Resolution Foundation

The Resolution Foundation Housing Outlook

Lindsay Judge | Jonathan Marshall

In this Housing Outlook we investigate what the warming world means for England's housing stock and for the families living in these homes. One of the main ways that climate change will be felt in the UK is increased frequency and severity of flooding. An estimated 1-in-50 homes are in places at medium or high risk of flooding from rivers and sea in England today. Somewhat surprisingly, however, it is properties in neighbourhoods in the middle of the deprivation ranks who stand most chance of significant flood events, not least because our cities (where many of the most deprived places are found) are relatively well-protected by our current flood defences.

However, we also find that that the housing stock has grown more than 50 per cent faster in flood-risk neighbourhoods compared to places with no flood risk over the last six years, occasionally in the face of Environment Agency advice. But critically, location does not wholly determine the vulnerability of different households to flooding when it does occur. We show that just one-in-three (33 per cent) of the poorest households in England has contents insurance - a key factor in limiting the financial fallout of a flood event – and a similar share (36 per cent) would like to protect their home contents but are unable to afford to do so. As floods become more common, the risk borne by poorer families can only increase. Policy makers should consider whether flood defence projects in poor non-urban areas should be prioritised; developer contributions to flood-proof new homes should be increased; or whether it is time to more effectively subsidise insurance for those on lower incomes (and with lower carbon footprints).

UK floods are expected to become more common as the climate warms

Flooding is one of the greatest risks that the UK faces from climate change – both now and in the future.[1] For each additional degree of global warming the atmosphere holds seven per cent more moisture, and as a result, flooding in the UK is expected to occur more frequently and potentially more intensely. The recent Intergovernmental Panel on Climate Change (IPCC) report outlined what this could mean in practice: flash flood risk increasing as rainfall on heavy rain days rises by 20 per cent; half of UK cities experiencing more frequent river overflow; and what used to be flooding events that occurred with a 1-in-100 chance in any given year becoming 1-in-10-year instances instead.

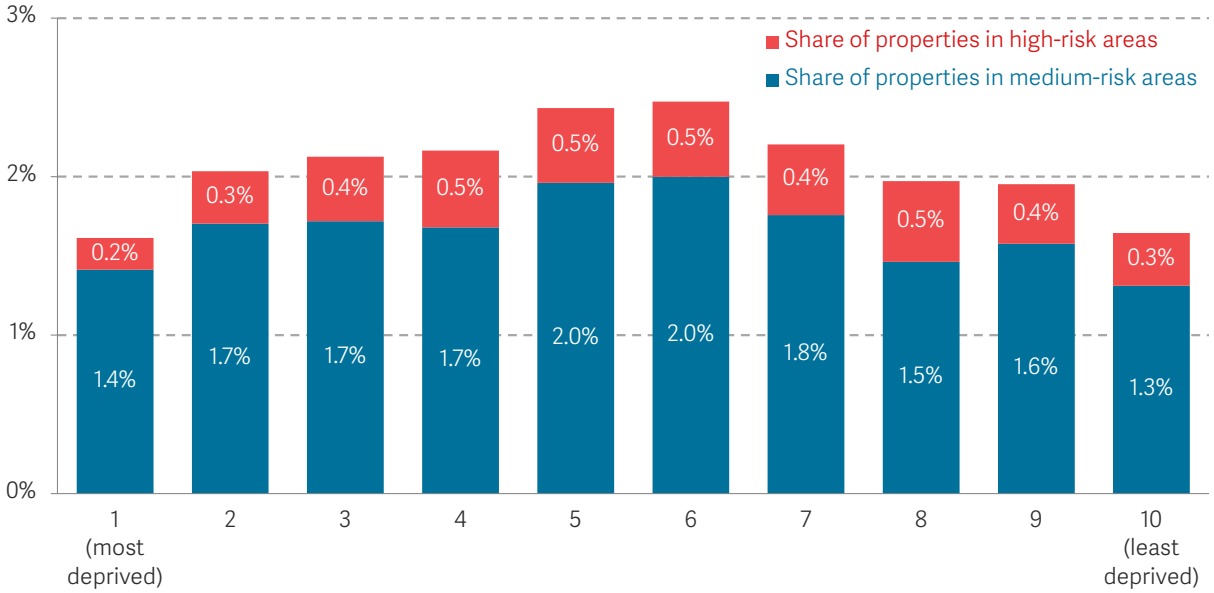
Overall, around 1-in-13 households are exposed to any risk of flooding from rivers and sea in England today, and 1-in-50 are at medium or high risk (meaning the annual chance of their home flooding is between 1 and 3.33 per cent, and more than 3.33 per cent, respectively).[2] Perhaps surprisingly, Figure 1 shows that it is not those living in the poorest neighbourhoods in England whose homes are most likely to flood. (We analyse risk here at lower layer super output area (LSOA) level given flooding is a hyper-local phenomenon).[3] Instead, we find that it is those living in neighbourhoods in the middle of the deprivation ranks such as parts of King's Lynn, Exeter and Doncaster that have the highest

