
Flood risk: a capacity and vulnerability analysis of Newham and Hammersmith, UK

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Abstract: The intensity of floods due to climate change has significantly increased in both developed and developing countries. Flood prevention measures are assumed to be more robust in more developed economies with the ability to dedicate greater economic resources. However, in London, a deeper interrogation of flood risk management (FRM) tells a different story. This study presents a comparative capacity and vulnerability analysis of the Newham and Hammersmith areas of London. The analysis suggests lower levels of resiliency for Newham, a lower-income and ethnically diverse area. On the contrary, the more affluent area of Hammersmith is more likely to be better equipped to respond and recover in the event of flooding.

Keywords: climate change; natural disaster; social justice; sustainable development; disaster risk reduction; DRR; natural hazards; resilience; community development; UK.

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1 Introduction

The increased frequency and intensity of flooding have been attributed to climate change (Bergsma, 2016). In 2017, there were 208 natural disasters globally, out of which more than half (126) were flood-related (UCL, CRED, and USAID, 2018). Over the last three decades, the UK has also been impacted by destructive floods in 1998, 2007, 2012, and 2014–2015 (Christie et al., 2016). Flood-related economic losses are also much higher in the megacities of high-income countries than in low-income countries due to a higher rate of economic activity and more (expensive) developed infrastructure (Joerin et al., 2014; Wisner et al., 2004). For example, the recent devastating hurricanes in the major cities of the USA incurred damages over US\$300 billion (Steiner et al., 2017).

It has been argued that floods are socially constructed events rather than naturally occurring hazards (Rodríguez, 2008; Adeola and Picou, 2017). Accordingly, certain communities are more hazard-prone than the others (Pelling, 2012; Donner and Rodríguez, 2008), even within the same urban area. For instance, Similar to Hurricane Katrina, Hurricane Harvey also disproportionately impacted poorer and racial minorities more than affluent neighbourhoods (Flores et al., 2020). Socio-economic inequalities augment the vulnerability of underprivileged communities and, consequently, their resiliency. Hence, Pitt (2008) suggested that highly resilient communities can rebound back effectively from flood-related setbacks because resiliency provides strength and resources to people. However, underprivileged communities have lower levels of resiliency to respond to disasters (Platt, 2007).

The metropolitan flood risk map of London reveals that both high-income and low-income and mostly ethnic-minority neighbourhoods are located in the floodplain. To reduce the risk of flooding, the UK Government has invested in structural solutions such as Thames Barrier. However, the communities living in the floodplains must be disaster-resilient to decrease the risk even further. Community disaster resiliency is a result of increasing capacities and reducing the vulnerabilities of all communities. The capacities and vulnerabilities of communities are shaped by socio-economic forces that vary greatly between individual communities. In this study, a comparison of capacities and vulnerabilities to respond to flood disasters of two communities in London was undertaken. Hammersmith, a more affluent community, and Newham, a less-affluent and more ethnically diverse community, were selected for this study due to shared flood risk due to their geographic location and distinctive socio-economic makeup of each community. The UK Environment Agency has identified Hammersmith and Newham (along with some other residential areas) in London as highly prone to flooding (Groundsure, 2015; Environmental Agency, 2012). Surface water flooding can be widespread in Hammersmith and Newham due to multiple factors such as heavy downpours, overflow of the sewer system, etc. (LBHF, 2017; Newham Council, 2015).

The purpose of this paper is to highlight the potential differences in the levels of resiliency of Hammersmith and Newham. The specific objectives are:

- To evaluate differences in the resiliency levels to flooding disasters between Hammersmith and Newham through a comparative capacity and vulnerability analysis (CVA).
- To explore the effectiveness of the current flood risk policy and local plans in addressing the different needs of the two communities with different resiliency levels in London.

