ARTICLE

Inherent Complexities of a Multi-stakeholder Approach to Building Community Resilience

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Abstract Enhancing community resilience has increasingly involved national and regional governments adopting a multi-stakeholder approach because of the potential interagency benefits. This has led to questions about how best to involve stakeholder groups in translating community resilience policies into practice. This exploratory study contributes to this discussion by addressing two key areas that are fundamental in the concerted effort to build community resilience to natural hazards: (1) stakeholder understanding of community resilience as a concept; and (2) the difficulties associated with the processes of risk assessment and preparedness that stakeholders face locally in building community resilience. Data were collected through semistructured interviews with 25 practitioners and experts within Scotland's resilience community, and were analyzed through an inductive approach to thematic analysis. These data show how the interpretation of community resilience differs across stakeholder groups. Analysis of the data reveals challenges around the nature of the risk assessment and its role in shaping risk perception and communication. Significant complications occur in communicating about low probability-high consequence events, perceived territoriality, competing risk prioritizations, and the challenges of managing hazards within a context of limited resources. The implications of these issues for policy and practice are also discussed.

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1 Community Resilience Agenda

Community resilience has become a significant policy objective for many governments (Chandler 2014; Ntontis et al. 2019) for several reasons. First, there is a shift towards community-based disaster risk management, which follows from recognition of the need to empower members of local communities in the disaster risk assessment process in order to spread support and increase local ownership of risk (Maskrey 2011; Van Niekerk et al. 2018). Second, the development of several international agreements to prevent or reduce disaster risks increasingly shape national and regional guidance and principles. One such example is the Sendai Framework for Disaster Risk Reduction 2015–2030, adopted in March 2015. This framework aims to reduce the consequences of disaster risks, including their impact on lives and livelihoods. The Sendai Framework shifts attention from managing "disaster" to managing "risk" and emphasizes learning from the effects of past hazardous events. To this effect, technology-based approaches such as the Global Assessment Reports Risk Data Viewer,[1] the DesInventar tool,[2] and the EM-DAT: The International Disaster Database,[3] combine to provide a platform that enables the recording of large-scale disasters and their impacts (UNDRR 2019). According to the UN Office for Disaster Risk Reduction (UNDRR 2019),

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1 http://risk.preventionweb.net:8080/capraviewer/main.jsp?tab=0.

2 https://www.desinventar.net/.

3 https://www.emdat.be/.

this represents a fundamental step in disaster risk prevention. Furthermore, factors such as climate change, increased urbanization, poverty, conflict, and globalization continue to expose a significant number of people to disaster risks (Kelman et al. 2015) and the costs of disasters to governments and citizens have the potential to grow.

In Scotland, several stakeholders have a responsibility for managing disaster risks and improving community resilience. They include government authorities, private and third sector organizations, and communities at risk. Such multi-stakeholder approaches, enshrined in international frameworks, recognize that no single agency has all the necessary power, expertise, resources, and structure to address the challenge of reducing new or existing disaster risks (Magis 2010; Hickman 2018). There is relatively little research examining the complexities of a multi-stakeholder approach to building community resilience, a situation not aided by debate over the concept of "community" (Crow 2002; Mannarini and Fedi 2009) and the resultant definitional variations (Barrett 2015; Titz et al. 2018). For this study, we consider community as a place-based entity, perceived as having a sense of identity, interest, and meaning, as well as exposure to the hazards in question. Within this, we recognize the power asymmetries that exist between groups, and differences in the nature of expertise that shape who decides or dominates discussions concerning resilience efforts and associated responsibilities (Steiner and Markantoni 2014). Within this context, disaster risk can be defined in terms of the combination of: the probability of a hazard; the vulnerabilities within affected communities; and the nature of the exposure to that hazard (Wisner et al. 2004). The result is that disasters are not simply "natural" but are socially produced (Twigg 2015; Kelman 2019).

Recent efforts to promote community resilience to natural hazards in Scotland have led to the establishment of the National Centre for Resilience (NCR) in March 2016 and the development of the Resilient Communities Strategic Framework and Delivery Plan 2017–2021. This is embodied within the "5Es" of the Delivery Plan—engage, enable, empower, educate, and evaluate—as a means of enhancing Scotland's community preparedness and response to emergencies (Scottish Government 2017a). This has given rise to several initiatives such as the development of a natural hazards factsheet, the flooding good practice framework, and the recruitment of a development officer at Education Scotland to embed resilience in the school curriculum.[4] This would suggest that Scotland is taking a proactive first step towards adapting its communities to hazards and building resilience at the local

level. Thus, Scotland's multi-agency governance approach to building community resilience provides a highly relevant context to examine the complexities of a multi-stakeholder approach to community resilience.

This article aims to: (1) examine stakeholders' understanding of community resilience as a term, since the alignment of these understandings with policy documentation plays a vital part in achieving the desired policy outcomes and in reducing any implementation gap; and (2) explore potential challenges around the processes of risk assessment and the preparedness in building community resilience to natural hazards.