1 This note considers how residential properties in England may be impacted by more frequent and severe flood events given that flood defences are a devolved matter.
2 Figures do not include risks of flooding from surface water, which is poorly understood compared to flooding from rivers and seas and highly localised.
3 There are 32,844 lower layer super output areas (LSOAs) in England, which contain on average 1,500 residents and 650 properties.

chance of flooding. Nonetheless, this still leaves 95,000 homes in the most deprived one-fifth of neighbourhoods (deciles 1 and 2) at medium or high risk of flooding.

FIGURE 1: **Areas with middling levels of deprivation currently face the highest risk of flooding from rivers and sea**

Share of residential properties with medium and high risk of flooding from rivers and sea, by lower super output area (LSOA) Index of Multiple Deprivation decile: England, 2021



NOTES: Risk areas designated in line with the Environment Agency's Extreme Flood Outline in England. High risk areas are those with a greater than 1-in-30 (3.33 per cent) annual chance of flooding; medium risk areas have an annual chance of flooding between 1-in-30 (3.33 per cent) and 1-in-100 (1 per cent), Figures do not include risks of flooding from surface water.
SOURCE: RF analysis of Environment Agency Risk of Flooding from Rivers and Sea data; ONS English Indices of Deprivation.

This picture is explained to large degree by the fact that the poorest neighbourhoods are most frequently found in cities, the settlement type that has the lowest current exposure to significant risk of flooding from rivers and sea. One-half (50 per cent) of neighbourhoods in the most deprived decile are in cities, for example, and 48 per cent of those in decile 2, while only 17 per cent of local authorities in cities currently contain any properties at medium or high risk of flooding, compared to 29 per cent in large and medium towns, and 53 per cent in small towns and villages.[4] That said, studies indicate land use behaviours such as paving over places that act as natural soakaways, reducing areas of floodable urban space and land management practices that increase water flow into urban areas are driving up the risk of surface flooding in these parts of the country, suggesting both that poorer neighbourhoods may face a greater risk than presented in Figure 1 (which does not include properties vulnerable to surface flooding), and that urban risk of flooding could increase if these practices continue at pace.

Flood defence spending has protected lots of homes in poor urban areas

Of course, the risk associated with living in a flood-prone neighbourhood can be reduced considerably if suitable flood defences are put in place. The left-hand panel of Figure 2 shows the spend on new