2 Flooding and disaster risk reduction

Climate change has been linked to the intensification of hydro-meteorological disasters such as floods (Wilby and Keenan, 2012). Recent climate change data predicts that precipitation will be intensified in the UK (Met Office, 2019). Consequently, as surface water flooding results from high precipitation, it will primarily impact urban areas (Böing et al., 2020). Urban areas face increased flood risks due to their high economic activities and resource consumption, large population, and extensive infrastructure (Carter et al., 2015). The CCC (2017) in the UK published its 2017 report, which stated that the highest priority disaster risk in the UK is flooding. London was devastated by flooding in 2007 that impacted more than 6,000 businesses and 55,000 households (Christie et al., 2016). Flooding in 2014–2015 further impacted London, even with the development of the Thames Barrier. It was partly due to residential development along the flood plains (Harries, 2008).

Socio-political and economic conditions play a key role in turning hazards into disasters (Wisner et al., 2004). According to the definition by the Center for Research on the Epidemiology of Disasters (CRED) (2009) as cited in Islam et al. (2017, p.51), “any situation or event which overwhelms local capacity, necessitating a request to national or international level for external assistance; an unforeseen sudden event that causes great damage, destruction and human suffering.” Floods, a form of disaster, result from several factors such as geography, political institution actions, etc. (Wisner et al., 2004). However, social vulnerability and differing political interests intensify the risk (Akerkar and Fordham, 2017).

The UN has addressed disaster risk reduction (DRR) through voluntary and non-binding agreements for DRR, including the Hyogo Framework (2005–2015) (UNISDR, 2013) and the Sendai Framework (2015–2030) (UNISDR, 2015). The Sendai Framework highlights four prioritised actions for the governments: strengthened governance; public and private investments in the structural and non-structural measures of risk prevention for recovery, rehabilitation, reconstruction, and resilience of communities (UNISDR, 2015). The Sendai Stakeholders Group was recently established to advance DRR through a holistic all-of-society approach (Mead, 2018). However, DRR also has limitations (Zaidi, 2018) which can slow the progress toward sustainable development, resulting in lower resiliency.

DRR strategies are limited by technical, socio-cultural, economic, and political constraints because it only relies on partial sub-systematic approaches (Burns et al., 2017). However, to address these limitations, DRR strategies should be integrated into wider sustainable development strategies as highlighted by the UN’s 2030 Sustainable

Development Goals. Integrating local knowledge and expertise across sectors and stakeholder groups into DRR and climate change adaptation strategies can further reduce risk and negative impacts on communities (Gero et al., 2011).

3 Flood risks and social vulnerability

The UNISDR (2015, p.94) defines resiliency as “the ability of a system, community or society exposed to hazards, to resist, absorb, accommodate and recover from the effects of the hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.” Resilience in a community is dependent upon the level of social vulnerability within the community. Social vulnerability has been defined as “the susceptibility of social groups to the impacts of hazards, as well as their resiliency, or the ability to adequately recover from them... This susceptibility is not only a function of the demographics of the population (age, gender, wealth, etc.) but also complex constructs such as healthcare provision, social capital, and access to lifelines (e.g., emergency response personnel, goods, services)” [Cutter and Emrich, (2006), p.103].

Resilient communities can cope with the challenges of socio-ecological variations caused by natural disasters (Folke et al., 2016). However, social vulnerability, such as poverty, reduces the coping capacities of a community. In urban areas, minority ethnic communities often face social exclusion, higher levels of poverty, and marginalisation, all of which greatly increase the vulnerability of the communities (Platt, 2007; Burningham et al., 2008; Fielding, 2012, 2018).

Flood mitigation infrastructure in London includes the Thames Barrier and integrated plans and policies meant to shield vulnerable communities from the disaster of floods in London (GOV.UK, 2018). However, despite several city plans and equality plans, issues of socio-economic inequality are prevalent in London (TFL, 2018b) among underprivileged communities. For instance, Newham, having 56.8% ethnic communities (ONS, 2017), shows elevated percentages of poverty and unemployment, 37% and 36%, respectively (TFL, 2018b). On the other hand, the area of Hammersmith has the lowest percentage of unemployment (3.46%) (TFL, 2018c). These figures reveal that although Newham and Hammersmith lie in the floodplains, their socio-economic makeup is starkly different, which will eventually shape each community’s resiliency level.

