

‘Do the resilient things.’ Residents’ perspectives on responsibilities for flood risk adaptation in England

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Abstract

Residents should take adaptive action to reduce flood risk—this claim increasingly resonates in the academic debate on flood risk management (FRM). Hence, it must be assumed that a change in the division of responsibilities between actors involved is an imperative, that is, beyond the public authorities, residents should become more responsible for their own flood resilience. However, residents’ perspectives on their own and other’s responsibility for adaptive action has not yet been explored extensively. In this contribution, we distinguish between four notions of responsibility in analysing the perspectives of residents regarding flood risk adaptation measures undertaken by public authorities, insurance companies and residents themselves. A qualitative study in England shows how residents perceive responsibilities for flood risk adaptation across the various notions and actors, including themselves. We found that residents have clear expectations and perceptions on how they think responsibility is divided among stakeholders and how they would like it to be. Additionally, the discourse on responsibility division in FRM raises questions and causes mismatches between the formal legal parameters and residents’ perceptions. With the insights into residents’ perceptions, opportunities arise to better inform and encourage them to take flood risk adaptation measures and thereby improve flood resilience.

KEYWORDS

flood risk adaptation, flood risk management, perceptions, residents, responsibility

1 | INTRODUCTION

Floods are increasingly causing damage to private residential buildings. The approaches to protecting people and properties against floods have changed over the last century. Approaches to minimising floods have evolved over time ‘from government to governance’ (Penning-

Rowell & Johnson, 2015; Snel, Witte, et al., 2020) and the importance of residents in managing flood risk is increasingly recognised (Lawrence et al., 2014).

This governance approach in flood risk management (FRM) has prompted a trend towards emphasising residents’ responsibilities for managing their own risk and property rather than solely relying on large government-

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led interventions (e.g., Begg et al., 2017; Bradford et al., 2012; Bubeck et al., 2012). The rationale for residents' involvement in managing flood risk is multifold (Begg, 2018), but the relevant academic literature generally agrees on the following arguments for residents' responsibility (Snel, Witte, et al., 2020): (1) the risk of flooding is increasing significantly due to climate change, which necessitates an all-hands-on-deck approach, including residents; (2) sharing responsibility between public authorities and residents contributes to solving underlying problems like governmental capacity issues and lack of public funding; (3) the implementation of adaptation measures by residents reduces the financial damage caused by floods (Grothmann & Reusswig, 2006); and (4) only property owners can decide to adapt their homes, as no governmental organisation can implement measures on private properties (Snel, Witte, et al., 2020). These arguments justify greater attention to and recognition of individual responsibilities in FRM among academia and policy, resulting in the call for more residents' responsibility in flood resilience.

To reduce the impact of flood events, policies and regulations on FRM in the past years have increasingly proposed and required residents to take adaptive actions (Bubeck et al., 2017; Kuhlicke et al., 2020). This has been denoted the 'behavioural turn' in FRM (Kuhlicke et al., 2020). Adaptive behaviour entails a huge variation of actions that residents can undertake to reduce individual flood risk (Rufat et al., 2020). In this contribution, we focus specifically on individual adaptive actions of these three categories: technical, financial, and behavioural actions. Technical measures aim to increase the physical resilience of buildings like property-level flood risk adaptation (PLFRA) (Attems et al., 2019; Jüpner et al., 2020), measures for financial resilient recovery include approaches as insurance schemes (Slavíková et al., 2020), and individual and collective adaptive behaviour includes monitoring flood forecasts, storing emergency supplies, or joining community emergency plans (Kuhlicke et al., 2020).

However, little is known about how residents perceive their own responsibility since residents have for a long time been the 'recipients' of FRM and have played less active roles in FRM processes. While academics and policy makers generally agree that residents need to take more responsibility, how residents envision their own and others' role in managing flood risk is often neglected (Rufat et al., 2020; Thaler et al., 2020). Insight into this is needed to motivate residents to take responsibility in flood risk adaptation.

Responsibility is conceptualised from the perspective of various disciplines, such as legal philosophy (Hart, 1968), environmental governance (Pellizzoni, 2004), good governance (Mostert, 2015), and flood risk governance (Snel,

Hegger, et al., 2021). The commonality of these conceptualisations is that responsibility can be divided into varying notions, types, dimensions, or principles. Responsibility is not a straightforward concept, although it is often used in that way. Building on the conceptualisation of Snel, Hegger, et al. (2021), we identify four notions of responsibility, each having its own attributes: legal responsibility, accountability, moral responsibility, and desired responsibility. The added value of this categorisation is to analyse what the opinions of residents are concerning their own and others' responsibility in flood risk governance. Existing research on responsibility generally concludes that residents perceive public authorities to be responsible for managing floods (Lawrence et al., 2014; Raška et al., 2020; Terpstra & Gutteling, 2008). However, the concept of responsibility in FRM is not as black or white as the distinction between governmental or individual responsibility. The current insights bypass the nuances of the concept of responsibility, and therefore this contribution illuminates the concept and perceptions in more detail to determine what it means to be responsible from a resident's perspective.