2 The Shifting Conceptualization of "Resilience"

Conceptualizing resilience has seen a shift from considering "bounce back" to an original state, to "bounce forward" following an emergency (Manyena et al. 2011; Steiner et al. 2016; Grove 2017). Some scholars challenged the concept of bouncing-back, which involves a return to the same state of vulnerability that may have led to the disaster in the first place (Manyena et al. 2011; Kelman et al. 2015) or could generate further exposure and vulnerabilities (Manyena 2009). Moreover, this conceptualization is more suited to engineered or controlled systems, rather than socio-technical ones (Fischbacher-Smith and Fischbacher-Smith 2009).

Bouncing forward, also termed "building back better," is argued to reinforce the language of "learning" and that of "change" (Manyena 2009; Kelman et al. 2015). It recognizes change as a constant (Magis 2010), and sees human agency as an influential and proactive agent in the social process of change (Skerratt 2013). Moreover, the involvement of multiple stakeholders (such as survivors, responders, officials, and private and public organizations) in disaster recovery offers numerous opportunities for learning and change (Fischbacher-Smith and Fischbacher-Smith 2009). The concept of bouncing forward comes with its complexities, especially if a disaster is taken as the catalyst for change. In an ideal situation, bouncing forward should occur within the context of proactive change and should reflect the challenges and barriers around organizational learning and warning processes.

Despite these caveats, the concept of building back better is increasingly recognized (Magis 2010; Wilson 2012; Steiner and Markantoni 2014; Rennie and Billing 2015) and is incorporated within the Sendai Framework's Priority 4: "Enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery, rehabilitation and reconstruction." It has also been accepted as a critical part of preventing disaster risks in the UK via the Department for International Development (DFID)

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approach to resilience (Bonfield 2016; Fig. 1). Similarly, "adaptation" is used as a policy construct to frame Scotland's approach to community resilience (Adekola 2018).

Recent studies caution against framing societal problems through the lens of resilience given its association with a range of difficulties (Tanner et al. 2017; Hickman 2018) that are brought about by multiple exposures to hazards (Kelman et al. 2015) and that can make recovery slow or impossible. Hickman (2018), for example, explains that the framing of the problem in terms of "resilience" has the effect of turning attention to developing coping strategies for unwanted situations rather than a focus on addressing the root cause of the problem around exposure to hazards and associated vulnerabilities. Resilience should be seen in terms of its practical value within the situational context associated with the hazards facing communities. Another caveat concerns the problem that the "scale" of the event is critical in determining the nature of resilience, and particularly the abilities that communities have to deal with large-scale events (Singh-Peterson et al. 2015; Fischer and McKee 2017). Within this context, space, place, and time are also crucial in shaping the nature of the event (Fischbacher-Smith 2011), and, along with the nature of community vulnerabilities (Wisner et al. 2004), add further layers of complexity to the nature of resilience within local communities.

Therefore, resilience cannot be seen to be an elastic community property that is independent of the task demands generated by the scale and complexities of particular hazards. It will inevitably have its limits in terms of the ability of local communities to cope with the response demands of an event, the skills that they need to deal with those demands, and the role that government should play in building and sustaining resilience. To support this point, Chmutina and von Meding (2019) call for the mindful use of language in framing issues that could further undermine the resilience of the most vulnerable in society. Chmutina and von Meding (2019) charge those making efforts to prevent disasters to rather focus on addressing the complex root causes. That is, reducing community vulnerability and exposure to hazards through initiating empowering policies and regulations, pursuing an equitable society structure, and providing needed resources (Wisner et al. 2004; Gould et al. 2016; Chmutina and von Meding 2019).

3 Context: Policy Approach to Community Resilience in Scotland

Scotland's community resilience program, associated with the provision of the UK's Civil Contingencies Act (United Kingdom 2004), is defined and governed under the Contingency Planning Scotland Regulations (United Kingdom 2005) and carried out through a multi-agency arrangement based around three Regional Resilience Partnerships (RRPs—North, East, and West). These three RRPs are further broken down into 12 Local Resilience Partnerships (LRPs). The RRPs and LRPs bring together all the relevant organizations within their jurisdiction that are legally required to prepare for and respond to major emergencies, in order to develop a practical approach to emergencies (Table 1).

This approach has similarities with other government strategies within the EU and elsewhere, such as Indonesia and Myanmar (Srikandini et al. 2018). Scotland's unique element, however, is the establishment of the NCR as a supportive framework that brings together resilience partners, communities, and academia to inform better practice through learning and collaboration. Inevitably, there are potential challenges involved in such an initiative, which include the relevance and impact of academic research to the needs of end-users, the challenges of working in a restricted context (often requiring some security clearance), and the transaction costs associated with operating at a range of scales and organizations (Collingridge and Reeve 1986). The benefit of having an integrated "research into practice" framework for resilience is the considerable potential available for the coproduction of research and the evaluation of policy.

