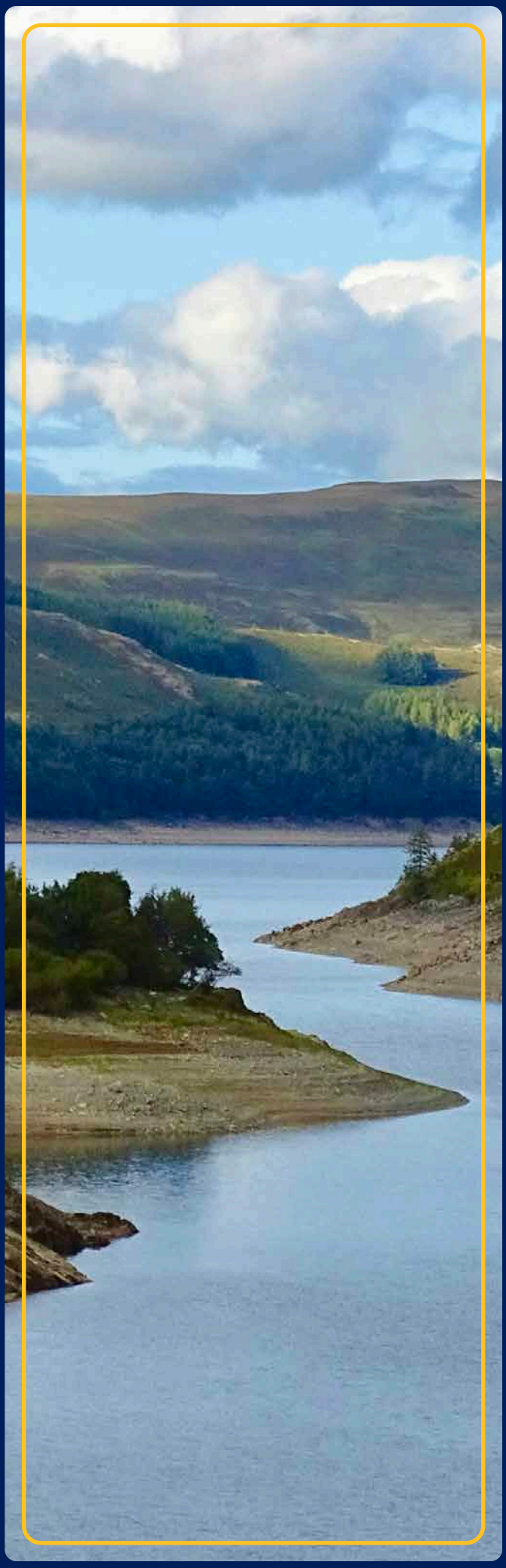
PIC

Hard Rain: Building climate resilience before the storm.



May 2026

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Foreword.

PIC is always looking for opportunities to boost our investment in UK real assets like affordable housing, water, and other infrastructure, because their long-term dependable cashflows match the payments needed to pay our current and future policyholders.

PIC has invested £15 billion in such assets to date. The pension risk transfer market (PRT), of which PIC is a part, is set to assume £600 billion of pension scheme assets over the next ten years, of which £200 billion would ideally be invested in UK housing and infrastructure.

The problem faced by investors like us is a shortage of investable projects - many projects are not viable because the projected costs exceed the estimated return. This problem is known as the viability gap.

To boost investment and deliver the infrastructure there needs to be a range of measures taken to make more projects work. Development can be unlocked by prioritising key policy outcomes, coordinating regulators, creating a pipeline of projects, supportive government policy, and strong Public Private Partnerships models.

One example is how the government approaches the issue of flood risk.[1] This poses a growing risk to development – but how it impacts investment decisions is a choice that the UK can make. We are allowing flood risk to restrict development in a growing portion of the country. In contrast, the Netherlands manages this risk proactively and seeks to build in resilience.

The Environment Agency ("EA") maps and designates areas as being at very low, low, medium, and high flood risk in England. It also projects the increased flood risk due to climate change for the next 40 to 100 years.[2] The EA's current approach directs development away from high and medium risk areas, equating to about 10% of the UK's land area.[3] The issue is that this 10% happens to include some of the most economically productive parts of the country.

The EA's work shows that flooding is also impacting a growing proportion of England's housing and infrastructure and is set to get much worse without targeted action from the government and investors. Flood risk rarely makes an existing town instantly "unviable". It makes future growth, insurance, mortgage lending, and reinvestment progressively harder. It hits economic growth and regeneration in these areas, not the existing settlement. This could be a contributing factor to gradual economic decline.

Coastal communities and cities built on rivers are at particular risk – these include large flat regions such as the East of England and cities such as Glasgow, London, Bristol, Cardiff, Hull, York, Liverpool and parts of Manchester.[4] That means a high share of economically viable and in-demand land lies within higher-risk zones.

We need to consider whether the regulators' aversion to development in high and medium flood risk areas is having perverse effects. PIC's experience suggests that the understandable desire to prevent unnecessary exposure to loss is in practice suppressing the justifiable development of viable, defended, productive land. This could have a noticeable impact on Gross Domestic Product (GDP) growth in future.

PIC has developed a Flood Risk Framework to manage its own exposure to flood risk. This assesses the flood risk to the assets already in PIC's portfolio or being considered for new investment. PIC will rule out an investment if the flood risk exposure is too high, across physical, commercial and human risk factors, over the investment period for that asset type because current mitigation options are too expensive and the trajectory of regulation is too uncertain. The Framework shows how institutional investors target investment to areas that are low risk – leaving much needed sites, currently designated higher risk, underdeveloped. This is rational under the current system.

We need a new strategic long-term approach. This will encourage investment where long-term flood risk has been adequately mitigated and drive fresh investment into these productive parts of the country.

In this paper, we outline how to avoid creating a new viability gap over coming decades by the regulator quietly shifting land from "viable with mitigation" to "unviable." Institutional investment needs to be utilised to reduce flood risk in high and medium risk areas by encouraging resilient development. The Thames Barrier in London and countries such as the Netherlands show flood risk is not an obstacle to development at reasonable cost if managed correctly.

Hayley Rees
Managing Director of PIC Capital

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About PIC.

Pension Insurance Corporation's (PIC) purpose is to pay the pensions of its current and future policyholders.

Our investment strategy is constructed to provide the cashflows to match all future pension payments over the coming decades. The best way to do this is by investing in very secure assets like UK government and high-grade corporate bonds and the infrastructure the UK needs.

Our appetite for risk is low and our timeframe for success is measured over decades, not the next four quarters. We have already invested more than £15 billion in UK productive assets such as social housing, renewable energy, urban regeneration projects, and the UK's universities. We have more than £31 billion invested in the UK and have a total portfolio of £55 billion. So far, we have paid more than £19 billion in pensions to our policyholders, with a 99% customer satisfaction level.

Executive summary.

