Storm Bert was expected to have “low likelihood of medium impacts”, including “a chance that prolonged heavy rain could become slow-moving over south Wales with up to 150 mm possible in a few places, and it is here where impacts are most likely”.

30. In its written submission, the Met Office explained:

“A yellow warning was issued for Storm Bert due to the expected impacts and the available evidence at the time. The forecast indicated significant rainfall and strong winds, but the flood modelling did not support an upgrade to an amber or red warning. The yellow warning was deemed appropriate to indicate the potential for disruptive weather while maintaining consistency with the impact assessments. Strong messaging and storm naming were used to highlight possible impacts and encourage precautionary actions.”⁹

⁸ Written Evidence

⁹ Written Evidence

31. From Wednesday 20 to Saturday 23 November, the FFC's Flood Guidance Statement indicated a low likelihood of significant impacts (low flood risk) during Storm Bert. The FFC said:

*"The potential for widespread impactful weather over the weekend of the 23 and 24 November was communicated well in advance through the provision of Best Estimate (BE) and Reasonable Worst Case (RWC) rainfall scenarios to Natural Resources Wales and the Environment Agency. The RWC scenario for South Wales issued on Wednesday, 20 November, catered for accumulations above 100mm across the high ground, with isolated maximums of more than 150mm. This initial RWC forecast turned out to be very close to the total observed rainfall, even at 4 days lead time."*¹⁰

32. It went on:

*"In the period between the 20 November and the 23 November there was considerable variation in the spatial and temporal detail in the model, as is typical when considering a county scale forecast. However, the RWC rainfall scenario was broadly consistent for South Wales throughout this period, maintaining the raised awareness of the potential for impactful rain and supporting the assessment for significant flooding impacts under the RWC. Further escalation of the flood risk to medium or high likelihood of significant impacts (Amber) was not deemed possible until 24 November, when it was escalated based on rapid rate of river rise and observed impacts, the RWC scenario was effective in maintaining a steady assessment for the potential for significant impacts, which was communicated to the responder community with good lead time through the FGS."*¹¹

33. In conclusion, the FFC said:

"Following rising river levels in parts of South East Wales, observed impacts and the potential for further significant impacts, the overall flood risk was escalated to MEDIUM (Significant Impacts, Amber) on Sunday 24 November. This was

¹⁰ Written Evidence

¹¹ Written Evidence

a change on the Flood Risk Matrix from low likelihood of significant impacts to a high likelihood of significant impacts for parts of South East Wales.”¹²

34. In its written submission, NRW said that throughout the period building up to the storm:

“NRW was taking the latest forecast rainfall data and running it through our forecasting models to assess the forecast (future) flood risk. We issued 65 Flood Alerts in the lead up to the storm event to warn residents that flooding was possible. We issued 68 Flood Warnings and 2 Severe Flood Warnings closer to the events when there was more certainty in the forecasts and locations.”¹³

35. In reference to the severe impact of Storm Bert on the south Wales valleys, NRW explained:

“Steep sided valley catchments like the south Wales Valleys, because of their very topography, respond very rapidly to heavy downpours. What we experienced in Storm Bert was very heavy rainfall that was very hard to forecast exactly where it was going to hit. The Taff catchment rivers responded incredibly quickly to the rainfall, giving short lead time for warnings to be issued...The short lead time from rain falling to rivers rising and impacts happening, and the uncertainties, are all pushing the boundaries of forecasting and the human abilities to respond.”¹⁴

36. Local authority representatives were unanimous in their criticism of the accuracy of forecasting for Storm Bert. Blaenau Gwent County Borough Council said:

“The forecasting for Storm Bert wasn’t adequate. The yellow rain warning didn’t escalate above a low likelihood and medium impact, which didn’t reflect the situation. As a result, preparations and response structures that would normally be established for an Amber weather warning were not in place.”¹⁵

¹² Written Evidence

¹³ Written Evidence

¹⁴ Written Evidence

¹⁵ Written Evidence

37. Carmarthenshire County Council held similar views:

“Upon reflection, one could argue that the actual intensity of the actual storm was inaccurately predicted for Carmarthenshire and consequently the standard mechanisms of warning and informing were not implemented on a Dyfed Powys Local Resilience Forum (DPLRF) area basis.”¹⁶

and

“Internal council planning and resourcing meetings (focussed on highways and flood response aspects of work) were set up as we would in any yellow storm warning, but based on the forecast there was no obvious need for a DPLRF initiated Pre-Emergency Assessment Teleconference (PEAT). We would not expect to do set up such for yellow warnings, as these are now quite frequent occurrences. For the same reasons, no LRF SCG/TCG¹⁷s were called.”¹⁸

38. In oral evidence, Councillor Andrew Morgan was critical of warnings during Storm Bert, arguing that the severity of the rainfall had been underestimated. He described the situation in Pontypridd, where official flood warnings were issued only after parts of the town had already flooded. Kevin Kinsey, Blaenau Gwent County Borough Council, noted that the level of rainfall exceeded the expectations set by the yellow warnings, leaving the authority struggling to mobilise resources. Councillor Jackie Charlton, from Powys County Council, echoed this view.

39. When challenged by the Committee to respond to these criticisms, Simon Brown, Met Office, said:

“I think it’s fair to say, if you look at the weather forecast, the rainfall we observed for storm Bert was pretty much in line with what we forecast. But the forecast is only then as good as the value chain and the comms you do to get people to take action. So, it’s a decision not just about the weather forecast.

¹⁶ Written Evidence

¹⁷ Strategic Coordinating Group and Tactical Coordinating Group.

¹⁸ Written Evidence

Storm Bert was a really good example. The FFC flood models, in conjunction with NRW, were not showing the risk of flooding...”¹⁹

40. Russel Turner described the FFC’s forecasting as accurate, based on the limitations of the current approach. He explained that, currently, the FFC:

“put(s) one rainfall forecast through and then test that. We should be putting 36 every 12 hours through, not one, and going with that. So, I think that’s where we need to move to in terms of providing the best information, because then you can quantify the uncertainty and test it more, whereas in the lead-in to the event, by just taking one rainfall forecast, which was sort of ebbing or flowing around the threshold level, that didn’t give enough confidence to escalate the risk there, which is why it stayed as low likelihood. It would have only moved to medium likelihood if we’d had more confidence in that, that there was more likelihood. But you’d have only got that if you’d have put all of the rainfall forecast through.”²⁰

Case study: Storm Darragh

41. The Met Office issued a rare red warning for wind covering west Wales and the Bristol Channel coastline prior to Storm Darragh. The warning indicated there was a high likelihood of severe impacts during the storm. The UK Government also issued an emergency alert by phone to those in affected areas, marking the first deployment of this system in Wales since its introduction in 2023.

42. Addressing the suggestion that it changed its approach to storms Bert and Darragh, the Met Office told the Committee that “While both storms were complex multi-hazard events, the forecast impacts and likelihood of these occurring were different. We followed our best practices and assessed each event independently and the warnings reflected these differences”.²¹

43. Carmarthenshire County Council said that the warnings had meant that:

“all agencies were notified well in advance of the storm’s arrival. As a result, NRW via the DPLRF convened 2 PEATS, in advance of the storm, which resulted in a pre-planned SCG and TCG on the morning of the Storm’s arrival. In addition, internal council

¹⁹ Oral evidence, 20.2.2025

²⁰ Oral evidence, 20.2.2025

²¹ Written Evidence

silver level preparedness meetings were held in advance of the weather that included representatives from all internal council services that were likely to be affected and impacted by the storm.”²²

44. Huw Percy, Anglesey County Council, praised the warnings that had been received for Storm Darragh, emphasising that the forecasts had helped the local authority to prepare and to consider how to deploy resources appropriately.

Lessons from storms Bert and Darragh

Members of the public highlighted the disparity they experienced in the alert and warning systems of storms Bert and Darragh. Those impacted by Storm Bert noted that the warnings for Storm Darragh were clearer and issued in a timelier manner, therefore enabling the possibility of more effective preparation in advance.

“No, we didn’t receive a warning about the storm (Bert). I know it’s difficult to predict a landslide, but it was a lot worse than the storm that came afterwards (Storm Darragh). There was a lot more warning about Storm Darragh than Storm Bert”.

Some individuals who experienced damage during Storm Darragh felt that the alert system had been effective in notifying them of the storm’s arrival, and the extensive news coverage had kept them informed. However, others pointed out that despite receiving the warnings, the system did not provide sufficient lead time for them to prepare adequately for the severity of the storm, leaving them with little time to act before the storm hit.

“We got the warning, and we were worried, but we didn’t have much time to prepare. We weren’t able to prepare much. We weren’t expecting it to be so bad and that we’d lose power.”