3.1 The Governance of Community Resilience in Scotland

Scotland's community resilience strategy is further enshrined in the Community Empowerment (Scotland) Act (2015), which aims to help communities participate and have more say in decisions that affect them. This act is in line with EU participatory and multilevel governance frameworks for policy implementation (Newig and Koontz 2014), and involves government organizations and departments acting as facilitators in cocreating enabling functions and plans through Community Planning Partnerships. The 2015 Community Empowerment (Scotland) Act (United Kingdom 2015) is influential in shaping Scotland's policy approach to community resilience (Steiner and Markantoni 2014) where communities and individuals are seen as primary and active agents in maximizing local resources and expertise in preparation for and in emergencies.

The 2004 Civil Contingencies Act and other emergency planning regulations place several mandatory duties on category one responders, in terms of assessing risks, maintaining emergency and business continuity plans, communicating with the public, sharing information, and facilitating cooperation across agencies and other groups. Other public and private sector organizations are also
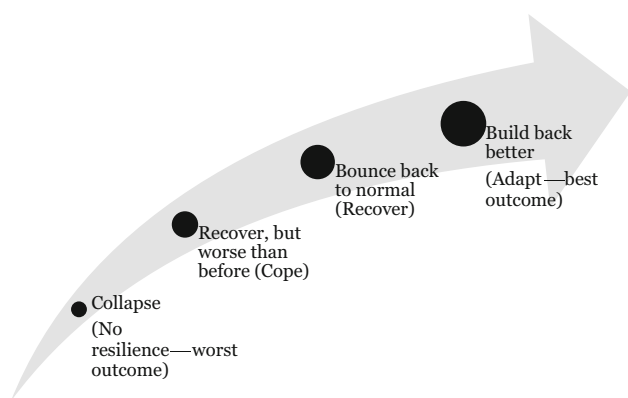
Fig. 1 The nature of resilience reaction as adapted from literature. *Source*: Fischbacher-Smith and Fischbacher-Smith (2009), Magis (2010), United Nations International Strategy for Disaster Reduction (UNISDR 2015), and Department for International Development (DFID 2011) resilience approach

preparedness, response, and recovery (Scottish Government 2019a). The focus of this article is on the "assessment" and "preparedness" elements of integrated emergency management. Currently, responders operate in a joint effort to analyze the potential risks on a regional basis, and the results are published in community risk registers. These regional assessments can often seem to be remote from the concerns within communities, however, and there are also challenges associated with both risk communication and public understanding of that risk. The development of resilience should reflect the specific challenges facing local communities and should be articulated at a level of granularity that makes sense to them.

The National Records of Scotland (Scottish Government 2019b) and the 2011 census results (Scottish Government 2011) estimate that there are 5.40 million people living in Scotland, and this is expected to rise by 5% over a 25-year period with a large number of people expected to be over 75 years by 2041 (Scottish Government 2017b). Minority groups form 4% of the total Scottish population and the gender split is 49% male and 51% female. Scotland is stated in the three regional community risk registers as being prone to seven main hazard types (Table 3).

involved in preparing Scotland for emergencies (Table 2). Scotland's emergency planning and response approach, which applies to community resilience, is underpinned by the principles of integrated emergency management, which includes five related activities: assessment, prevention,

Table 1 The nature of Scotland's multi-stakeholder resilience community. *Source*: Adapted from the Preparing Scotland report (Scottish Government 2019a)

Categories of agency	Organizations	Role and responsibilities
Category one responders	Police, ambulance, fire and rescue services, local authorities, NHS Health Boards, the Scottish Environment Protection Agency, and the Maritime and Coastguard Agency	Coordinate emergency response and plans, including assessment
Category two responders	Gas, electricity, rail and air transport operators, harbor authorities, telecommunications providers, Scottish Water, the Health and Safety Executive and NHS National Services Scotland	Assist Category one to perform duties according to the Civil Contingencies Act 2004
Public and private sector groups and individuals	Voluntary groups, private sectors, community planning groups, and individuals	Help in preparation for emergencies in their local community

Table 2 The legal governance of community resilience in Scotland. *Source:* Adapted from the Preparing Scotland report (Scottish Government 2019a)

Governance	Specific
Legislation/Act	The Civil Contingencies Act 2004 c. 36 (United Kingdom 2004)
Regulations	The Contingency Planning Scotland Regulation 2005 No. 494 (United Kingdom 2005)
	Other emergency planning regulations:
	The Control of Major Accident Hazards Regulations 1999 No. 743 (United Kingdom 1999)
	The Pipelines Safety Regulations 1996 No. 825 (United Kingdom 1996)
	The Radiation (Emergency Preparedness and Public Information) Regulations 2001 No. 2975 (United Kingdom 2001).
Principles	Integrated emergency management
Model	Hub and spoke model

