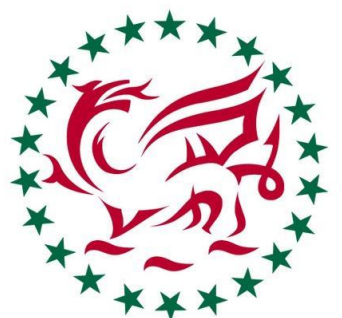




Wales Coastal Flooding Review
Project 5 Report –
Recommendations 25 & 26



WLGA • CLILC

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1. Background

Following the coastal flooding of late December 2013 and early January 2014, the Minister for Natural Resources asked Natural Resources Wales (NRW) to review the coastal flooding events. The Review was to be delivered in two phases and in collaboration with Risk Management Authorities in Wales. Phase 2 of this Review identified 47 Recommendations to improve Wales' resilience to coastal flooding.

Thirty of the Recommendations were packaged into ten Projects to reflect common technical themes, with the remaining seventeen addressed individually. The 10 Projects are listed below:

Project 1 – Flood Forecasting and Coastal Design

Project 2 – Flood Warning and Forecasting

Project 3 – Community Resilience

Project 4 – Operational Response

Project 5 – Coastal Defences

Project 6 – National Coastal Defence Dataset and Inspection

Project 7 - Skills and Capacity Audit and Roles and Responsibilities

Project 8 – Review of Coastal Groups

Project 9 – Coastal Adaptation

Project 10 – Infrastructure Resilience

This short report has been produced following a high level data request containing 11 questions (see app.1) sent to coastal Local Authorities and Natural Resources Wales (NRW) to fulfil the needs of Project 5 which comprises of Recommendations 25 and 26 defined below:

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- **Recommendation 25:** *All Risk Management Authorities (RMAs) around Wales should review their local use of stop boards, stop logs, temporary barriers or moveable gates. The purpose of this review is for RMAs to satisfy themselves that existing arrangements are appropriate and robust. Consideration should be given to replacing existing arrangements with more permanent or more robust temporary solutions. This review should be 'risk based' and focused on the locations with highest local risk.*
 - **Recommendation 26:** *All Risk Management Authorities (RMAs) around Wales should review locations where they have secondary defence systems in place. The purpose of this review is for RMAs to satisfy themselves that the secondary systems will operate as designed when required. This review should be 'risk based' and focused on the locations with highest local risk*
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2. Results

The data request was completed by 13 RMAs (12 coastal Local Authorities and NRW) via a questionnaire (see app.1) and further informal interviews. While most of the findings were as expected similar, the survey highlighted some inconsistencies and a knowledge gap surrounding secondary defences.

11 of the 13 RMAs consulted were confident with the location of their high flood risk areas on the coast. Local knowledge and records of historical events have been key to help identify these areas. Most RMAs also use a risk based approach to identify these high risk areas as well as mapping and NRW also benefit from the Community at Risk Register which is used to target investment in the locations of highest flood risk need.

2 RMAs responded with a low confidence level on the location of these high flood risk areas. This was due to a lack of records on historical flooding events and assets and a high staff turnaround which meant that important information had not been passed on. These RMAs have now invested in new software and resources have been brought in to build up a picture of the risk and key assets in each respective area.

2.1 Temporary defences

Recommendation 25 focuses on reviewing the local use of stop boards, stop logs, temporary barriers or moveable gates. 12 respondents indicated that their own assets in high flood risk areas had been reviewed following the coastal winter storms of 2013/14.

While the majority of NRW and Local Authority owned assets fulfilled their function, the winter storms highlighted some weaknesses in certain areas and consequently in excess of 30 RMA owned assets have been replaced to pre-storm design standard or upgraded for more robust systems. In addition to this, NRW provided 230 properties with Individual Property Protection barriers and around 50% of these were in coastal areas.

Figure 1: Example of upgraded work in East Rhyl

Before



After



Source: Denbighshire Council, 2014

Review work is still ongoing in high and low risk areas for both coastal Local Authorities and NRW to identify assets in need of possible upgrading and further replacement work is expected in 2016 as well as the installation of new temporary defences.

The results also highlighted that all RMAs have an inspection and maintenance regime in place for these assets which often form part of bigger flood defences. As a minimum, routine inspection takes place once a year and post storm. Where the risk is the highest, some RMAs inspect their assets 2 to 3 times a year as well as before and after a storm.

Figure 2: Temporary flood defence in action



Source: Gwynedd Council, 2014

Local Authority inspections focus mostly on their own assets due to a lack of capacity and the fact that they might use a different inspection system from other organisations. NRW, who have 10 accredited asset inspectors, monitor the performance of both NRW and third party assets (the inspection timing of these third party assets may only allow the *in situ* housing to be viewed and not the barriers themselves) on the coast and Main Rivers of Wales.

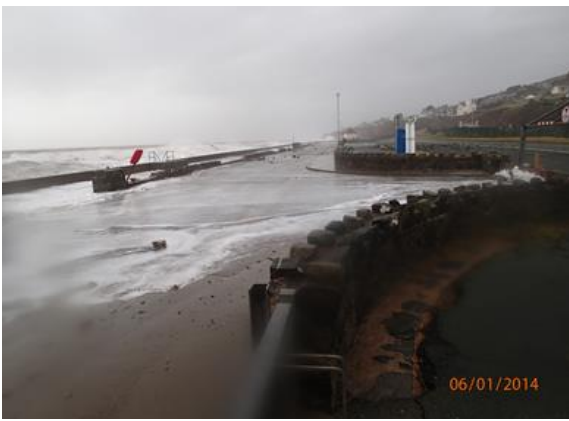
NRW inform third party owners of failing assets and this monitoring is also used to develop risk based programmes of work for their own assets.