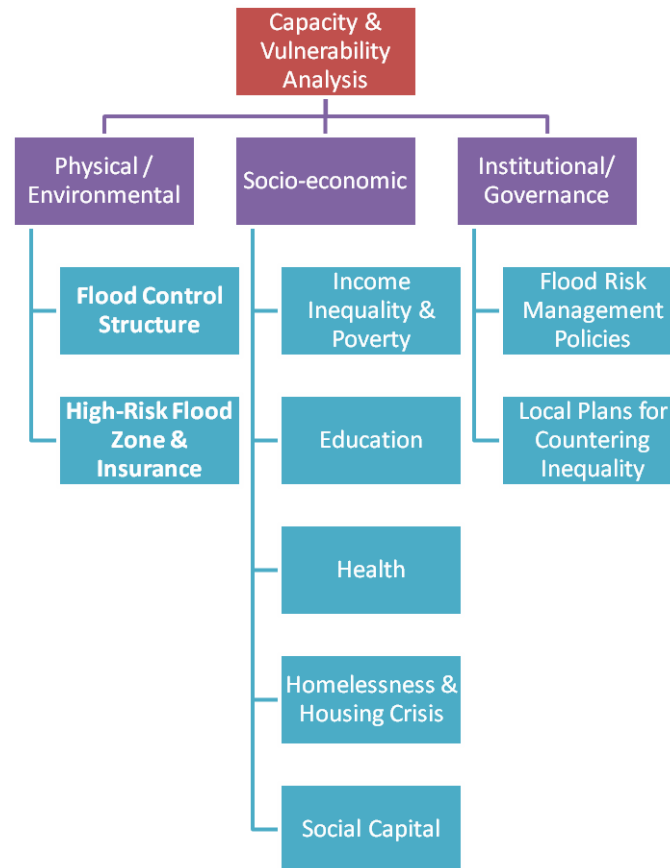
Therefore, evaluating both communities’ capacities and vulnerabilities will help illuminate the instrumental factors shaping the resiliency and provide insights for better flood risk mitigation strategies.

4 CVA to examine the resiliency of Hammersmith and Newham

Oxfam’s participatory capacity and vulnerability analysis (PCVA) framework was employed to examine and compare resilience to flooding disasters for Hammersmith and Newham in metropolitan London. CVA is an analytical tool to evaluate and develop DRR strategies and frameworks (IFRC and RCS, 2007; M&E Studies, 2018). The CVA framework for this study was used to map the capacities and vulnerabilities of the two case communities across three dimensions: physical/environmental, socio-economic, and

institutional/governance (M&E Studies, 2018). Each of these three domains was further broken down into several sub-domains (Figure 1).

Figure 1 The CVA framework (see online version for colours)



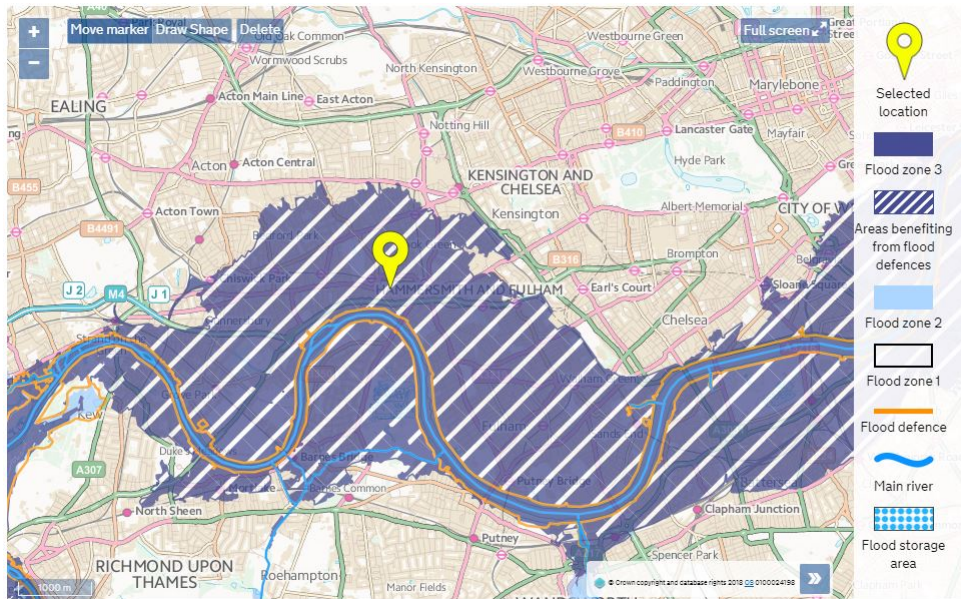
The CVA framework was used to evaluate a range of secondary material assembled from a range of official sources, such as government websites, online news posts, websites of the councils of Hammersmith and Newham, and the London Trust's website. The physical capacity and vulnerability data such as flood control structure and high risks and insurance policies for both the communities were compared and discussed so that the difference between these communities is articulated clearly. The CVA also compared the socio-economic variables of both the areas and analysed the most crucial indicators of both the communities, such as poverty and income, education, health, homelessness, and social capital. These indicators help to provide points of comparison of the resiliency of the communities of Hammersmith and Newham. The governance and institutional policies such as flood risk policies and local plans (council tax) were also examined to locate potential gaps in the flood risk management (FRM) policies.