Key points

- The EA designates areas across England as being at high, medium, low or very low flood risk. It directs development away from high and medium areas, and the footprint of these areas is growing due to climate related factors. This influences Lead Local Flood Authorities ("LLFAs") who are responsible for developing local flood risk management strategy.[5] The costs of this are growing and impact government infrastructure investment and the target to achieve 1.5 million homes this Parliament.
- The Government has pledged £10.5 billion to improve flooding defence and crowd in private investment, 20% of this will be designated for more deprived areas. Changes to the Treasury Green Book should allow more place-based business cases allowing better regional investment to protect centres of economic activity in the North and Midlands that may have struggled to secure investment under previous funding formulas.
- Institutional investors such as PIC factor the EA's approach to flooding into our analysis and avoid areas of high flood risk which may lead to unnecessary underinvestment in these areas. Insurance (via Flood Re) provides a time limited reduction in insurance costs for existing homeowners, but this is set to end in 2039. A town might become genuinely "unviable" if defence funding fails cost-benefit tests; insurance becomes unavailable (post-Flood Re, 2039) and mortgage lending tightens materially. We need a solution.
- The experience with London, Leeds and the Netherlands shows that through targeted investment in flood defence huge economic benefits can be achieved - The Climate Change Committee estimate that for every £1 invested in flood risk management, £8 is prevented in future flood damages.[6] Public First estimate that £3 of that is a direct saving to the government because more than a third of the damage is to publicly owned infrastructure like roads, railways, schools and hospitals.[7]
- We also know that a failure to invest carries significant risks - The Bank of England highlights the dangers to financial stability that decreases in insurance coverage for areas of high flood risk pose to the wider UK economy in terms of destruction of goods, capital and infrastructure. Without change regional inequality will grow and poverty within the high flood risk areas will increase.

This is a pivotal moment in which the UK can implement policy changes to unleash a wave of investment to unlock growth and increase our climate resilience.

Key policy recommendations.

Funding flood resilience and regeneration

1. Make the Flood Re levy on home insurance providers permanent to avoid a damaging decline in property values in the affected areas. Flood risk will not end in 2039, and neither should Flood Re.
2. Over time, transition Flood Re from being primarily a fund to make insurance affordable for existing properties with high flood risk (built before 2009) to a permanent source of funding for flood resilience measures for existing buildings. Utilise surplus Flood Re funds to finance flooding resilience rather than reducing the levy to facilitate this transition.
3. Enshrine flood resilience in new infrastructure with a Netherlands style risk based standard to flood resilience and require all new government infrastructure to include flood resilience in their investment plans.
4. End VAT on remediation work within high and medium flood risk zones which can disincentivise building repair and flood resilience work.
5. Ensure flood defences are sustainably funded.

Utilising the new water regulator to support investment

6. Ensure the mandate of the new combined water regulator directs it to work to reduce flooding risk in England by targeting reduction in the footprint of high and medium flood risk zones.
7. New water regulator to revise its Planning Practice Guidance and the National Planning Policy Framework should be revised to ensure the designation of flood zones includes the existence of flood defences.
8. EA, the new water regulator and NISTA to conduct joint analysis to identify the key mitigation measures needed in each flood zone to reduce the flood risk from high or medium to low in a sustainable way and the level of investment required.
9. Accelerate the deployment of additional reservoirs implementing the policies outlined in the Purposeful Finance Commission 'Reservoir Underdogs: Unlocking regulatory challenges to delivering new reservoirs' including:
   - Empowering a reservoir champion modelled on the Olympic Delivery Authority,
   - Create regionally significant infrastructure projects under mayoral jurisdiction to align housing and water delivery and
   - Introduce flexible price reviews for the water sector to allow mid-cycle adjustments to support investment to deliver sustainably lower prices.

Policy mechanisms to crowd in private capital

10. Designate high and medium flood risk zones as "Flooding Resilience Zones" ("FRZ"). In these areas recognise the trade-offs between delivering more homes/supporting businesses and environmental measures and grant more flexibility to local bodies to make their own choices on the balance that is right for them.
11. Consider the designation of the FRZ as investment zones with the powers of development corporations to boost development and growth in these areas.
12. Apply a land value uplift charge (tax increment financing) within the FRZ to provide sustainable funding for flooding defence by capturing some of the private value created by their existence.
13. Create a new tax credit to provide upfront funds to invest in flood defences through the creation of the 'Flooding Resilience Enterprise Engine Credit' (FREE) to frontload investment in the FRZ. Finance the tax credit by utilising part of the existing flood defence funding allocated by the government.

Harnessing industry to boost flooding resilience

14. Provide a forum for flood offsetting to ensure that corporate giving and developer attention is directed to introduce cost effective flood defence measures that build local resilience.
15. Create a new duty to identify measures to offset the flooding impact of development to replace the requirement to search for alternate sites for development.

Utilising local leaders to deliver local social value

16. New Mayoralties to utilise existing private and public funding intelligently to maximise flooding defence while achieving wider social value.

PIC commits to

17. Work with the new Social Value Commission, which PIC chair, to include flooding in its social value tracking so flooding resilience could be part of the analysis of social value going forward and the case for sustainable investment is made.

These proposals are offered as a basis for discussion with a view to enhancing the level of collaboration between institutional investors and government to unlock private investment to safeguard communities affected by flooding and their economic prosperity.

Introduction.

In this report we examine how to reduce flood risk and boost institutional investment in housing and infrastructure.

To identify the steps that we could take we first explore the EA's current approach to flood risk, we then examine how PIC as a large institutional investor is responding, explore the best practice in the UK and Europe, and then identify some policy recommendations to deliver the change needed.

1.

How England manages flood risk

How does the Environment Agency (EA) steer development away from high and medium flood risk areas?

The EA is the lead regulator responsible for managing the flood risk from main rivers, reservoirs, estuaries and the sea.[8] It uses its mapping to divert development away from areas of medium and high flood risk to areas of low flood risk. The EA's designation of flood zones "does not take account of the presence and effect of flood defences, unless they increase the area potentially at risk of flooding."[9] It states that "initially, the presence of existing flood risk management infrastructure should be ignored, as the long-term funding, maintenance and renewal of this infrastructure is uncertain."

Developers can challenge flood map designations and request the EA reclassify a site based on updated information. However, the number of flood map challenges is not tracked, and the process is widely stated to be lengthy and costly. This suggests that investors will largely work with the existing classification and the tests the EA sets to secure planning permission which are the Sequential Test and the Exception Test.

The EA requires developers to search for alternate 'reasonably available' low risk sites in the local area (the Sequential Test) and can refuse planning permission if they are available. The Sequential Test aims to ensure that "developers do not waste resources promoting proposals which would fail to satisfy the test."[10] Recent revisions to the planning guidance have clarified the area of search for an alternate site and defined the criteria for what qualifies as reasonably available in these cases, both welcome changes.

If the Sequential Test is satisfied and there are no suitable alternate sites, the development will then need to pass the Exception Test which adds two additional criteria which must be met before planning can be approved:

- "The development that has to be in a flood risk area will provide wider sustainability benefits to the community that outweigh flood risk; and
- The development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall."