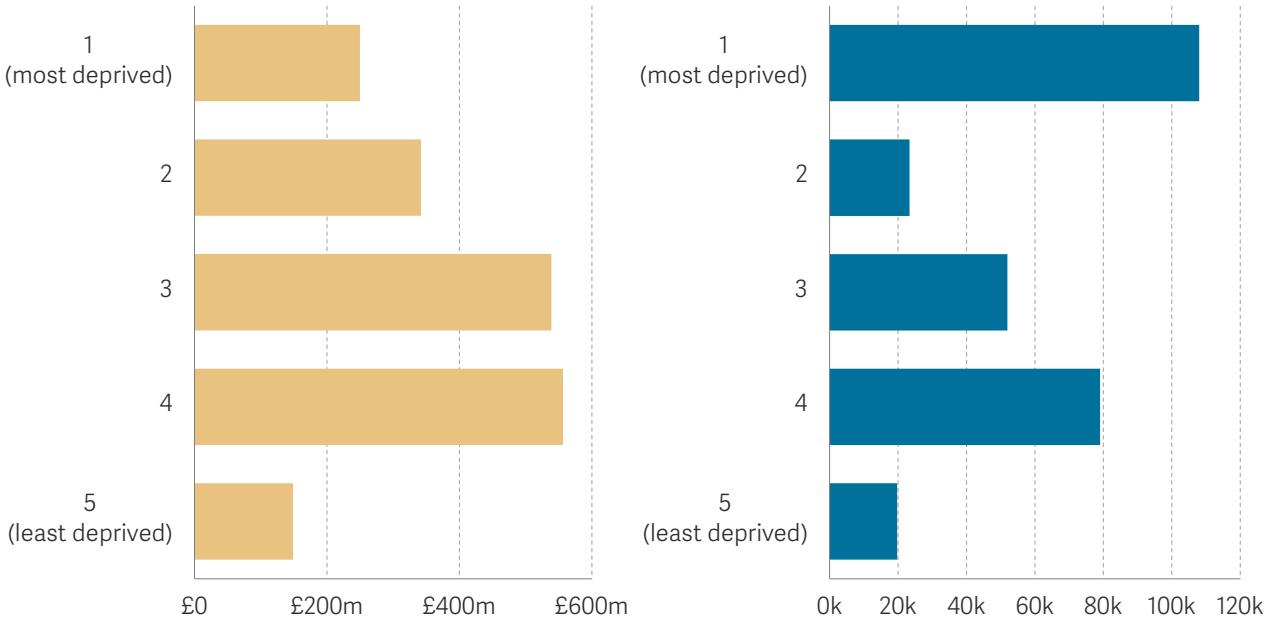
4 Source: RF analysis of Environment Agency Risk of Flooding from Rivers and Sea data; C Baker, City & Town Classification of Constituencies & Local Authorities, House of Commons Library, June 2018.

flood defence projects funded under the 2015 to 2021 Flooding and Coastal Erosion Risk Management Strategy, by the level of deprivation of the local authority in which the schemes are located.[5] On this metric, poorer areas have fared badly: just £250 million (14 per cent) of the £1.8 billion spend has gone to schemes which protect homes in the most deprived quintile of local authorities. However, when we look at the number of homes the schemes protected, the picture is more positive. As the right-hand panel of shows, close to four-in-ten (38 per cent) of the properties benefitting under the programme are located in the most deprived one-fifth of local authorities.

Once again, when we look under the surface of these results we note that this finding is driven to a large degree by projects in cities (which as noted above, tend to have high levels of deprivation than towns and villages). For example, nearly 34,000 homes are being protected by two ongoing projects in Hull, and more than 16,000 homes are protected by one scheme in Nottingham. This picture reflects the Environment Agency's maximal (and arguably rational) flood defence spending allocation policy, whereby it seeks to 'better protect' the largest number of homes possible: clearly, more homes are protected for each pound of investment in denser areas than in more sparsely populated places. However, this does potentially leave those living in less urban neighbourhoods at greater risk.

FIGURE 2: **Although less money is spent on flood defence projects in deprived local authorities, significant numbers of homes in poorer areas are being protected**

Indicative investment in flood defences (left-hand panel), and number of homes better protected from flooding (right-hand panel) under 2015-21 Flood Risk Capital Investment Programme, by local authority Index of Multiple Deprivation quintile: England



NOTES: Figures shows homes protected and Government indicative spend on new flood defence projects for flooding from surface water and from rivers and sea. Maintenance spend and coastal erosion schemes omitted.
SOURCE: RF analysis of Environment Agency Flooding and Coastal Erosion Risk Management (FCERM) Capital Spending data; ONS English Indices of Deprivation.