45. Councillor Andrew Morgan said that, following the events of Storm Bert, there had been constructive engagement with both NRW and the Met Office, with NRW agreeing to “review current processes in place for warning and informing”.²³

²² Written Evidence

²³ Oral evidence, 20.2.2025

46. In written evidence, the Met Office said:

“A short roundtable meeting was held immediately after Storm Bert between the Met Office, Welsh Government and NRW. The discussions were centred around the immediate impacts of the storm, including an overview of the forecast, observed impacts and how the different agencies worked together both ahead of, and during the event. A similar meeting was also held shortly after Storm Darragh. We welcomed both discussions and would welcome the opportunity for further post-event discussions with the Welsh Government in the future.”²⁴

47. Simon Brown, Met Office, said three strands of work were being considered in response to the issues raised during Storm Bert. He explained:

“one of the things we are reflecting internally on is our own internal decision making. We absolutely do align, particularly around rainfall events, with our partners and the flood models. The reason we do that is if you end up misaligning, and we are saying, ‘It’s an amber weather warning’ and NRW are saying, ‘There’s no flood risk’, that’s really confusing for the public, and that’s really confusing for the responder community. The question I’ve been asking is: are there times when we do need to misalign? This was 150 mm worth of rain, that was a lot of rain.”²⁵

48. He went on to say that a “lessons learned” exercise would be undertaken with NRW, and which would consider:

“things like nowcasting, so on the back of storm Bert, there was, I would say, a convective, and that’s a heavy downburst of rain, of about 20 mm to 30 mm of rain, and that was quite tricky, spatially, to track down. You need good radar data to do that and you need to improve the modelling capability. So, there’s work to be done in that area. And then the other part of that conversation with NRW is the radar coverage in Wales.”²⁶

49. He concluded:

²⁴ Written Evidence

²⁵ Oral Evidence, 20.2.2025

²⁶ Oral Evidence, 20.2.2025

"The third thing we are doing is looking at yellow weather warnings. People really act on ambers and reds, and we typically see about 30 to 40 amber weather warnings a year, and we have now seen our sixteenth red warning since impact-based forecasting warnings were introduced in 2011. We're going to really have a look at where we do have those medium and high-impact yellows, and what is it we can do to improve people taking the necessary action."²⁷

50. The FFC identified three key areas for improvement based on its experience during Storms Bert and Darragh:

- **Rainfall Forecast Integration**

The FFC highlighted a disparity in how rainfall data is used by the Environment Agency (EA) and NRW. While EA benefits from automated integration of FFC rainfall scenarios through its Incident Management Forecasting System (IMFS), "services to NRW remain the same as those provided to the EA prior to IMFS," requiring more manual interpretation. The FFC recommended using "the most skilful rainfall forecasts... capturing the details and the uncertainties" to enhance operational modelling.

- **Flood Risk Communication**

Although flooding impacts had matched forecasts, the official risk level often remained at 'Yellow', causing some users to underestimate the threat. The FFC noted that "a 'yellow FGS' can represent three distinct risk scenarios," and further work was needed to improve understanding of these distinctions among responders.

- **Improved Cross-Agency Understanding**

The FFC called for renewed training and shadowing between Hydrometeorologists and Monitoring and Forecasting Duty Officers to build shared understanding. It recommended that "all FFC Hydrometeorologists should have the opportunity to shadow MFDOs" early in their roles to improve consistency in forecasting and decision-making.

²⁷ Oral Evidence, 20.2.2025

51. Responding to concerns raised by the Committee about the timing of flood warnings during Storm Bert, Gareth O'Shea, NRW, said that warnings had been issued at 07:41 in Pontypridd, slightly before properties had started to be flooded at 07:57. Tim England, Flood and Water Management Operations Manager, explained that the rapid rise in river levels at Pontypridd had resulted in NRW lowering flood-warning trigger levels there.

Forecasting – improving modelling and accuracy

52. The Met Office's written evidence said it uses ensemble forecasting to address uncertainties in weather forecasts. This involves running multiple simulations with slightly different initial conditions, producing a range of possible final outcomes. Its evidence indicates ensemble models are not currently used in flood forecasting, but doing so "could provide real value" and "better quantify uncertainty in meteorological, hydrological and impact forecasting, then ultimately warnings and alerts"²⁸.

53. In oral evidence, Russell Turner, FFC, highlighted the limitations of current flood forecasting models, and advocated for a move to ensemble models. He explained:

*"...the traditional approach would be to run a rainfall forecast once and put that through a flood model once. That's only so much use at a certain level. So, the smaller your catchments and the longer the lead time and the more interested you are in extreme events, the more you want to run multiple rainfall forecasts through multiple flood models to give you a real spread of understanding the possible outcomes that we might face in three, four, five days' time."*²⁹

54. He explained that this approach was being developed for England:

"what we're developing for England is a full trial of putting the whole rainfall forecast through all of the flood models so we can really objectively assess those scenarios. That's taking quite a lot of time and effort and investment, because, technically, moving a huge amount of data through from rainfall forecasts

²⁸ Written Evidence

²⁹ Oral Evidence, 20.2.2025

into flood models takes a lot of computer power, a lot of time, and a lot of resource from flood forecasters as well.”³⁰

55. He explained that this meant there was a growing divergence in service provided by the FFC for Wales, in comparison to England. He said:

“it’s fair to say there’s a gap at the moment, and that gap potentially is growing in terms of the service that’s provided.

The approach in Wales is linked to a scenario approach, rather than putting all of the rainfall information that we can through the flood models.”³¹

56. In oral evidence, Jeremy Parr, Head of Flood Risk Incident Management at NRW, clarified that while operational relationships remain consistent across England and Wales, funding disparities mean that NRW has less influence over research and development priorities compared to England. He said that NRW is actively exploring improved forecasting technologies, including radar and artificial intelligence, to address current forecasting limitations.

57. Russel Turner, FFC, reassured the Committee:

“the flood model performance is good in Wales, so it’s worth investing in those. So, now they’ve done a lot of work on getting those flood models in place, the next part is to feed them with enough of the rainfall data that will inform the response.”³²

58. Simon Brown, Met Office, added:

“What I would say...is that it’s important to maintain our investment in the observations capability in Wales, because that enables us to get more and more accurate, and more and more precise, around our modelling predictions, whether that’s rainfall gauges, radars, or other observations equipment. So, there’s a continual need to invest in observations data. Observations data is becoming even more important, particularly with artificial intelligence models.”³³

³⁰ Oral Evidence, 20.2.2025

³¹ Oral Evidence, 20.2.2025

³² Oral Evidence, 20.2.2025

³³ Oral Evidence, 20.2.2025

Warnings – framework and communication

59. In its written evidence, the Met Office said it issues weather warnings based on a combination of the potential impact of the weather and the likelihood of those impacts occurring. Warnings are designed to inform the public, businesses, emergency responders, and governments about expected severe weather and its possible effects. It explained:

“In any given year the total number of warnings issued will be dependent on the severity of the weather. On average, we issue around 500 warnings a year. Of this, around 60% are low impact, 38% medium impact and 2% high impact. While the total number of warnings may change, the number of days on which warnings are issued shows less variability.”³⁴

60. In its written evidence, the Met Office told the Committee it was working with flood agency partners to introduce a ‘Common Warnings Framework’ to reduce confusion and ambiguity when issuing warnings. The project had resulted in:

- Flood agency partners agreeing to work together to review and agree a standardised approach to risk assessment.
- Flood agency partners agreeing to work together to review and agree a standardised language for existing products and agree standards for the future.
- Flood agency partners agreeing to identify and implement opportunities for standardised approaches to technical standards across services with a focus on the Common Alerting Protocol (CAP), the recognised international standard for warnings information.

61. Simon Brown expanded on this in oral evidence, highlighting differences in the terminology used by different agencies in their risk assessments. He said addressing this would significantly improve the public’s ability to understand warnings and respond appropriately during severe weather events.

Public engagement and communication

62. Simon Brown drew attention to low public engagement with weather forecasts in Wales compared to other parts of the UK, with only around 51% of

³⁴ Written Evidence

people checking forecasts daily. This lower level of engagement was problematic, particularly during extreme events such as Storm Bert. He also highlighted that residents in more economically disadvantaged areas tend to engage less frequently with weather forecasts and alerts. He suggested that the Welsh Government and other bodies should actively prioritise educational campaigns and improved communication strategies to engage with residents in areas repeatedly impacted by severe weather.

63. The British Red Cross (BRC), in written evidence, set out that:

“Only 16% of respondents (UK and in Wales) reported that they were signed up to receive [flood warnings], including only one in three people (33%) who had personally experienced flooding in the previous ten years. Of those who were not signed up - despite also reporting that they lived in an area at high risk of flooding - 36% of respondents in Wales said this was because they did not know how to or had not heard of them, while 55% said this was because the alerts were not relevant to them. One factor that may contribute to this under-utilisation of flood warnings and alerts may be digital exclusion.”³⁵

64. It went on to say that:

“our UK finding that the proportion signed up from the lowest income households (9%), is significantly lower than those signed up from the highest income households (31%) - suggesting a case for targeted approaches.”³⁶

65. In written evidence, NRW told the Committee:

“In July 2024, we implemented our new Flood Warning Information System for Wales, a considerable capital investment of £5m, which makes the issuing of warnings a quicker and more resilient process.”³⁷

66. NRW also outlined ongoing efforts to improve public awareness and preparedness for flooding:

³⁵ Written Evidence

³⁶ Written Evidence

³⁷ Written Evidence

“NRW has lots of useful information available to the public, in addition to community flood plan templates, on our website which can help households in preparing for flooding. One key aspect is advocating that households sign up to receive Flood Alerts and Flood Warnings via the free Flood Warning Service so that they are alerted that flooding is expected and can take action to protect themselves and their property. Sign up levels in many parts of Wales are not as high as we would want them to be, and education and awareness about these resources is important.”³⁸

67. Simon Brown emphasised the importance of “getting greater engagement” from Welsh communities and said:

“if there’s an ask of this committee, it would be getting more representatives from Wales on that public weather customer group, which is independent of us, it’s independently chaired and it’s run by our sponsoring department.”³⁹

Evidence from the Cabinet Secretary

68. The Cabinet Secretary acknowledged a potential gap between forecasting capabilities in Wales compared to the rest of the UK. He described this gap as “relatively minor at the moment”⁴⁰, but emphasised the importance of ongoing cross-border collaboration and keeping up with improvements across the UK.