5 Physical/environmental

The physical proximity of a community to the floodplain plays an integral role in making the community vulnerable. As the communities of Hammersmith and Newham have similar levels of exposure to the flood hazard (Dearden, 2015) due to their geographic proximity to the river Thames. For both communities, this increases the likelihood of their vulnerability to flooding disasters. The following physical CVA discusses the government-built flood control infrastructure contributing to the capacities of both communities – also, the comparison of capacities and vulnerabilities of both communities due to physical location in detail.

The Environment Agency has been successfully preventing Thames flooding since 1982 due to the construction of the Thames Barrier (GOV.UK, 2018). However, as the Thames may continue to face the increasing intensity of flooding in coming years due to climate change, the operational efficiency of the existing Thames Barrier could decrease over time due to mechanical stress. Therefore, the Environment Agency is building another barrier (CDC, 2018) to protect both the communities from future flooding. Hence Thames Barrier is contributing to the capacities of both communities. However, getting insurance is the biggest challenge for both communities, as they reside in a high-risk flood zone.

Figure 2 This map shows that the borough of Hammersmith falls under flood zone 3 (see online version for colours)



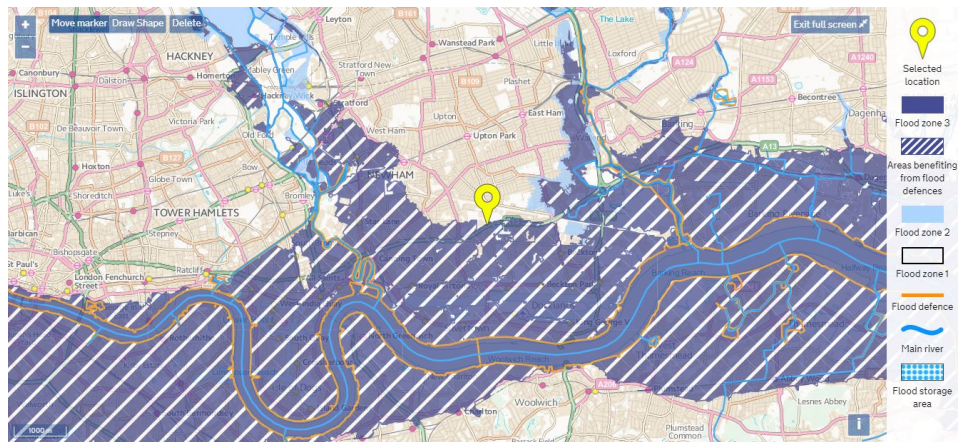
Source: Environment Agency (2018)

According to the Environment Agency (2018), the areas of Hammersmith and Newham fall under flood zones 1, 2, and 3, with 75% of the Hammersmith under zone 3, with a high chance of flooding (LBHF, 2017). The buildings and infrastructure of Figures 2 (Hammersmith) and 3 (Newham) show the vulnerability of both areas to floods. Due to this, UK's Environment Agency has warned against building new homes in flood zone 3

(DCLG, 2012), which has the highest risk (Cusack, 2018). Still, the UK Government is building housing on the floodplains (Harvey, 2016).

