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Climate change, marginalised communities and considered debate within Scotland's climate emergency.

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Introduction and context

The announcement by the Scottish Government of a global climate emergency in May 2019, and the selection of Glasgow as the host city for the main COP26 talks in November 2021 (delayed by one year from 2020 due to the COVID-19 pandemic), has brought the impact of climate change in Scotland into sharp focus. Globally, both COVID-19 and the increasing frequency and intensity of extreme weather events show that the most marginal members of society are likely to be disproportionately affected by shocks and stresses. 'Marginalised' in this sense may refer to geographical remoteness, which can increase dependency on natural resources and limit opportunities for diversification in response to environmental stresses and shocks (Muir et al, 2014; Pearce et al, 2012), or to social and economic disadvantage, which can constrain ability to withstand pressures and act in response (Lindley et al., 2011). The imperative to address marginality is justified by the Scottish Government's Advisory Group on Economic Recovery, which argues that the development of a 'wellbeing economy' post-COVID must include "an unequivocal focus on climate change, fair work, diversity, and equality. Diversity - in all its aspects - is not simply a moral issue; there is conclusive evidence that diversity of thinking leads to better outcomes" (Scottish Government - Cabinet Secretary for Economy, Fair Work and Culture, 2020: 1).

This short communication contributes to the discussion around climate change and marginality by clarifying existing strengths and open issues for an evidence-driven response to climate change by and for marginalised communities in Scotland. As above, we understand marginality in this context to mean either geographical remoteness or social and economic disadvantage, both of which have been argued to shape particular patterns of climate vulnerability in Scotland (Kazmierczak et al, 2015; Muir et al, 2014). We combine insights from recent scholarship on climate change and society in Scotland and analogous contexts with outcomes from an expert workshop[1] held in June 2019, which brought participants from academia (spanning the natural and social sciences), government and the third sector to discuss the role of learned societies and reasoned debate in supporting marginalised communities within Scotland's climate emergency. The points raised in this short communication reflect the outcomes of the discussions during the workshop, with reference to recent and ongoing work by Scotland-based researchers and practitioners working on issues of climate change which may support transdisciplinary activity by and for marginalised communities.

[1] The workshop was convened by the Royal Society of Edinburgh's Young Academy of Scotland, in conjunction with the Royal Society of Edinburgh – Ministry of Science and Technology, Taiwan (RSE-MOST) Joint Research Project 'Spatial relationship of heat hazard and socio-economic characteristics in urban neighbourhoods – the role of green infrastructure'.

Climate change and marginalised communities: knowledge needs and gaps

The first knowledge gap identified through the expert workshop, and supported by existing Scotland-based research, is the linkage between knowledge, policy and action. At a global level, increasing attention is being given to the 'political economy' of knowledge on climate change, and to the possibility that robust research will not automatically find its way into policy spheres (Acuto et al, 2018; Lo & Chen, 2019). Workshop participants believed that in a Scottish context, there is likewise a need to ensure that key policy messages from technically-led research are drawn out, and to be clear from the outset about which divisions or levels of the policy process are being targeted. Critical within this is more clarity on who exactly – in terms of institutions, departments and individuals – is meant by the term 'policymaker', and also 'practitioner'. Given the intricacies of the science-policy interface outlined above, the linkage between reasoned, evidence-driven debate on one hand, and engagement and action on the other, ought to be planned out in order to identify points where scholarly knowledge can have the greatest leverage on the policy process. An exemplar in this regard may be the pilot political economy mapping undertaken by E3G and Climate Ready Clyde for climate resilience in the Glasgow City Region, which sought to understand different stakeholders involved and their relative priorities (E3G/Climate Ready Clyde, 2020). Separate to this, it was suggested within the workshop that specific attention ought to be paid to the links between climate change and other pressing societal issues, such as education and public health. Understanding such linkages is significant in a Scottish context, as prior research in the country has shown links between the quality of the surrounding environment and health outcomes (Pearce et al, 2016) and between societal deprivation and climate risk (Kazmierczak et al., 2015).

The second knowledge gap reflects the international trend towards transdisciplinary research – that is, research involving communities and stakeholders as full collaborators across the entire research process, in which research questions and outcomes are co-produced between academics and wider society (Vanderlinden et al., 2020). Participants agreed that in Scotland too, where possible, communities ought to be asked what is important to them as a starting point for research, with projects preferably led by communities (see e.g. Baxter (2019) on the value of community planning partnerships for climate resilience). Universities can act as sites for such cross-disciplinary work. The integration of arts and humanities practitioners with scientists from the outset of a project, and the role of social sciences in bringing out the consequences of technical work, are crucial components of transdisciplinary working. Again, in a marine energy context in particular, Scotland has good examples of how arts and humanities research can powerfully present local lived experiences to scientists and policymakers (Kerr et al., 2014; Watts, 2018).

