

Environment and Sustainability Committee

E&S(4)–20–12 paper 4

Inquiry into Coastal Protection in Wales – Evidence from Environment Agency Wales

Summary

- The scale of flood and erosion risk along Wales' coast is significant, with potential impacts upon both the social and economic fabric of many communities. We believe a more integrated approach to decision making would deliver more efficient use of Wales' natural and financial resources and achieve outcomes for our coast that are sustainable into the long term.
- The National Strategy provides the appropriate high level framework to inform coastal risk management by the relevant authorities and other partners. Environment Agency Wales continues to implement the Strategy's principles, our specific actions and to support our partners.
- We believe there needs to be greater recognition that the current way in which the coast is managed is unsustainable in the long term, and that all options for a more sustainable approach will require new financial investment.

The current extent of coastal flood and erosion risk in Wales`

Environment Agency Wales (EAW) considers there are two key elements to 'coastal protection' – the flooding of land from the sea and the loss of land from coastal erosion.

Coastal flooding

There are approximately 105,000 properties (homes and businesses) currently at risk from coastal flooding in Wales. This represents 29% of the total number of properties at risk from all sources of flooding in Wales. The other main sources of flooding in Wales are from rivers, surface water and sewers. There are locations, including coastal ones, where properties are at risk from multiple sources of flooding.

Flood risk is a combination of the likelihood of a flood happening and the consequences when it does. Whilst there is a relatively low likelihood of coastal flooding happening in Wales, the consequences for people and properties when it does occur are high.

This is because of a range of factors including: the wide geographical area over which a coastal flood could occur; the rate of onset particularly if the sea overwhelms a flood defence; the potential depth of flood water; the number of homes and businesses that would be flooded, and; the amount of infrastructure that would also be flooded, e.g. roads, railways, power and water supply.

The normally benign coastal conditions and the presence of coastal flood defences mean that overall there is a low likelihood of a coastal flood event happening. However that can lead to a lack of awareness that flooding can still happen and an over-reliance upon the existing defences, which could be overwhelmed if very severe sea and weather conditions occur.

Coastal flooding can be particularly damaging because it can happen multiple times on successive high tides. This was the case in Towyn in 1990 and led to substantial property damage and disruption as well as being a significant risk to people's lives.

The combined effect of high tides, low pressure and on-shore winds is often referred to as a 'coastal surge', which can raise sea levels by over a metre above normal high tide level. Coastal surges could occur around the coast of Wales. In the most extreme case, potentially a third of the Welsh coastline could be affected almost simultaneously, along with parts of the neighbouring English coast.

The economy and social well being of coastal communities are protected by approximately 415 km of man-made sea defences with a replacement cost of about £750 million, protecting assets worth over £8 billion¹. Coastal defences are owned or managed by the Environment Agency, Local Authorities and other third parties. Railway lines run along a large parts of Wales' coastline and a substantial amount of these are at risk from coastal flooding. In some locations railway embankments provide a flood risk management function which reduces the flood risk for the communities behind them.

The people occupying coastal communities can be particularly vulnerable to coastal flooding. Many caravan and campsites are located along the coast, as are a substantial number of bungalows. Were a flood to occur, the occupants are more at risk than people living in two storey houses. Many elderly people have retired to live by the coast, whilst people in caravan and campsites and rented holiday accommodation are often visitors and thus are less aware of the flood risk or what to do in a flood event.

The current level of risk from coastal flooding is expected to rise. From the UK Climate Projections², sea level is expected to rise by about 20cm around the coast of Wales over the next century. The waves that attack our coast will be bigger and storms will be more intense and happen more often, both in summer and winter³.

Coastal Erosion

The Environment Agency is leading a project to better understand the level of risk from coastal erosion in Wales and England. As part of that project, we are currently analysing the projected number of properties (homes and businesses) at risk from coastal erosion in Wales currently and by 2050 and 2100. Unlike flooding, coastal erosion involves the permanent loss of an area of land and thus the consequences can be very high. A community would take much longer to recover from an erosion event, since complete replacement of properties or infrastructure may be needed.

The role of EAW and others in managing coastal flood and erosion risks

Environment Agency Wales delivers three coastal risk management roles - as an operator, regulator and advisor. We build and maintain coastal flood defences,

¹ Wales Audit Office (2009). Coastal Erosion and Tidal Flooding Risks in Wales.