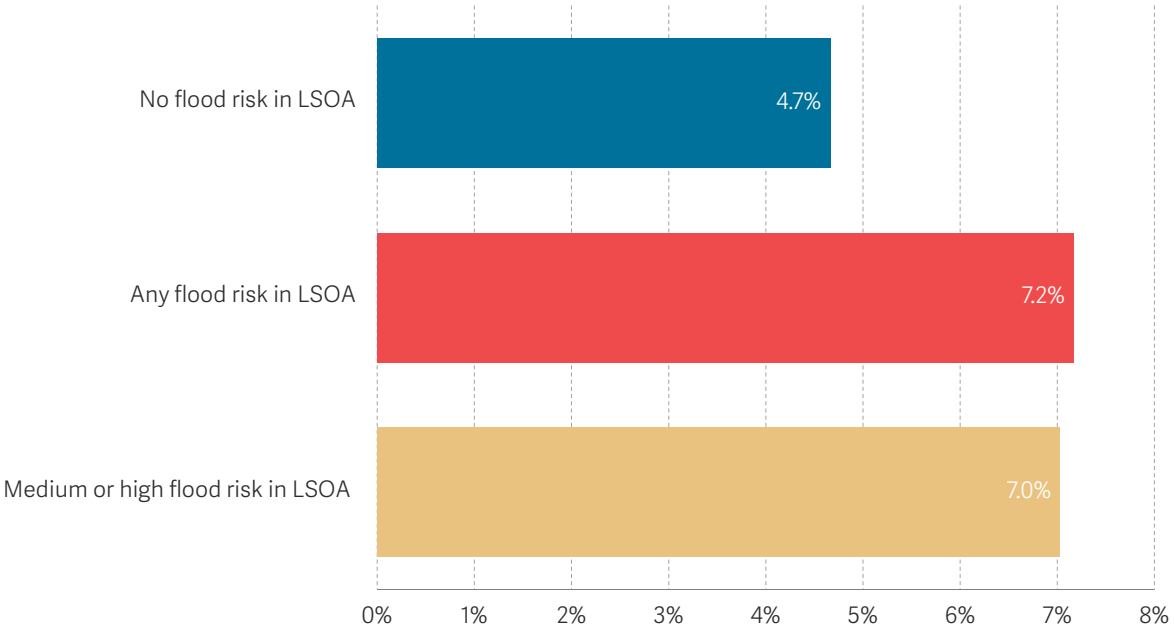
5 We now switch from neighbourhood to local authority as our unit of analysis as LSOAs are too small to properly capture the area being protected by new flood defences.

Flood-prone neighbourhoods have seen higher rates of house building than those at lower risk in recent years

Climate change means that the chance of existing homes flooding is on the rise, but overall flood risk rates can also rise if new developments are built on flood-prone land.[6] Given this, our findings in Figure 3 are of some concern. Here, we show that neighbourhoods that are at risk of flooding from either rivers or sea experienced a housing stock increase more than 50 per cent faster than those with no flood risk between 2015 and 2021.[7] In fact, we estimate more than half (56 per cent, 772,000) of the 1.4 million new homes created in England between 2015 and 2021 were built in neighbourhoods where some flood risk exists, of which 543,000 were in areas in which at least one postcode is currently at medium or high risk of flooding.

FIGURE 3: **The housing stock has grown faster in areas with some flood risk in recent years**

Increase in residential housing stock between 2015 and 2021, by risk of flooding in lower super output area (LSOA) from rivers and sea: England



NOTES: Risk areas designated in line with the Environment Agency's Extreme Flood Outline in England. High risk areas are those where at least one postcode in the LSOA has a greater than 1-in-30 (3.33 per cent) annual chance of flooding, medium risk areas have an annual chance of flooding between 1-in-30 (3.33 per cent) and 1-in-100 (1 per cent). Figures do not include risks of flooding from surface water.
SOURCE: RF analysis of Environment Agency Risk of Flooding from Rivers and Sea data; Valuation Office Agency number of properties by Council Tax band by lower super output area data.

But when we look under the surface of Figure 3 one reason why this may be the case becomes clear. We note that neighbourhoods in London particularly Newham, Tower Hamlets and Greenwich dominate when it comes to building in flood-prone places. But these are also places where housing

6 It is worth noting that building homes in flood-prone places can result not only in new households exposed to risk, but also increases the chance of flooding for those already living in areas where such development is taking place. See, for example: E O'Donnell and C Thorne, Drivers of future urban flood risk, University of Nottingham, November 2019.