Additionally, Sadiq Khan, the Mayor of London, has stated that he would be investing £3.15 bn by 2021 for affordable homes (GLA, 2017b). In March 2020, more than 17,000 affordable houses were delivered by the Mayor in London, along with 7,156 social rent homes (Simpson, 2020). These are the record high numbers delivered by any GLA authorities since 2003 (Simpson, 2020). However, many of these new affordable houses would be built at the expense of increasing flood risks and creating expensive insurance for those buildings.

Figure 3 This map shows that the borough of Newham falls under flood zone 3 (see online version for colours)



Source: Environment Agency (2018)

House insurance in high flood risk areas is very hard to get due to insurance policies. For instance, the houses built on flood zone 3 in London might not get insurance, and even if they get it somehow, it will be expensive (Flood Re., 2018). In this scenario, the affluent borough of Hammersmith might be able to insure the houses built in flood zone 3. However, the socially disadvantaged borough of Newham may have more limited capacity to insure houses built in the higher-risk areas. To sum up, the poor Newham communities will be facing a decline in their coping capacities (resiliency) compared to the communities of Hammersmith due to Newham's ethnic makeup. Nevertheless, to support a comparative discussion about both the boroughs' capacities and vulnerabilities (resiliency), it is essential to consider the differences in their socio-economic variables.

6 Socio-economic

Socio-economic factors of the communities determine whether their resiliency (capacity to cope) will be ameliorated or weakened in the event of a disaster. The socio-economically marginalised communities usually score low on the key resilience (capacity or vulnerability) indicators (Bergstrand et al., 2015) such as poverty, income, etc. On the contrary, the affluent communities score high on these indicators. The socio-economic factors augment the disaster risk in already physically vulnerable

communities (Van Voorst et al., 2015). Thus, to establish the resiliency difference between Hammersmith and Newham, the socio-economic indicators discussed and compared in the following paragraphs are: income and poverty, education, health, housing, and social capital so that the in-depth results can be drawn out through rigorous comparative analysis.

Low income and poverty are crucial indicators for measuring a community's vulnerability and capacity. In the research study area of Hammersmith, the income inequality ratio (1.03) (TFL, 2021c) is less than the Newham (1.49) (TFL, 2021b). These figures are taken from the Annual Survey of Hours and Earnings, where the higher values indicate the high-income inequality in the borough (TFL, 2021c). Similarly, the unemployed and low-paid residents' percentage is 4.7% and 13% in Hammersmith (TFL, 2018c), whereas, in Newham, it is 5.7% and 35.7% (TFL, 2021b). These figures provide evidence-based facts about Newham being more vulnerable than Hammersmith on the indicator of low income (TFL, 2018a) and unemployment.

An increase in disaster casualties (killed and impacted) is correlated with higher child poverty rates (Daoud et al., 2016). The comparison between the case study areas has revealed that Hammersmith has 35% of child poverty and an overall poverty rate of 31% (TFL, 2021c). On the other hand, Newham has 52% of child poverty and 37% of the overall poverty (TFL, 2021b). The indicators above establish that Newham residents are at more of a disadvantage than residents of Newham, and it can have more negative implications in the future. It can be reasonably induced that Newham could be in greater danger of being more adversely impacted by future flood hazards. Another indicator that can help in pointing out the capacities and vulnerabilities is education.

Education is an important socio-economic indicator with higher overall levels of education trending towards greater overall economic advantage, and lower levels often correlate with more challenging economic situations (Mirowsky, 2017). For instance, the communities of Hammersmith show the percentage of qualifications at 19 to be 33.6% (TFL, 2021c) compared to 32.2% in Newham (TFL, 2021b). Further, Newham ranked in the bottom five for the youngsters over 16, who undertook UK's studentship schemes (Coulton and Crisp, 2017). Communities of Hammersmith and Newham also show a stark difference in the proportion of adults lacking qualification, i.e., 4.7% and 10.1%, respectively (TFL, 2021c).