The aim of this contribution is to understand how residents of flood risk areas perceive their own and others' responsibility in FRM. The perspective of residents is formulated based on in-depth interviews with English residents of flood risk areas surrounding Oxford, Great Yarmouth and Aldeburgh (Suffolk). English flood risk governance, similar to many European countries has multiple layers and includes a complex mix of national, local, private and individual actors (Alexander et al., 2016). This complexity is necessitated by a diverse overarching approach to FRM and the inclusion of a range of strategies adopted to tackle flood risks of different types. This diversity has been inherent within English FRM for approximately 70 years with a mix of spatial planning, insurance provision, flood warning and incident management, complementing flood defences and other structural approaches (Alexander et al., 2016; Johnson & Priest, 2008). In the context for this research, it is important to note that, although authorities, such as the Environment Agency (EA), have powers to construct and maintain flood defences, they hold no obligation to protect properties from flooding. Under Common Law, the main legal responsibility for protecting property and land lies with the individual land/property owner. This, coupled with increasing attention given to the roles of communities and individuals for managing risk and enhancing societal resilience (e.g., EA, 2020; Department for the Environment Food and Rural Affairs, 2020), reinforces the need to better understand individuals' perspectives of their own flood responsibilities.

2 | CONCEPTUALISING RESPONSIBILITY

Several researchers have quantitatively analysed responsibility distributions between residents and public authorities regarding FRM. Recently, Raška et al. (2020) showed how Czech residents perceive sharing responsibility and individually adapting to flood risk. Their results suggest that, from a residents' perspective, the governmental bodies at various levels are most responsible for FRM. In New Zealand, Lawrence et al. (2014) also found that residents perceive governmental organisations to be mainly responsible for flood risk reduction. Additionally, residents of the Netherlands regard public authorities as primarily responsible for preventing and mitigating flood damage (Terpstra & Gutteling, 2008). These studies have provided useful insights into how responsibilities are perceived as being shared in varying governmental settings. Yet, it remains limited to the government-resident divide and it is not clarified how the concept of responsibility is defined.

In the conceptualisation of responsibility as used in this article, we build on Snel, Hegger, et al. (2021), who have distinguished four notions of responsibility in flood risk governance following conceptualisations of responsibility made in varying disciplines. The four notions they distinguish are legal responsibility, accountability, moral, and perceived responsibility. Additionally, Snel, Hegger, et al. (2021) distinguish between grounds for attributing responsibility from which the various notions of responsibility arise. The attributes are a form of assigning responsibility. Grounds for attributing responsibility are (1) role, (2) causation, (3) liability, and (4) capacity (Hart, 1968). These attributes relate to an actor's manner of involvement in a flood event. Role relates to the responsibility that originates from having a certain place or office in an organisation. Causation and capacity relate to whether an actor has caused a flood event or had the capacity to minimise or prevent a flood. Liability relates to the duty to compensate for flood damage. Although these attributes are equally important, they are not equally divided across the notions. Specifically the attribute of role applies to all the notions because of the numerous actors that are affected by floods and involved in flood risk governance. They often have multiple roles as well (e.g., employee, community member, and property owner).

Moreover, 'time of imputation' is considered to be crucial in attributing responsibility. Pellizzoni (2004) classifies 'time of imputation' as *ex ante* and *ex post*. *Ex ante* refers to responsibility before something has happened—having the obligation or duty to ensure that something is the case (Doorn, 2019; van de Poel et al., 2012). *Ex post* refers to responsibility after something has happened—

the responsibility to compensate for damages (liability) or the obligation to account for what you did or decided (accountability). The four attributes complemented with *ex ante* and *ex post* distinctions are the building blocks of this conceptualisation and can be combined in four overarching notions of responsibility, namely legal responsibility, accountability, moral, and perceived responsibility.

In the context of flood risk governance, Snel, Hegger, et al. (2021) refer to moral responsibility as a moral obligation to not cause harm, to help within your capacities, and to take responsibility for flood risk based on varying roles, for example, as member of a community. In contrast, legal responsibilities are based on formally assigned duties (i.e., role) to mitigate flood risk and on liability—that is, the duty to compensate for flood damages. The notion that is closely related to the legal notion of responsibility is accountability (also see Pellizzoni, 2004). Accountability addresses the *ex post* responsibility of actors involved in flood risk governance. It is identified here as the external framing of responsibility (Mulgan, 2000). Whoever bears certain responsibilities, whether these actors are residents, governments, companies, or communities, should have to answer for how well, or whether, they actually executed those responsibilities (Bovens, 2007). This notion links with the attributes of role, causation, and capacity. The fourth notion is perceived responsibility. Perceived responsibility refers to one's actual understanding of who is responsible for what in flood risk governance, regardless of what the law, or norms of morality might otherwise indicate (Wamsler, 2016). Perceived responsibility highlights disjunctions between formally expected behaviour and actual behaviour before, during, and after flood events. This notion emphasises the perceived role and capacity of actors in flood risk governance.