Table 3 The nature of major hazards in Scottish Regional Resilience Partnerships. *Source*: Adapted from the North, West, and East of Scotland Community Risk Registers

Risk	North RRP[a]	West RRP[b]	East RRP[c]
Influenza type diseases—pandemic	✔	✔	✔
Severe weather	✔	✔	✔
Flooding	✔	✔	✔
Interruption to utilities	✔		
Transport disruptions	✔	✔	✔
Pollution and contamination	✔	✔	✔
Industrial site incidents		✔	✔

RRP Regional Resilience Partnerships

[a]https://www.firescotland.gov.uk/media/864538/north_crr_version_1.2.pdf

[b]https://www.firescotland.gov.uk/media/864542/west_crr_version_1.2.pdf

[c]https://www.firescotland.gov.uk/media/861633/east_crr_v1.2.pdf

Selection of Scotland's seven major hazard types, which are presented in Table 3, is the subject of considerable debate. The intensity and content of this animated discussion varies from one LRP to another, and is beyond the scope of this article. What seems presented as indisputable truth in Table 3 remains under critical examination, and is still an open question at the local level and in academic circles.

4 Methods

The study was granted ethical approval from the University of Glasgow in August 2017; interviews were carried out in the following 4 months of the same year with 25 participants including government officials, resilience practitioners at a local authority level, representatives of public organizations and utility companies, members of community councils, and one academic. The modest sample size is justified given the nature of the expert sample (Stephens 2007). Participants were identified through purposive sampling (Tongco 2007) and by using the snowballing technique (Streeton et al. 2004). Semistructured interviews in English were undertaken to allow for the exploration of issues in greater depth than a more quantitative approach would allow, and because they enable participants to raise problems that are unique to them (Cohen and Crabtree 2006). The interviews were all undertaken by the same researcher in order to ensure that there was no interviewer variation within the responses. All participants in this study spoke in a personal capacity, but inevitably were shaped through the lens of their separate professional experiences.

Four semistructured interviews were conducted with officials of the national government, three of which were carried out over the telephone. However, one of the respondents determined that his views would be best conveyed in written format; thus, a response was received via email. At the local authority level, nine members within two local authorities participated in the study; one local authority was in an urban area and another represented a rural area. At the community level, four current community councillors within two local communities were interviewed. It was not possible to establish contact with all relevant organizations within Scotland's resilience community (for example, not-for-profit organizations) due to resource constraints; this is one limitation of the study. All four members of the community councils interviewed in this study represent areas classified as remote small towns by the Scottish Government Urban/Rural Classification 2011–2012.[5] All interviews were recorded and transcribed. The interviews lasted between 40 and 60 min.

Data collected in this study were then analyzed using an inductive approach (Thomas 2006) and thematic analysis (Braun and Clarke 2006). The findings were further discussed at an informal discussion session at the University of Glasgow. This activity comprised members of academic (five) and administrative (three) staff at the University of Glasgow and the National Centre for Resilience, Dumfries. The feedback obtained was then incorporated into the analysis.

5 Results and Discussion

The data presented in this section represent the stakeholders' understanding of the nature of community resilience, their views and experiences of risk assessment

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5 https://www2.gov.scot/resource/0039/00399487.pdf.

practices, and the limits that they face locally in implementing community resilience. A preliminary exploration of the issues is presented here.

5.1 Stakeholders' Understanding of Community Resilience

The perceptions of community resilience held by different participants are summarized in Table 4. Government representatives emphasized the challenges posed by differing perceptions of hazards and their impact, along with issues of public understanding and the ability of local communities to deal with disasters. This account is similar to those articulated by representatives of the local authorities interviewed in this study, where similar prominence was given to the understanding of responsibilities, preparedness, adaptation, and recovery. The accounts of the local authority representatives were distinct from those of

Table 4 Stakeholder descriptions of community resilience in Scotland's Regional and Local Resilience Partnerships