69. The Cabinet Secretary highlighted the Welsh Government’s significant investment in flood alert and warning systems. He referred to ongoing difficulties around forecasting certain complex types of flooding, such as surface water flooding, and emphasised that advances in technology are improving forecasting capabilities. He explained:

“The investment that we’ve already put into things such as flood alerts and flood warnings is significant. We need to engage, now, with the Met Office and with our counterparts across the border about how we align our investment going forward to make sure that we’re all part of the same improvements that we’ve got in the technology around flood warnings. Because

³⁸ Written Evidence

³⁹ Oral Evidence, 20.2.2025

⁴⁰ Oral Evidence, 27.3.2025

*some of these are the really tricky areas that we've always struggled with, things like surface water flooding. We're seeing much more of that now."*⁴¹

70. He emphasised the importance of evaluating current public engagement approaches to understand what was effective. He referred to the Welsh Government's investment of £6 million into flood alerts and warnings delivered by NRW. Since the launch of the service in July 2024, over 42,000 customers had been reached through 553 flood alerts, 197 flood warnings, and two severe flood warnings. Nevertheless, he acknowledged that sign-up rates could be improved.

71. The Cabinet Secretary emphasised that public awareness and increasing the uptake of flood alerts is the shared responsibility of multiple stakeholders. He identified the vital role of local voluntary and community groups in this regard:

*"The greatest reach of this is not, with all respect, me as a Cabinet Secretary, or a local authority, saying, 'You should sign up for your own good.' It's actually those voluntary organisations on the ground... that's how we get deep into these communities."*⁴²

Our view

We were taken by the description of forecasting and warning as a "team sport", with a variety of organisations and responders taking on their own distinct, and vital roles. But it is also true that the foundation on which all of the subsequent effort is based is the accuracy of forecasting and warning systems. It is vital because it will influence all actions that follow, including, for example, the deployment of resources by respondents.

The Committee acknowledges the significant investment and collaboration underpinning Wales's current flood forecasting and warning systems. However, the evidence we received from local authorities, agencies and members of the public makes it clear that further improvements are necessary to ensure warnings are timely and effective.

We welcome the lessons learned exercises following storms Bert and Darragh, but reiterate that these must lead to sustained and transparent improvements

⁴¹ Oral Evidence, 27.3.2025

⁴² Oral Evidence, 27.3.2025

across the forecasting and warning system. We also believe there should be a more systematic approach to post-event learning.

We heard that technical limitations might be affecting the accuracy of flood forecasting in Wales. The Environment Agency in England is moving towards ensemble modelling, while in Wales, there is a reliance on scenario modelling. This growing divergence in forecasting capability is concerning. We were pleased to hear the Cabinet Secretary acknowledge the importance of keeping pace with UK-wide developments and welcome his commitment to give this matter further consideration. We believe there must be a renewed focus on ensuring that NRW has access to the technology and data to support ensemble modelling. We were also concerned to hear that funding disparities mean that Wales has less influence over research and development priorities compared to England. We believe that investment is necessary to ensure Wales does not fall behind.

We heard repeated criticism that flood alerts are too broad and imprecise. We welcome the Met Office's and NRW's recognition of the need for more consistent communication. The development of a Common Warnings Framework is a positive step to ensure that warning language is consistent, clear, and well understood by the public and responder organisations.

Public engagement with weather and flood warnings remains worryingly low in Wales. The Committee is particularly concerned about disparities in engagement among lower-income households and those who are digitally excluded - communities that are often the most vulnerable to flooding. We note the comments about the investment NRW's Flood Warning Information System, but that more work is needed to increase levels of sign-up. We would be grateful for an update on how the service is being promoted and how its impact is being monitored by NRW, including how it will determine the service's success.

Recommendations

Recommendation 1. The Cabinet Secretary must ensure that NRW has immediate and ongoing access to the latest flood forecasting technologies and systems. The Cabinet Secretary should ensure that a programme of funding is available for this purpose, and to ensure that Wales is able to influence research and development priorities. The Cabinet Secretary should also ensure that NRW is able to access and participate in ensemble forecasting trials.

Recommendation 2. The Cabinet Secretary should ensure that a systematic approach is introduced for cross-agency lessons-learned exercises following storm events such as storms Bert and Darragh.

Recommendation 3. The Cabinet Secretary should work with partners to ensure that the Common Warnings Framework is implemented, so that flood warning language is consistent and clearly understood by both the public and responder organisations.

Recommendation 4. The Cabinet Secretary should work with NRW and relevant partners to increase public engagement with flood and weather warnings, with a particular focus on low-income and digitally excluded households.

Recommendation 5. NRW should update the Committee on the promotion, reach, and impact of its weather warning service, including how success is being measured and what actions are being taken to improve sign-up rates and accessibility.

3. Responding to severe weather events

Several members of the public affected by flooding during Storm Bert felt that they had been left to manage the short- and long-term impacts of the storm damage alone. They felt that there “could have been more help” from authorities.

“The first time I saw someone from the council was about 11 o clock and I spoke to him. I asked is there any chance you can help us clear the water? He said no. He'd just come to have a look to report back. Couldn't talk to us about sandbags or any other help. I said we needed help, and he said we had to wait until the river levels dropped.”

Several contributors were also frustrated that, despite assurances from local authorities that lessons had been learned from Storm Dennis, levels of support had fallen short. For instance, one local authority established a 24/7 emergency flood hotline to provide support and advice. However, the line quickly became overwhelmed with calls during the storm, preventing callers from getting through and reaching support.

There were, however, contributors who felt that their local authority was “prepared and ready” and that “as soon as the storm happened, they were out and about clearing roads.”

Legal and strategic frameworks for emergency response

72. The Civil Contingencies Act 2004 (CCA) provides the statutory framework for emergency responses by UK public bodies. The CCA created two categories of local responders for emergency preparation and response. Category 1 responders include local authorities, emergency services and NHS bodies, and are subject to a series of civil protection duties.

73. Category 2 responders are ‘co-operating bodies’. They are less likely to be involved with contingency planning, but are involved in incidents affecting their own sectors. Category 2 responders have a duty to co-operate and share information with other responders. The Met Office (since 2023) and utilities companies are Category 2 responders.

74. The Wales Resilience Forum is a national-level body chaired by the First Minister that “supports good communication and improves emergency planning across agencies and services”.

Flooding

75. The Flood and Water Management Act 2010 provides powers to, and imposes duties on, the Welsh Government, Natural Resources Wales (NRW), and Local Lead Flood Authorities (LLFAs). In Wales, local authorities act as LLFAs. It requires the Welsh Government to produce a national strategy on flood and coastal erosion and NRW to report to Welsh Ministers on the progress of implementing the strategy. The latest strategy was published in October 2020.⁴³

Wales Resilience Framework

76. In May 2025, the Welsh Government published the Wales Resilience Framework 2025. The Framework says:

“The purpose of this document is to set out the vision, core principles, strategic approach, priorities and outcomes for enhancing Wales’ resilience. It sets out the arrangements for effective risk management and emergency preparedness, capability building, response to and recovery from emergencies and disruptive challenge. The Framework aligns with the requirements of the Civil Contingencies Act 2004 and has been produced in consultation with emergency responders in Wales. It draws on good practice and lessons learned from recent emergencies and the findings of public inquiries.”

77. A delivery plan was published alongside the Framework, which sets out specific actions the Welsh Government and the emergency responder community will take to achieve its aims and outcomes. The Framework makes numerous references to severe weather and flooding events.

Welsh Government’s Flood Response framework

78. The Welsh Government’s Flood Response Framework sets out its approach to flooding. It sets out local, regional and national advice, guidance and key policies on flood response in Wales, acting as a single point of reference for those involved

⁴³ www.gov.wales/national-strategy-flood-and-coastal-erosion-risk-management-wales

in flood response and the general public. The Wales Flood Group produced the Framework on behalf of the Wales Resilience Forum, and it is described as:

“... a living document which will be reviewed by Wales Flood Group every two years or following lessons learned from incidents or exercises, restructuring of organisations or changes in processes.”

79. At the time of the Committee’s inquiry, the Framework had not been updated since 2016.

80. Local authority representatives had varied views regarding the effectiveness of the Welsh Government’s Flood Response Framework. Ainsley Williams, Carmarthenshire County Council, felt the Framework had been valuable in shaping current practices, but recommended that a refresh was necessary to reflect evolving risks, including the increasing severity of storms. Andrew Stone, Rhondda Cynon Taf (RCT) County Borough Council, echoed this, describing the existing framework as outdated. He added that, “we’ve stepped away from it slightly because we do have quite a unique topography.”⁴⁴. Instead, RCT had developed its own detailed local response protocol after Storm Dennis.

81. Councillor Andrew Morgan recommended the framework should aim to strengthen multi-agency support and improve overall resilience. Matt Perry, Powys County Council, agreed, adding that local multi-agency response plans needed greater integration within the national framework. He emphasised, “What [the framework] does not include is the detail of singular multi-agency response plans at local level”.

82. Councillor Jackie Charlton echoed these concerns, and said that the framework should not only define roles clearly but also increase public awareness about responsibilities shared between local authorities and NRW.

