The Past, Present and Future of Flooding in Leeds

Flooding is happening more frequently

1775	River Aire
1866	Keighley, Stockbridge, Bingley, Shipley
1900	Shipley, Bingley, Morton, Leeds, Keighley, Bradford
1931	Leeds
1932	Rothwell Beck
1934	Mill Shaw Beck, Beeston
1944	Leeds and lowland areas
1945	Wortley Beck
1946	River Aire
1947	Gipton Beck, Harehills
1950	Wortley and Kirkstall
1953	Adel
1960	Methley
1982	River Wharfe, Otley and Wetherby
1991	River Wharfe, Wetherby
Oct/Nov 2000	Skipton, Stockbridge, Bingley, Shipley Leeds
Jul/Aug 2002	Leeds
Dec 2002	Yorkshire, Otley, Garforth, Beeston, Kirkstall
Aug 2004	Leeds city centre
May 2005	Wyke Beck, Farnley Wood Beck, other watercourses in SW Leeds
Aug 2006	West Yorkshire
Jan 2007	West Yorkshire
June 2007	Leeds city centre, Wortley, Beeston, Halton, Pudsey, Methley, Guiseley
Jul 2007	Yorkshire
Jan 2008	River Aire, Leeds city centre
Jun 2012	Austhorpe, Garforth, Woodlesford, Swillington, Allerton Bywater, Seacroft, others.
Dec 2015	Leeds

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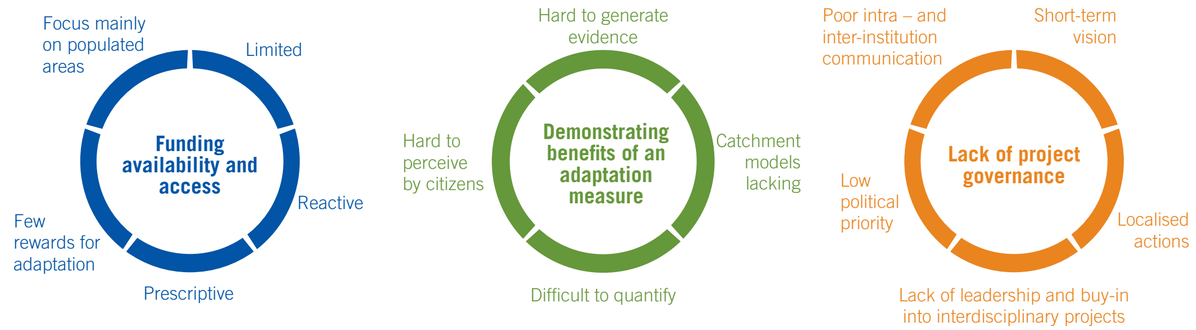
What are the main barriers to flood risk adaptation?

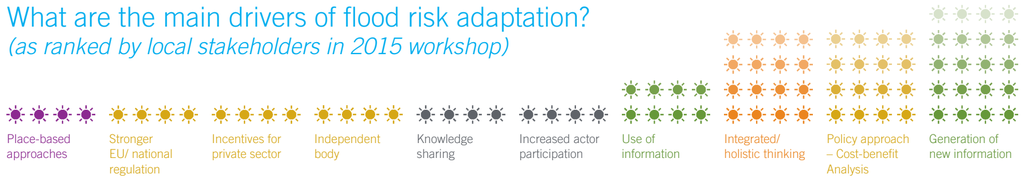
(as ranked by local stakeholders in 2015 workshop)

A closer look at the main barriers

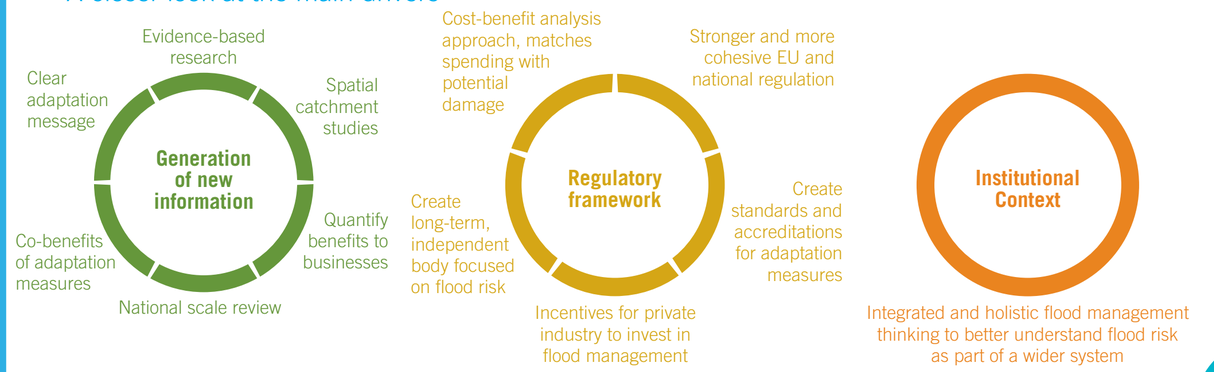


What are the main drivers of flood risk adaptation?

(as ranked by local stakeholders in 2015 workshop)



A closer look at the main drivers



Key: Actors · Resources · Institutional Context · Nature of Measure · Knowledge · Regulatory Framework

Ways forward for flood risk adaptation (examples)

Lack of risk awareness : Government schemes, such as the Green Deal Plan, help people understand risk

Lack of knowledge on adaptation : Flood risk adaptation exercises and studies, successful or not, are useful learning experiences

Rejected flood alleviation scheme : A revised, cheaper Flood Alleviation Scheme was approved and is being implemented by Leeds City Council and other partners

Lack of communication : In the past the Aire Action Group, coordinated by the EA, served as a succesful partnership of many stakeholders

Leeds 100 years from now...

Market-Driven Scenario

Population has doubled, mainly due to immigration, and GDP grows exponentially, reaching 5% per year. The mean annual temperature change is 4.5 ºC resulting in an increased number of summer days and heat waves, heavy rains, more frequent and extreme floods and droughts. There are some green city actions, but no government policies. Energy consumption of fossil fuels intensifies as people search for comfort and financial stability. The use of ecosystem services is maximized causing their overexploitation.

Middle of the Road Scenario

Population has increased 30% due to immigration and urbanisation. This leads to city expansion and the creation of vulnerable suburbs. Mean annual temperature increases 1.5 ºC. Heavy rain increases in the winter, which leads to more frequent and more extreme floods. Economic growth enables just basic green actions and the inequality between poor and rich increases. Ecosystems become degraded due to limited investment. The slight change in climate and socio-economic conditions do not cause great changes to historical situation.

Fragmentation Scenario

There is a slight initial increase in population but then a moderate decrease below current values. Urban population and GDP both grow slowly. The mean annual temperature increases by 4.5 ºC, bringing more frequent heat waves. Heavy rains also become more common in the winter and in the summer. Annual economic losses due to flooding will double, and mortality due to riverine flooding increases. Adaptation measures are only taken where financially relevant. Ecosystem services will become degraded due to overexploitation and climate change.

BASE BOTTOM-UP CLIMATE ADAPTATION STRATEGIES TOWARDS A SUSTAINABLE EUROPE

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