A third knowledge gap is around meaningful communication. Public awareness of climate issues, especially climate justice, is an important basis to encourage policy- and decision-making. Providing guidance or training to journalists and media around climate change may support this, as could capacity-building among scholars in communicating widely for action. Access to a fuller suite of visuals, videos and communication tools can also facilitate communication. For example, researchers at the James Hutton Institute and Robert Gordon University are developing approaches to combine flood simulation and virtual reality tools for flood risk management (Wang et al, 2019); whereas in the US context, New York Times

journalists have used GIS tools to powerfully illustrate how historical racial discrimination practices affect heat risk in the present day (Plumer & Popovic, 2020). Nonetheless, it is imperative that 'communication' goes further than the one-way communication of climate change science to encompass listening and dialogue. Indeed, communication issues are as relevant between scientists, and within transdisciplinary teams, as they are with wider society. In the context of marginalised communities, three critical issues identified by workshop participants are: visualising and narrating climate inequity; creating a 'neutral' language around climate change and poverty that does not inadvertently stigmatise those who are susceptible to harm; and engaging with communities in a manner which is not perceived as alienating or patronising.

Linked to the overarching issue of climate justice, ethical and moral issues are a fourth area of consideration. Scholars have an important role in communicating and challenging the constructs of climate justice in Scotland if thinking on climate change and marginalised communities are to become more specific and mature. Working towards this specificity and maturity may involve creating spaces and fora for challenging yet respectful discussions on societal processes which make some people more susceptible to climate risk than others. Scotland-based researchers are at the forefront of developing deliberative and participatory approaches to making decisions on a breadth of societal issues from renewable energy to participatory budgeting (Escobar & Elstub, 2017; Roberts & Escobar, 2015). These approaches give Scotland a strong basis for dialogue on the justice dimensions of climate action, where complicated decisions balancing a range of values and perspectives have to be made. Areas identified by workshop participants where these more nuanced and deliberative forms of debate may be required include how climate justice fits into new economic models; how inequalities play out for new and emerging climate risks such as heatwaves; and understanding Scotland's historical and international obligations for climate change (especially with regard to North Sea oil and gas production).

Areas of strength in Scotland

It is recognised that Scotland has a favourable government and legislative landscape for climate action benefitting marginalised groups. The second outcome of the Draft Scottish Climate Change Adaptation Programme 2, for example, states that "people in Scotland who are most vulnerable to climate change are able to adapt and climate justice is embedded in climate change adaptation policy" (Scottish Government, 2019: 36). Other national-level actions supporting marginalised groups include the Just Transition Commission, tasked with considering how Scotland's climate response can avoid intensifying existing inequalities or creating new ones (Just Transition Commission, 2020), and the increasing interest in a wellbeing economy (Scottish Government - Cabinet Secretary for Economy, Fair Work and Culture, 2020). It was suggested within the workshop that elements making these high-level initiatives effective include a progressive government and autonomous structures; the recognition and embedding of climate actions within public bodies; political support and strong legislation; and existing intermediary institutes capable of connecting governments and societies and spanning the science-policy interface. Scotland's place-making agenda (see the Place Standard tool at placestandard.scot) may be of particular value in supporting climate

responses for marginalised communities, given its links to climate change adaptation and its partnership ethos in managing complexity.

Similarly, the knowledge and data currently available in Scotland provide a good starting point for generating actions. There are, for example, recent and ongoing research projects linking the physical and socio-economic drivers of risk to climate hazards including extreme heat (Majekodunmi et al, 2020); flooding (Philip et al, 2018); and coastal erosion (Hansom et al, 2017). This research base opens up opportunities to unpack systemic risks and imagine long-term transitions. Yet the breadth of available data can lack cohesion beyond these rigorous and valuable yet discrete studies, and data from communities themselves are under-represented. In the context of marginalised communities, more thought can be given to how available data may be utilised as a force for good to affect tangible and practical change.

Scotland is host to a number of ongoing climate justice focused projects that act as examples of good practice. Climate Ready Clyde is an initiative that supports climate change adaptation in the Glasgow City Region by developing an Adaptation Strategy and Action Plan, and supporting partners across the city region to act. As part of this process, Climate Ready Clyde undertook a comprehensive assessment of the climate risks and opportunities for the Glasgow City Region. In addition to technical reporting and an assessment of economic implications, the risk assessment considered how processes and actions can deliver climate justice by supporting those who are disproportionately affected by climate change risks due to socio-economic status, race, gender, or disability (Climate Ready Clyde, 2019). The Third Generation Project, a think-tank based at the University of St Andrews, has helped train the next generation of students through its work in climate justice curriculum development with Scottish schools (thirdgenerationproject.org). One recently-completed RSE-MOST Joint Research Project evaluates the role of green infrastructure in reducing risk from extreme heat in cities, helping to provide a better understanding of scientifically appropriate yet socially acceptable modes of climate adaptation via greening in Scottish and Taiwanese cities (Mabon et al., 2019). These examples are not exhaustive, but help to indicate the breadth of activity currently occurring and illustrate how issues relating to climate justice are being addressed in Scotland at present.