As the general focus of this contribution is on the perception of responsibility from a resident's perspective, we have reframed this notion of perceived responsibility as desired responsibility. Snel, Hegger, et al.'s (2021) conceptualisation of perceived responsibility encompasses not just how actors think that responsibilities are divided, but also how these responsibilities should be divided in their opinion. Therefore, besides the notions of legal responsibility, accountability, and moral responsibility, we identified a fourth notion of desired responsibility, highlighting how individuals would like to see the division of responsibilities across the various actors (including themselves). This notion might differ significantly from, for instance, legal responsibility as the desired responsibilities may not align with current legally framed divisions of responsibility. Desired responsibility is important as it also emphasises how individuals would ideally, based on their experiences and knowledge, divide

the responsibilities and what they desire other actors to do in managing floods. This evolved fourth notion of desired responsibility entails the attributes of role and capacity both in ex ante as ex post situations (see Table 1).

3 | METHODOLOGY

Analysing residents' perception of responsibility requires an in-depth qualitative methodology to gain a better

understanding of the reasoning behind how residents perceive responsibilities in FRM. Hence, this study is based on semi-structured interviews with residents of flood risk areas in England. These interviews have taken place between January and April 2019. Data is collected on the residents' perception regarding their individual potential to minimise flood damage and how they see their role and that of others in managing floods. The topic list was designed based on the conceptualisation of responsibility as detailed in the previous section. The respondents answered questions about their experience

TABLE 1 Overview of notions, attributes, and operationalisation of responsibility in flood risk governance (adapted from Snel, Hegger, et al., 2021)

Notions of responsibility	Attributes (Hart, 1968; Mostert, 2015; Pellizzoni, 2004)	Theoretical understanding in the context of flooding	Empirical understanding in the context of flooding
<i>Legal responsibility</i> Ex ante and ex post responsibility (Pellizzoni, 2004)	- Liability (ex post) - Role (ex ante)	- Legal liability: a duty to compensate for flood damage resulting from (in)actions in controlling flood waters - Legal responsibility: a duty to mitigate flood risk	Residents' perceptions of their own legal responsibilities and of public authorities and insurance companies; this includes when residents speak of rules and regulations, formal actions, and things that an actor must do; additionally it entails what residents perceive as fact.
<i>Accountability</i> Ex post responsibility (Pellizzoni, 2004)	- Role (ex post) - Causation (ex post) - Capacity (ex post)	Accountability as the external aspect of responsibility. Those actors bearing responsibility should be answerable for this responsibility; they should be held to account.	Residents' perception of accountability regarding themselves, public authorities and insurance companies. This includes mainly living up to promises and guarantees made or perceived.
<i>Moral responsibility</i> Ex ante responsibility (Pellizzoni, 2004)	- Role (ex ante) - Causation (ex ante) - Capacity (ex ante)	Responsibility as moral obligation. Person A is responsible to person B to ensure that X.	Residents' perceptions of moral responsibilities of themselves, their community, public authorities, and insurance companies. This includes mainly what residents expect from others and what they think of as the right thing to do.
<i>Desired responsibility</i> Ex ante and ex post responsibility (Pellizzoni, 2004)	- Role (ex ante and ex post) - Capacity (ex ante and ex post) - Causation (ex ante and ex post)	Desired responsibility describes how individuals ideally would like the notions of responsibility to be divided among themselves and others.	Residents' preferences for divisions of responsibility between themselves, public authorities, insurance companies and communities. This includes how residents would like responsibility to be ideally divided up in legal terms, and in regard to morals and accountability.

with floods, whether they had taken PLFRA measures for their home, what they regarded as the responsibility of public authorities and what they thought their own role as residents was in managing floods, what other actors they thought are involved in English FRM and what they would advise public authorities and their neighbours to do regarding floods. Additionally, scenarios were used to obtain insight into respondents' reasoning in varying situations relating to a flood event. This empirical research focused on residents' understanding of, for example, individual and governmental responsibilities for flood risk adaptation. All interviews were audio-recorded and transcribed. The transcriptions were analysed by a coding system based on the four notions of responsibility and the three categories of adaptive actions. These codes were comprehensive on an overarching level of analysis. Yet, the coding processes started from dividing respondents' statements into the four notions of responsibility based on the varying topics of the interviews. This led to codes such as moral-trust, accountability-maps, legal-insurances and desired-measures. In a later stage these topics were categorised by adaptive actions (technical, financial, and behavioural). Nonetheless, analysing the data and codes led to some grey areas of overlap and gaps in the theoretical conceptualisation. In Table 1, we have added a column on the empirical understanding of the notions to show how these discrepancies were dealt with. Additionally, this will be deliberated further in the discussion section.

The empirical data has been collected in multiple English communities that are at risk of flooding. England

suffers from a range of different flood risks, with over 5.2 million properties estimated to be at risk from fluvial, coastal or surface water flooding and coastal erosion (EA, 2020). Regular flooding events affect large numbers of English properties and cause millions in economic damages (e.g., winter 2019/20, Cumbria, Yorkshire 2015/16, and SE England 2013/14). Additionally, growing evidence suggests an increase in flood risk under climate change scenarios and as a consequence of increasing urbanisation and other socio-demographic changes (HM Government, 2017). In order to provide an all-encompassing analysis of the perceptions of English residents who live in flood risk areas, we have selected three study locations which face various types of flood risk in residential areas. We specifically choose to select respondents from multiple locations to be able to provide results that are not limited to one specific type of flood risk. Oxford, Great Yarmouth and Aldeburgh and surroundings were chosen as study locations: Oxford mainly faces surface water flooding, Great Yarmouth is at risk of coastal flooding, and Aldeburgh and surroundings struggle with surface water flooding and fluvial flooding (see Figure 1).