Multi-agency co-ordination

Actions taken by local authorities in response to storms Bert and Darragh

Multi-agency coordination and communication

- Co-located responders in Silver Rooms for better coordination (Anglesey)

⁴⁴ Oral Evidence, 6.3.2025

- Established Major Incident Recovery Boards with partner agencies (RCT)
- Introduced PEAT meetings (Pre-Event Assessment Telecoms) to ensure shared situational awareness (Anglesey)
- Established emergency command rooms to support real-time decision-making (RCT)
- Restructured internal resources and extended work hours to meet demands (Carmarthenshire)

Public engagement and communication

- Created or improved dedicated flood webpages to support resident preparedness (RCT)
- Website views surged during storms, indicating effective public use of these resources (RCT)

Infrastructure and flood defence

- Deployed approximately 7,000 sandbags (RCT)
- Carried out 289 post-event flood inspections (RCT)
- Conducted emergency highway repairs (e.g. A4059 in Mountain Ash) (RCT)
- Upgraded telemetry networks for flood monitoring (RCT)
- Established a dedicated Highway Drainage Team for maintenance and repair (RCT)
- Launched a project to assess and protect vulnerable council properties (RCT)
- Collapsed culverts were made safe by contractors (Blaenau Gwent)

Resource deployment and logistics

- Activated corporate partnerships for emergency supplies (RCT)
- British Red Cross deployed daily to worst-affected areas, providing emotional and practical support (RCT)
- BCG and REACT volunteers supported with logistical help (RCT)
- Received 600+ public calls about flooding (RCT)

- Provided humanitarian aid and door-to-door support (Blaenau Gwent)
- Deployed rest centres and emergency accommodation for displaced residents (RCT, Blaenau Gwent)
- Home care staff altered shift patterns to continue services for vulnerable people (Carmarthenshire)

83. Local Resilience Forums (LRFs) are “the principle mechanism for multi-agency co-operation on civil protection issues”. LRFs include all local Category 1 and 2 responders. There are four LRFs in Wales, organised by Police Force Area:

- Dyfed Powys LRF;
- Gwent LRF;
- South Wales LRF; and
- North Wales LRF.

84. Huw Percy highlighted the effectiveness of regional coordination through LRFs, particularly when alerts escalated to amber levels. Paul Ridley, Carmarthenshire County Council, highlighted the importance of clear escalation mechanisms. In Carmarthenshire, varying operational responses from partner agencies had posed a challenge for coordinating responses:

“Some agencies retracted their response services whilst others continued. This is a very tricky balance of keeping our teams safe and working to allow emergency responders and essential service providers to access patients and facilities.”⁴⁵

85. Simon Brown outlined considerable variability among Welsh LRFs regarding their responsiveness to weather warnings. He said:

“My general response to that is that this is a risk-based decision. When we are into medium-impact or high-impact yellows, for me, that is when the responder community should be really looking at, ‘What is our risk here?’ I can find the e-mail in a bit, but we were signalling on the Friday significant difficult local conditions for communities, and for me, when I read that language, it means, ‘Okay, do need to do something different?’

⁴⁵ Written Evidence

North Wales did stand up a call involving all four local resilience forums, but there was no tactical co-ordination group set up until the Sunday, and at that point, the flooding was happening.”⁴⁶

86. He emphasised the need for clearer protocols to ensure consistent responses, including when tactical groups should be convened. Russell Turner echoed these points.

Response by utility and transport companies

87. Dŵr Cymru Welsh Water explained that its response begins “when the Met Office issues a weather warning, we review the level of the warning in line with the incident triggers within our Incident Response Manual, which will then necessitate the formation of either the Gold or Silver incident team to provide the appropriate level of command and control with regard preparedness, response and recovery”. However, in oral evidence, Ian Christie, Dŵr Cymru Welsh Water, said that Storm Bert’s impacts “were not in line with a yellow warning” and warranted a higher-level alert. Steven Joseph, National Grid Electricity Distribution, emphasised that their response focuses on restoration of services, irrespective of warning levels.

88. In written evidence, Carmarthenshire County Council said that:

“National Grid power outages had the most protracted impact on Carmarthenshire. Power company representatives that attended the TCG’s & SCG ‘s appeared to have limited information due to the scale and severity of the damage caused by the storm. Consequently, there was a lack of clarity on their recovery position, repair timelines changed constantly and didn’t reflect the information provided to the public. The provision of community welfare hubs by the National Grid was slow to deploy and poorly publicised.”⁴⁷

89. Dŵr Cymru highlighted the impact of power outages on water infrastructure during storms. They argued for prioritised electricity grid reconnection for water companies, stating: “Giving priority to water companies when it comes to reconnection to the electricity grid would assist us in getting our assets back

⁴⁶ Oral Evidence, 20.2.2025

⁴⁷ Written Evidence

online and avoiding water supply outages and impact on our customers, businesses and vital public services.”⁴⁸

90. They also called for each of the four Local Resilience Forums in Wales to develop regional power outage response plans, saying:

“this could provide a focus on power response... Bringing the water and power companies closer together... would assist us during times when assets are offline.”⁴⁹

91. Representatives from utility companies highlighted the challenges they can face during extreme weather events, when traditional communication channels fail. In written evidence, SP Energy Networks explained:

“In advance of the storm, SPEN proactively contacted 68,000 customers and sent 200,000 SMS and voice messages to customers in the most impacted areas. Once the storm hit, SPEN worked with Local Resilience Forums (LRF) to open rest centres across the impacted areas to provide customers with a warm space and access to showers, hot water, food and drinks. Over the course of Storm Darragh, SPEN took a total of c.77,000 calls (c.65,000 of which were for SPM), prioritising vulnerable customers who were on the Priority Services Register (PSR).”⁵⁰

92. Steven Joseph, National Grid, referred to a surge in customer engagement during the storms, saying website usage increased “by about 4,000 per cent” during Storm Darragh.

93. Ian Christie, Dŵr Cymru, described severe disruption during Storm Darragh, including the loss of access to mobile networks and landline connectivity. He said that, in some rural areas, affected customers “couldn’t contact us by phone, couldn’t contact us by internet”⁵¹.

Vulnerable residents and Priority Services Registers

94. Concerns were expressed by local authority representatives regarding the Priority Services Registers (PSR), held by utility companies and used to identify

⁴⁸ Written Evidence

⁴⁹ Written Evidence

⁵⁰ Written Evidence

⁵¹ Oral Evidence, 6.3.2025

and support vulnerable individuals during emergencies. Huw Percy said that the lists provided by utility companies were inaccurate. This made it challenging for authorities to identify and support vulnerable residents. He called for improved coordination and data sharing between utility companies, local authorities, and health services.

95. This was echoed by Carmarthenshire County Council in written evidence:

*"The datasets were inaccurate, out of date, definitions of vulnerability were not compatible with NHS / social care definitions and the sheer volume of data produced thousands of names, resulting in council assets being redeployed to screen the data in order to compare with Council and health board records. This caused unnecessary delays and on several occasions and diverted operational staff away from their responsive work in order to check address[es] which did not either exist or in one case, the customer had passed away years before."*⁵²

96. Ian Christie, Dŵr Cymru, acknowledged deficiencies, particularly the lack of data integration across organisations, multiple PSRs, and different definitions of vulnerability. Liam O'Sullivan, SP Energy Networks, agreed and emphasised ongoing efforts to update customer details regularly, including through partnerships with third-sector organisations.

Community and Third Sector organisations

A recurring theme from our engagement work was community support, with neighbours and local groups playing a crucial role in helping each other. Many noted that a strong sense of community resilience was vital in helping people cope with the immediate aftermath of the storms and in the longer-term recovery process.

"The community certainly are the ones who helped us the most. The tractors took us from our house to the village pub. Within half an hour the pub was full. People had brought us clothes and toys for the children. A local company who owns the house we are now living in. They came down with keys for the house. Local people and tractors and diggers were out helping clear the mess."

⁵² Written Evidence

We would have been lost without our community.”

Older community members, in particular, relied heavily on local support during the storms. One noted that their neighbours were able to provide them with lamps and lanterns after they lost power during Storm Darragh. The impact of the storm meant that carers could not reach them.

Community networks, including WhatsApp groups and social media sites, were highlighted as a key source of information sharing, communication and support. Where communication from official channels or authorities was lacking, it was through these communication channels that residents and business owners received information.

97. In written evidence, RCT Council described significant engagement with third-sector organisations: *“British Red Cross (BRC) were requested to deploy... to the worst affected areas in Pontypridd and Treherbert... to offer emotional and practical support to over 300 people in 46 households.”*. REACT volunteers also *“provided a sense of security to a residential home overnight by remaining on site”*.⁵³

98. Blaenau Gwent County Borough Council highlighted a well-coordinated humanitarian response during Storm Bert, including rest centres, emergency accommodation, and financial support. It said:

*“Humanitarian assistance was provided... an emergency accommodation for those unable to return to their homes... Gwent Association of Voluntary Organisations (GAVO) was approached to coordinate the funding received through numerous ‘go fund me’ fundraising platforms.”*⁵⁴

99. In written evidence, the British Red Cross explained how it had supported communities affected by flooding during Storm Bert. However, this had been “held back by a delay in issuing the request to deploy by the local authority”, which caused volunteers to be “unnecessarily delayed in being deployed approximately for the first 24 hours”. The British Red Cross recommended that “local authorities develop standard operating procedures and data sharing protocols with Voluntary and Charity Sector (VCS) responders”.

⁵³ Written Evidence

⁵⁴ Written Evidence

Community Flood Groups

100. Effective community engagement, particularly through local flood groups and volunteer networks, emerged as a strong theme in local authorities' storm response strategies.