Narrative type	Description of community resilience	Key themes
National government officials' narratives	"How communities perceive the impact of natural hazards and what they perceive natural hazards to be" "The ability for communities to understand the potential risk to them from natural hazards events such as those associated with the weather, and their ability to plan to prepare and mitigate any damage to them should those events arise"	Perception of hazards and its impact, understanding, and adaptive capacity
Local authorities officials' narratives	"Enabling people to look after themselves, understand what they are responsible for, and if an event does happen, being able to recover as quickly and efficiently as possible" "It is all about preparing for emergencies" "Being able to adapt and then get back to normalcy as quickly as possible" "It is about community awareness and awareness to deal with natural disaster problems" "Is about people been resilient for their selves, putting measures in place and obviously if something happens like flooding, it is how quickly that they can get back to normal"	Understanding responsibilities, recovery, preparedness, adaptation, and plans
Public sector services officials' narratives	"It is about having a strategy, a plan, and also what happens if there is a disaster; what would be the actions to be taken" "The ability for individual and communities in whatever form, whether that be geographic or cultural in different ways, to understand what natural hazard actually is and be able to not only prepare but also respond [to] and recover [from] it" "It is ensuring that we can still carry our role [as an organization]" "Sustainability and being able to bounce back from a situation"	Disaster mitigation plan, understanding, continuity and sustainability
Community councillors' narratives	"It is the ability of communities to react to events, and get through the event, without loss of life and possible damage to properties" "It is the ability of communities to protect properties, lives and keep them safe" "A lot of lovely things written about what people should do and should not do" "It is about the community coming together and face the problem and how you can increase participation in things like community council"	Reactive capacity, safety, action plan, community cohesion
Member of academic staff's narratives	"The extent to which population at risk is able to prepare for, deal with implications and impact of some form of natural hazard and recover from any damage physically to their communities or the[ir] structures… and kind of get back to full capacity and normal life thereafter"	Preparedness and recovery
Utility companies officials' narrative	"Educating people about preparedness and then helping them to put the measure in place so they are able to respond better and cope for longer until help can come in whichever form" "It is the provision of potable water and the treatment of wastewater, uncertain function and legal and regulatory function"	Education, mitigation measures, and continuity

government officials, as they largely reflected the role played by different stakeholder understandings of their responsibilities for community resilience. In some respects, this difference can be expected as we move from the national policy context to the local operational domain. It is those local officials, however, who will bear the main task demands associated with a large-scale disaster and who will have to assume much of the responsibility for regional area planning.

Key themes that emerged within the accounts of the public sector officials related to the role and importance of the disaster mitigation plan, the understanding of the issues within local communities, as well as issues around the provision of continuity and sustainability. The description provided by these public sector officials is similar to those of utility companies where attention was focused on the challenges around the public understanding of risk, the importance of key mitigation measures, and the challenges presented by the provision of continuity of service (and function). The narrative expressed by the community councillor proved to be quite distinct from other stakeholders and could be seen to reflect the "first aid" response requirements that are needed during an emergency.

The analysis of different stakeholder interpretations of community resilience (Table 4) suggests that there are multiple interpretations of resilience as a concept; this tended to reflect the experiences of the participants within the resilience community. These multiple frames of accounts, descriptions, and problem definitions may be challenging to capture in any one definition alone, especially given the spatial nature of hazards and the community response. Therefore, like Patel et al. (2017) and Walsh-Dilley and Wolford (2015), we argue that this diversity should be embraced as a way to better understand the processes underlying the implementation of community resilience. This highlights the multilevel nature of resilience as a policy construct as well as the challenges associated with differences in its definition. One line of agreement between all of these interpretations and accounts of community resilience is that they emphasize the prevention of existing and emergent disaster risks. This analysis also shows a high level of awareness of what community resilience means among the participants.

5.2 The Problems of Risk Assessment within the Domain of Community Resilience

The study also sought to understand the complexities inherent in the processes of risk assessment. Several key themes were identified by the respondents including: the nature of the assessment processes and systems; issues around gaps in communication and the associated constraints on information flows and their subsequent influence

on decision making; differences in group assessments of needs (especially in the various stages of a particular incident); and the linked issues involved in risk prioritization and funding. The following sections explore each of these issues in more detail.

5.2.1 Cost/Benefit Assessment for Risk Prioritization

Two of the four community council members drew attention to the current community risk appraisal system. One issue that was highlighted concerns the tensions between the various layers of government within the region and the challenges associated with the issues of cost–benefit analysis for issues related to flood mitigation:

> One issue they [regional council] always refer to is the cost–benefit analysis for flooding. They keep saying that they cannot do anything unless the cost–benefit analysis is greater than one. However, our feeling is that the way the costs are worked out is ridiculously low. I mean, much of this town were commercial buildings. Commercial buildings are, you know, valued at even less than domestic buildings, the way they work the cost out. Moreover, then, this is all based on a document done by DEFRA [Department for the Environment, Food and Rural Affairs], and some university down south, years ago. And everything is diluted down. I mean, they work out a value, and then divide it by an average annual amount. They divide it by a hundred, I mean, why do they do that, goodness only knows. Because if you have a mortgage, you cannot spread that over a hundred. And they say some ridiculous things in the document like they don't value the economic loss for shops very much because they say people can go to the next town and get their shopping there. (Community councillor #1)

Another community councillor highlighted the issue of cost–benefit analysis, expressing that there are practical difficulties when applied to rural communities:

> If you are an old age pensioner, you don't have a car, and you are in fuel poverty, and you cannot afford regular bus cost. So, it is utter nonsense to say that people can move around and do commercials elsewhere. (Community councillor #2)

The core concern is that many resilience development programs perceived as necessary by locals in rural communities are often not fully developed, due mainly to the appraisal system that gives priority to economic considerations with little attention to the specific nature of vulnerability facing the rural community. For example, elderly groups in rural communities often experience isolation and

suffer from declining health (often without effective local provision for their needs). This impacts on their economic and mobility capacities. Therefore, a holistic assessment of community resilience should take account of the nature of the probabilities and consequences associated with hazards within the local area, along with potential vulnerabilities, and the skills and capabilities of the population in terms of any contingency arrangements. If the approach to resilience within policy has a systems-based focus, then a consideration of the capabilities of the local population and their abilities to cope with a changing landscape of task demands would be a key element.