Educational inequalities facing Newham lead to increased socio-economic vulnerability, with more community members undertaking lower-paid jobs requiring fewer skills set compared to the people of Hammersmith. Given that education makes communities more resilient in the face of a major catastrophe (Frankenberg et al., n.d.). This will make Newham residents socio-economically vulnerable and at risk of being impacted more by disasters and losing physical or psychological health.

The underprivileged socio-economic status exposes ethnic minorities to inequality, disparity, and dangerous ill-health (physical and psychological) (Williams et al., 2016; Williams, 2012). For instance, the 1998 floods in Banbury, UK, mostly affected Pakistani women, who communicated their ill-health and psychological impacts more than other communities (Tapsell and Tunstall, 2008) – now considering the health and fitness data of the study areas, the difference in health can be seen. The percentage of physically active people in Hammersmith is 61% (PHE, 2017); on the contrary, more than half of Newham's population live a physically inactive life (Coulton and Crisp, 2017). This demonstrates the significance of socio-economic context in shaping the health and fitness of the communities.

Life expectancy at birth and diseases are also highly correlated with the health of an individual or a community. The key statistics have revealed that the healthy life expectancy of males in Hammersmith is 62.8 and 63.5 for females (TFL, 2021a), and the percentage of tuberculosis (TB) in Hammersmith is 23.3% (PHE, 2017). On the other hand, the healthy life expectancy of the males in the borough of Newham is 58.4 and 61.4 for females (TFL, 2021a), and the percentage of TB is seven times higher than London's average (Coulton and Crisp, 2017). Combined, these indicators suggest that Hammersmith has greater resiliency and capacities to weather a crisis event, including flood-related events, than Newham. Additionally, the issue of homelessness in the neighbourhood of Newham further aggravates the situation.

The housing crisis and the problem of homelessness, evictions, and displacement are interconnected (Bramley and Fitzpatrick, 2018) due to high-priced property and unaffordability (Koessler, 2017). Moreover, this crisis augments when a natural disaster such as flood hits, making the homeless individuals less resilient and more exposed to hazards. The housing crisis in London is rising, especially in the borough of Newham. For instance, the percentage of people living in temporary accommodation in Hammersmith is 15.02 per 1,000 (TFL, 2021c). The numbers for the borough of Newham are 48.39 per 1,000 (TFL, 2021b), impacting the private rent affordability in mostly the borough of Newham, leading to some people being evicted from the property.

Newham has the highest rate of evictions in London, 3.2 per 1,000 (TFL, 2021a). On the other hand, Hammersmith has a lower rate of evictions, i.e., 1.1 per 1,000, which is better than London's average (TFL, 2021c). The uneven and inadequate housing delivery also contributes to the housing crisis. The housing crisis is more insufficient and problematic for the borough of Newham. The qualitative measure 'social capital' is another indicator to differentiate the resiliency levels of Hammersmith and Newham.

Social capital is the important intangible glue of social relations (Lin, 2001) that contribute to community cohesiveness and resiliency (Begum, 2003). Some literature suggests that communities with high levels of social capital are often affluent, prosperous, and have better social networks (Aldrich, 2015), since prosperity, happiness, and well-being of a community directly contribute to its social capital (LPI, 2017; Cheung et al., 2017). The UK Legatum Prosperity Index 2016 assessed 389 local authorities' well-being and prosperity (social capital), including Hammersmith and Newham, in the 2016 Legatum UK Prosperity Index report. It has found the poverty-stricken areas in a lower place on the index than the affluent ones. For instance, Newham ranks down by 123 points than Hammersmith (Maltby and Holland, 2016). These rankings are an indication of a low level of social capital in the borough of Newham.

The borough of Newham has previously exhibited the signs of anti-social behaviour (DCLG, 2010), disconnection within the borough, and social fragmentation (Thompson et al., 2015; Mintchev and Moore, 2017). Many studies show that less community cohesion leads to a decreased capacity to recover. For instance, after the 2005 Hurricane Katrina, the affluent communities in New Orleans had a better recovery due to strong social capital than poor communities (Aldrich and Meyer, 2015). Therefore, the above analysis establishes that Newham is at great risk due to floods, as it has less social capital and hence lower capacity built.