In September 2025, the Planning Practice Guidance (PPG) was revised to specify that the 'Sequential Test' need not be applied where a site-specific Flood Risk Assessment (FRA) demonstrates the development would be safe from 'current and future surface water flood risk'.[11] The government has recently consulted on whether to now change the surface water flooding rules in the National Planning Policy Framework to reflect the changes in the PPG.[12] However, for sites where the primary risk is not from surface water e.g. rivers (fluvial) or the sea (tidal), the full Sequential Test still applies. Surface water is a risk that is highest in London and the East of England compared to other parts of England, so it does not address the factors that are more important in other regions.[13]

The approach for existing properties and why it matters

Flood Re, is a joint initiative between government and insurers which acts to make the flood cover part of household insurance affordable in high risk areas but it is set to expire in 2039.[14] Flood Re does not cover buildings constructed since 2009, it was designed to provide support for existing homes and not to encourage development in flood zones.[15] There is a statutory objective to manage the insurance market's transition to a post-Flood Re pricing model, but there is little clarity on this beyond that outlined in the Transition Plan 2023-2028. This plan states that "Flood Re's exit [in 2039] is not conditional on any criteria being met."[16] Flood Re provides a period of respite for homeowners in areas affected by flooding by socialising the cost of flooding damage.[17]

Flood Re operates as follows:

- Every insurer that offers home insurance in the UK must pay into the Flood Re Scheme.
- This Levy raises around £160 million every year that Flood Re use to cover the flood risks in home insurance policies.
- Flood Re works with insurers behind the scenes. When you buy home insurance cover, your insurer can choose to pass the flood risk element of your policy to Flood Re for a fixed price.
- If you make a valid claim for flooding, your insurer will pay the claim. Later, Flood Re reimburse that insurer from the Flood Re fund.
- In short, you buy home insurance in the usual way. Flood Re cover the flood risk and that helps to keep your premiums down.

Flood Re compensates for losses incurred from flooding – it is not primarily about investing in mitigation although since 2022 claims can include Property Flood Resilient repairs up to £10,000 and such measures will be an important part of the transition plan to prepare for when the scheme is abolished.[18]

The risk is that the end of Flood Re combined with the EA approach on flood risk for new development makes large areas of England un-investable. The former EA chair has suggested some areas may have to be abandoned as they are too costly to save.[19] The government won't write off whole areas of the country, and it is unlikely that in 2039 the full cost of insurance will pass to homeowners so a solution can and must be found that makes these areas more flood resilient now.

What are the dangers of failing to act on flooding resilience?

Flood risk is increasing,[20] the EA projects it will rise by 27% to reach 8 million properties, 1 in 4 of the total properties in England and half of railways and roads, by 2050.[21] This may be an underestimate as it does not account for population or urban growth, and urbanisation and nature degradation are key drivers of flooding.[22] This is a nationwide problem with 69% of UK constituencies set to experience at least 25% growth in properties facing flood risk by mid-century (Aviva study[23]).

Flood damage is also growing. Public First estimates that at present-day risk levels flooding costs the UK economy £2.4 billion per annum in direct physical property and infrastructure damages, but this could rise to £3.6 billion in 2050.[24] Past flooding events also damage future growth - 'every year flooding costs the economy £6.1 billion of lost Gross Value Added (GVA) through flooding events that have occurred in the previous five to ten years.'[25] This damages investor confidence deterring business investment.

Flooding damages deprived communities the most and impacts parts of the country disproportionately. The British Red Cross research found that flooding affected deprived communities more with 20% of those in the 10% most deprived neighbourhoods reporting experiences of flooding, compared with 10% in the 10% least deprived neighbourhoods.[26] The areas most affected by flood risk include the North West, East Anglia and Yorkshire where 13-18% of properties are affected.[27]

The government also has a target to build 1.5 million new homes by 2029. This is less likely to be achieved without improving flood resilience nationwide but especially in those areas most vulnerable to flooding. Aviva estimates 115,000 homes will be built in the highest risk flood zones if the current plans match the experience of the prior decade when 110,000 homes were built on them. The problem here is doing it without the required flood protections – not development in these areas itself. We know that mitigation and flood management can work and are cost effective:

- Climate Change Committee research identifies that for every £1 invested in flood risk management, £8 is prevented in future flood damages.[28] £3 of that is a direct saving to the government because more than a third of the damage is to publicly owned infrastructure like roads, railways, schools and hospitals.

There is now some public funding in place - in October 2025, DEFRA announced that there would be £10.5 billion taxpayer funding invested in new flood defences and repairing existing ones, with 20% of this allocated to deprived areas.[29] The challenge is how to use this public investment to crowd in private investment and how to frontload overall investment to reduce flooding costs now – this is where a change in the EA's approach is needed. While it will not be viable or desirable to build in every high and medium flood zone area, it is wrong to continue with the current approach that writes them all off.

The Bank of England (BoE) in its 'Financial Stability Report' December 2025 highlights the danger of "decreases in insurance coverage due to insurers withdrawing from certain regions, or pricing becoming unaffordable for households."[30] The BoE believes this "could pose financial stability risks in the long term by negatively affecting:

- Households: through lower house prices due to un-insurability[31] and the costs of repair from physical damages as well as difficulty remortgaging a property if there is a lack of available insurance.
- Businesses: through the destruction of physical goods, capital and infrastructure.
- Economic growth: through the direct impact of floods on consumption and inflation, and the indirect effects of lower insurance coverage on investment.
- Banks: through higher losses on lending to households and businesses affected by flooding. This impact would be particularly large on lower-quality or higher-physical risk portfolios.
- Governments: through the potential need to act as implicit or explicit insurers of last resort more frequently, including to support the economy during periods of stress caused by extreme weather events. The associated added strains on fiscal pressures that this would imply could further weigh on sovereign debt markets."[32]

Properties in the highest risk areas are almost a third cheaper (31.3%), with the average discount for properties with some flood risk compared to those without being just over 8%.[33] Bayes Business School finds that "buyers of lower-priced properties are more sensitive towards flood risk compared to buyers of more expensive properties."[34] Investment in flood defences would likely increase house prices in these areas, benefitting the poorest most. Part of this value could be captured to finance the upkeep and development of further flood defences.

2 How are institutional investors reacting to current flooding policy?

What is PIC's Flood Risk Framework and how does it shape investment decisions?

To understand flood risk, PIC has developed a Flood Risk Framework, which assesses the risks associated with flooding to the assets already in PIC's portfolio or being considered for new investment. The framework allows PIC at due diligence stage to identify the acceptable flood risk levels for different asset types; it outlines steps for PIC to consider dependent on risk levels and specifies if further modelling and development mitigations are required. PIC will rule out an investment if the flood risk exposure is too high over the investment period for that asset type.

With PIC holding assets for many decades flooding can be a material risk throughout the life of a development and get worse through the ownership term. Flood risk includes physical risks such as damage to the assets themselves, commercial risks such as reductions in asset value and income, and human risks to the occupants and the need for operational plans to manage that flood risk. Even for properties that may be in Zone 1 (low flood risk), PIC look at wider key routes to local amenities and infrastructure so that our residents/asset is not land locked during local flood events.