2.2 Secondary defences

Recommendation 26 focuses on reviewing secondary defences in the most at risk areas. Responses from RMAs indicated a low level of confidence in this area due to the difficulty of defining and identifying secondary defences. RMAs were asked to consider their responses based on a broad secondary defence definition:

Any artificial or natural structure that may act as a flood defence to protect any individual property or wider area by retaining over-topping water.

Figure 3: Secondary defence in Gwynedd



Source: Gwynedd Council 2014

The majority of RMAs indicated that they were only able to confidently identify secondary defences if they formed part of wider defence systems (as highlighted by Figure 3) and had been built for this purpose.

The majority of structures playing the role of secondary defences have not been built for this purpose. These structures can form part of a highway or be owned by third party for example, and it is only during a flooding event that their secondary purpose can be identified. The exact number of secondary defences across Wales cannot be confidently assessed.

Other issues linked with ownership, gaps in current legislation, primary purpose of the structure, standard of construction and different budget availability make it very difficult for these structures to be 'marked' or designated (under Schedule 1 of the Flood & Water Management Act, 2010) as flood defence assets and upgraded or maintained to the standard required for this purpose.

It was however noted that following the 2013/14 winter storms, some RMAs are considering designating new townscape and landscape features as flood defences but this could be a lengthy and challenging process.

3. Conclusion and recommendations

Local knowledge is one of the key components of effective flood risk management. This is gained by practitioners through a good understanding of local conditions, records of historical events and years of service in a similar role. A good knowledge of high flood risk areas enables RMAs to prioritise, focus resources and target investment where the risk is highest.

While building up this knowledge and keeping record of it has historically been done to different levels across RMAs, the data request highlighted some inconsistencies and it had become problematic once experienced and knowledgeable staff depart, leaving their successors with little local knowledge or records.

1. It is therefore recommended that all RMAs further develop or put the right systems in place to collect vital information on temporary and secondary defences especially for newly identified assets in high risk areas. Such record could as a minimum include ownership of asset, primary function (if different from a flood defence), location and condition.

Some really positive results came through regarding temporary defences highlighting the pro-activeness of RMAs and existing strong systems in place for the inspection, maintenance and upgrading of these assets.

2. However, the current inspection regimes of NRW and Local Authorities highlight some potential overlap which deserves to be looked into to ensure best possible use of valuable time and capacity, reinforcing the need to look at possible cross collaboration arrangements at a regional level.

This exercise also identified that Local Authorities have often no knowledge of third party asset ownership or condition, whilst NRW monitor third party assets as part of their inspection and only inform Local Authorities in case of possible failure. It is important for all RMAs to hold some information on third party assets (including ownership and condition) to increase the level of confidence in these assets.

3. It is therefore recommended that regional arrangements are put in place to share such records between NRW, Local Authorities and other interested parties.

Identifying secondary defences is problematic regardless of the experience or resources of practitioners. The majority of structures deemed as secondary flood defences have often not been created for this purpose making it difficult to map their location or their function.

Agreeing amongst practitioners on a simple definition for secondary defences was problematic but all agreed that defences should be looked as a whole and not to differentiate between various elements of a system.

4. While we suggest further work in this area, spending valuable and often limited public monies to undertake further research or modelling to identify secondary defences and their predicted performance during an incident might not be the best use of public monies and effort should be invested in documenting whole systems.

Moreover, current gaps in legislation make it difficult for RMAs to designate third party assets as flood defences under Schedule 1 of the Flood & Water Management Act, 2010. While the designation process will prevent third party owners from altering, removing or replacing a structure without consent, Schedule 1 does not give powers to ensure the structure is maintained to the suitable standard and fit for purpose.

5. As flood risk management and coastal protection is devolved in Schedule 7 of the Government of Wales Act, it is recommended that Welsh Government amend Schedule 1 of the Flood & Water Management Act 2010 to reflect powers given under Sections 12 & 25 of the Coast Protection Act 1949. This will ensure RMAs have more control over structures deemed as secondary defences.

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Appendices

Appendix 1:

Questions for Recommendation 25

Have you identified all the high risk areas along your coastline?
Have you reviewed all your temporary defences in high risk areas?
Are any of these defences owned by third parties? If so, how many?
Are you confident that your existing temporary defences are in good working order?
Are you confident that third parties defences are in good working order?
Have you got any maintenance and inspection regimes in places for your assets? If so, how often?
Have you already upgraded some assets since 2013 Winter floods? How many?
Are you planning any upgrading work on these assets this financial year? If so, how many?

Questions for Recommendation 26

Have you identified all the high risk areas along your coastline?
Have you identified what is deemed as secondary defences within these areas?
How many defences have you identified within these areas?
Are any of these defences owned by third parties? If so, how many?
Are you confident that your secondary systems can operate as designed?
Are you confident that third parties systems can operate as designed?
Do any of your systems need upgrading? If so, how many?
Are you planning any work on these defences this financial year?
Are you planning any further surveying or inspection this financial year?