Editorial

Working with communities on disaster risk research: reflections from cross-disciplinary practice

Disaster risk research is a broad canvas, drawing on a diverse palette of disciplines and increasingly seeking to blend them. One of the strongest drivers for such integration is the desire to work in ways that place people and their needs at the centre of the research endeavour. Readers of this journal will be familiar with the arguments that we find wholly compelling to make research relevant to the priorities of those most affected by disasters, to understand and reflect the interconnected nature of episodic and everyday hazards that many people face, and to strive for genuine impact 'on the ground' that matches both needs and capacities of those who live with risk [see e.g. 1,2,3,4]. Together these generate what are now well-recognised epistemological and ethical rationales for researchers across disciplines to engage directly with at-risk individuals and communities: concerns, moreover, that lie at the centre of the ethical initiative recently established within the international research community 'Priorities, Values and Relationships: A Disaster Studies Accord' https://www.radixonline.org/manifesto-accord [see also 5].

But what does that mean for researchers and communities, particularly when for many of the former it is likely to ask them to cross epistemological boundaries, and for many of the latter it entails a blurring of the distinction between expert/lay knowledges and conceptions of mutual 'authority' with which they may not be familiar? How should the many challenges that this process poses be approached?

The discussion here builds on a reflective analysis undertaken as part of the 'Risk at the Margins'[1] project. The analysis drew on a series of semi-structured interviews conducted by the lead author (who, for transparency, is a social scientist), plus the exchanges between participants at three workshops designed to draw out lessons from practice. This reflective group consisted of the 6 authors and 11 other researchers: an international group of 10 women and 7 men, most now based in the UK but including members of institutions in Nepal, Trinidad and South Africa, and with disciplines spanning natural sciences, engineering, social sciences and humanities. All of the group have field experience of working at local level with communities on disaster risk research and hazards monitoring, and most have worked in interdisciplinary teams on multiple projects at this scale.

Since the arguments for community engagement in disaster risk reduction (DRR) are well-rehearsed across disciplines [e.g. 6,7,8,9], in this article we focus more on the research process, presenting a series of reflections and lessons from field experience as a shared activity that can, should, and now commonly does, cross disciplinary boundaries. The perspectives assembled in this editorial are drawn from collective experiences of this group about what tends not to work in community engagement and what we perceive can make it more effective (recognising that any such process has flaws – see below - and that it is next to impossible, and most likely arrogant, to point to examples of unalloyed success). Through this account, we aim to draw attention to the incentives for diverse researchers to engage this way, the barriers, and how we can enable those who wish to 'stay in their disciplinary lane' to do so and still contribute meaningfully to a project that evolves through grassroots collaboration. This, we

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argue, does not degrade the research endeavour: instead, making the questions we ask more relevant to needs on the ground can, more often than not, open up new, insightful and stimulating lines of enquiry.

Principles: working with the 'lived experience' of risk

Central to this discussion is a recognition not just of the value, but of the urgency, of rooting research in the local context, at the level at which most hazards are experienced, suffered, resisted, managed, coped with and recovered from [see e.g. 10,11,12,13]. What does it mean to work in this way? According to the researchers interviewed, this means thinking about the type, scale, location, multiplicity and intersection of hazards, about who is affected and how, and working out what questions to answer - based on how closely they address what matters to those places, communities and people experiencing risk.

Both practitioners and researchers advocate for making activities 'people-centred' or 'needs-centred' in approach [9,14]. This refers to basing enquiry and applied research around the risk concerns, priorities and associated needs of people who directly face its consequences: crafting research to help provide what people at the sharp end of risk need, and want, to manage their problem. Essential in this is recognition of the endogeneity of risk, meaning that vulnerability to hazards arises from within, rather than outside, society. Such a conceptualization poses risk reduction as an issue of rights and social justice [15,16].

It also, we would argue, indicates a need to shift the rationale or starting-point of enquiry about risk to make it more 'outcome-oriented'. In overly-simple terms, this could be expressed as shifting focus from understanding 'precisely what happened' to understanding 'why the impacts occurred as they did'? Arguably, it also leads more directly to the central DRR question 'what can be done to reduce impacts'? That should include tackling both proximal and root causes of risk [17,18], including social and political changes to reduce vulnerability as well as technical interventions focused on reducing exposure [16,19].

If this sounds like 'social science' territory alone, please note that we and our interviewees definitely do not see it that way. Such an approach is firmly applicable across all disciplines of hazards/disasters research, and is already being championed by physical and social scientists alike. In hazards science and engineering science, for example, this can mean turning the initial focus from analysing generative mechanisms of specific hazards to understanding how the effects and impacts of hazards arise, including the cumulative effects of multiple or recurrent hazards [20,21]. Such an outcome-oriented start-point also poses interesting questions for hazards monitoring and the modelling of risk [see e.g. 22,23,24]. On what timescale can we detect or forecast change in mechanisms that lead to potential hazards? How does what is scientifically possible map on to the timescales and needs of decision-making? If hazards are difficult to forecast, what other tools can we develop that draw on interdisciplinary understandings of exposure and vulnerability to help plan for the next event?