The issues enmeshed in the cost and benefit assessment matrix have been highlighted elsewhere in the literature. For example, Twigger-Ross (2005) has argued that the appraisal process, which is based on property values, increases the chances of urban areas to secure funding for flood defences over rural and remote areas. Where there are gaps between community needs and the centralized calculation of cost and benefit, there is the potential of putting enormous pressure on those areas of identified community need, where there may already be constrained resources; this has the potential to erode the development of community resilience at the local level. It may be that subsequent policy prioritisation of certain forms of hazard may contribute to structural inequalities between communities and also between various types of hazards. Given that Scotland has many rural communities, with different population characteristics, then further research is required to understand if this is a perceived or real issue. That research would also need to clearly articulate the potential for developing a national assessment framework relevant to the various communities and different hazard types.

5.2.2 Communication Gaps between Stakeholders

Some respondents raised concerns about communication gaps between stakeholders at both the regional and community level, as well as between policy and operations. For example, respondents argued that communications were a problem, but that the approach of some local authorities tended to be one of the key barriers:

> The local authorities and their inability to interact on the communications front, or put people up, or buy into the principles… We understand they have got so many other duties; it has been one of the single biggest weaknesses. (Representative of public agency #1)

At a more local level, the issue of communication was also of concern to community councils:

> We at the community council could not get a single bit of information out of the council, the district council, about what they are doing, about the flood, the flood schemes… we wrote and wrote and never got a proper answer. (Community councillor #1)

There do seem to be contradictions, however, in how representatives of local authorities viewed this communication between stakeholders. One respondent, for example, saw the communications process as generally excellent:

> I would say a very good working relationship because of the local plan district; we meet regularly with SEPA [Scottish Environment Protection Agency], Scottish Water and other local authorities in our [LRP]. They are three-monthly now, two-monthly, three-monthly, but there are other meetings going on. I think communication is really good. (Representatives of local authority #5)

Of course, this does not address the effectiveness of the information shared in these meetings or whether it is sufficient for effective decisions to be made. There are also issues of disagreement here between the various levels of governance and the associated agencies involved in developing community resilience. Again, this should be investigated elsewhere to see if this is a widespread or local issue.

5.2.3 Information Flow and Decision Making

Some other interviewees highlighted the issue of limited information flows, and this appears to have impacted on shared decision making both within, and between, community groups and local authorities (regional bodies). In part, this can be seen to contradict the earlier point about the frequency of meetings and suggests that those meetings are not seen as effective by some respondents. The constraints around information flows were seen mainly as a function of the regional layer being perceived as not welcoming involvement (or, perhaps, seen as interference) from other elements of government:

> My perception of the regional council is that they do not want interference from third parties. They see themselves as the only decision makers in the region. The difficulty that I have with this approach is that, as they are located in [XXX],[6] and therefore, 60 miles away from where things are happening here, they cannot possibly know what is needed in this community, unless someone tells them. Therefore, the

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[6] Name of community redacted to preserve study participant anonymity.

community council is crucial in this communication link. (Community council member #2)

While this could be seen as representatives of the community councils wanting a more prominent role in the resilience process, it does point to the nature of the possible fractures that can exist between the various layers of government. Another community council respondent observed that:

There is a great willingness; there is an eagerness to progress. I did sense some degree of territoriality. Each [stakeholder] defending their input, but they seem a bit prepared to work together. (Community council member #5)

Such willingness to collaborate was identified throughout this study, but so too was the perception of territoriality and the emergence of barriers to collaboration. Again, this could be seen as somewhat of a contradiction. Such perceptions have existed elsewhere in multi-agency partnerships and are often linked to issues around professional identities (Pate et al. 2010). Therefore, an intentional effort to improve information flow between the disparate groups is needed to promote community resilience, and progress is being made in this regard through the Scotland RRPs and LRPs arrangement.