² UKCP09

³ Adapting to Climate Change: Guidance for FCERM Authorities in Wales. Welsh Government, December 2011

provide a flood warning service wherever practicable and respond to coastal flood incidents. We consent applications from coastal Local Authorities to undertake coastal works, as well as applications by any party for works on or near a main river. We also now have the power to undertake works in relation to any source of flooding or coastal erosion, as directed by Welsh Ministers.

Coastal Local Authorities lead on the management of coastal erosion and on the production of Shoreline Management Plans (SMPs).

In our advisory role, we support coastal Local Authorities by providing technical advice, data, maps and other tools to inform the planning and delivery of their coastal risk management role. We also advise Local Authorities on the coastal flood and erosion risk posed by new development seeking planning approval.

The Welsh Government sets the strategic direction for how we and coastal Local Authorities should manage coastal flood and erosion risk:

- through its national strategy for flood and coastal erosion risk management in Wales (hereafter referred to as ‘the national strategy’);
- by approving Shoreline Management Plans
- by allocating capital grant for coastal protection works to Local Authorities;

In England these roles are undertaken by the Environment Agency.

Welsh Government has also given EAW a strategic oversight role – to understand the extent of risk from all sources of flooding and coastal erosion in Wales and to report to Ministers on progress being made to manage these risks.

Our contribution to the delivery of Welsh Government’s National Strategy

Through our roles as operator and regulator, we continue to deliver our objectives to reduce the level of coastal and main river flood risk posed to people and property. We also undertake an advisory role, supporting Local Authorities in their management of local sources of flood risk and also offering advice to water and sewerage companies and Internal Drainage Boards. Fulfilling these three roles is a key component in the delivery of the four overarching objectives of the Welsh Government’s National Strategy, published last November. We summarise in Annex 1 the progress we have made in our contributions to delivering these four objectives.

Future areas of focus for the management of coastal risk

Management of coastal flooding and erosion risk in Wales remains a challenge for all Risk Management Authorities. The scale of risk to which the country’s social and economic infrastructure is exposed is significant, and the consequences of a large scale coastal flood event are profound. We believe there are several key areas of focus to ensure Wales’ coastal risks continue to be properly managed in the future.

A. The importance of coastal risk management to economic and infrastructure decision making

There are strong interdependencies along all of Wales’ coast between social well being, economic growth and a clean and attractive environment. We clearly recognise the constraints of the current financial climate. However in our view, a more integrated approach to decision making would deliver more efficient use of

Wales' natural and financial resources and achieve outcomes for our coast that are sustainable into the long term.

We believe therefore that a sustainable approach to coastal management requires policy and funding frameworks to be created and applied across Government, and not restricted to solely environmental issues. It is equally important that consideration of coastal flood and erosion risk happens at the start of discussions, not at the end, in order for issues to be addressed in the most effective manner with least cost.

We recognise the need for economic renewal and growth in Wales, including on the coast, and will play our part in helping that goal be achieved in a truly sustainable way. We continue to offer our expertise on managing flood and coastal erosion risk to local planning authorities, developers and the Welsh Government through advice on the most appropriate locations at a national and local scale, and on safe building design where there is no alternative to development in areas at risk. Minimising the level of risk (through appropriate location and design of new development) is essential to minimising the amount of funding needed to manage it.

B. Levels of investment in coastal risk management

In our 2010 report⁴ into long term investment for flood risk management we highlighted the extent to which Wales' infrastructure (transport, communications, power, emergency services, etc) is at risk from river and sea flooding. Businesses are at risk as well as residential properties, for example five of the six recently identified Welsh Enterprise Zones are at risk of flooding, particularly Cardiff and Deeside.

We believe therefore that investment in flood and coastal risk management helps protect jobs and promote growth by creating sustainable locations that attracts business to invest in them for the long term.

To deliver that sustainable economic and social situation requires appropriate levels of investment in flood and coastal risk management. To avoid increasing the number of properties at flood risk in 2035 above present-day levels may require around three times the current level of investment and four times the current level to reduce the number. However given the estimated average damages from river and sea flooding alone (excluding surface water flooding) totals £200m annually⁵, we believe it offers value for money and helps safeguard the Welsh economy and society's needs.

Therefore investment in flood and coastal risk management should not be seen by decision makers as solely an environmental issue. We would support a move for greater financial recognition that it is an issue of equal importance for both economic and social infrastructure.

