

National Assembly for Wales' Environment and Sustainability Committee:
Coastal Protection Inquiry

Purpose

To consider evidence provided by the Institution of Civil Engineers as part of the inquiry into Coastal Protection.

Background

1. Coastal Flooding is regrettably a common occurrence in Wales. There are many recorded instances of severe flooding e.g. Towyn 1990 but as far back as in 1607 flooding has been recorded e.g. at the Wentlooge levels.
2. In the recent past, the floods of 2007 exposed the vulnerability of the UK's (and Wales') critical infrastructure to flood risk – as highlighted by Sir Michael Pitt FICE.

Issues

3. Managing Public Expectation

3. 3.1 The expectation from some business and members of the public that total protection from all flood risk is achievable must be managed. Even with higher levels of investment the construction and maintenance of comprehensive flood defences would be unaffordable in the context of climate change. Communities should expect to be more exposed to flooding in the future. It is vital, therefore, that steps are taken to improve flood resilience of communities in general.
- 3.2 As expectations become more realistic, individuals should be encouraged to become more self-reliant and take some precautions of their own to protect their homes and businesses against flooding.
- 3.3 Effective public engagement is essential to managing expectation and encouraging self-reliance. The Environment Agency is attempting this; making more information available to the public, such as flood risk maps and undertaken public flood risk information and awareness campaigns. In Wales the Environment Agency flood maps show areas of high, medium and low risk. Public awareness of flood risk in the region is undeniably growing.

4. Flood Risk Management at the Heart of Urban Design

- 4.1 Measures to manage flood risk must be built in to new development identified as at risk; the consequences of flooding must be managed acceptably and ways of building resilience into the built environment must be implemented when repairs are carried out.
- 4.2 Surrounded by the sea on three sides, coastal protection is also a vital element of Wales' flood resilience programme. There are many exciting prospects for "several purpose" schemes such as interlinked tidal and wave energy generation and coastal flood protection.
- 4.3 Most of the North Wales coast could benefit from civil engineering works that would provide renewable energy and flood protection, not least the areas around Towyn – ravaged by inundation by the sea in 1990, from which it has barely recovered.

- 4.4 We cannot stop flooding, but we can prepare for it. Emergency response and critical infrastructure need attention and need to be made more resilient. The floods of 2007 highlight the need to continue the preparedness.
- 4.5 We need all authorities, agencies and bodies to continue to work together.
- 4.6 We cannot continue to "defend at all costs"¹ the long term sustainability of our flood defence schemes must be considered.

5. Communication

- 5.1 Communication is at the heart of flood risk management. Not only should the communities and owner/occupiers of properties at risk from flooding be advised of the risks but all bodies involved in communications should work together to give the best and up to date advice.
- 5.2 The consequence of flooding and building in resilience must be better communicated. This should be built in as part of all future schemes.
- 5.3 Realistic sustainable outcomes/future expectations must be communicated. There is not an infinite source of funding.

6. Risk Assessment

- 6.1 Schemes must be based on a risk analysis and assessment criteria, together with an assessment of the "value for money" of a scheme.

7. Finance

- 7.1 Annual budgets stifle innovative and effective management of schemes. To enable effective/innovative design this can require long lead in times to ensure all the salient information is gathered and the optimum design produced. Ways of overcoming the problems of annualised budgets and funding design need to be investigated.
- 7.2 The barriers between different cost centres must be broken down to ensure that the best solutions for a given problem is achieved. Communities at risk of coastal flooding need all parties to work together, this includes different agencies and sectors e.g. regeneration, coastal defence, environment agency, highway agencies, rail network, public utilities ...
- 7.3 I consider that the case for funding the necessary coastal defence schemes has already been made and would make a strong case for continuing the level of capital (and revenue) funding, over the coming years, supported by grant aid where possible.

8. Capacity and Skills

- 8.1 The public sector has particular difficulty in recruiting and retaining flood risk management experts. Local authorities and the Environment Agency may not be able to offer the remuneration to secure the numbers of staff required. Local authorities and the Environment Agency particularly may also lack the capacity to procure outsources expertise and services necessary for an expanding programme of activity.

- 8.2 Fortunately the private sector has retained the capacity for resourcing the necessary skills required for producing the solutions. However, it takes a long time to “grow an engineer” and with the cuts in infrastructure spending, civil engineers with the necessary skills may and will seek work elsewhere.

9. Summary/Recommendations

- 9.1 In summary, the Institution of Civil Engineers Wales Cymru calls for better management of public expectation – total protection from all forms of coastal flood risk is not sustainable, the public/communities must be aware of the risks and consequences of flooding and be better prepared and become more self-reliant.
- 9.2 Flood risk management is at the heart of urban design – resilience must be built into developments.
- 9.3 Better communications with all parties working together to give the best, current and realistic advice. Expectations must be managed.
- 9.4 Schemes should be prioritised on a risk/value for money basis.
- 9.5 Innovative sourcing of finance must be found with all parties involved working together and not in silos.
- 9.6 The levels of capital and revenue funding for coastal defence works should continue with all opportunities for utilising grant aid sought.
- 9.7 Civil Engineers are central to delivering flood defence/resilience schemes. There is current capacity available but this resource is dependent on the programme of work.
- 9.8 Traditional structure defences alone are no longer the most effective or economic methods of dealing with flooding in Wales. A range of responses are needed with all agencies working together to provide community solutions.

Keith Jones, Director, ICE Wales Cymru

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- The Institution of Civil Engineers (ICE) was founded in 1818 to ensure professionalism in civil engineering.
- It represents 80,000 qualified and student civil engineers in the UK and across the globe and has around 4,000 members in Wales.
- ICE has long worked with the government of the day to help it to achieve its objectives, and has worked with industry to ensure that construction and civil engineering remain major contributors to the UK economy and UK exports.
- For further information visit: www.ice.org.uk and www.ice.org.uk/wales