We aimed at a sample of residents across a range of ages, who are at risk of a range of types of flood risk, and who either have experienced flood event(s) or have experienced the threat of floods. We conducted 21 extensive interviews of 60–90 minutes with residents of flood risk areas in Oxford, Great Yarmouth, Aldeburgh and their surroundings; of these 21 interviews, 12 respondents had not been flooded and 9 had experienced one or more



FIGURE 1 Overview of the study locations in relation to the types of flood risk

flood events (see the Appendix for more detail on the respondents). The selection process consisted of contacting local flood action or community resilience groups of the study areas; through those initial contacts other respondents were approached via a snowballing method. Selection criteria consisted of living in a ground floor house that was in a flood risk zone designated as such by public authorities (see: 'Check your long term flood risk' <https://flood-warning-information.service.gov.uk/long-term-flood-risk/postcode>).

4 | RESIDENTS' PERCEPTIONS OF RESPONSIBILITIES

The empirical results of this study are summarised in Table 2. This table contains the key consensus perceptions of the respondents, which are divided between the four notions of responsibility and three categories of individual adaptive actions, namely technical, financial and behavioural. The table provides an overview of the overarching perspectives of respondents as paraphrased by the authors. These are the predominant perspectives; in case there were divergences among the residents, they are highlighted in the text. In addition, it is important to acknowledge the heterogeneity of residents as a sample group, none of them are the same. Yet, within this group of respondents, general consensus exists regarding the statements included in Table 2.

4.1 | Legal responsibility

In England, formal legal responsibility for managing flood risk lies with the property-owner, although some Risk Management Authorities (RMAs) (including, the EA and local authorities) have permissive powers to undertake some flood protection activities. However, the majority of statutory functions by authorities relate to understanding risk (e.g., creating and updating flood maps), strategic and local planning for flooding, ensuring consideration of flood risk in spatial planning, and responsibilities for flood warnings as well as for incident response and local recovery activities. Under common law, property-owners have responsibilities for managing their fluvial risk through riparian duties.¹ Additionally, there are requirements for disclosure of (certain levels) of flood risk on property searches and recovery through the purchase of insurance (through a principally private market system²) remains the legal responsibility of the resident.

Respondents generally recognise they have a certain legal responsibility for protecting their home from floods,

but they perceive public authorities as responsible for informing them about PLFRA measures and flood preparedness. Respondents appear aware of the legal requirement to inform potential buyers of the flood risk, but many also mention that they were not informed when they bought their house. One resident commented that, in their situation, this incongruity was due to changes to risk mapping. They stated, 'When I first moved in, I was not in the flood area [...] because the parameter came up to my next door neighbour's house, but I was not in the flood risk. The year later [...] they said: You are in the flood zone now, so you need to have flood insurance' (Respondent 8).

Residents perceive insurance companies as having a substantial legal responsibility regarding financial recovery and they are aware of the formal rules and regulations that apply. Respondent 20 stated, '[Insurance companies] won't take you and they don't have to take you, but your current provider has to continue to provide insurance, legally, for you'. Respondents state that it can be difficult to get flood insurance when a property is at flood risk. Moreover, after a property has been flooded, the insurance company can change the premium and excess rates, but they cannot drop their clients. Multiple respondents state that the insurance companies raised the excess to the amount of money that they had claimed after the flood event. Respondent 12 remarked, 'When we went to reinsure, the actual cost hadn't gone up that much but the excess went to 20,000 pounds'. Residents acknowledge that this falls within the legal rules and regulations of insurance companies.

Residents generally perceive the maintenance, instalment and improvement of flood defences as the main legal responsibility of public authorities. This includes flood defences for river, coastal and marshland areas at flood risk. One of the respondents highlights the nuances in government's legal responsibilities in England: 'The EA has a role to maintain the river walls, but they say they haven't got a statutory duty to upgrade them, which is crazy. [...] The only people [who] are by law allowed to go on the river defences and repair them, is [the] EA' (Respondent 11). Additionally, residents perceive public authorities to be responsible for drainage. This includes drainage channels like ditches that need to be cleared for water flows, and maintenance of street drainage relating to sewer systems. In Great Yarmouth, a surface water flood occurred in 2013 that exposed the problematic conditions of the drainage systems in the city. Respondent 2 explained, 'That was one of the issues; the [drain] was in a terrible state. [The mechanic] said you couldn't even see where the pipe was, it all rusted away completely. There was no pipe there, just a hole in the ground'.