Areas of improvement in Scotland

One area of potential improvement identified within the workshop is in the relationship in Scotland between rhetoric and action on climate change. As outlined above, there are many favourable initiatives in Scotland in relation to climate justice, and Scotland enjoys a good external reputation when it comes to climate change action. It is critical, however, that this does not lead to internal complacency. There are opportunities but also challenges in building skills and knowledge around the merits of climate justice approaches for public institutions at local government levels (as identified by, for example, the E3G/Climate Ready Clyde (2020) political economy mapping for the Greater Clyde Region), which are important to address if rhetoric on climate justice at the government level is to be backed up with action. In rural areas in particular, climate justice can interplay with issues of land ownership and environmental conservation, issues that need to be considered holistically. The COVID-19 pandemic has served only to highlight the complex and inter-related challenges faced by Scotland's rural communities in responding to shocks and stresses (Kulu & Dorey, 2020), which may not be

readily apparent in more urban-focused climate justice research and practice to date. A key theme emerging from the workshop was that rhetoric on participation also needs to ensure a real voice for marginalised communities in adaptation and resilience-building challenges. This reflects observations in recent Scotland-based empirical research that 'the community' is never homogeneous, and that attention ought to be paid to who is driving climate and sustainability agendas in rural areas (Creamer et al, 2019).

The second area for improvement concerns the question of who is involved in discussion and action on climate change in marginalised communities, and how to negotiate the complexity of the topic in a way that does not reproduce existing inequalities in ability to participate. An emerging concern from the workshop was that the large numbers of people involved in different components of the climate justice puzzle in Scotland, spread across different sectors, can make it difficult to build an overall picture of the initiatives that are underway. This indeed is borne out by the breadth of sectors and disciplinary approaches cited in this communication. A danger of such complexity is that engagement may be closed down to existing networks, and/or to those already favourably disposed towards climate justice thinking. Previous Scotland-based scholarship has indeed identified the importance of fairness in process and in recognition of different identities and experiences as part of a just climate response, as much as the ultimate distribution of risks and benefits (Aitken et al, 2016).

As such, there is an imperative to (a) find out who is already engaged, and in what capacity; (b) consider widening the discussion to those who are not already engaged, and (c) reflect on how to open up potentially 'closed' networks who may be key to shaping policy agendas. There are in Scotland a breadth of iterative approaches and toolkits aimed at facilitating richer and more diverse partnerships and collaboration, including the Cultural Adaptations initiative to embed artists within sustainability organisations (https://www.culturaladaptations.com/); collaborative working with community planning groups (e.g. Baxter, 2019); and the Climate Ready Places toolkit produced by Adaptation Scotland (https://adaptationscotland.org.uk/climatereadyplaces/?v=5). It is important to remember, however, that whilst digital approaches to collaboration can remove some barriers, they can also be expensive – meaning only financially able people may be able to access technologies. Moreover, a short-term focus (especially with local authorities needing to focus on short-term budget balance) can deflect away from key long-term priorities, for individuals, communities, public bodies and leaders.

Concluding points

Based on the above, four key messages of relevance for those involved in addressing the climate emergency as it affects marginalised communities in Scotland can be observed from the workshop and the existing scholarship in Scotland to which it speaks. The first is that the agenda for incorporating justice within climate change responses is comparatively strong in Scotland, with a positive aspiration for making things better. Yet it is crucial that this favourable context does not lead to complacency within Scotland when translating climate justice rhetoric into action. The second is that Scotland has a strong policy and legislative framework and rich knowledge and data resources. These provide a favourable basis for an evidence-informed approach to climate justice. Nonetheless, the third key message is that

evidence-driven action must not tend towards technocratic approaches to climate adaptation. There remains a need to consider how communities and less empowered stakeholders can take the lead on setting research and action agendas. The fourth key message is that the complexity of climate justice – and indeed of climate change itself – requires new yet meaningful modes of working across academic disciplines and all sectors of society.

It is important not to be overly critical of efforts to respond to climate change within Scotland, and to acknowledge the many areas of strength which have been identified within this short communication. However, both the COVID-19 pandemic and the ever-intensifying climate emergency remind us that within evidence-driven research, policy and practice, there is an imperative in Scotland to keep a focus on the most marginal members of society, who may be affected first and hardest but have the most limited capacity to respond.

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