5.2.4 Differences in Scientific Assessment Versus Local (Community) Assessment

Three of the nine participants at the local authority level pointed to differences in the assessment of hazards as being a key issue. One of the most detailed commentaries was as follows:

Recently, we went and had a meeting with the [XXX][7] Community Council… with the options that we thought. What our consultant looked at was just a desktop site visit exercise and looked at a whole range of options, which may reduce flood risk. You know it might not stop flooding, but it would have some, sort of, small reduction… However, if it goes to a public enquiry that could make it longer, you know. But we took the approach although [the consultancy company] had done an assessment and had basically come up with things that may work… we met with Community Council and elected members and said, well these are all of the options that can be used and have been used elsewhere and have helped elsewhere, and we all look at this as a broad brush, sort of, appraisal. We had that meeting; we had 19

options. After that meeting, through that and talking to residents in [the regional community] and the Community Council that list went up to 24 because they were looking at different things. (Local government official #2)

In this particular context, for example, members of the community focused on a different set of issues based on their local knowledge of the environment and blamed forestry management processes for the December 2015 flooding in their community. Members of the community believed that small branches from fallen trees in the upper catchment of the forest were washed into the river and then carried down to the lower catchment areas. Subsequently, this debris acted as a dam, forcing the river to deviate from its normal flow path. The main concern of members of this community was that the government-commissioned hazard assessment did not cover the upper catchment area where the flooding problem could be better controlled but was focused mainly on the lower river catchment area where the flooding was likely to occur. This is a common problem within the crisis management field, where the focus is on the response rather than the causal factors (Smith 1990).

Differences between scientific assessment and local assessment of hazards create tensions that may lead to resistance to the acceptance of those hazards within the policy implementation process, especially from within local communities (Neville and Weinthal 2016). Identifying stakeholders' concerns, and drawing on their different expertise, might serve to reduce disagreement about what hazards are prepared for and what resources are put towards their mitigation.

Previous work has highlighted the prominence of a top-down and technocratic approach to the management of weather-related disasters, despite the importance of local factors in shaping the impact of such events (Wisner et al. 2012). A related issue concerns the role of local knowledge relative to that provided by more traditional scientific bodies (Wynne 1996). Such prevailing top-down and technocratic approaches, combined with compartmentalized thinking within the government, has significant implications for shared decision making, transparency, and trust in a multi-stakeholder relationship. Thus, like Tiepolo and Braccio (2017), we argue for better integration of all types of (local and scientific) expertise and knowledge through, for example, public engagement, to improve collaboration and learning between the different stakeholder groups in building community resilience (Gimenez et al. 2017).

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[7] Name of community redacted to preserve study participant anonymity.

5.2.5 Competing Priorities, Risk Prioritization, and Funding

Local authority officials pointed to challenges presented by limited government resources in the face of many competing priorities. For example, one respondent argued that:

> The biggest problem we have got, and there will be other authorities, [is] finances. So even if you've got the resources, the government sets aside a certain amount of money for flood prevention schemes, but if every council in Scotland is looking to do flood prevention schemes, there is not enough money to go around to fund them all. (Local authority official #5)

Inevitably, the issues of austerity may have played a role in shaping more recent views on this issue but there remains a challenge around providing resources for low-probability events because policymakers will not perceive these as being of immediate concern. The prioritization of responses to different forms of hazard within that broader funding envelope was also seen to be an issue. For instance, there was the suggestion that there was too much emphasis on security concerns (associated with the perceived rise in terrorist activities) and that this was given priority over issues of environmental safety. As one respondent put it:

> We need to be very careful that we are not just focusing on the impact of risk, but that we are also looking at the likelihood. Because you talk about terrorism, and the impact of that is huge, it is absolutely massive. And they understand that. But the likelihood of it. And the likelihood of it affecting a great number of people is quite small. Whereas, flooding, in certain parts of Scotland, you know, is absolutely massive. … Probably, 80 percent of what I do in the Council is around counter-terrorism. So that 80 percent of my job is around that… So, you know, I think the likelihood scoring need to be taken into account when we think about funding. (Local government official #7)

This particular challenge is in line with an observation by 't Hart (2013, p. 109) who says "security crises generate higher levels of fear and outrage than safety crises, and thus a greater risk of policy overreaction." Given the demands to reduce annual budgets, governments are pressured to meet community resilience task demands against competing priorities. While security-related hazards are fundamental to public health and safety, care should be taken not to undervalue or neglect other areas of disaster risk in terms of potential implications of insufficient resources at the community level when dealing with a broader range of hazard types.

The lack of a specific mandate for community resilience at the regional level also emerged as a challenge. According to one local authority official:

> There is a statutory instrument that came about in 2004, the Civil Contingencies Act, that was translated in Scotland as the contingency planning Scotland regulation in 2005 on which [there] are six duties [placed] on the category one responders generally, and a seventh duty for the local authorities' responders. So there are 32 local authority responders in Scotland that have a seventh additional duty. That duty is to promote business continuity. I think that part of the statutory instrument can be amended or improved and adapted that could put a duty on local authorities to promote community resilience in the same way that we have to promote business continuity. (Local authority official #9)

The official noted that local authorities have to promote business continuity, which transcends community resilience duty. The particular region, like others, has a range of risk-related issues and, therefore, cannot respond to the needs of every individual community entirely in every circumstance. Existing policies therefore need to be reviewed to determine their suitability for addressing community resilience.