TABLE 2 Residents' perceptions of responsibility

	Legal responsibility	Accountability	Moral responsibility	Desired responsibility
	<i>Residents' perception of how responsibilities are legally divided.</i>	<i>Residents' perception of who they hold accountable.</i>	<i>Residents' perception of what is the right thing to do.</i>	<i>Residents' perception of how they would like the responsibilities to be divided.</i>
Technical	Public authorities are responsible for managing floods, maintenance (and improvement) of flood defences, and keeping the drains clear. (<i>Role ex ante</i>)	Public authorities are in general not accountable for causing a flood event. (<i>Causation ex post</i>)	Residents of terraced housing are responsible for collective PLP. (<i>Role ex ante</i>)	Public authorities should be responsible for the protection of houses at the non-individual/communal level. (<i>Role ex ante</i>)
	Residents are responsible for PLP. (<i>Role ex ante</i>)	Public authorities are accountable for poor maintenance of flood defences and drainage. (<i>Capacity ex post</i>)		Public authorities should give residents of flood risk areas more advice on PLP pre and post flood. (<i>Role ex ante</i>)
	Residents are responsible for informing new owners of the flood risk to the property. (<i>Role ex ante</i>)	Public authorities are accountable for (residential) development in flood plains. (<i>Role/capacity ex post</i>)		Public authorities should not exacerbate flood risk. (<i>Role/capacity ex ante</i>)
		Residents are accountable for buying a house in a flood risk area. (<i>Role ex post</i>)		
		PLP companies are accountable for the quality of the measures they installed /supplied. (<i>capacity/role ex post</i>)		
Financial	Public authorities are responsible for providing grants. (<i>Liability ex post</i>)	Insurance companies are accountable for paying up. (<i>Role ex post</i>)	Residents who live outside the flood zones have a moral responsibility to contribute to managing floods. (<i>Role/capacity ex ante</i>)	Public authorities should spend more money on flood defences. (<i>Role/capacity ex ante</i>)
	Public authorities are in charge of allocating budgets for FRM. (<i>Role ex ante</i>)	Insurance companies and public authorities are accountable for using and communicating incorrect flood risk maps. (<i>Capacity ex post</i>)	Insurance companies are responsible to financially contribute to sustainable long term PLP. (<i>Capacity ex ante</i>)	Insurance companies should financially contribute to PLP after a flood event. (<i>Role/capacity ex ante</i>)
	Residents are responsible for having insurance. (<i>Role/capacity ex ante</i>)			
	Insurance companies have to continue insuring existing clients. (<i>Liability ex post</i>)			
	Insurance companies can change premiums and			

(Continues)

TABLE 2 (Continued)

	Legal responsibility	Accountability	Moral responsibility	Desired responsibility
	excess rates for existing clients. (<i>Role ex ante</i>)			
	Insurance companies are allowed to deny new clients if they are at flood risk. (<i>Role ex ante</i>)			
Behavioural	Public authorities are responsible for facilitating evacuation and rest centres. (<i>Role ex ante</i>)	Public authorities are accountable for sharing incorrect flood risk information. (<i>Capacity ex post</i>)	Public authorities and insurance companies are responsible to value local (lay) flood knowledge. (<i>Capacity ex ante</i>)	Public authorities should be responsible for communicating flood risk tailored to the regional and local level. (<i>Role ex ante</i>)
	Public authorities are responsible for informing residents about PLP and preparedness. (<i>Role ex ante</i>)	Public authorities are accountable for facilitating inadequate evacuation. (<i>Causation ex post</i>)	Residents are responsible for collaborating with and offering help to neighbours. (<i>Role/capacity ex ante</i>)	Public authorities should be responsible to offer help after a flood event. (<i>Capacity ex ante</i>)
	Residents are responsible for signing up for alerts/warnings. (<i>Role ex ante</i>)			
	Residents are responsible for knowing how to act in a flood situation (emergency plan, who to contact). (<i>Role ex ante</i>)			
	Residents are responsible to decide if they want to evacuate or not. (<i>Role ex ante</i>)			

4.2 | Accountability

English residents have a number of mechanisms to formally hold actors to account when they do not meet their responsibilities or in the case of private companies, the terms of any contract. Democratic processes permit some degree of accountability as residents at the national or local level can express their displeasure when deciding to re-elect candidates. It is also possible for residents to gain access to justice, and ensure accountability for (in) actions, through the legal system. Accountability can be sought through claims of private nuisance, public nuisance or negligence. Additionally, public bodies can be subject to judicial review (e.g., Manchester ship canal company Ltd vs. Environment Agency).

Interviewed residents generally do not hold any actor accountable for a flood as a natural set of circumstances in itself. The consensus is that floods cannot be caused by an actor such as an organisation or individual. Nonetheless, the role or actions of such actors can influence the

impact of a flood. Accountability as perceived by residents is therefore mostly evident in the attributes of capacity and role. Even though residents do not hold public authorities accountable for floods, they do perceive them as accountable for various other aspects such as poor maintenance of flood defences and drainage. Additionally, residents also perceive public authorities to be accountable for permitting continuous residential development in flood risk areas. Respondent 6 commented, 'A problem is that houses are continually built [on flood plains] because it's cheap. [...] It almost does not matter that houses are at risk of flooding and very vulnerable'.

Public authorities are also held accountable for sharing incorrect information on flood risk and facilitating inadequate evacuation. Flood alerts and warnings are the main sources of information when the threat of a flood is increasing. Residents tend to dismiss the warnings more and more. Residents expect the public authorities to inform them on floods and hold them accountable when this provided information is incorrect, which negatively

influences the credibility and impact of governmental flood risk communication.