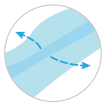
PIC identify where more modelling or acts of development mitigation are appropriate reducing expensive retrofit or repair work. Whilst the exact rate of climate change and regularity of events is unknown experts agree higher magnitude flood events are likely to occur at an increased frequency. Consequently, historic flooding events or current flood zoning are not always the best indicator of what will happen in future.

PIC's framework uses the Environment Agency's (EA) data on building stock and flood risk to understand the scale of the issue. External sector specialists such as valuers, insurers, and water consultants inform PIC's assessment. PIC looks at five broad flood risk indicators including:

- The flood zone rating (1, 2, 3a & 3b),
- The probability level (very low, low, medium or high,
- Return period for a flood event (number of years),
- Whether groundwater flooding is likely,
- And future risk (very low, low, medium or high), through a combination of latest EA modelling or site-specific specialist third party modelling.

Flood risk comes in many forms including riverbanks overflowing, tidal and coastal, sewage overflow, reservoirs, canals and dams overflowing, surface water runoff and excess ground water. How this translates for the different sources of flooding is detailed in the graphic below.

How is risk indicated

What is flood risk? – base understanding							
Category		**Coastal/Tidal**	**Fluvial**	**Pluvial**	**Groundwater**	**Infrastructure/artificial sources**	
Source		**Seas**	**Rivers**	**Surface water**	**Groundwater**	**Reservoirs**	**Sewers**
How it occurs		• Intense windstorm events occurring at the same time as high tide (storm surge) • Water overwhelms low-lying land in coastal or tidal regions.	• Excess rain or snowmelt upstream in a river basin collects and flows downstream • Water levels overflow banks onto the neighbouring land	• Extreme rainfall event on either saturated ground or impermeable hard standing • This runs over the surfaces collecting in localised low levels independent of an overflowing water body.	• Natural underground drainage system cannot drain rainfall away quick enough • This causes the water table to rise above the ground surface. Typically linked to bedrock geology.	• Excess rainfall causes upstream collection in reservoirs and overflows banks • This can be independent of river flooding or can exacerbate it.	• During excess periods of flash flooding, excess rain can overwhelm existing sewer capacity • Overflowing out of manholes or in building in different areas.
Risk indicator	**Form**						
Flood zone	Zone 1, 2, 3a & 3b	✓	✓	N/A	N/A	N/A	N/A
Probability level	Low to medium to high	✓ Low to high	✓ Low to high	✓ Very low to high	Modelling analysis required by flood risk specialist		
Return period	1 in number years	✓	✓	✓	Binary only (it occurs or not)	Binary only (it occurs or not)	N/A
Likely or unlikely	Binary	N/A	N/A	N/A	✓	✓	Can only be provided by flood risk specialist
Future risk	Low to medium to high	Can only be provided by flood risk consultant specialist modelling					

PIC's Flood Risk Framework shows how institutional investors will target investment to areas that are designated low risk – leaving much needed sites, currently designated higher risk, underdeveloped. This is rational under the current system.

Where has PIC rejected investment due to flood risk?

PIC has integrated climate related risks like flooding into its Risk Appetite Framework. Under this framework PIC has rejected several investments for issues such as the secure availability of affordable long-term insurance and the reliability of funding for flood defence maintenance, as described below:

Properties that are uninsurable in the future are un-investable now:

A multi-family apartment rental scheme was presented to PIC for consideration. It was within Zone 1 category of flood risk (a low probability of flooding) and with planning approval. After a site visit and close review of the local flooding maps we found that Zones 2 and 3 were 25-75 meters away and there had been historic flooding within parts of these areas. These were close enough to impact the development over the investment hold period.

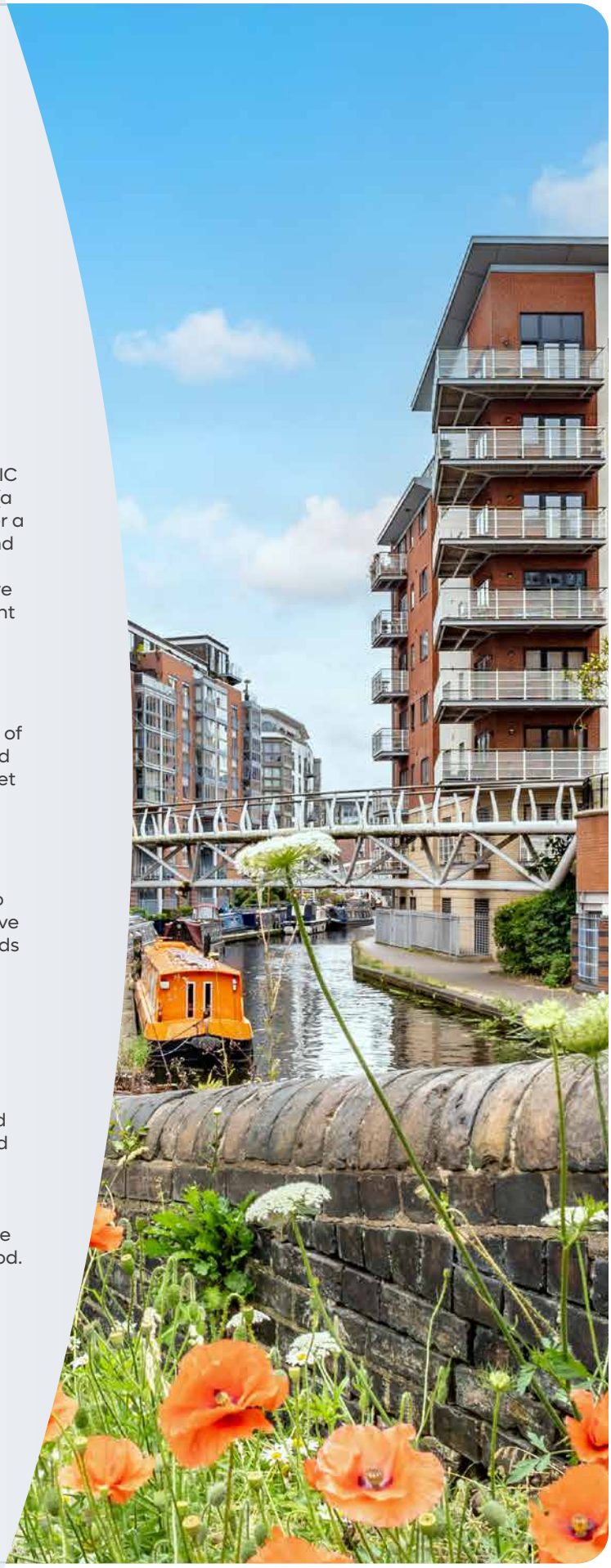
After commissioning site specific climate change modelling and getting advice from climate change specialists we were advised that the insurance cover on the asset would be compromised after 20-25 years during the ownership period of the asset. The modelling showed the only access route would experience disruption, and the insurance underwriting market would reduce with fewer underwriters willing to provide property insurance cover. This would lead to increased premiums and impact the overall value of the asset.

Flood risk can particularly impact rental properties as when a flooding event happens which impacts residents access to amenities and key transport links, they are more likely to move to a development where flooding is not an issue creating voids and more turnover of tenants which increases costs.