101. Andrew Stone described the challenge of maintaining active community flood groups in Rhondda Cynon Taf, citing difficulties in sustaining public interest and engagement between storm events. He suggested a greater role could be achieved through clearer communication strategies and increased engagement with established voluntary organisations like the British Red Cross. Huw Percy echoed this, highlighting the example of a flood group in Beaumaris, Anglesey. He cautioned that such groups' effectiveness often depended on individuals' commitment. He agreed that structured, ongoing support and clear communication of responsibilities were essential. Carmarthenshire Council agreed.

102. Councillor Jackie Charlton referred to Powys County Council's positive experiences with community flood groups. She highlighted how such groups significantly improved community-level preparedness and response, noting that "Local people can react much more quickly than the local authority".⁵⁵

103. In its written submission, NRW said:

*"we encourage local communities to develop their own community flood plans so that they are aware of flood risk in their area and have planned what they will do in the event of flood to reduce harm to themselves and their property. Resources are available on our website to assist communities with this work. NRW works with third sector organisations such as the National Flood Forum, British Red Cross and the Wales Council for Voluntary Action, who themselves provide guidance for community flood groups, offer courses and help with access to funding."*⁵⁶

104. In its "Building Resilience to Flooding in Wales by 2050" report, the NICW made recommendations in relation to community involvement. One of its recommendations was to "Involve communities in decision-making processes related to flood resilience explore the establishment of Citizen Juries or Citizen

⁵⁵ Oral Evidence, 6.3.2025

⁵⁶ Written Evidence

Assemblies by 2027 to provide a framework for new governance models, empowering communities to assemble and actively contribute to resilience efforts.” The Report explained that:

“Presently, community-led efforts for flood resilience lack structured support and dedicated funding, resulting in varying levels of preparedness across regions. In contrast, the recommended establishment of community resilience groups with allocated funding and technical support can empower communities to develop customised resilience plans, fostering a more unified and proactive approach towards mitigating flood risks.”

105. It went on to say that there are existing models for this in other parts of the UK, such as “The Flood Hub...established by the North West Regional Flood and Coastal Committee, which provide a model for effectively pooling and disseminating valuable FCERM resources and information.”

Evidence from the Cabinet Secretary

106. The Cabinet Secretary said that significant progress has been made in improving Wales’s resilience through collaborative, multi-agency working. He emphasised the need for all partners, including government agencies, LRFs, health services, charities, and voluntary groups, to contribute to resilience planning. He said:

“The traumatic incidents we see also give us the opportunity then to ask how we strengthen our evidence base in what we know, and how do we communicate and engage with all responders across Wales, including the Welsh Government, about existing and emerging risks. That means then that we can have a greater collective understanding of what the short, medium and long-term civil protection risks are, and how that informs the work that we’re engaged in on preparedness, response and recovery.”⁵⁷

107. The Cabinet Secretary said that the publication of the Wales Resilience Framework would aim to set out the roles and responsibilities of emergency responders and LRFs, and provide guidance on the resilience planning process.

⁵⁷ Oral Evidence, 27.3.2025

108. An official accompanying the Cabinet Secretary confirmed that new funding would be made available to support multi-agency coordination within LRFs:

“The First Minister has approved new funding, to support that multi-agency co-ordination work, looking ahead, so that we have a more robust approach at the local and national level.”⁵⁸

109. In the Welsh Government’s written submission, the Cabinet Secretary said:

“We have already established a JIGSO platform hosted on DataMapWales, which enables access to information pertaining to vulnerable people in ‘at risk’ properties and is available to responders during a major incident. Taking the learning from this winter’s storm events, Welsh Government’s National Security and Resilience Team are looking at how we can further improve access to high quality and comprehensive data.”⁵⁹

110. In his response to the NICW’s recommendations on community involvement, the Cabinet Secretary said:

“We recognise the importance of working to support communities during flood events and in developing long-term resilience. Natural Resources Wales and Local Authorities are both funded to engage and empower communities to prepare and manage potential flood risks and will have an important role in progressing this recommendation, drawing on their experience.”

Our view

The Committee notes that the Welsh Government’s Flood Response Framework has not been updated since 2016, despite the increasing frequency and severity of extreme weather events. Several local authorities told us that the Framework no longer reflects current risks or operational realities. We believe the Framework must be reviewed and updated to reflect current flood risks.

We heard concerns about inconsistencies in how and when LRFs activated tactical and strategic coordination structures during storms Bert and Darragh.

⁵⁸ Oral Evidence, 27.3.2025

⁵⁹ Written Evidence

There is a lack of clarity around the thresholds for convening Tactical Coordination Groups (TCGs) and Strategic Coordination Groups (SCGs). The Committee notes suggestions that clearer and consistent escalation protocols are needed. This should be reflected in a revised Flood Response Framework.

We note the comments that funding would be made available to support multi-agency coordination within LRFs and would be grateful for an update on this matter.

The Committee is concerned by the inadequacy of data held on vulnerable people. Utility companies' Priority Services Registers (PSRs) were inaccurate and out of date. We believe there is an urgent need for a unified, integrated PSR system shared between key responders. We were interested to hear the Cabinet Secretary refer to the JIGSO project, which can provide up-to-date information on at-risk households to responders in emergency situations. It is telling, however, that no other contributor to the Committee's inquiry referred to this project. Perhaps this is due to a lack of awareness. We would appreciate further information about the use of JIGSO by responders, and whether JIGSO could be viable as an alternative to priority services registers.

In the evidence we received, community resilience emerged as one of the most positive elements of the response to recent storms. Residents described how neighbours and local businesses were often the first and most effective source of help. However, we heard that formal engagement between local authorities and community or voluntary organisations varied considerably. The Committee believes that LRFs should develop clear, standardised agreements with third-sector partners to ensure they can be mobilised quickly.

Community flood groups make a significant contribution, but currently operate without consistent support or funding. We believe the Welsh Government should work alongside NRW to explore opportunities to develop funded community resilience groups across Wales.

Community involvement should not be limited to the immediate response to events. Structures must be put in place to enable meaningful participation in flood resilience planning, to ensure that communities are not just recipients of information, but co-producers of the plans that will affect them. We were interested in hearing the Cabinet Secretary's positive views on this issue and would be grateful for an update on progress.

Recommendations

Recommendation 6. The Cabinet Secretary should ensure that the Flood Response Framework is reviewed and updated to reflect the learnings from flooding events that have taken place since 2016.

Recommendation 7. The Flood Response Framework should define roles and responsibilities, including those in leadership roles, across all levels of government and responder agencies, to improve understanding and accountability.

Recommendation 8. The Cabinet Secretary should provide an update on the additional funding provided to LRFs to support multi-agency coordination.

Recommendation 9. The Flood Response Framework should set out clear escalation protocols for Tactical and Strategic Coordination Groups.

Recommendation 10. The Cabinet Secretary should clarify the use and effectiveness of the JIGSO project, including whether it could serve as a reliable alternative to, or complement, the existing PSR systems. The Cabinet Secretary should set out how he will improve awareness of the tool among emergency responders.

Recommendation 11. The Cabinet Secretary should ensure that LRFs develop formal, standardised agreements with third-sector organisations, ensuring these partners can be mobilised quickly and effectively during emergencies.

Recommendation 12. There should be a stronger recognition of the role of community groups. The Cabinet Secretary should work alongside NRW to explore opportunities to provide sustainable funding for community resilience groups.

Recommendation 13. The Cabinet Secretary should update the Committee on steps being taken by the Welsh Government or NRW to embed community participation in flood resilience planning processes, including through citizen forums and co-designed local plans.

4. Support for communities and individuals

Views of local people affected by the storms

Several contributors to our engagement work mentioned the financial strain caused by storm damage, including damage to property and loss of earnings.

"I've estimated I've lost £15,000 in terms of stock loss, loss of earnings and cleaning etc. This time round I had to get an electrician in to rewire everything. That's a big cost I had to find. The main thing for me is not the actual flooding that's the annoyance - it's the weeks and months afterwards trying to get the shop back together. That's the biggest impact - having to close to clean up."

Some interviewees affected by flooding also received financial aid from the local authority but claimed that £1,000 "doesn't scratch the surface" when it comes to damage repair.

Another participant was pleased to have received a cheque for £640 for disrupted electricity service in their area which they "weren't expecting at all".

Some contributors felt that residents received less support compared to the businesses affected in their area. One interviewee felt that the council was more "focused on business recovery".

Funding for households and businesses affected by storms

111. After Storm Bert, the Welsh Government funded grants of £500 and £1000 to households impacted by flooding, to be delivered through local authorities. Some local authorities also offered separate financial support following Storm Bert. For example, RCT County Borough Council provided £1000 grants for affected residents and businesses.

112. Some customers received compensation for disruptions to their water supply, as outlined in the UK Government's guaranteed standards scheme. DCWW provided compensation to customers affected by its Boil Water Notice in the Rhondda valley.

113. Distribution Network Operators are also obliged to provide compensation following energy supply disruptions, as outlined by Ofgem. In its written evidence, Scottish Power Manweb (SPM) said it proactively provided compensation to

customers affected by power outages. National Grid Electricity Distribution (NGED) said it made 46,000 payments to customers after Storm Darragh.

114. In its written submission, the British Red Cross highlighted significant gaps in the support available to flood-affected individuals across the UK, based on a national survey it had conducted. According to the organisation, “approximately half (46%) of people who experience flooding in the UK receive some form of practical support such as evacuation assistance or temporary accommodation”, with most support provided by family or friends. Access to financial assistance was limited. It said that “only 5% reported receiving financial support from their local council”, while “24% reported that the support they received was inadequate” and “21% who reported a need for financial support also said they received none”. The British Red Cross recommended that the Welsh Government should “improve the availability of crisis support grants and emergency cash assistance to households affected by flooding”, such as by “including flood damage under the eligibility criteria for the Discretionary Assistance Fund”.