Table 1 Comparative CVA results (see online version for colours)

Factors	Indicators	Hammersmith		Newham	
		Capacities	Vulnerabilities	Capacities	Vulnerabilities
Physical	Flood control structure	Protected due to Thames Barrier	Exposed to severe flooding due to the borough's location.	Protected due to Thames Barrier	Exposed to severe flooding, and most of the area lies under flood zone 3. Cannot insure their homes due to the prohibitive cost of insurance.
	High-risk flood zone and insurance	Can insure their homes due to having the financial means.			
Socio-economic	Income inequality and poverty	Low-income inequality ratio. Very low unemployment and low-paid residents' rates. Low poverty rate.	High child poverty rate.		High-income inequality ratio. High unemployment and low-paid residents' rates. High overall poverty rates and very high child poverty rate.
	Education	High percentage of qualification at the age of 19 in the borough. Very low percentage of adults lacking higher education.			Low percentage of qualification at the age of 19 in the borough. Very high percentage of adults lacking higher education.
	Health	High percentage of active people in the borough. Higher life expectancy for males and females in the borough than Newham. Lower percentage of TB than London average.			Low percentage of active people in the borough. Lower life expectancy for males and females in the borough than Hammersmith. Seven times higher percentage of TB than London average.

Note: RAG – red, amber, and green – status.

Table 1 Comparative CVA results (continued) (see online version for colours)

Factors	Indicators	Hammersmith		Newham	
		Capacities	Vulnerabilities	Capacities	Vulnerabilities
Socio-economic	Homelessness and housing crisis	High acceptance of homeless people.	High percentages of temporary accommodation. High private rent unaffordability. Inadequate housing delivery.		High percentages of temporary accommodation. High private rent unaffordability. Inadequate housing delivery. Low acceptance of homeless people.
	Social capital	High prosperity on Legatum UK Prosperity Index.	Less authority to locals in decision-making.		Low prosperity on Legatum UK Prosperity Index. Disengagement from local services participation.
Institutional	Firm policies	Flood risks warning and awareness systems in place.		Flood risks warning and awareness systems in place.	Less authority to locals in decision-making. No policy intervention to integrate the issue of flood disadvantage.
	Local plans	Council tax support			No council tax support. High amount of taxes payable making communities of Newham indebted.

Note: RAG – red, amber, and green – status.

The aforementioned socio-economic indicators have established that the borough of Newham is low-income, socially deprived, and a vulnerable area. The communities of this area need special institutional policies to make them resilient and less vulnerable. For this reason, the analysis of the local governance of London and its policies is necessary.

7 Governance

Governance is a crucial factor that can turn a community's vulnerabilities into capacities with effective planning and strategies (Alshehri et al., 2015). Many government authorities worldwide are moving on with a diversified FRM approach rather than relying on only flood defences (Wiering et al., 2017). For instance, in London, many FRM policies for the whole city and many local (borough level) strategies exist (London Councils, 2018). It is critical to ensure that these policies are flexible, involve every stakeholder, and consider the unique needs of individuals and communities. In order to do that, the flood risk policies, local inequality initiatives, and tax support will be now analysed since it has been established that the residents of Newham are socio-economically less resilient than the communities living in Hammersmith.

In England, the Department for Environment, Food, and Rural Affairs (DEFRA) has the main responsibility to work with local councils and other risk management authorities (LGA, 2018) to plan FRM policies (DCLG, 2012). The FRM policies of Hammersmith and Newham have the necessary flood warning systems and sustainable DRR strategies to reduce flood risks (LBHF, 2017). However, most youth, specifically in the socially vulnerable groups, are less aware of flood risks. For instance, 75% of the youth in the UK are more susceptible to flood risks since they do not check whether they are at risk or not (Environment Agency, 2016).