Over recent years the Environment Agency has implemented a range of measures to make our flood defence capital and maintenance programmes as efficient as possible. We believe we could deliver even greater levels of efficiency

⁴ Future flooding in Wales: flood defences, EAW 2010

⁵ Flooding in Wales, EAW, 2009

and reduce the risk for more people and properties if we were able to plan with a greater level of certainty over the amount of funding we would receive. Currently we operate on a 12 month funding horizon and yet have a 15 year programme of flood defence projects. In England the Environment Agency is able to plan its work over a three year funding horizon, mirroring the Comprehensive Spending Review.

C. All options for the sustainable management of the coast will require new investment

We believe there needs to be greater recognition that the current way in which the coast is managed is unsustainable, and that all options for a more sustainable approach will require new financial investment.

Until that recognition is reflected across Government's policy framework, the relevant bodies may be constrained from using their resources in the most cost effective way for the long term.

Whether we continue to build more defences and maintain the existing ones, adapt a more flexible approach to how we use and live along coastal land or do nothing, all options incur significant costs.

In light of climate change it will be economically and socially unsustainable to simply build coastal defences higher and higher. The cost of doing so would exceed financial resources, create barriers between communities and their coast (e.g. with impacts on tourism and landscape value) and put people at more flood risk from the higher and faster flood waters should a defence be overwhelmed.

Implementing the Shoreline Management Plans' proposed approach is a much more sustainable approach. Implementation would typically involve two elements: in some locations maintaining existing defences and improving them to keep pace with climate change, and; in other locations adapting, from the medium to longer term onwards, how we use coastal land to fit in with the coast will change.

Implementing that approach would reduce the future projected numbers of properties at flood or coastal erosion risk. It would use Wales' natural ecosystems to provide as an explicit mechanism to manage flood and/or coastal erosion risk. We believe using natural coastal habitats in this way would involve much lower maintenance costs than traditional concrete or rock defences. It would also offer multiple benefits for communities through enhanced recreation, biodiversity and tourism opportunities.

Both the traditional and managed adaptation approaches would require significant investment, at a level that exceeds current flood and coastal risk management budgets. However we must remember that the alternative is to do nothing, and the cost of that option would be the loss of properties to the sea, businesses left unviable, and lives put at risk.

Therefore, coastal flood and erosion risk management requires investment in the short to medium term for it to deliver more effective solutions in the longer term with the benefits for communities significantly outweighing the costs.

D. Government policy direction

Overall, we believe the Welsh Government's National Strategy does provide the appropriate framework for the management of coastal flooding and erosion. It is only eight months since it was published and its influence has yet to be fully demonstrated at either the national or local level.

Key to the effective management of coastal risk will be strategic direction from the Welsh Government to ourselves and others, particularly on these aspects:

- the publication of a policy on coastal risk management, including revision of TAN14
- the publication of a new policy for the funding of flood (all sources) and coastal erosion risk management
- the desired level of service for delivering our new statutory role to consent applications for any coastal works (flood and erosion)
- a centralised 'One Wales' programme for overseeing and delivering all flood and coastal erosion risk management works

We recognise the importance of each of these and have been providing data and advice to support the Welsh Government in its development of each of these and we will continue to do so. As a body that operates across all of Wales we believe that EAW (and subsequently as the Natural Resources Body for Wales) is best placed to oversee that programme, doing so in a transparent and accountable manner.

We are committed to maintaining the existing standards of service for flood warning and incident response both before, during and after EAW's transition to become part of the Natural Resources Body for Wales.

ANNEX 1 – EAW’s implementation of the National Strategy’s four objectives

1. Raising awareness of and engaging people in the response to flood and coastal erosion risk

Close engagement with communities at flood risk has been a priority for EAW through its Flood Awareness Wales campaign. This initiative has been running since 2010 and aims to raise awareness and highlight the practical steps individuals can take to prepare for flooding. To date we have engaged with over 50 coastal communities across Wales, visiting individual houses and community groups. As a result of our engagement over 30 flood plans have been produced, ranging from those for whole coastal communities down to individual businesses.

In April 2012 we produced, in liaison with coastal Local Authorities, information on the extent of coastal erosion in Wales. This included publicly available maps and background data for coastal Local Authorities, Countryside Council for Wales and the Welsh Coastal Monitoring Centre. We are also raising awareness of the erosion data with Network Rail and Dwr Cymru Welsh Water.

In 2010 we delivered an enhanced surface water flood risk map to Local Authorities. We then helped establish three regional groups to support the 22 Local Authorities in their task to undertake preliminary assessments of surface and groundwater flood risk. In partnership with them, we are now producing risk and hazard maps for surface water and all other sources of flooding for publication by December 2013.