115. Councillor Jackie Charlton noted that the financial support offered to affected residents was appreciated in the immediate aftermath of flooding. However, she raised concerns regarding the amounts of funding, particularly for uninsured residents. She said: “The figure that’s handed to them is really quite small when you consider some of the damage... It doesn’t take a lot of water to cause an awful lot of damage”⁶⁰. She suggested the need for further consideration of whether current assistance levels meet residents’ needs.

116. Insurance issues were raised by several contributors. Andrew Stone highlighted that properties built before 2009 generally qualified for insurance under the Flood Re scheme⁶¹ but acknowledged the difficulty of navigating this system. Several local authority representatives emphasised the need for clearer, more accessible communication from insurance providers and government bodies to help residents and businesses better navigate the complexities of flood insurance coverage.

Impact on wellbeing

Several participants spoke about the emotional toll caused by the storm damage they endured. Multiple interviewees highlighted the ongoing challenges posed by repeated flooding, particularly the strain it places on both

⁶⁰ Oral Evidence, 6.3.2025

⁶¹ Flood Re is a scheme agreed between the UK Government and insurance companies. It provides flood insurance coverage to domestic properties deemed at significant risk of flooding.

businesses and residents. They described the mental burden of coping with the aftermath of the damage and the persistent uncertainty surrounding extreme weather events, especially for those who face these disruptions time and again.

117. The British Red Cross identified mental health outcomes as a concern in its written submission. It said that “40% of those who had experienced a flood in the UK reported experiencing moderate or severe mental health needs”, yet “26% reported that mental health support after a flood was inadequate”.⁶²

118. Councillor Andrew Morgan described how repeated flooding caused significant anxiety and distress, particularly for residents without insurance coverage.

Evidence from the Cabinet Secretary

119. The Cabinet Secretary described the financial support provided by Welsh Government in response to severe storm events, saying:

*“This is emergency funding. This is not the normal sort of investment we were just talking about. This is an emergency response that has affected often significant numbers of people.”*⁶³

120. He commended local authorities for their proactive responses:

*“Local authorities themselves also have stepped up to the mark and said, ‘We will put additional funding in that goes above and beyond what’s coming from the Welsh Government to help.’”*⁶⁴

121. He emphasised that smaller-scale incidents typically fall within local authorities’ responsibilities rather than Welsh Government. He pointed to existing support mechanisms, explaining, “There is funding that we’ve put into local authorities to enable them to put measures into individual houses, and repair and get them up onto their feet as soon as possible”.⁶⁵ He acknowledged the challenges for local authorities providing financial support, particularly for those who are experiencing repeated events.

⁶² Written Evidence

⁶³ Oral Evidence, 27.3.2025

⁶⁴ Oral Evidence, 27.3.2025

⁶⁵ Oral Evidence, 27.3.2025

Our view

The Committee heard compelling evidence of the wide-ranging impacts that severe weather events have had on residents, businesses, and communities. While financial and practical support has been made available following recent storms, many contributors described serious and recurring challenges that are not being addressed by the current system.

The Committee notes the comments that emergency payments to affected households do not reflect the true cost of flood damage or the long-term disruption it causes. Recent storms, and in particular the flooding they can cause, have resulted in significant financial losses. For some, the financial burdens continued for weeks or months after the event. While emergency payments were appreciated, they were often described as falling short, particularly for uninsured households and those who are affected repeatedly. We believe the Welsh Government should review the adequacy of these emergency grant schemes.

The Committee is concerned by the limited access to affordable flood insurance for residents and businesses. We believe that both governments and insurers must do more to simplify and clarify access to insurance. The role of local authorities in offering advice and signposting must also be strengthened.

We heard how repeated flooding events have taken a significant emotional toll on residents. We are concerned that mental health support is not routinely integrated into flood response and recovery. The wellbeing of residents must be treated with the same priority as physical infrastructure repair. We recommend that mental health support be embedded in local flood response strategies and made accessible through community-based services and partnerships.

Recommendations

Recommendation 14. The Cabinet Secretary should review the adequacy of current emergency funding provided by the Welsh Government for households affected by flooding, to ensure that funding support better reflects the costs arising from severe weather events.

Recommendation 15. The Cabinet Secretary should introduce grant funding to enable individual homes and businesses to put in place preventative resilience measures, such as floodgates.

Recommendation 16. The Cabinet Secretary should report back to the Committee on how, in his view, existing insurance schemes such as Flood Re, can be better promoted to residents of high-risk flood areas in Wales.

Recommendation 17. The Cabinet Secretary should take steps to ensure that mental health support is integrated into local flood response and recovery strategies.

5. The resilience of infrastructure

Several members of the public noted the lack of infrastructure resilience, particularly storm defences. One participant noted that their street was flooded from within the flood barrier due to an ineffective storm drainage system:

“The problem you have is, when the river reaches four meters the pipe becomes blocked and there’s nowhere for the water to go. So, we get flooded from inside the barrier. The water comes up through the drains.”

Other participants noted the adverse effects of losing power for a significant amount of time during Storm Darragh. One interviewee described being left without power for “six or seven days”, whilst another described being without electricity for two days.

One participant from a rural area described how Storm Darragh damaged the local mobile phone mast, causing the entire community to lose phone signal for over a week. Along with power outages, this made communication extremely difficult. Access to phone signal was crucial for receiving information and support through online community WhatsApp groups and mobile phone messages.

Infrastructure maintenance and investment

122. Local authority representatives highlighted serious challenges relating to the resilience of local infrastructure in the face of increasingly severe weather events.

123. Anglesey Council said that “Storm Darragh demonstrated the lack of resilience of the Menai crossings and Britannia Bridge had to close. Fortunately, this didn’t happen at peak times”. The storm also revealed vulnerabilities in other areas, including “the electricity supply, the port of Holyhead and mobile phone signal in some areas”. Of particular concern was the risk posed to connectivity between the island and the mainland: “There were concerns that a HGV could get struck in the arches of the Menai Suspension Bridge or damage it. This would result in the loss of the only link between Ynys Môn and the mainland.”⁶⁶

124. RCT Council said that, since Storm Dennis in 2020, “the Council have invested over £100 million on improvements to repair, upgrade and improve culverts and other assets”. During Storm Bert, these improvements “succeeded in

⁶⁶ Written Evidence

reducing the risk of flooding to an estimated 2,269 properties”, although “approximately 15% of all Council-owned assets which have received investment... were impacted”, and “the total estimated cost of damages to infrastructure is over £8 million”.⁶⁷

125. Blaenau Gwent County Borough Council provided a stark assessment of the condition of its infrastructure, saying “we have ageing infrastructure which in many instances is at the end of its design life”. The Council referred to their limited capacity for proactive maintenance due to “insufficient budget and human resources”, adding that “we need funding and resources to effectively manage and overhaul our assets to bring them up to condition to meet the resilience levels called for to meet climate change”.⁶⁸

126. Powys County Council observed that “the highway network in Powys is fragile, with most of it not constructed or designed to modern-day standards”. They noted that this makes the network “susceptible to damage from exceptional weather events” and that “funding for the highway’s asset is under significant pressure both in terms of revenue and capital, with a substantial backlog of works”. The Council warned that the network faces “further significant risk as climate change occurs”.⁶⁹

127. Powys County Council emphasised the long-term burden storms have placed on its infrastructure: “Between 2020/21 and 2023/24, Welsh Government has supported Powys financially with £3.99m in its recovery from Storm Dennis and other storms”, yet “reactive and emergency response for these two storms has cost the local authority an estimated £320,000”. They added that “there is at least circa £1.1m of additional recovery works needed to repair the damage sustained to the highway network”.⁷⁰

128. Councillor Andrew Morgan referred to the limitations of the Welsh Government’s Emergency Financial Assistance Scheme (EFAS). While the scheme offers reimbursement of costs beyond an initial threshold (85% after the council’s contribution of around £1.2 million), he noted that it covers only immediate response activities and emergency clean-up, and did not include infrastructure repairs like bridge reconstruction. He highlighted Abercynon bridge as an

⁶⁷ Written Evidence

⁶⁸ Written Evidence

⁶⁹ Written Evidence

⁷⁰ Written Evidence

example, stating that the £5 million replacement project fell outside the current scheme.

129. This was echoed in Monmouthshire County Council's written evidence, which expressed concern over the fairness and practicality of current emergency financial assistance thresholds: "The EFAS funding thresholds should be reviewed, it's easy to spend £420K revenue when your base budget is £6m, it's not so easy when your base budget is £600k."⁷¹.

The condition of culverts

130. Local authorities raised concerns about the condition, ownership, and maintenance responsibilities associated with culvert and drainage systems - particularly in the context of recurring severe weather events.

131. RCT Council referred to extensive clean-up operations following Storm Bert, stating: "Approximately 80 tonnes of debris was removed from the surface water drainage system and a further 1,500 tonnes removed from culvert assets post-storm."⁷²

132. Ainsley Williams, Carmarthenshire Council, emphasised that many culverts were not designed for current rainfall intensities. Kevin Kinsey, Blaenau Gwent County Borough Council, highlighted the difficulty of maintaining remote and outdated culverts, which are especially vulnerable to blockage during extreme weather events. In response, local authority representatives recommended targeted investment to upgrade ageing culverts and incorporating measures like debris basins into infrastructure planning.