5.3 Limits Stakeholders Face Locally in Building Community Resilience

The study also explored the limits that the various stakeholders face locally, and these are seen as essential factors in determining the processes of community resilience building. Themes that emerged were underresourcing at a grassroots level and the difficulties around public communication.

5.3.1 Grassroots Resources

Three of the four members of the community council group referred to the problem of little, or no, funding for community-level work. Instead, there is a tendency to rely on the goodwill of community groups, typically volunteers, to meet the local task demands. One councillor captured this view by observing that:

> If we want to do something, the individuals who make up the community council, either have to take the money directly out of their pocket or plead with the regional council for funding. Now, our funds, from a [our] point of view, is about £700 a year. And from that, we are supposed to do everything. It is just impossible. (Community councillor #1)

Another respondent also echoed this sense of isolation:

> We are on our own really most of the time. It is easy when we get an alert, but we do not get anyone from the big companies funded by the government to say have you got such and such or anything like that and what do you need. They rely on me and [another community councillor] to do it. That is what they rely on and because you have a social conscience and you are a community councillor you do. You want to make sure that you have all the people that are going to be involved in it, and you do it at your own cost. (Community councillor #4)

If small and rural communities have little or no access to the required resources to meet local task demands, and other more resourced and endowed communities do, this can cause structural inequalities between the different types of communities. More isolated regions can be severely disadvantaged.

5.3.2 Difficulties Around Public Communication

There were also concerns raised about communication with public groups. In particular, this relates to the public acceptability of the hazards faced, access to information, trust, the language used to encode the emergency messages, and the ability of public groups to decode the message. Again, this is a long-established issue (Irwin et al. 1996; Smith and McCloskey 1998). For example, the community council respondents observed that:

> Many of the public do not fully comprehend the risks involved; they do not comprehend the liabilities. They assume that the council is fully responsible for any damage caused by flooding. They fail to accept or understand that the council, under the Act that we have mentioned, is liable only to their property that means, council-owned property, such as the roads, the wall, and any services. (Community council member #2)

Along with issues involved in mitigation and recovery, a problem was seen around the prehazard awareness of risk:

> There is the need to have an understanding of what people's sort of attitude to risk is. Because if people do not see themselves as being immediately at threat from something, it is quite difficult to…[manage with sufficient sensitivity or] you can run the risk of scaring people. (Government official #2)

This balance between warning and informing has proved to be a crucial issue in the generation of hazard awareness, the limitations of the probabilities associated with those hazards, and the development of effective mitigation strategies. These issues will invariably have implications for the raising of awareness amongst populations that are deemed to be at-risk:

> If you are dealing with a group of people, the biggest thing is that a lot of them don't accept that they've got a problem, and that's the hardest thing, but the more data that we can collect, the more studies, the more information we have, the more accurate that information is, the more we can get these people on board. (Representatives of local authority #5)

This issue is likely to remain a significant factor in the development of community resilience despite extensive research in the area of risk communication (Fischhoff 2011; Anderson 2012; Irwin 2015). Therefore, community resilience efforts require an intentional and focused effort towards community education and awareness building and clarification of responsibilities.

6 Conclusion

When considering policy approaches to enhancing community resilience to natural hazards, it is vital to take account of the social, cultural, and environmental contexts. This study investigated the social dimensions of disaster risk by examining the challenges that are encountered in a multi-stakeholder approach to building community resilience. This largely related to two specific broad issues:

1. Structural issues concerned with the hazard assessment process and associated policy regulations—in particular, the nature of the cost–benefit matrix and its role in shaping risk perception, communication, and disaster risk investment—has implications for different community types (for example, rural and urban). Other related issues concern scientific and community assessments of risk, policy risk prioritization of resources across different hazards types, and the challenges of managing the hazards (especially at the community level) within the context of limited resources; and

2. Challenges related to the communication of uncertainty and the management of information flows affect interaction between both the different levels of governance and with the public. For example, perceived territoriality and its implications for coproduced outcomes between stakeholders creates difficulties in communicating policy and planning for low-probability events. Therefore, government and practitioner efforts need to be directed towards addressing these social elements of disaster risk reduction.

We suggest that these findings should be taken as indicative and we propose three areas for further community resilience research:

1. To identify the potential for developing a national assessment framework relevant to Scotland's various types of communities and the different hazard types faced by each community;

2. To ascertain the value of risk assessment structures and processes to disaster risk reduction and the extent to which risk assessment structures and processes may be contributing to structural inequalities between communities and among policy responses to various types of hazards. Such a study should consider the extent to which "participatory budgeting" can enhance the process of risk prioritization and disaster investment decisions; and

3. To examine why risk communication in disaster management continues to be an issue despite extensive research in the area. This research should identify potential barriers to learning that exist within heterogeneous groups involved in disaster risk management and perhaps, explore how these barriers might be overcome

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