Residents from all areas agreed that it is a legal responsibility of public authorities and insurance companies to correctly assign what properties are at risk. Accordingly, they perceive it to be an issue of accountability when either the risk is not correctly assigned to their property (details are overlooked) or when they disagree with the assigned risk level. The consequences of being in a flood risk zone include having increased premiums on (flood) insurance and possibly decreased property values. To illustrate, respondent 1 indicated, 'The trouble is that the EA use mapping which didn't take account of physical infrastructure flood defences. [...] They put out flood maps like that in which they put most of [Great] Yarmouth in blue and people living in Yarmouth say; [...] this is rubbish'. As another example, in Oxford respondents disagree with the flood zones indicated on the maps. As one respondent put it, 'The property next door, their living room is exactly the same levels our house. But they're not in a flood zone' (Respondent 20). Based on experiences and local knowledge, some respondents dismiss the official risk and deem the information provided as incorrect.

The perspectives on how residents themselves are accountable vary among the respondents, especially regarding the question of whether residents are accountable themselves for buying a house in a flood risk area. In general, the respondents who agree that they themselves are accountable were informed about the flood risk of the property before they bought it. And the respondents who tend to perceive themselves as less accountable were either not informed about the risk of flooding or their property was not yet recognised as being at flood risk when they bought it.

Additionally, the experience of being flooded is horrendous and traumatic, and, according to many of the flooded respondents, the insurance companies were not as helpful as expected. Residents do hold insurance companies accountable for the process and experience that residents as policyholders go through with them in the recovery phase. Respondent 20 emphasised, 'The biggest problem we had was with the insurance company'. Different loss assessors make varying assessments of the damage or the insurance company does not want to pay out the claims upfront. In the words of one respondent, 'When we're trying to make the claim, they kept saying, we want to give you the money as a whole and we can't pay you until you've finished everything' (Respondent 12). Only after Respondent 12 appeared on TV to state publicly that they were not receiving any money from the

insurance company, they gave them an advance of 10,000 pounds.

4.3 | Moral responsibility

Residents rarely talk explicitly about the moral reasoning behind actions and expectations; it is more an implicit notion. Respondents have diverse opinions when it comes to the reliance on governmental FRM. Not every respondent is as explicit, but a few of them clearly state that residents generally rely too much on public authorities to protect their property whereas others argue that it is a government's core responsibility to protect its residents, which it does not do sufficiently in their view.

The main component of the moral-notion is the role of the community before, during or after a flood. The consensus among residents is that they have a moral responsibility to their community. In Oxford, the younger men of the town help the neighbours with lifting their furniture up, and in Great Yarmouth residents go door-to-door to make sure the neighbours are informed and provide help. Additionally, flood risk is perceived as a collective community problem and residents who are not at risk should still assist. Some of the respondents perceive that residents who are personally not at flood risk should contribute to FRM either financially (via taxes or donations) or behaviourally (by helping neighbours). Moral responsibility is understood by residents, therefore, mainly as their role within a community and having the capacity to help their neighbours.

Another aspect of moral responsibility is the communal approach to PLFRA of terraced houses. Nearly all respondents, who live and do not live in terraced houses, have mentioned the difficulty of taking PLFRA measures for terraced houses. In those situations, PLFRA measures are only technically effective when implemented on multiple adjacent houses. Respondent 2 commented, 'If you're in a terraced house, the water is just going to go downhill through one house and into the next. So there is very little you can do as a resident individually'. Respondents living in terraced houses state that they will take PLFRA measures when their neighbours will too. Yet, the morals of neighbours might not align fully (e.g., precautionary placement of flood gates when they are away), which makes terraced houses vulnerable even after PLFRA measures are installed. Respondent 20 highlighted this difficulty of new neighbours: '[Our neighbour] said; I don't care if it floods. She just left everything and did not put her flood-gates in. That is a personal choice. [...] However, we did receive a spare key. So my husband went in put the

floodgates and the puddle sucker in. We said; if you're not going to do it, we will do it for you because we want to protect our property.'

4.4 | Desired responsibility

The notion of desired responsibility entails what respondents would like as their own and other's responsibility. Residents acknowledge that public authorities are legally responsible for distributing the collective funds from taxes, but they generally would like to see additional funding being allocated to FRM. They desire the national government to provide financial means to the EA and local authorities so that they can implement plans to increase flood protection by, for example, heightening flood walls. Residents deem themselves legally responsible for the measures that apply to the home-level (as is formally the case) but desire public authorities to take on the large-scale resilience systems (which is not formally a legal responsibility of public authorities in England). However, this desired responsibility is not only about implementing and maintaining large flood defence measures, but residents also argue that public authorities should not allow the risk of flooding or the impact thereof to worsen. Residents worry about urban or residential development in upstream areas that might influence the flood risk of their property. Respondent 10 emphasises that '[public authorities] should have a primary responsibility in terms of planning policy to make sure there is responsible development.'

Additionally, residents desire public authorities to provide help before, during and after a flood event. Before a flood, residents emphasise that public authorities should inform them on PLFRA. Respondents also mention that the information provided by alerts and warnings should be improved by tailoring the messages to the regional and local level instead of at the national or county level to prevent inaccurate warnings. After a flooding, respondents state that they did not receive help from the public authorities to the extent they would have liked to and expected. Respondent 16 expressed, 'Most of who had [been] directly impacted by the flooding did not really get any help from either the local authority or the police service at the time of actual flooding and then the local authorities afterwards in terms of clearing up'. Another person stated, 'The only thing that we had help with was from the county council, they came and took our fridge freezers and things away' (Respondent 12).

