

# Flood resilience in a changing climate

**Phil Emonson** of the Emergency Planning Society outlines why flooding as a result of climate change is an ever-increasing risk and why it is vital to act, prepare and adapt

According to a UK Met Office report carried out in 2019, the average sea level has already risen by 16 centimetres since 1900 and could increase by more than one metre by the end of the century. Higher sea levels cause greater wave energy, which in turn affects the world's coastal communities, bringing a greater likelihood of defence overtopping, as well as erosion.

New and ambitious international greenhouse gas emission targets are being set, but we will continue to see a rise in sea levels into the next century as a result of previous emissions. Furthermore, global temperatures are rising and in the UK, warmer and wetter winters and increased storminess, are leading to a greater risk of flooding.

These statistics reinforce why we need to act now to prepare and adapt for future floods, because we cannot completely eliminate the risk.

Flooding can be complex, with sources including rivers, the sea, groundwater, reservoirs, surface water and sewers. While it does not matter to the public 'whose' water it is, the *Flood and Water Management Act (2010)* places a statutory duty on risk management authorities to manage these risk sources and it encourages a holistic approach towards partnership working.

In the summer of 2007, the UK saw extensive flooding with more than 55,000 homes and businesses affected. This acted as a wake-up call and an independent review led by Sir Michael Pitt resulted in 92 recommendations that covered prediction and warning of flooding, prevention, emergency management, resilience and recovery. These far-reaching recommendations have brought about considerable changes in flood risk management in England.

There have been continued and enhanced levels of investment into flood and coastal risk management and this needs to be sustained if we are to continue to help

vulnerable communities in their flood risk preparations.

The Flood Forecasting Centre, established as a direct outcome from the *Pitt Review* recommendations, provides a world-leading service, bringing together forecasters and hydrologists from the Met Office and the Environment Agency, and is aimed at providing improved flood risk guidance for England and Wales. The service issues *Flood Guidance Statements* summarising five-day risk levels and enabling vital Category 1 and 2 responders to plan resources and response ahead of possible flooding.

Such preparations could include the deployment of temporary flood barriers that are used in place of permanent flood defences. Frequent planning, training and exercising with Environment Agency and local authority partners allow transport and deployment logistics to be rehearsed and understood. The armed forces are also involved in deployment exercises, testing and improving temporary defence deployment plans, such as during Exercise Touchpaper in Salisbury in 2019.

## Saturated catchments

Storms Ciara and Dennis during the winter of 2020 resulted in some of the most severe flooding seen in the UK since storm Desmond in 2015. More recently, in early 2021, storm Christoph brought heavy and persistent rain to already saturated catchments, and coupled with snow-melt in some parts, resulted in widespread and devastating flooding for many people.

Teams from the Met Office, Flood Forecasting Centre, Environment Agency, Natural Resources Wales, the emergency services and local authorities all worked collaboratively, in some instances with support from local volunteer community groups, to respond to some incredibly challenging and complex situations – including those related to the Covid-19 pandemic – helping to keep homeowners and businesses prepared and safe.

Even with these preparations, once again we saw furniture piled on streets and businesses hit as people took stock and are now still going through the enormously difficult period of rebuilding their lives and livelihoods.

However, in the last year there has been some great progress made in terms of how we plan for and respond to flooding. In July 2020, the *Environment Agency's National Flood and Coastal Erosion Risk Management (FCERM) Strategy for England* was released, setting out three core ambitions to create climate resilience places and infrastructure for the climate of today and tomorrow. It works to the vision of: A nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100.

The strategy commits risk management authorities to mainstream the use and take-up of property flood resilience and says that resilience is not about risk avoidance, but wider: "Social and economic opportunities in helping communities to protect against, manage and build back better."

In addition, a new Code of Practice has recently been launched to encourage a standardised approach to the delivery of property flood resilience (PFR). Adopting this across the whole sector is key, because so many homeowners are now taking advantage of the Defra PFR Recovery Grant Scheme, outlined below, as well as grant initiatives from some insurers to build back better.

Comprehensive financial support to affected home and business owners plays an important part in helping with recovery. The PFR Recovery Grant Scheme was introduced by Defra in England after storms Ciara and Dennis and provides grants of up to £5,000 for the provision of property flood risk surveys ahead of flood resistance, or internal adaptations to make the properties more resilient to future floods. Resilient adaptation of a property is generally much more expensive than resistance options, which aim to limit the ingress of water. However, the post-flood renovation period provides the best opportunity for options to build back better.

But it is important that residents are not left with a false sense of their own resilience, perhaps owing to partial protection or residual flood risk. As such,

professional independent flood risk surveys, audits and the provision of Kitemark-approved products are needed.

It is also crucial that local authorities can provide the administrative support required to manage the grant scheme, in order to make the process as easy as possible. In particular, procurement routes could allow direct payment of contractors by local authorities, so property owners do not have to make payments up front and then seek reimbursement.

Flood warnings also provide a vital tool for supporting emergency planning activities, not just from responding agencies, but also for home and business owners as well as local flood groups, in enacting their personal and community emergency flood plans. Approximately 1.4 million people in England are currently signed up to receive free alerts from the Environment Agency, and since 2019 flood warnings now appear on Google Search and through Google Maps with live alerts. Flood warnings provide information and people need to: 'Prepare, act and survive'.

In the face of a changing climate we cannot prevent all risk of flooding, nor can we rely purely on traditional hard-engineered schemes to protect communities. As properties are renovated, post-flood options with enhanced features can be considered and property flood resilience provides opportunities for many properties to resist flood water ingress and adapt internal fabrics to be more recoverable. This helps to reduce damage, loss and stress and can reduce insurance claims, not to mention the emotional effects of being flooded, which can be significant and will likely influence the recovery process.

Emergency planning also includes recovery planning, and so it is imperative that the mental and physical implications of flooding continue to be researched and understood so they can be taken into account when planning a response to future flooding.

## Author



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■ The EPS is a CRJ Key Network Partner and its Flood Resilience Professional Working Group is open to its members. Find out more at [the-eps.org/join-us](https://the-eps.org/join-us)

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