133. Clarity around riparian responsibilities was a significant concern for local authorities. Kevin Kinsey described the frustration many authorities experience regarding public misunderstanding of private culvert and ditch maintenance responsibilities under riparian law, explaining that landowners often incorrectly assume local authorities bear responsibility.

134. In its written submission, RCT Council said: "It is estimated that of the total number of known culvert assets which were impacted during Storm Bert, 64% were privately owned and accounted for approximately 20% of the total number of properties impacted."⁷³.

⁷¹ Written Evidence

⁷² Written Evidence

⁷³ Written Evidence

135. Blaenau Gwent County Borough Council described culvert ownership and maintenance as particularly complex, “with many passing through both public and private land with multiple responsibilities for maintenance”.⁷⁴ Powys County Council echoed these concerns, highlighting the challenges local authorities face in addressing drainage issues on private land.

Evidence from the Cabinet Secretary

136. In written evidence, the Cabinet Secretary said that:

“This year (2024-2025), we have maintained our record levels of funding for flood risk management at £75 million, through our Flood and Coastal Erosion Risk Management Programme. The 2025-2026 FCERM Programme will be announced in Spring 2025.”⁷⁵

137. The Cabinet Secretary acknowledged that the annual nature of Welsh Government budget-setting had been “a constraining factor, to some extent”. He referred to examples of successful larger, multi-year projects, including flood management schemes in Aberaeron and Stephenson Street, Newport:

“Most of these big projects do not happen in one year, so we in the Welsh Government project fund for multiple years for these big projects already. We do it at our risk, however, but the contractors know it’s there, the money’s coming forward because we’ve committed to it.”⁷⁶

138. He hoped future budget cycles could transition to multi-year settlements, as this would improve long-term planning and potentially supporting innovative and less traditional flood management strategies. In his response to the NICW Report, the Cabinet Secretary said:

“I recognise the case for investment in this area and the benefit multi-year settlements would offer. These issues have also been raised in Natural Resources Wales’ ‘Long Term Investment Requirement Report’ and by the Flood and Coastal Erosion Committee. The Welsh Government is constrained in the way in which it receives its own budget and whether that provides certainty for a single year or for several. I have asked my officials

⁷⁴ Written Evidence

⁷⁵ Written Evidence

⁷⁶ Oral Evidence, 27.3.2025

to consider what more we could do in this space, recognising that other areas of infrastructure investment have longer term investment plans.”

139. Responding to concerns about riparian responsibilities, the Cabinet Secretary noted that guidance is already publicly available. However, he recognised the need for better dissemination of this information at a local authority level to ensure greater awareness and compliance. He said:

“There is already a guidance document, and it makes it clear that riparian owners carry responsibility, and how this works and what the responsibilities are.”⁷⁷

140. He committed to discuss with the Cabinet Secretary for Housing and Local Government the potential to strengthen existing guidance.

Our view

The Committee is concerned by the evidence it received regarding the vulnerability of Wales’ infrastructure to extreme weather events. Clearly, much of our infrastructure was not designed for today’s climate, and in some cases has reached or exceeded its intended design life. We commend the investment provided by the Welsh Government through the Flood and Coastal Erosion Risk Management programme, but remain concerned by the scale of remaining need. Upgrading drainage systems, culverts, and flood defences must be a priority for those areas that are at risk.

The condition and clarity of responsibility for culvert and drainage infrastructure was a recurring theme in the evidence. Many culverts were described as poorly maintained, difficult to access, and not designed for modern storm conditions. There are particular challenges where drainage infrastructure crosses public and private land, with ownership and legal responsibilities often unclear. We believe there is an urgent need for a nationally coordinated approach to culvert management. Clear guidance on riparian responsibilities should be issued to landowners, alongside mapping tools and support to improve compliance and reduce disputes.

The Committee notes comments that the Emergency Financial Assistance Scheme (EFAS) is too narrowly defined to meet the needs of local authorities arising from severe weather events. We recommend that consideration should

⁷⁷ Oral Evidence, 27.3.2025

be given to extending the EFAS to support the recovery of essential infrastructure and that thresholds should be reviewed to reflect local authorities' financial capacity.

Recommendations

Recommendation 18. The Welsh Government should ensure that national guidance on riparian responsibilities, including for culverts and ditches, is updated and promoted. The guidance should be supported by mapping tools, a register of owners, and compliance assistance for landowners.

Recommendation 19. The Cabinet Secretary should review the Emergency Financial Assistance Scheme (EFAS) to ensure that the thresholds of the scheme reflect the financial capacity of local authorities responding to repeated severe weather events.

6. Preparing for a more disruptive future

141. In addition to the issues identified in preceding chapters, contributors identified several longer-term interventions they believe should be considered.

142. In recent decades the intensity of winter rainfall has increased due to climate change. Further increases to average winter rainfall and storm frequency are likely to occur this century, putting 23% more Welsh properties at risk of flooding by rivers by 2120⁷⁸.

143. In its written evidence, the Met Office explained that:

*“A recent attribution study has shown that climate change has made rainfall during storms more intense through the autumn and winter”.*⁷⁹

144. It added that “UK rainfall in the winter season of 2023-24 was 20% more intense due to human-caused climate change”.⁸⁰

Several members of the public stressed the importance of long-term planning to prepare for future storms to address the issues raised during storms Bert and Darragh. This includes improving physical infrastructure as well as strengthening community resilience. Several participants noted their concern about the support that will be available to them in the future.

“I’ve noticed in the three times I’ve been flooded the water has gotten higher each time. It’s definitely getting worse. The water is getting higher and higher every time we get flooded.”

“It made me realise that we need to be much more resilient... The way I see it - as the climate catastrophe gets worse, we’re going to have to rely more on each other and less on the council because it’s going to be too big a problem for local authorities or the Senedd to deal with. So, we need to have built community hubs to deal with it and to know who the right people are who can help. I don’t know how you build community resilience, but we need to be more prepared.”

⁷⁸ [Natural Resources Wales / Flood risk management annual report 2023 to 2024](#)

⁷⁹ Written Evidence

⁸⁰ Written Evidence

Strategic planning

145. In its Report, the NICW recommended that the Welsh Government should “create a long-term 30-year national flood & coastal erosion resilience strategy by 2026, based on a 30-year vision for flood resilience and a catchment approach”. It explained:

“Our research concludes that the current 10-year strategy is not long enough to take the necessary longer-term decisions on flood risk management. The layering of existing plans is potentially complex and provides a challenge in their alignment.”

146. In oral evidence, Eluned Parrott (NICW) urged public bodies to respond to emerging future risks rather than focusing on reacting to the present. She emphasised that short-term planning was mirrored in the funding system, explaining, “We need more skills, we need investment in our landscapes, we need a long-term commitment to funding, which the current systems don’t provide for”.⁸¹

147. In its written submission, NRW emphasised the need for a multi-pronged and evolving approach, saying:

“There is no one single answer to the risks posed by flooding, it will take implementation of the full range of interventions... strong land use strategic planning, management of whole water catchments, advances in forecasting and warning capabilities, skilled workforce, properties built that are flood resilient, communities that are engaged with managing the issues – and a whole lot more.”⁸²

Section 19 reports

148. Section 19 of the Flood and Water Management Act 2010 mandates that Lead Local Flood Authorities (LLFAs) in Wales investigate flood events and publish reports when deemed necessary. These reports, also known as Section 19 reports, detail the causes and impacts of flooding, identify responsible parties, and recommend measures to mitigate future risks. The Welsh Government’s National Strategy for Flood and Coastal Erosion suggests that Section 19 reports should be

⁸¹ Oral Evidence, 27.3.2025

⁸² Written Evidence

produced for incidents involving 20 or more properties experiencing internal flooding.

149. In August 2023, a report of an independent ‘review of the local government section 19 and Natural Resources Wales reports into extreme flooding in winter 2020-21’ was published. The review was led by Professor Elwen Evans KC and made 18 recommendations.

150. In her written submission, Heledd Fychan MS referred to the Section 19 process, saying:

“The Section 19 process does not work as a means to identify future improvements and finding solutions for flooding challenges. This needs to be changed as a matter of urgency. Whilst the focus of the Local lead Flood Authority is taken up with investigations for compiling the Section 19 reports and the flood review reports they are not able to prioritise the solutions and improvements that need to be done in partnership across the Flood Authorities. There is no evidence that Professor Elwen Evans KC’s report has been taken forward.”⁸³

Catchment-Scale Flood Risk Management

151. In its Report, the NICW recommended that the Welsh Government should “Pilot and set up regional/local catchment partnerships by 2026 (to incorporate existing river and coastal forums) to support a systematic and integrated catchment and coastal management approach” The Report also recommended that Flood and Coastal Erosion Risk Management plans should be streamlined into catchment resilience strategies by 2026.

152. They explained that:

“A move towards integrated regional/ local catchment partnership working will be accompanied by a cultural shift in which the public expect a leading role in local decision making and informing resilience and recovery efforts. These partnerships would be similar to those established in 2013 by the UK Government in the Catchment Based Approach (CaBA) policy framework.

⁸³ Written Evidence

The UK framework provides a range of ideas and suggestions to encourage collaborative working across the catchment, rather than being a prescriptive method for setting up local initiatives, which we believe should be followed in Wales. Funding would be allocated to each catchment to support the establishment of the partnership...”

153. In oral evidence, Eurgain Powell (NICW) highlighted successful schemes in the Conwy Valley and the Usk Catchment Partnership, where landowners, local authorities and regulators worked together to deliver effective interventions.