Residents expressed one major desire for insurance companies. They would like insurance companies to assist in increasing the flood resilience of properties. This is especially worthwhile after a property is flooded and

repairs have to be made. Residents who have been flooded have also shown interest in increasing the resilience of the property, but none of the insurances would contribute financially. Respondent 19 highlighted how the insurance industry is only willing to restore the property to its original value. Respondent 18 explained that they 'negotiated with the insurance company about giving us the money [to make the house] resilient, you know, do the resilient things. They were a bit stuffy about it.' Various respondents considered this short-sighted as both the insurance company and the resident would benefit from a higher level of flood resilience in the long run. Residents will experience less disruption/impact/damage from a future flood event and insurance companies have to cover less claims.

This section highlights how responsibility should be divided from residents' perspectives, both across the notions and between actors involved in FRM; and the key finding that with residents would like more assistance, which they perceive as part of the legal, moral, or accountable responsibility of public authorities and insurance companies.

5 | DISCUSSION

To implement successful FRM, the engagement of a large number of stakeholders is necessary, for example, from public authorities, market stakeholders, and residents (Mees et al., 2016; Raška et al., 2020). Regardless of their experience with floods, residents recognise that they have a legal responsibility to minimise flood damage to their own homes. Even though this does not fully align with formal legal responsibility divisions in England, it does show that residents are aware of the role they can play in FRM. English residents are not oblivious to the expectations of policymakers. This indicates that the shift in academia and policy of involving residents more in flood risk adaptation (as demonstrated by e.g., Begg, 2018 and Snel, Witte, et al., 2020) is either not starting from zero (zero being; residents perceive themselves not responsible at all in any of the notions), or it indicates that the intentions of the shift have been gradually reaching the resident population.

Nevertheless, residents do not seem knowledgeable on what legal responsibilities formally come with owning a property, such as riparian duties. The results show that residents have a limited understanding of how their role is balanced in relation to that of the authorities. They desire public authorities to take on more legal responsibility than they do now, especially in allocating funding for flood defences, and implementing and maintaining those. This is similar to the findings in Raška

et al. (2020), Lawrence et al. (2014), and Terpstra and Gutteling (2008) who have also found that residents of various countries perceive public authorities to be mainly responsible for FRM. Additionally, this contribution shows that residents desire more help in both preparing for and recovering from flood events. This help can be information on flood risk or (financial) assistance with implementing PLFRA measures and recovery. Residents' perception of moral responsibility also emphasises the importance of providing and receiving help at the community level. Beyond the duties of residents and public authorities, insurance companies also figure quite heavily into the discussion of responsibility; according to residents they play a large role in financial adaptive actions. Insurance companies have legal responsibilities, and residents wish they would take on a more moral responsibility as well by investing in PLFRA measures that would be beneficial over the long term. Multiple residents state that insurance companies show short-sightedness by being unwilling to contribute to making a property flood resilient instead of solely restoring it to its original pre-flood state. They argue that investing in PLFRA measures would save insurance companies money in the long run.

This study shows how residents understand their own and other's responsibilities in FRM and how this influences their actions. Residents do not acknowledge all their formal legal responsibilities and desire public authorities to fill in the gaps that arise. These insights highlight the barriers that might make it difficult to motivate residents to take responsibility in any of the notions or adaptive actions, such as PLFRA measures. Two obstacles for taking adaptive actions by residents can be formulated based on this study on responsibility division. On the one hand, a lack of awareness among residents concerning formal legal responsibilities presents a hurdle, while, on the other hand, they assume and desire public authorities and insurance companies to also have specific responsibilities. This indicates that residents do not seem to agree with how legal responsibilities are formally divided. To successfully tackle FRM, it is important to collaborate between public authorities, insurance companies and residents instead of taking the stance of 'every man for himself'. A starting point would be to open up the responsibility debate while addressing the notions, adaptive actions and actors. This might increase awareness on who is responsible for what, and ideally such a debate might be a step towards residents taking (more) adaptive actions.

The conceptualisation of responsibility into four notions has proven useful as residents perceive responsibilities for either public authorities, insurance companies, or themselves in all four notions. Yet, the four notions are empirically not always as clearly distinguishable as

theoretically. Therefore, some adjustments were made to the interpretation. Specifically, the notions of accountability and moral responsibility have empirically returned a slightly different interpretation than we had theoretically anticipated. Accountability in this study occurred more in the shape of living up to promises made than holding elected officials to account or appointing blame. Moral responsibility was theoretically understood as a moral obligation but in this study more emphasis was placed on the role and added value of the community and it resides on the foundation of doing what is perceived as 'the right thing to do'. We have shown the added value of the conceptualisation of responsibility by Snel, Hegger, et al. (2021) in an English setting. Future research with more empirical insights from alternative contexts (other countries, different flood management arrangements) can further test, refine and strengthen this conceptualisation.