7 These figures differ from DLUHC's Land Use Change Statistics which show the proportion of new residential addresses created in areas with high or medium flood risk, by local authority. Our analysis shows the growth in additional stock in neighbourhoods where some flood risk exists i.e. not all the additional stock may be at flood risk. However, analysing change in housing stock at the LSOA level provides a fine-grained and high local picture, and allows us to account for the impact of flooding on local communities as well as the individual affected properties.

costs are very high; local authority waiting lists are very long; and there is a strong desire to provide more homes. Navigating between the twin pressures of building new stock and ensuring properties are not exposed to undue flood risk is clearly not easy, especially in cities where viable land is scarce (although strategies such as densification might help local authorities square this circle to some extent).

Building new homes on flood-prone land is subject to significant oversight of course, not least by the Environment Agency (EA) which has raised over 15,000 concerns about flood risk on new developments between 2016-17 and 2020-21. In 55 per cent of cases the EA's advice was followed; in 2 per cent planning permission was granted against EA advice; and in the remaining 43 per cent the outcome was unknown.[8] The National Planning Policy Framework (NPPF) requires developers who wish to build on land at significant risk of flooding to prove that there are no other viable sites (known as the 'sequential test'), and that the flood risk will be managed effectively for the lifespan of the development (the 'exception test'). But mitigation measures need to be funded from Section 106 or Community Infrastructure Levy (CIL) funds, both of which are notoriously limited (or even non-existent) on developments in areas where land values are low. (This is at least in part because the NPPF assumes a viable site is one where house builders can make a profit of between 15 to 20 per cent of the gross development value, a challenging margin to achieve in poorer areas). As a result, it is plausible that flood mitigation measures for new builds in deprived areas are not commensurate with the risk (this proposition is hard to test however given data on flood upgrades made through Section 106 and CIL contributions is not centrally collected).

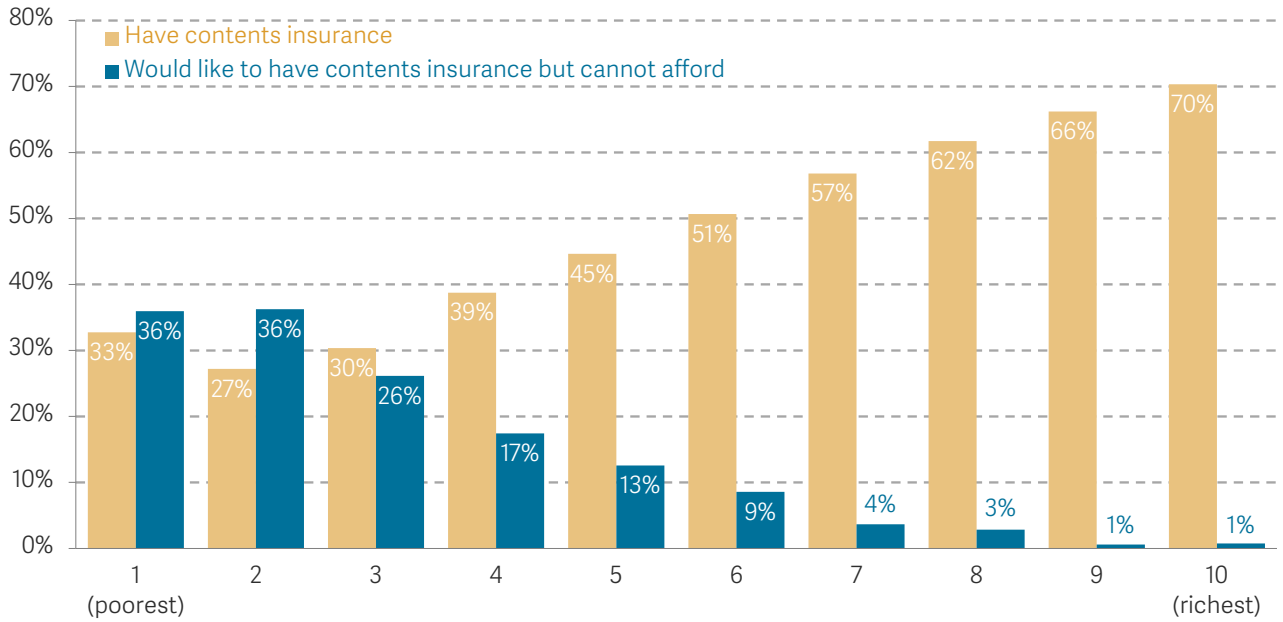
Poorer households are under-insured in the event of a flood