We have been closely involved in supporting Local Authorities’ production of the second generation of Shoreline Management Plans, providing them with data and advice and participating in community engagement workshops. We are a member of all the Coastal Groups in Wales and the Wales Coastal Forum, working alongside our partners and the Welsh Government to plan and deliver coastal risk management as effectively and efficiently as possible.

The EA, supported by the Welsh Government and Defra, has led the skills capacity programme across Wales and England, providing a series of workshops and e-learning materials for Local Authorities on their new duties.

We have implemented our statutory responsibilities set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations 2009. For example, we have re-established our Flood Risk Management Wales committee as a flood and coastal committee and are recruiting a specific coastal representative.

We have continued to implement the Catchment Flood Management Plans and their risk based approach to managing main river flood risk. Of the CFMPs’ actions due for delivery by 2015 (over 700 of them) currently 90% are either complete, underway or have a commencement plan.

We continue to run a pilot national Single Point of Contact approach using the EA Floodline Service with four Local Authorities and Dwr Cymru Welsh Water to answer queries from the public relating to flood risk. The pilot period ended at the end of May 2012 and a report will be provided to Welsh Government to decide on whether to encourage other Local Authorities in Wales to participate in the

service. A similar approach has been taken regarding queries on coastal erosion and we would look to combining the flood and erosion Single Point of Contact systems should the Welsh Government decide to implement this approach across all of Wales.

2. Providing an effective & sustained response to flood and coastal erosion events

In 2011 the EA led the Watermark flood exercise which was the largest peacetime emergency exercise in Britain. We continue to support civil contingency arrangements under the guidance of the Local Resilience Fora, to deliver emergency response planning and action to deal with the consequences of flooding. We are working with the Local Resilience Fora to review existing flood emergency arrangements, in particular mass-evacuation, mass-accommodation and recovery. In addition to exercise Watermark we helped organise and deliver a reservoir emergency exercise in the South Wales area.

EAW recognised the need for Wales to be prepared for a possible coastal surge. We therefore arranged a visit by Lincolnshire County Council's Emergency Planning Manager and the local EA manager to share their experiences with organisations in Wales that would be involved in responding to a coastal flood emergency.

3. Reducing the consequences for individuals, communities, businesses and the environment from flooding and coastal erosion; and 4. Prioritising investment in the most at risk communities.

Over the last two years we have reduced the risk of flooding to over 2,600 properties across Wales by delivering our programme of building new, and maintaining existing, flood defences through capital investment of £29m. On the coast, we have built flood alleviation schemes including on the river Clwyd and at Glynea and we are developing a scheme at Fairbourne to reduce the risk of flooding to 420 properties.

We continue to invest in modelling coastal flood risk so we better understand the risk (extent of flooding, potential depth and velocities) and can make predictions of flooding to help us manage incidents, issue warnings and provide advice to our professional partners and the public.

Through our partnership work with the Met Office and as part of the UK Coast Monitoring & Forecasting Service, we have improved our wave and storm surge forecasts, refurbished the UK tide gauge network and now provide customer focussed Flood Guidance Statements, supported by Flood Advisory Service teleconferences when there is a significant flood risk.

We continue to improve and expand our flood warning services - we have increased the numbers of properties (inland and coastal) signed up to our flood warning service through pre-registering customers via an "opt-out" approach rather than the traditional "opt-in" approach. We have a programme in place to expand the coverage of the service along the coast.

EAW has continued to deliver its statutory duty to undertake a National Habitats Creation Programme to remediate for loss of intertidal habitats on sections of the coast where movement of the shoreline is constrained (coastal squeeze) and

through water level management issues on rivers and wetlands. With a duty to compensate “like for like” for habitat loss and ensure no net loss of protected areas, we are developing a progressive programme of habitat creation across Wales. This will maintain the coherence of the network of designated sites along Wales’ coast for birds and habitats of international importance.

EAW is already involved in a range of initiatives aimed at delivering more sustainable and ecosystems based approaches to environmental improvement. The creation of the Natural Resources body for Wales presents a significant opportunity for it to manage the coast in a more integrated, ecosystems based approach. This would enable EAW’s community needs-led approach to identifying appropriate coastal risk management options to be overlain with those for recreation, tourism, biodiversity, etc. The ability to take a holistic approach to all the environmental needs of a community creates the potential for much more effective delivery of its social and economic requirements as well.