The FRM policies in the UK are developed on the local council's level to involve the residents in the policymaking process (DCLG, 2012). Still, localisation has a negligible positive impact on the UK FRM policies (Alshehri et al., 2015). This is because the localisation only transfers the responsibilities of policy planning to the locals and not the final decision making and the budget allowance (Begg et al., 2015). This situation defies the logic of localism by weakening the local involvement of vulnerable communities. Their voices are crushed because they have low social capital and less local capacity due to a lack of economic resources (Thaler and Levin-Keitel, 2016), such as the communities in Newham.

Further, the policies do not consider the difference in the severity of hazard risk in the socially disadvantaged borough of Newham. For instance, Newham is added into the ten worst areas of the UK exposed to the flood disadvantage (where social vulnerability and flood risk coincide) (Sayers et al., 2017). However, the UK Government's Index of Multiple Deprivation (IMD) has failed to recognise the disadvantaged areas (Sayers et al., 2017). Consequently, Newham could face the exacerbated after-effects of flooding (Sayers et al., 2017) than other floodplains such as Hammersmith. This gap then leads to whether the other local plans to counter inequality are in place and implemented effectively in London.

London Government has published several plans to reduce the inequality within the city, for instance, the recent 2017 plan by the current Mayor (GLA, 2017a). However, despite these plans, the inequality and poverty in Newham are still high. Moreover, council tax benefit (CTB) was replaced with council tax support (CTS) in 2013 in

London (TFL, 2018d). London's 200,000 lowest-earning residents pay an additional £200 annually in council tax (TFL, 2018d). On the contrary, the new CTS has worked in favour of high-income boroughs (De Agostini et al., 2018) such as Hammersmith. For instance, the average income lost in Hammersmith and its negative impact on the low-earning resident is zero (TFL, 2018c). However, a lower-income borough, Newham, loses an average of £171 income annually due to the changes in the CTS system (TFL, 2018b).

Since the abolition of the 'crisis loan and community care grant', the local welfare and delivery schemes declined (Gibbons, 2017) for lower-income areas. This begs the question of whether London's governance and its policies are fair. Due to this, the borough of Newham has potentially become more vulnerable due to tax rates and increased indebtedness (Partington, 2017). It can be observed that the government's initiatives are inadequate and lack concrete actions for the ethnic population of Newham.

8 Conclusions and implications

The in-depth investigation of the physical, socio-economic and institutional capacities and vulnerabilities of Hammersmith and Newham communities have made fact-based revelations that the low-income borough of Newham is more vulnerable to disasters and has lower resiliency levels. However, the physical vulnerability of both communities is almost equal due to their geographical proximity to the Thames. However, due to the high poverty rate of Newham communities the access to expensive insurance is difficult for them in the high flood risk zone.

Current literature also discusses that the socio-economically deprived communities have unequal access to the resources and benefits, leading to other social inequalities and injustices. Newham is a highly neglected area, and despite the existing policies to reduce inequality, the physical, social and institutional vulnerabilities of the Newham communities are soaring. Further, the local population is not empowered enough to contribute to the FRM policy-making process. However, DEFRA has asserted that it is crucial to build the capacities of local authorities and population to manage flood risk efficiently (Defra, 2018) and make communities resilient. It makes the Newham communities more vulnerable and less knowledgeable about preparing for flooding or recovering efficiently after a disaster.

Further exacerbating the situation is the lack of consideration by UK officials and policymakers of the socio-economic disparity of the Newham communities during policymaking. For instance, the Newham FRM policy does not recognise the severity of the socio-economic difficulties of the borough. Consequently, in the event of a flood hazard, this gap in the FRM policy of Newham could make a recovery from the impacts of flood disaster rather difficult to achieve not only for the disrupted communities but also for the London Government.

This paper has argued that Newham is less resilient and more vulnerable to flooding than the higher-income neighbourhood Hammersmith. The methodology utilised in this research has focused on comparative analysis only. An extension of this research work can be carried out through conducting in-depth interviews with the flood hazard experts of London and one-to-one interviews with the people living in the communities of Hammersmith and Newham as this will support in generating data on the tacit knowledge of the experts of flood hazard and the insights of local communities. Further, future

research can consider the current gentrification in both the boroughs to get a clearer picture of community resilience. The community participation-focused research can also be conducted in both the boroughs to capture the localism in flood governance.

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