154. NRW representatives noted the importance of catchment-scale approaches to manage flood risk. Jeremy Parr explained that catchment-level interventions, such as creating upstream water storage and implementing natural flood management, are critical to mitigating large-scale flooding. Gareth O’Shea highlighted NRW’s challenge in balancing immediate flood management responsibilities with investing in long-term catchment management initiatives.

Nature-based flood management

155. The Committee heard strong support from local authority representatives for the increased use of nature-based flood management. Councillor Jackie Charlton identified this as a priority for flood risk mitigation across Powys, but emphasised that nature-based solutions require sustained financial support to landowners and agricultural stakeholders.

156. Ainsley Williams noted successful small-scale natural flood management schemes within Carmarthenshire and recommended scaling up these practices as components of a broader flood risk management approach.

157. This was echoed in Monmouth County Council’s written evidence, which said:

“More investment in larger NFM schemes is required. Consideration should be given to the establishment of a multi-agency task force/working groups to consider such schemes on river catchment scales.”⁸⁴

158. Ian Christie, Dŵr Cymru, also strongly advocated for nature-based solutions as essential tools in flood management. However, he identified significant barriers,

⁸⁴ Written Evidence

notably planning processes and NRW's permitting framework, stating, "Planning is the biggest delay we will have to trying to get some of these schemes in place".⁸⁵ He called for planning reforms, allowing quicker deployment of these environmentally sensitive approaches.

Evidence from the Cabinet Secretary

159. In his response to the NICW Report, the Cabinet Secretary agreed "that having a long-term vision and strategic plan is essential for delivering longer term resilience and adaptation, but there is a balance to strike between a focus on setting that longer term vision and translating the vision into action on the ground and focus on delivering for our communities". He added:

"The National Strategy for Flood and Coastal Erosion, published in October 2020 sets out our vision for flood risk management until 2030. It outlines the areas we expect our partners and ourselves to work towards over the statutory 10-year period but also includes policies extending to 100 years. I further published the Climate Adaptation Strategy for Wales in October 2024 which outlines our significant commitment to responding to the changing climate. Within the document, we recognised that flooding impacts every policy area."

160. He concluded:

"Nevertheless, reflecting on the most recent storm events over the winter, it is clear that a renewed conversation about flood risk management and building resilience in at risk communities is needed. A new vision and strategy are not required to stimulate that discussion or to set the direction emerging from it but may offer a helpful way to frame such a dialogue."

161. In reference to catchment-wide flood management, the Cabinet Secretary said the approach offers "real potential" to deliver solutions that address both flood risk and wider environmental challenges. He noted that, "Ultimately, from the high uplands of the river catchments all the way down, that's where I think the solution here lies". In response to the NICW Report, the Cabinet Secretary

⁸⁵ Oral Evidence, 6.3.2025

agreed that “we need to move to a more systematic catchment focus for managing flood risk, water quality and water resources”. He added:

“I intend to explore a pilot, building on existing examples, to test the most effective approaches. It will be important to take the time to develop a meaningful pilot from which real learning can be taken and a systematic approach will not be in place by 2026.”

162. He went on:

“I have asked my officials to develop a roadmap to catchment planning for water, which will identify how we could move towards this approach. To help with the adoption of catchment resilience practices on a wider basis, we have recently published natural flood management opportunity maps on Data Map Wales. The opportunity maps help partners identify potential locations where natural flood management can be most effectively implemented. We are working with colleagues in Natural Resource Wales to build on this evidence base to assist in the development of future catchment-scale interventions.”

163. The Cabinet Secretary reaffirmed the Welsh Government’s commitment to nature-based solutions as a key direction for future policy. He acknowledged concerns raised by stakeholders, including Dŵr Cymru, that current planning and permitting rules often constrain more sustainable approaches to flood management, pushing developers “down a route of pouring concrete”. He responded, “We are committed to nature-based solutions in this, and catchment management approaches as well”⁸⁶.

Our view

It is clear that climate change is already affecting the severity and frequency of extreme weather events in Wales. The intensity of storms Bert and Darragh, and the impact both storms had on communities across Wales, reinforce the need for a long-term, strategic approach to both planning and investment in resilience.

⁸⁶ Oral Evidence, 27.3.2025

We note the comments from the NICW and others that the current 10-year National Strategy for Flood and Coastal Erosion is insufficient to meet the scale of the climate challenge. They suggested that a longer-term, 30-year national flood and coastal resilience strategy would enable public bodies to make more ambitious and forward-looking investment decisions. At the time of our inquiry, we are halfway through the life of the 10-year strategy. With only 5 years remaining, the Welsh Government must start thinking now whether a 10-year strategy provides the appropriate level of long-term planning.

We are not convinced that the Section 19 reporting process is as useful as it could be. We believe that communities need to be empowered to improve their resilience and plan for the future, and the Section 19 process does not deliver this. We would be grateful for an update on the progress of implementing the recommendations of the Elwen Evans KC review.

We agree with the Cabinet Secretary that catchment-scale approaches have considerable potential to deliver joined-up, sustainable flood risk management solutions. We support the creation of regional and local catchment partnerships and welcome the Welsh Government's commitment to piloting these approaches. We note the Cabinet Secretary's comments that he will explore a pilot before a systematic approach can be introduced at a later date. We would be grateful for an update from the Cabinet Secretary on the development of the roadmap to catchment planning.

There was consistent support from contributors for scaling-up nature-based solutions. Such interventions can be effective and cost-efficient, while delivering wider environmental benefits. We note that the Welsh Government introduced a £2m Natural Flood Management (NFM) Fund in 2025-26 as an extension of earlier pilot and accelerator programmes that have run since 2020. It has said this is part of its Programme for Government commitment to "deliver nature-based flood management in all major river catchments to expand wetland and woodland habitats".

We also heard that planning and permitting rules can present significant barriers to implementation. We would be grateful for an update from the Cabinet Secretary on specific steps that are being taken at a strategic level to scale-up nature-based solutions and reassurance that these schemes will continue to be funded beyond 2025-26.

Recommendations

Recommendation 20. The Cabinet Secretary should consider whether a 10-year strategy, such as the National Strategy for Flood and Coastal Erosion, is sufficient to ensure improved long-term planning and investment.

Recommendation 21. The Cabinet Secretary should provide an update on the implementation of the recommendations of the Section 19 review, led by Elwen Evans KC.

Recommendation 22. The Cabinet Secretary should review the Section 19 flood investigation process to ensure it better supports local resilience planning.

Recommendation 23. The Cabinet Secretary should provide an update on the development of the catchment planning roadmap, including timelines and stakeholder involvement.

Recommendation 24. Given their potential impact, the Cabinet Secretary should prioritise scaling-up nature-based solutions, and make sure there are appropriate levels of funding available for that purpose. Farmers and landowners should be provided with support to understand their responsibilities and the opportunities in this policy area.

Recommendation 25. The Cabinet Secretary should provide an update on the steps being taken to expand the use of nature-based solutions, including details of how these are being embedded into policy frameworks and reassurance that these schemes will continue to be funded beyond 2025-26.

Annex 1: List of oral evidence sessions.

The following witnesses provided oral evidence to the committee on the dates noted below. Transcripts of all oral evidence sessions can be viewed on the [Committee's website](#).

Date	Name and Organisation
20 February 2025	Dr Eurgain Powell, National Infrastructure Commission for Wales Eluned Parrott, National Infrastructure Commission for Wales Simon Brown, Met Office Russell Turner, Flood Forecasting Centre Cllr Andrew Morgan, The Welsh Local Government Association (WLGA) Andrew Stone, Rhondda Cynon Taf County Borough Council Huw Percy, Isle of Anglesey County Council
6 March 2025	Steven Joseph, National Grid Electricity Distribution Liam O'Sullivan, SP Energy Networks (Manweb) Ian Christie, Dŵr Cymru Welsh Water Kevin Kinsey, Blaenau Gwent County Borough Council Ainsley Williams, Carmarthenshire County Council Paul Ridley, Carmarthenshire County Council Jackie Charlton, Powys County Council

Date	Name and Organisation
	Matt Perry, Powys County Council
12 March 2025	Gareth O'Shea, Natural Resources Wales Jeremy Parr, Natural Resources Wales Tim England, Natural Resources Wales
27 March 2025	Huw Irranca-Davies MS, Deputy First Minister and Cabinet Secretary for Climate Change and Rural Affairs, Welsh Government Clare Fernandes, Welsh Government Claire Bennett, Welsh Government Andy Fraser, Welsh Government

Annex 2: List of written evidence

The following people and organisations provided written evidence to the Committee. Additional written information can be viewed on the [Committee's website](#).

- National Infrastructure Commission for Wales
- Met Office
- Flood Forecasting Centre
- Isle of Anglesey County Council
- Rhondda Cynon Taf County Borough Council
- Heledd Fychan MS
- Andrew RT Davies MS
- National Grid Electricity Distribution
- ScottishPower Energy Networks
- Dŵr Cymru Welsh Water
- Blaenau Gwent County Borough Council
- Carmarthenshire County Council
- Powys County Council
- Transport for Wales
- Natural Resources Wales
- Severn Estuary Partnership
- Traffic Wales
- British Red Cross

Additional Information

Title	Date
Follow up letter from SP Energy Networks to the Chair in relation to the Committee's storm response inquiry	18 March 2025
Letter from Dŵr Cymru Welsh Water to the Chair in relation to the Committee's storm response inquiry	31 March 2025
Response from the Deputy First Minister and Cabinet Secretary for Climate Change and Rural Affairs to the Chair following the 27 March scrutiny session	25 April 2025