A home's exposure to flood risk, however, does not wholly determine the vulnerability of different households to flood events when they do occur. The average cost of the winter 2015-16 floods has been estimated at £50,000 per home, a sum that the vast majority of households would find impossible to cover from their own resources. But as Figure 4 shows, unsurprisingly it is wealthier households that are more likely to be insured against some or all of these costs. In contrast, just one-in-three (33 per cent) of the poorest households in England has contents insurance - a key factor in limiting the financial fallout of a flood event – and a similar share (36 per cent) would like to protect their home contents but are unable to afford to do so.[9] (This figure could easily rise as the current living standards crisis intensifies). Moreover, we find that older and younger families are less likely to be insured than middle-aged households, adding to Climate Change Committee concerns about the ability of those in these age groups to bounce back from a flood event.[10]

8 Source: RF analysis of Environment Agency, Objections to planning applications based on flood risk and water quality, September 2021.
9 We note that tenure may have some explanatory role here, given that renters in furnished homes (many of whom will be in lower income deciles) are less likely to need contents insurance.
10 Source: RF analysis of DWP, Households Below Average Income. 20 per cent of households in which the oldest person is under 25, and 15 per cent of those where the oldest person is over 65 reported wanting contents insurance but being unable to afford it, compared with a low of 11 per cent for households in which the oldest person is between 50 and 64.

FIGURE 4: **Just one-in-three of the poorest households has contents insurance**

Proportion of households with contents insurance, by equivalised after housing costs income decile: England, 2019



SOURCE: RF analysis of DWP, Households Below Average Income.

This picture may be compounded further by the fact that as homes flood more frequently, they will become more expensive or even impossible to insure (to mention nothing of the challenge owners will experience in selling such properties on or the risk of falling into negative equity as homes are devalued by lenders). Policy is not entirely ignorant of this question, however: in 2016, the Government introduced the Flood Re scheme to encourage insurers to provide cover for domestic properties at significant risk of flooding. (Further, recent changes to Flood Re will soon see it offer up to £10,000 for property-level flood defence measures, on top of repair costs, improving the resilience of flood-affected homes)). But the scheme has its limitations. First and most obviously, even though Flood Re allows companies to offer insurance to at-risk households at below market rates, those on lower incomes may still not be able to afford cover. Second, Flood Re does not insure homes constructed since 2009, a limitation that is particularly concerning given the house building trends we identified in Figure 3.

Conclusion

As with other impacts of a warming world, the rising risk of flooding is unlikely to be felt equally across society. As it stands, our analysis suggests that currently poorer households are less likely to affected by flooding as a result of where they live (although those in poor non-urban areas are a cause for concern), and more because they have lower adaptive capacity (i.e. they will find it harder to recover from a flood event) than households with greater means.

So what does this mean for policy? First, it suggests the Government might want to ensure its 2021-27 Flood and Coastal Erosion Risk Management (FCERM) strategy (funded to the tune of £5.2 billion and therefore a significant step-up in climate resilience spending) does not just seek to maximise the

number of homes protected, but also takes account of the interests of families in less populous areas on lower means. Second, when new developments are built on flood-prone land strong systems need to be in place to ensure those sites are properly defended against a wetter, warmer world. Third, as the living standards crisis hits hard, the need for low-cost insurance for poorer households becomes more acute than ever. Whatever the combination of interventions, however, it is vital that those on lower incomes (and with lower carbon footprints) do not face an unfair share of flood risk – either now or into the future.

Resolution Foundation

The Resolution Foundation is an independent research and policy organisation. Our goal is to improve the lives of people with low to middle incomes by delivering change in areas where they are currently disadvantaged.

We do this by undertaking research and analysis to understand the challenges facing people on a low to middle income, developing practical and effective policy proposals; and engaging with policy makers and stakeholders to influence decision-making and bring about change.

For more information on this report, contact:

Joanthan Marshall, Senior Economist
0203 372 2960 | jonathan.marshall@resolutionfoundation.org

Resolution Foundation
2 Queen Anne's Gate
London SW1H 9AA
Charity Number: 1114839

resolutionfoundation.org | @resfoundation