Fundamentally, though, if the ethos is to develop applied research that aims to reduce the overall risk experienced by hazard-prone communities, that means *we* (as cross-disciplinary researchers) have to first ask how it can help address the challenges *they* face, whether it arises through change in hazard monitoring, DRR policy, capacities, practices, behaviour or in the power to effect more fundamental change in the social and environmental roots of risk. That means actively engaging with communities at-risk, not simply as the objects of research in conventional social science, but as active participants, moving beyond *we* and *they* in shaping the content, process and outputs of enquiry [25] – again, an argument that is increasingly being recognised within physical sciences as well as within the social sciences and humanities.

Community engagement, of course, takes many forms in research, from conventional elicitation of responses to externally-generated questions to more collaborative, co-production processes. In essence, co-production refers to the collaborative production of knowledge between stakeholders – typically, in this field, between risk researchers (seen as the conventional producers of knowledge) and those who either live with risk or are charged with managing risk [26]. The normative goals of co-production

include tailoring knowledge to decision support needs, bringing scientific and local knowledge together, facilitating social learning and recognizing and utilizing marginalised knowledges [13,27,28]. Within disaster research, as in many applied fields, community engagement in the process of gathering data is now commonly articulated in terms of 'citizen science', which similarly can take many forms, featuring different degrees of involvement and organisation of citizens [29,30]. Many are limited to data collation by citizens, but, as several interviewees emphasised, some extend into a more collaborative co-production model involving citizens asking questions themselves or undertaking joint analysis. In rare cases citizen science has taken the form of 'action research' - defined, designed and conducted primarily by communities [30].

Challenges and opportunities

Undertaking the deeper forms of engagement noted above presents considerable challenges to conventional approaches to research, but also, we argue, opens new (and, yes, exciting) opportunities to those researchers ready to take such steps.

A primary challenge is that it usually requires researchers to operate responsively – with the willingness and capability to respond and adapt creatively to this encounter with the lived situation of risk [6,15]. One common pitfall in community-level research that was noted by some interviewees was the tendency to enter into research interaction with untested assumptions about what is needed and appropriate. Often assumptions about needs on the ground are not based on evidence drawn from the local context – and ensuring this relevance can be especially difficult in a short-term project with minimal lead time. But being seen to have a flexible mindset and readiness to modify as appropriate can greatly help build relationships and trust between communities and researchers. That means challenging preconceptions, being prepared to listen and prepared to modify, and sometimes being prepared to try out novel ideas to match what emerges as important on the ground.

It also means challenging preconceptions around expertise: countering ideas commonly held by lay people (especially more marginalised groups) that external experts will deliver solutions, or indeed that solutions are actually available, and instead moving more explicitly toward the co-production of knowledge. For example, even if there is a primary focus on one major form of risk, it is important to try to understand how it interacts with that from other hazards, and how it fits into the day-to-day challenges of those who experience it. This may include understanding what motivates or forces people to remain relatively exposed to the hazard, and to then seek to work out how science might help them to be safe. The key point here is that each participant brings their own form of expert knowledge and it is that confluence of information flows, or 'circulation of expertise' [25], that forms the foundation of defining what could be done.

However, it does not necessarily mean researchers being completely open to influence – there must always be critical reflection, and a recognition that 'not everything goes'. People without specialist training cannot be expected to recognise and prioritise all the factors that science suggests can contribute to hazard generation. Equally, individuals and social groups have their own interests and biases, and the priorities of the vociferous ones may not align with those of more reticent or side-lined community members [31,32]. Yet, with patience, trust and mutual respect, it is feasible to work to overcome initial differences between research teams and communities – differences in conceptions of risk and in priorities for action that might otherwise be seen as barriers. This should not, and with the application of creative flexibility, need not compromise on the delivery of insightful and impactful work [25]. What might help perhaps is having the resolve and confidence to make a clear case to research funders of the value of modifying research plans, if that is necessary.

As hinted above, in all this it is important to retain a constructively critical perspective on the participatory process [19]. Interviewees emphasised that advocacy over the value of co-production needs to go hand-in-hand with critical reflection: recognition of its potential pitfalls and limitations. One aspect that is cautioned against by some authors on co-production is getting carried away by the normative goals of co-production without acknowledging the analytical dimensions of how interests

and power shape how knowledge is created, for whom and why [28]. Public participation in knowledge exchange for decision processes will not be sustained unless participants feel they have genuine influence, and that participation is not viewed as box-ticking [26]. However, participatory processes are inevitably bound up in relations of power, and almost never fully inclusive. Some argue that we need to acknowledge and be open about this imperfection – and then, effectively, 'move on': freed up to create and value opportunities for participation in diverse and often experimental ways [see 33].

And a key point that emerged from the interviews that informed this article is that working across disciplines, bringing interdisciplinarity into the engagements with communities, can actively facilitate this opening up of research. Creating opportunity within a research team to see the connections as well as boundaries between disciplines, automatically creates space for flexibility and responsiveness of approach. For example, interviewees from natural sciences have built on participatory research work with communities on disaster impacts to improve the parameterization, relevance and application of landslide and lahar modelling. Equally, it was felt that a dialogue with communities on the cumulative impacts to them of multiple forms of risk, enabled social scientists to reframe their thinking around neglected, but socially important, aspects of hazards such as how to establish acceptable thresholds for triggering evacuations. Simply in terms of the process of engagement, bringing different academic expertise sets and values into discussions with communities has tended to enrich the exchange, and, we feel, generate greater mutual trust.

