

Britain's flood defences continue to deteriorate

Barry Mason
1 February 2021

Last year, over 3,400 crucial flood defence structures across England were deemed to be in poor condition.

The research arm of the environmental charity Greenpeace, Unerthed, published a report on January 24 noting, “New data, obtained from the Environment Agency (EA) using Freedom of Information rules, shows that 3,460 ‘high consequence’ flood defence assets were rated as being in poor or very poor condition in 2019/20. That’s 6 percent of all such assets in England, an increase on the previous year after many defences were damaged in last winter’s flooding.”

Out of the 3,460, 791 of the assets were classed as very poor, having severe defects which could lead them to fail completely. The EA defines high consequence assets as “flood defence assets that contribute to managing flood risk in a location where the consequence on people and property of an asset failing is high”.

Large parts of the UK have just suffered flooding from Storm Christoph. The Environment Agency issued 130 flood warnings across England, with 225 less severe flood alerts. Residents were forced to leave their homes in parts of Ruthin, North Wales, and Maghull in Merseyside due to rising floodwaters.

In the Didsbury district of south Manchester, the River Mersey came very close to bursting its banks as it reached the highest water levels it had ever recorded. Around 2,000 homes and businesses were told to evacuate the area. This part of Manchester had not faced the danger of flooding for 60 years.

In areas that had suffered or were under threat from January’s Storm Christoph, such as Cheshire, Greater Manchester, Lancashire, Merseyside, Shropshire, South Yorkshire, the West Midlands, and Worcestershire, 831 crucial flood defences were classed as in poor or very

poor condition when inspected last year. This represents nine percent of all the assets in those areas.

Warrington, which was flooded in Storm Christoph, had the second highest figure of over 25 percent of its flood defences classed as in poor condition last year.

Unerthed’s research showed flood defence assets maintained by third parties were even more likely to be in a poor state. It noted, “Across England, third party-managed flood defences were twice as likely to be in a poor condition last year as those managed by the EA—eight percent compared to four percent.”

It was difficult to compel such third parties, which include local authorities, private landowners and transport companies, to improve the flood defences for which they are responsible. “Last year, the National Audit Office (NAO) suggested that the EA’s strategy to strengthen England’s flood defences is being undermined by the array of different actors tasked with maintaining them. The NAO recommended the EA step up communications with third party owners in a bid to get them to take better care of their flood defences.”

A January 26 article on the New Civil Engineer (NCE) website quoted a flood specialist stating, “Failure of a third-party asset could have serious consequences for other flood defences in a local area, which are in good conditions, but are not designed to cope with additional flows that could result from a catastrophic failure.”

Doug Parr, chief scientist and policy director at Greenpeace UK, told the *Guardian*, “The poor state of so many critical flood defences in England is putting thousands of people and homes at risk. This is unacceptable.”

In August 2019, following torrential rain during which half a month’s rainfall fell in one day, the town of Whaley Bridge in Derbyshire, a dam holding water

in Todbrook reservoir was near collapse. The reservoir is owned by the Canal & River Trust, a charitable body, came into existence in July 2012 as it took over responsibility from the state-owned British Waterways.

The heavy rain meant water was overflowing down the concrete spillway, which suffered damage and was in danger of collapsing. Built in 1830, it was an earthfill or embankment dam built using a mixture of soil and gravel.

The spill way was a concrete topping over the earthfilled embankment designed to safely carry away any water overtopping the dam. In 2019, the overflow damaged about a fifth of the area of the spillway and was in danger of carrying away the earth embankment. Residents had to be evacuated from houses below the dam and emergency measures taken to try and lower the volume of water held by the dam.

The concrete covering had last been replaced in 1969 following damage a few years earlier and had been allowed to deteriorate. The *Conversation* news website in August 2019 noted, "Drone footage shot by Miles Haslam in 2016 shows plants and grass growing on the surface of the spillway. This could mean the concrete surface may have already been cracked, or even that the foundation of the concrete spillway had been undermined, allowing plant life to grow."

It continued, "Concrete surfaces must be maintained and kept smooth and clean, without any cracks or holes. With water pouring across the spillway at very high speeds of up to 60-70mph, any small crack or hole will be subject to tremendous forces that will accelerate erosion damage."

Following the near disaster, the Canal and River Trust issued reports on the state of the dam after Freedom of Information requests from the BBC. The dam had been inspected by the trust in November 2018. An independent engineer also inspected it. The two reports passed to the BBC were heavily redacted, citing security concerns.

A BBC news website report of October 2019 quoted Whaley Bridge resident Matthew Forrest's response. "The population of Whaley Bridge had very little confidence in the Canal and River Trust as things stood after the near disaster in August that could have potentially killed thousands of people. This nonsensical black hole of a document does little to build upon any remaining confidence and faith in the Canal and River

Trust to internally investigate the causes, let alone replace the neglected Todbrook Dam."

Climate change is making heavier rainfall and flooding in the UK more likely. A study of flooding across Europe in the prestigious science journal, *Nature*, involving 24 research institutes and based on reports from nearly 4,000 river flood measurements over five years, found an 11 percent increase in flooding in northern England and southern Scotland.

The recent UK floods have disproportionately hit those sections of society already suffering. A report issued in November last year by the Environment Agency concluded, "There is an inequality in terms of social deprivation and flood risk exposure from all sources of flooding. In other words, people from areas that are classed as more deprived disproportionately face more flood risk than those in less deprived areas. This is the case when taking into account nearby flood defences."

Commenting on the findings in a November 30, 2019 *Independent* newspaper article, Professor Hannah Cloke, a hydrologist at Reading University, described the findings as "very worrying... A flood event will affect affluent areas and poorer areas in very, very different ways. This shows we're not doing a good enough job of making sure those people who can't bounce back after a flood event are taken care of."

Disadvantaged people are more likely to live on flood plains in rural areas, or in densely crowded urban areas with poor water drainage and are more likely to live in temporary accommodation on flood plains or close to the coast, Cloke explained.

The weather outlook for the UK over the next few weeks is heavy rain and the threat of floods.



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