This contribution provided in-depth insights based on a qualitative study and we acknowledge that by its very nature the sample size of this study is restricted and would preferably be enlarged in follow-up studies, both quantitative and qualitative analyses would be of added value. With more empirical data, it would be possible to consider potential variations in residents' perceptions relating to contextual factors, such as the type of flooding, flood experience, or time of residence. These factors might influence residents' perceptions of responsibility. For instance, it is likely that living through a flood event shapes perceptions as it makes that residents experience the aftermath of such an event, what it entails and how it is organised. Which contextual factors cause nuances between locations would be an interesting topic for future research. Additionally, several questions arise from this contribution that will be interesting for further research, namely: how do residents' perceptions of responsibility relate to the formal legal division of responsibility? And what distinctions would residents make between the various levels of government (e.g., local, regional, and national) regarding the notions of responsibility? Overall, the presented outcomes are closely related to the debates on flood risk communication and the provided insights can be used as an opportunity to inform and motivate residents better on taking adaptive actions.

6 | CONCLUSION

The academic and policy debates on who has responsibility for what in FRM have recently taken a turn to more resident involvement. The perspectives of residents on their own and others' responsibility for adaptive action have not yet been extensively explored. In this

contribution we have highlighted that mainly public authorities dominate the discourse on responsibility division. Public authorities acknowledge that residents' involvement is crucial when it comes to the growing ambition of minimising flood damage and increasing societal flood resilience (EA, 2020). Therefore, they often state that residents should take more responsibility. However, responsibility is a contested concept. In this article, we have conceptualised responsibility and empirically demonstrated perceptions from residents on responsibility in FRM in order to fill the gap of how residents of flood risk areas perceive their own and others' responsibility. Table 2 provides an overview of this qualitative study on English residents' perceptions.

We found that residents have clear expectations and perceptions on how they think responsibility is divided and how they would like it to be. Residents assume varying actors to have a legal, accountability, moral, and desired responsibility. It is not just public authorities versus residents; also insurance companies are perceived to have certain responsibilities, specifically regarding financial adaptive behaviour. It can be concluded that the discourse on responsibility division in FRM raises questions and causes mismatches between the actual legal parameters and residents' perceptions. Regarding accountability, residents recognise that public authorities, insurance companies, as well as residents themselves can be held accountable for, for example, providing misinformation on floods, unwillingness to live up to contractual agreements or knowingly buying a property in a flood risk area. Morally, flood risk is perceived as a collective community problem. So, residents seem to have quite some knowledge on legal, accountable, and moral responsibilities of the main actors (i.e., public authorities and insurance companies) but their desired responsibility does not always concur. Residents would like public authorities to be more involved, but it is not that they assume public authorities to have sole responsibility on every notion of the concept. Yet, they would like an equal division between residents' and public authorities' responsibility in FRM. The lack of understanding of residents of the specifics of their own responsibilities and the perception that the public authorities have more responsibility than is formally the case in England, key findings highlighted by this research, are clear barriers to motivating action by those at risk. Through this increased knowledge of how residents perceive their responsibilities on the four notions in relation to that of other governance actors, can communities better prepare for flood events and recover more quickly. This involves active communication with residents and identifying ways to encourage them to take individual adaptive action. By presenting a nuanced view on how residents perceive flood-related responsibilities,

we emphasise that comprehending what residents understand and desire as accountability and legal and moral responsibility provides lessons for more precisely targeted communication, triggering flood risk adaptation, and ultimately societal flood resilience.


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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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ENDNOTES

¹ Applies to owners of land adjacent to rivers, other watercourses and the sea and permits landowners or residents from protecting their assets from flooding and erosion, subject to receiving appropriate planning and other permissions, and ensuring that it does not worsen flooding elsewhere. These also include flood-related duties such as; accepting flood flows onto land, clearing banks and structures (e.g., culverts) which may cause an obstruction and increase flood risk, allowing access to banks for inspection, and maintenance and notifying RMA of any works being undertaken.

² Although since April 2016 the maximum premium cost is capped via the governmental Flood Re scheme.

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APPENDIX: BACKGROUND INFORMATION PER RESPONDENT

Respondent	Experience	Location	Gender	Age	Home for x years
1	N	Great Yarmouth	M	66–70	12
2	N	Great Yarmouth	F	56–60	21
3	Y	Great Yarmouth	M	36–40	Unknown
4	N	Great Yarmouth	F	41–45	5
5	N	Great Yarmouth	M	56–60	20
6	N	Great Yarmouth	F	56–60	30
7	N	Great Yarmouth	M	>75	12
8	N	Great Yarmouth	F	31–35	8
9	N	Great Yarmouth	F	61–65	7
10	N	Aldeburgh	M	61–65	20
11	N	Aldeburgh	M	66–70	24
12	Y	Aldeburgh	F	51–55	12
13	Y	Aldeburgh	M	66–70	15
14	Y	Aldeburgh	F	46–50	15
15	Y	Aldeburgh	F	71–75	18
16	N	Aldeburgh	M	61–65	21
17	N	Aldeburgh	M	>75	3
18	Y	Oxford	F	66–70	30
19	Y	Oxford	M	46–50	14
20	Y	Oxford	F	46–50	5
21	Y	Oxford	F	51–55	15