Perspectives on the process

Insights from the researcher interviews on experiences of working with communities on hazards and risk complement many key points made in literature on the broader topic of community participation about how to foster effective engagement. We present the key messages here:

- Working with communities should be, and increasingly is, a cross-disciplinary (and often interdisciplinary) endeavour, drawing complementary strengths and energies from natural and social sciences, engineering and humanities. But it poses many challenges and requires careful thought and genuine commitment.
- Researchers need to work hard and creatively to nurture interest, curiosity and trust, and to make people feel that they will be welcome in the process. Researchers need to be reflexive of how they are viewed by people (including who they are seen to be working with) and how that shapes what people do and say. From the outset, it is also important to be clear and honest about objectives and the likely outputs, in order not to create damagingly false expectations.
- Working effectively with communities means developing an understanding of what forms of interaction are likely to be appropriate – culturally and socially. It means thinking through how to make project outputs genuinely and widely accessible, and likely to be utilised at this scale. Innovation that is kick-started by expression of need initiated by (not through feedback from) communities tends to work best over time. But the response to demand has to be balanced – conveying that something requested is not possible or feasible is an important component of mutual respect.
- It is also prudent to be cautious about community-level capacities in terms of time and resource to work on all risk problems, and to be critical about how and under what circumstances the more devolved forms of citizen science could or should take prominence. And citizens setting the research agenda may not always be appropriate – as some steps in the causal chain they might not prioritise. However, if shared goals can be created, neither should the exciting potential of co-production and citizen science be too readily dismissed (on the grounds that it is inherently challenging).
- Another key consideration is recognising the heterogeneity within communities, thinking through who to work with, and actively finding ways to extend participation and maximise representation of social difference. This is especially important in that those most vulnerable to hazards are quite likely to be those most difficult to reach without concerted effort. But

vulnerability does not always map directly on to poverty and identifying the most vulnerable groups requires time on the ground.

- However, community involvement will, almost always in practice, mean working largely through motivated individuals and encouraging their curiosity. And so key considerations are assessing who they are and who they represent, and having confidence that they are capable of engaging others and making a community-wide difference. For some participatory goals, that may be enough.

- Just as important, and in keeping with the trust and commitment shown by communities that actively engage, is setting in place a mechanism to sustain the gains made through research and applied work. Sustainability of community activity generally has to come through some form of local institutionalisation (which can be informal or formal). In many ways, this can be the most challenging aspect of community involvement, especially in research work, which conventionally is time-limited by project cycles.

- But the legacy need not only be the continuation of a specific activity. Just as valuable can be the broader role of strengthening community capacities to self-organise for action and to negotiate with external agencies for support. Facilitating active community involvement in a project can be designed so as to forge links with authorities, and to help change mindsets about community capacities and community-based initiatives.

Being open, curious, critical

We conclude with a broader reflection on the value and potential of working in genuinely collaborative ways with communities in risk research. What we are building to through the analysis of principles, challenges and lessons above is an argument that the most meaningful and effective research interaction with at-risk communities goes much further than simply involving communities in creating and using data. Much has been written in the political ecology of disasters and related fields about modes and practices of co-production, and it is useful to trace the connections back to the ideas of Paulo Freire in viewing modes of engagement as a dialogical process. In a recent contribution, de Albuquerque and de Almeida [34] link emancipatory ideals of citizen science with Freire's notions of critical pedagogy, which challenges the idea of an independent objectivity held by educators – or in this case researchers – and praises in its place characteristics of openness and curiosity that can enable a genuine appreciation of other viewpoints on the realities of life and its challenges. But such a dialogue can entail also discomfort for a researcher trained to view problems in a certain way, and it can take experience to develop a sense of security in the face of what might otherwise be seen as a risky encounter that exposes differences. Another crucial concept these authors draw from Freire is explicit recognition of the asymmetry of roles/relations between researchers and citizens [34]. Difference and inequality in these relationships are inherent, and suggesting otherwise can be self-defeating and undermine trust. An illusion that there is equality in roles and equity in participatory processes will usually rapidly become transparent to the participants [35,36]. What we argue that is key instead is having the willingness to find open, mutually-valuing, creative and productive ways to work with that difference. It is such a commitment that enables community engagement to move beyond tokenism and façade to something much more meaningful and beneficial to both communities and researchers.

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Roger Few*
School of International Development, University of East Anglia,
Norwich Research Park, Norwich NR2 4BJ, United Kingdom
Email address: r.few@uea.ac.uk

Teresa Armijos Burneo
School of International Development, University of East Anglia

Jenni Barclay
School of Environmental Sciences, University of East Anglia

Katie Oven
Department of Geography and Environmental Sciences, Northumbria University

Jeremy Phillips
School of Earth Sciences, University of Bristol

Nick Rosser
Department of Geography, Durham University