The price of reliable and sustainable funding for flood defence not being in place:

Another example was that of a large portfolio of assets which were bordering in Zone 1 and 2 although with flood defence protections. Close examination of the condition and duration of the flood defences in place such as sea walls and other man-made barriers revealed they needed significant investment by 3rd parties to maintain them to protect these assets over the whole of PIC's proposed investment period. PIC saw this as a key risk, with uncertainty about whether the required upgrades would be made over the investment period.

For these reasons we declined to invest in both cases.



3 What can we learn from best practice in the UK and abroad?

Targeted interventions are working now to make entire areas investable and protecting legacy infrastructure and housing in place such as London, Leeds and the Netherlands as explored below.

London

A significant proportion of central London was at risk from flooding, but we did not divert development away – we built the Thames Barrier (and earlier the Embankment) to manage and mitigate that risk. Without the Thames Barrier (the second largest flood defence barrier in the world) London would have needed flood defence walls as high as Victorian streetlights which would make full use of the river impractical.[35] The current barrier was opened in 1983 and is projected to be effective until 2070, the EA is currently working to plan how its replacement will be funded and delivered.[36]

London has a lot of high value economic activity and so the Treasury Green Book Rules have traditionally favoured it for this kind of investment. However, the 2025 Treasury Green Book reforms, finalised in June 2025, aim to better support regional investment in the North by introducing "place-based" business cases and reducing reliance on traditional benefit-cost ratios (BCRs). These could allow for more investment in the midlands and north of England to protect centres of economic activity, as with the recent investment in Leeds.

Leeds

In 2015 Storm Eva hit Leeds, in a 1-in a 200-year event which imposed a £500 million cost on the wider area and £36.8 million to Leeds itself. In response, Leeds has delivered a £200 million flood alleviation scheme, completed in two phases, which aims to provide a 1-in-200-year protection for homes and businesses along the River Aire.[37] The scheme is projected to open significant areas to urban regeneration bringing benefits of £774 million over 10 years.

Key features of the defences include:

- A mechanically operated flood storage area away from the City able to hold the equivalent of 720 Olympic Swimming pools worth of water.
- The creation of moveable weirs to be raised and lowered to create temporary space in the river channel – the first time they have been deployed in the UK. In addition to flood walls and embankments.
- The planting of 750,000 trees, the removable of obstacles to facilitate river flow and innovative land and soil management techniques.

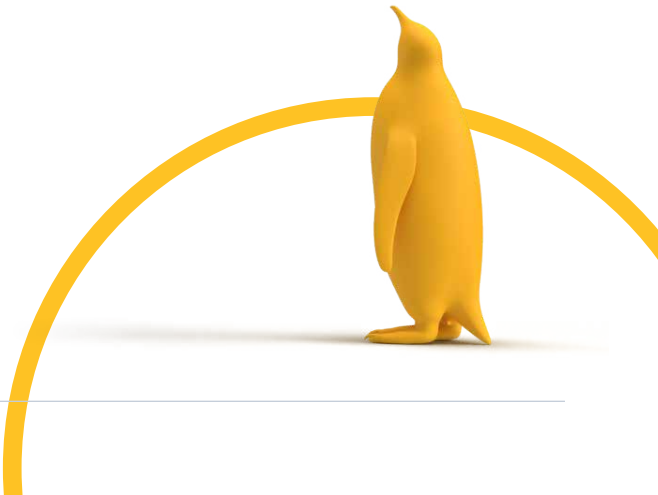
There will be scepticism about the case for investing to reduce flood risk in the high and medium zones, but the Netherlands shows that with the right overall framework and central support it can work well.

The Netherlands

The Netherlands is mostly built on land either reclaimed or low lying and thus at high flood risk – around 60% of the country is vulnerable to flooding, a quarter is below sea level[38], much of its land is reclaimed and 80% of the population live in the flood risk areas.[39] The Dutch have developed complex systems of dikes, dams, floodgates, and pumping stations to protect their land and their goal is to reduce the chance of death from flooding for every citizen to at most 1 in 100,000 per year.[40]

- Instead of "analysing past floods and building protection good enough to deal with those, the Delta Works commission pioneered a framework which could be used to calculate what future flood defences should look like to create a better protection for the country's coastal areas."[41]
- Conducting River widening under their Room for the River programme started in 2007 which is widening rivers at 30 locations across the Netherlands and restoring rivers natural flood plain in areas where it is least harmful.[42] This involves lowering floodplains in some areas, moving dikes inland to allow rivers to spread over a wider area and building flood channels.[43]
- Building with Nature, is a public private innovation programme which seeks to provide flood defence through embracing nature to provide room for leisure, biodiversity and improved water quality.[44] There are seven coastal and six catchment living laboratories.[45] Over 12,000 hectares of additional nature have been created through this over 25 years.[46]
- Regular dredging to keep shipping channels open is combined with using the dredged material to create new nature areas or restore dikes and farmers are also paid to store water on their land with some areas designed to be flooded to store water.

So, the UK's existing approach risks leaving areas behind. It is causing institutional investors to avoid developing high risk flooding areas and lowering their flood risk. Examples both here and abroad show we don't have to adopt this approach. So, what steps should England take to make the changes needed, below we provide some recommendations.



4 Policy Recommendations.

These proposals are offered as a basis for discussion with a view to changing the discussion on flood risk and seeing the opportunity there is to unlock private investment to transform areas subject to high and medium flooding risk.

Funding flood resilience and regeneration

Make the Flood Re levy on home insurance providers permanent: This will avoid a damaging decline in property values in the affected areas and gradually provide a long-term revenue source to help pay for flood resilience in existing properties (as explored on page 7).

Transition Flood Re from being primarily a fund to make insurance affordable for existing properties with high flood risk (built before 2009) to a permanent source of funding for flood resilience measures for existing buildings. Utilise surplus Flood Re funds to finance flooding resilience rather than reducing the levy to facilitate this transition: Increasing private investment in flood mitigation reduces flood risk translating into lower insurance claims. Currently, Flood Re is funded by a levy on home insurers and the fixed fee they pay for passing the flood risk element of home insurance to Flood Re. Lower flood risks mean less of the levy will need to cover flood related claims. Instead of lowering the levy some of this benefit should be captured for the community by ensuring Flood Re commit to invest any savings/surplus to supplement flood resilience schemes for existing buildings in high and medium risk areas this will help ease the transition from the levy socialising flooding damages to funding resilience.

End VAT on remediation work within high and medium flood risk zones which can disincentivise building repair and flood resilience work: The work is of benefit to taxpayers, the insured and the wider community in high and medium flood risk zones and so should not be disincentivised. The value in the VAT receipts on remediation work is a false positive when it deters investment in resilience which insurers and the government want people to undertake and which reduces the cost of flood damage.

Enshrine flood resilience in new infrastructure: Flood resilience is in HM Treasury's 10-year Infrastructure Strategy but there is no overall measure of the resilience it wants to achieve. For this reason, we support Public First's call for the UK to "adopt a Netherlands-style risk-based standard to flood resilience and require all government-funded infrastructure to incorporate flood resilience in investment plans." In addition, as Public First note "despite a pledge to mandate Sustainable Drainage Systems (SuDS) for new builds in 2024, it remains only guidance - the government should update this to mandatory for new homes in high flood-risk areas, as identified by the EA."

Utilising the new water regulator to support investment

Ensure the mandate of the new water regulator directs it to work to reduce flooding risk in England by targeting a reduction in the footprint of high and medium flood risk zones: The new water regulator won't be created until mid to late 2027 because it requires a new water bill. The new combined regulator will combine the water functions of four regulators - Ofwat, the Environment Agency, Natural England, and the Drinking Water Inspectorate. Currently, Natural England (NE) is the regulator for England's natural environment, focusing on conservation, enhancement, and sustainable development, while the Environment Agency (EA) focuses on pollution, flood risk, and water resources.[47] Its creation presents an opportunity to develop a new combined mandate that will resolve the conflicting policy objectives of the current regulators and reduce regulatory delays and costs.

The new water regulator should be tasked with reducing overall flood risk in England by reducing the number of high-risk flooding zones in England and should be scored on their performance. They should use the flooding maps to redesignate high and medium risk flooding zones as 'Flooding Resilience Zones (FRZ)' with a new aim to boost private investment in them to boost flooding resilience. The new regulator should prioritise measures that strengthen the defence of homes and businesses and seek to crowd in investment to high and medium risk flooding areas not to divert it away.

The EA, new water regulator and NISTA should conduct joint analysis to identify the key mitigation measures needed in each flood zone to reduce the flood risk from high/medium to low in a sustainable way and the level of investment required: This can help shape conversations with developers about increasing flood resilience by providing a menu of local measures rated on the impact they would deliver to reduce local flooding. Clearly, there will be areas where the flood risk is too extreme and the benefits from investment too low – we are not proposing that all areas nationwide must be developed. However, we do not have to write off large areas of the country, and we should target investment where it can unlock the most development and identify where other public sector budgets can contribute to flooding defence.

Based on PIC's experience as an institutional investor in developments that have had to mitigate flood risk, we would expect these measures to include the following:

- Ensuring access routes to key amenities and transport infrastructure are not impacted by flood events and residents in apartments are not locked-in and can continue their daily lives.
- Allow for grants and or VAT relief to encourage developers to improve flood mitigation measures as part of their development which benefit the local community.
- The EA to ensure it uses its power to charge nearby landowners for the repair and maintenance of flood defences they benefit from.
- Floodable spaces can be used for recreation outside of high tides and developers, council or charities could look at how their budget for leisure can contribute to this.[48]

New Water Regulator should revise its Planning Practice Guidance and the National Planning Policy Framework should be revised to reflect these proposed changes: This includes revising the sequential test, so it no longer directs development away from areas of high and medium flood risk provided an agreed plan is put in place to mitigate and reduce the overall flood risk to the area. Furthermore, that designation of flood zones should consider current and planned flood defences and not disregard them. The water regulator should embrace a range of funding options as explored overleaf to guarantee flood defence is funded in a sustainable way that provides greater confidence for investors.

Accelerate the deployment of additional reservoirs: The then National Infrastructure Commission (now NISTA) estimated that the UK needed to build 31 new reservoirs to protect its water supply by 2050.[49] The government have plans to build nine of which two are being fast tracked – which means no additional reservoir will be delivered by this programme before 2036. The Government should adopt the three recommendations outlined by the Purposeful Finance Commission in its report 'Reservoir Underdogs' to speed delivery including:

1. **Empower a 'Reservoir Champion':** Create a new, independent water regulator, with the authority and funding to drive delivery, similar to how the Olympic Delivery Authority (ODA) was empowered to plan, fund, and deliver the infrastructure of the 2012 Olympic Games.
2. **Regionally Significant Infrastructure Project (RSIP) Model:** Introduce a new RSIP model under mayoral jurisdiction, aligning reservoir approvals with housing targets and water resource plans.
3. **Flexible Price Reviews:** Reform the rigid price review cycle, allowing mid-cycle adjustments to protect customers and investor confidence, matching the pace of housing and infrastructure needs.

Reservoirs help improve flooding resilience. They regulate river flows by storing varying volumes of floodwaters and meticulously controlling the timing of water discharge[50] and provide capacity to absorb storm surges.[51] The EA has recognised that "the development of flood storage reservoirs on or adjacent to watercourses is a proven approach to mitigate flooding and represents one of many actions that can be taken to address flood risk on a catchment-wide basis" and produced a report outlining how plans can maximise this.[52] For example, Anglian Water outline how their Fens Reservoir will reduce flood risk including[53]:

- "Currently, water falling within the land area we've identified for the reservoir drains towards local communities. However, with the construction of the reservoir, all water falling within its footprint will be captured and carefully managed, potentially reducing the amount reaching local communities and existing channels."

Policy mechanisms to crowd in private capital

Explore investment zone idea for the Flooding Resilience Zones ("FRZ"): Currently, flood defences are funded by DEFRA grant-in-aid topped up by local authorities. Voluntary donations from private companies are sought but the EA say they are 'time-consuming, challenging and unreliable'.[54] However, there are mechanisms that could be used to draw in private funding. Areas of high risk for flooding could be given tax incentives and lower regulatory burdens to incentivise investment and development that increases flood resilience, there is an established model to do this that has helped regenerate areas of deprivation – the development corporation.

For example, the FRZ could build on the development corporation concept that has been applied before such as The London Docklands Development Corporation which was a quango formed in 1981 to facilitate the regeneration of the docklands area of east London – it was financed by a grant from central government and the income from land sales. It had broad powers to acquire land, reclaim derelict sites, and exercise planning control—often over local borough authorities' objections, which allowed swift decision making. High and medium risk flood zones should be considered for designation as FRZ with Development Corporations formed empowered to boost development.

Apply a land value uplift charge (tax increment financing) within the FRZ: In June 2025, DEFRA consulted on alternative sources of funding for flood management – one of which was Land and Property Value Uplift as areas become available for development and/or more protected. Capturing some of this for the community could provide a long-term funding source for flood defence maintenance and increase flooding resilience in the general area. This charge could apply exclusively to new developments in the medium and high flood risk zones.

The other funding options DEFRA considered included:

- Working with insurance companies to see if "the benefits of flood risk reduction in respect of insurance cost could be captured and put to use to increase resilience to flood risk."
- Working with water companies to increase investment in sustainable drainage systems to reduce surface water and provide more capacity.
- Local funding as provided to the new devolved mayoral authorities.

Tax Credits for Flooding Resilience: There is a need to incentivise greater upfront private investment without public cost. Under DEFRA's revised flood defence rules, all new or improved flood defence projects valued at £3 million or less will now be fully funded by central government. For larger projects, the first £3 million will be covered in full, with 90% of the remaining costs also funded.[55] Refurbishment of existing assets will be fully funded.[56] However, the funding is spread over multiple years – it would be better to front load it to begin delivering a reduction in flooding damage now.

- To accelerate delivery HM Treasury could develop a form of tax credit that we would call the 'Flooding Resilience Enterprise Engine' Credit (FREE) that would be administered by the National Housing Bank to frontload this investment in the FRZ. It could be funded with part of the £10.5 billion taxpayer support, perhaps the 20% allocated to deprived communities.
- The tax credits could be distributed on a competitive basis to developers operating in high and medium risk flooding areas who would sell them to banks and other financial bodies who would receive project equity. This would allow them to develop housing and infrastructure in partnership with the EA by incorporating measures to mitigate flooding to the general area.
- The credits could be awarded to developments that score highly against a set checklist of measures and targets to achieve a set reduction in overall flooding in the region. Investors would benefit from the finished value of the project and the reduction in their tax liability over the period.

The US funds its low-income housing through a similar mechanism:

- The Federal government allocates tax credits to state housing agencies.
- State agencies competitively award these to developers proposing affordable housing projects.
- Developers sell the tax credits to banks and other financial institutions in exchange for equity in the developments. The banks provide upfront cash that they use to build the housing.
- The investor carries the financial and delivery risk but can make money from both their equity stake in the development and reducing their federal income tax liability through the credits over a set payout period typically 10 years.

Harnessing industry to boost flooding resilience

Provide a platform for flooding offsetting: Not all mitigation measures can or should be conducted on site and it may be cheaper or more effective to provide them through alternate sites unconnected with the development. Currently developers are asked to scan for reasonably available alternate sites to place development – this could be replaced by a new duty to identify sites or measures that can be used to offset the flooding impact of development to build climate resilience in the local area. For example:

- Could the developer purchase a flooding offset credit that would be used to fund flood defence repair, construction, or a fund to finance acts of mitigation by existing homeowners in the area?
- Could farmers be paid more widely to store water in their land, UK water companies such as South West Water are already beginning to do this, some farmers are receiving grants to do[57] it but it could be extended out.[58]
- Can Sustainable Drainage Systems be adapted for existing housing stock not just newbuilds?

Under the Environmental Land Management schemes put in place in recent years, the Countryside Stewardship projects aim to cover 70% of English agricultural land and farms by 2028, these provide for payments to be made in respect of natural flood management among other categories.[59]

Utilising local leaders to deliver local social value

New Mayoralties to utilise existing funding intelligently to maximise flooding defence while achieving wider social value: Such as increasing natural habitats, restoring river flows and providing wetlands, creating embankments that can serve for leisure purposes when not flooded etc. As of January 2024, national planning laws were changed to require all large developments, as defined in planning terms, to provide at least 10% biodiversity net gain on all construction.

Rebalance Earth, a natural capital asset manager has partnered with Plymouth City Council to create an arm's length, Council-owned 'habitat bank', to design and ultimately fund investible propositions, through their new innovative nature restoration strategy. Habitat banks are a form of green finance that ensure that the biodiversity net gain, required by law for large developments, benefits residents and ensures that natural habitats are looked after and maintained for many years to come.[60]

PIC commits to

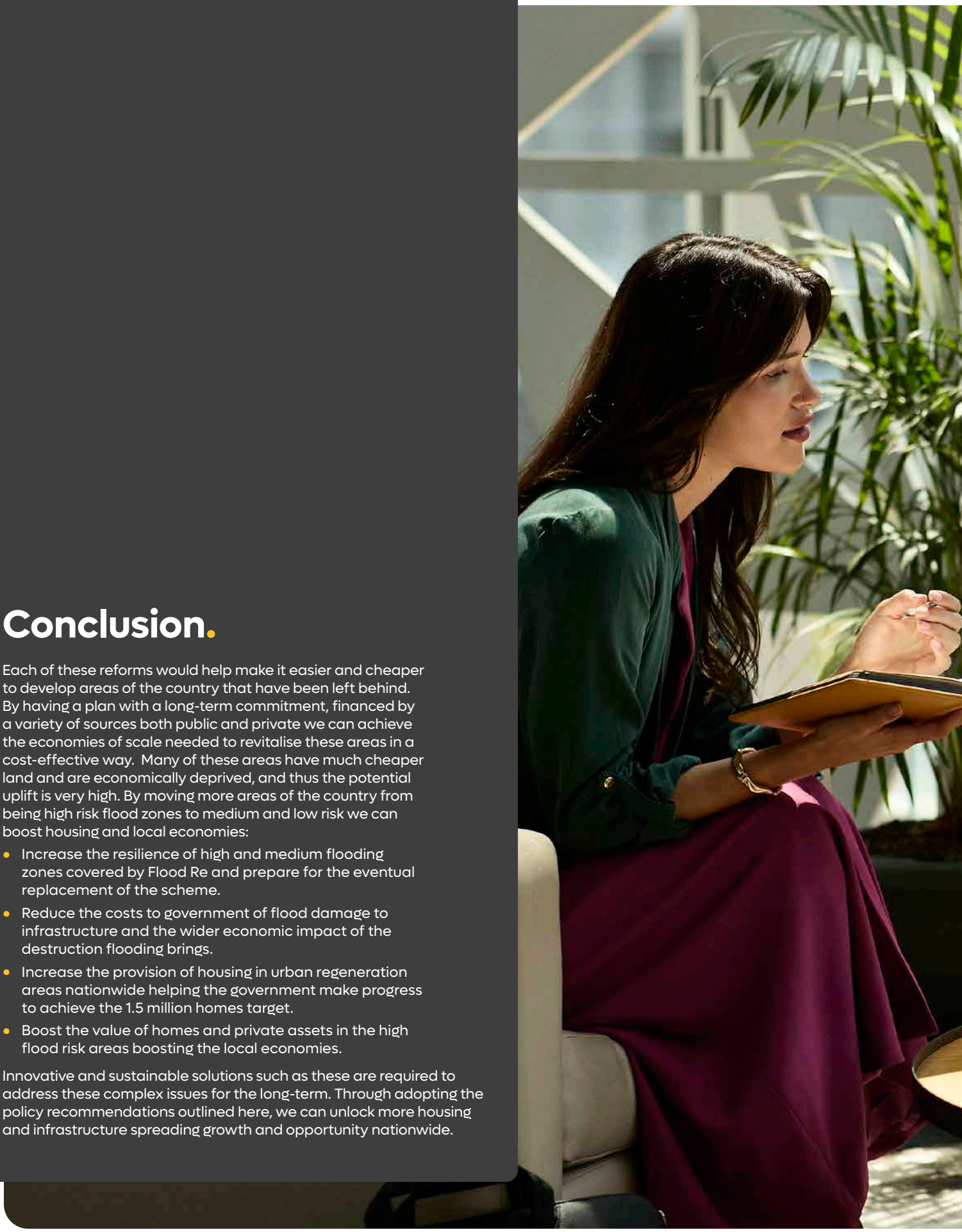
Work with the new Social Value Commission to include flooding in its social value tracking: PIC has worked as Chair of the Social Value Commission to develop and socialise social value metrics to identify the areas that need development and the measures that could build public support for local development. Flooding resilience could be part of this analysis going forward. These have helped track the social value we have created in award winning developments such as Millers Quay where we have invested in some flood mitigation measures to create new housing.

Conclusion.

Each of these reforms would help make it easier and cheaper to develop areas of the country that have been left behind. By having a plan with a long-term commitment, financed by a variety of sources both public and private we can achieve the economies of scale needed to revitalise these areas in a cost-effective way. Many of these areas have much cheaper land and are economically deprived, and thus the potential uplift is very high. By moving more areas of the country from being high risk flood zones to medium and low risk we can boost housing and local economies:

- Increase the resilience of high and medium flooding zones covered by Flood Re and prepare for the eventual replacement of the scheme.
- Reduce the costs to government of flood damage to infrastructure and the wider economic impact of the destruction flooding brings.
- Increase the provision of housing in urban regeneration areas nationwide helping the government make progress to achieve the 1.5 million homes target.
- Boost the value of homes and private assets in the high flood risk areas boosting the local economies.

Innovative and sustainable solutions such as these are required to address these complex issues for the long-term. Through adopting the policy recommendations outlined here, we can unlock more housing and infrastructure spreading growth and opportunity nationwide.



Endnotes.

1 https://www.gresham.ac.uk/watch-now/people-protection-and-parameters-comparing-flooding-uk-and
2 https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications
3 Land use statistics: England 2020 - statistical release - GOV.UK
4 Research Reveals the 10 UK Areas That Are Most at Risk of Being Abandoned Due to Flooding By 2050
5 Note - Lead local flood authorities (LLFAs) are the local authority responsible for local government functions (for example, a unitary authority or county council). LLFAs are responsible for developing and applying a local flood risk management strategy.
6 Flood and coastal erosion risk management spending - Climate Change Committee
7 Public First, From risk to resilience report_PF_180325
8 https://www.gov.uk/government/organisations/environment-agency/about#responsibilities
9 https://environment.data.gov.uk/file-management-open/data-sets/455d2eb3-3065-4d20-871b-c4d5dee23f67/files/Flood%20Zones%20Product%20Description.pdf
10 https://www.gov.uk/guidance/flood-risk-and-coastal-change
11 Flood risk and coastal change - GOV.UK
12 National Planning Policy Framework: proposed reforms and other changes to the planning system - GOV.UK
13 https://www.bbc.co.uk/news/articles/c99x4599gr7o
14 https://www.floodre.co.uk/
15 https://www.telegraph.co.uk/money/property/buying-selling/what-do-home-britains-expanding-floodplains/
16 Flood_Re_Transition_Plan_report_2023.pdf
17 Flood Re annual report and accounts 2022 to 2023 - GOV.UK
18 https://www.floodre.co.uk/our-future/
19 https://www.theguardian.com/environment/2025/oct/14/millions-more-homes-in-great-britain-at-risk-of-flooding-investigation-finds
20 https://www.theguardian.com/environment/2025/oct/14/millions-more-homes-in-great-britain-at-risk-of-flooding-investigation-finds
21 National assessment of flood and coastal erosion risk in England 2024 - GOV.UK
22 https://www.publicfirst.co.uk/wp-content/uploads/2025/03/From-risk-to-resilience-report_PF_180325.pdf
23 https://www.aviva.com/newsroom/news-releases/2026/02/proportion-of-new-homes-built-in-flood-areas-rises-to-one-in-nine/
24 From risk to resilience report_PF_180325
25 From risk to resilience report_PF_180325
26 https://assets.redcross.org.uk/82b1e254-5524-0172-0612-9ce813c7824c/d3ea670d-733a-416b-a928-b9eed2138ec1/Vulnerability-and-Resilience-Public-awareness-and-perceptions-of-flood-risk-in-the-UK.pdf?_gl=1*cfbuwd*_gcl_au*MjEwMTczMjczMC4xNzY4OTI5MTkx*_ga*MTY2ODc4NTk5Mi4xNzY4OTI5MTkx*_ga_KQQ35Y6WPZ*czE3Njg5MjkxOTEkbzEkZzEkdDE3Njg5MjkyMjAkajMxJGwwJGgw
27 The impact of flood risk on England's property market
28 CCC, Flood and coastal erosion risk management spending, January 2014
29 https://www.gov.uk/government/news/deprived-communities-to-get-new-flood-defences-faster#:~:text=This%20government%20will%20be%20investing,over%20the%20next%20ten%20years.
30 https://www.bankofengland.co.uk/financial-stability-report/2025/december-2025
31 The flood-prone Worcestershire town being abandoned by insurers | Flooding | The Guardian
32 https://www.bankofengland.co.uk/financial-stability-report/2025/december-2025
33 The impact of flood risk on England's property market
34 The impact of flood risk on England's property market
35 What Is The Thames Barrier And How Was It Built? | Institution of Civil Engineers (ICE)
36 What Is The Thames Barrier And How Was It Built? | Institution of Civil Engineers (ICE)
37 Leeds Flood Alleviaton Scheme: Protecting Homes And Business From A 1-In-200-Year Event | Institution of Civil Engineers (ICE)
38 Kingdom of the Netherlands-The Netherlands: Financial Sector Assessment Program- Technical Note on Climate Risk Analysis in: IMF Staff Country Reports Volume 2024 Issue 169 (2024)
39 Flood risk and climate change: A disconnect between homeowners' awareness and mitigating actions? - ScienceDirect
40 How the Netherlands became the global leader in flood defense
41 Delta Works: Protecting the Netherlands from Flooding | Institution of Civil Engineers (ICE)
42 The Netherlands and why partnership matters in flood risk management – Creating a better place
43 Room for the River
44 https://www.dutchwatersector.com/news/building-with-nature
45 Objective and approach, Interreg VB North Sea Region Programme
46 The impact and costs of Building with Nature projects - IADC Dredging
47 River Dredging - Hansard - UK Parliament
48 Funding Thames Estuary 2100: costs and investment - GOV.UK
49 UK needs 30 new reservoirs to protect water supply after failing to build one in 31 years
50 https://www.hydropower.org/blog/harnessing-the-power-of-dams-for-flood-protection
51 Reservoirs' role in managing flood risks | Letters | The Guardian
52 https://assets.publishing.service.gov.uk/media/60363fc08fa8f5480ff52469/Design__operation_and_adaptation_of_reservoirs_for_flood_storage_-_report.pdf
53 12902 - Anglian Water GENERIC - Fact Sheet_Our approach to flood management_V3.indd
54 Reforming our approach to floods funding June 2025.pdf
55 https://www.gov.uk/government/news/deprived-communities-to-get-new-flood-defences-faster#:~:text=This%20government%20will%20be%20investing,over%20the%20next%20ten%20years.
56 https://www.gov.uk/government/consultations/flood-and-coastal-erosion-funding-reform/outcome/flood-and-coastal-erosion-risk-management-funding-policy
57 https://www.bbc.co.uk/news/uk-england-gloucestershire-67913276
58 Devon and Cornwall farmers to be paid to store water on their land - BBC News
59 https://www.the-ies.org/resources/essential-environment-environmental-land-management-farming
60 https://www.plymouth.gov.uk/news/new-investment-partnership-aid-flood-risk

Notes.

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