# Translation at the research–policy interface: risk-based decision-making for net zero

Mark Workman, Erik Mackie, Irena Connon, Emily Shuckburgh and **Alyssa Gilbert** examine why this is necessary and how it can enrich climate action and decision-making.

As climate negotiators recover in the aftermath of COP27 – the latest conference of the parties (COP) – it is clearer than ever that more focus is urgently needed into how improved support can enhance policy design and decision-making on climate risk. While the body of scientific evidence on climate change grows increasingly larger, climate policy in the UK and globally continues to fall short of achieving the required reductions in greenhouse gas emissions. Rather than simply calling for more research into the climate risk problem itself, there is an urgent need to improve knowledge about how to implement and operationalise climate-related decisions.

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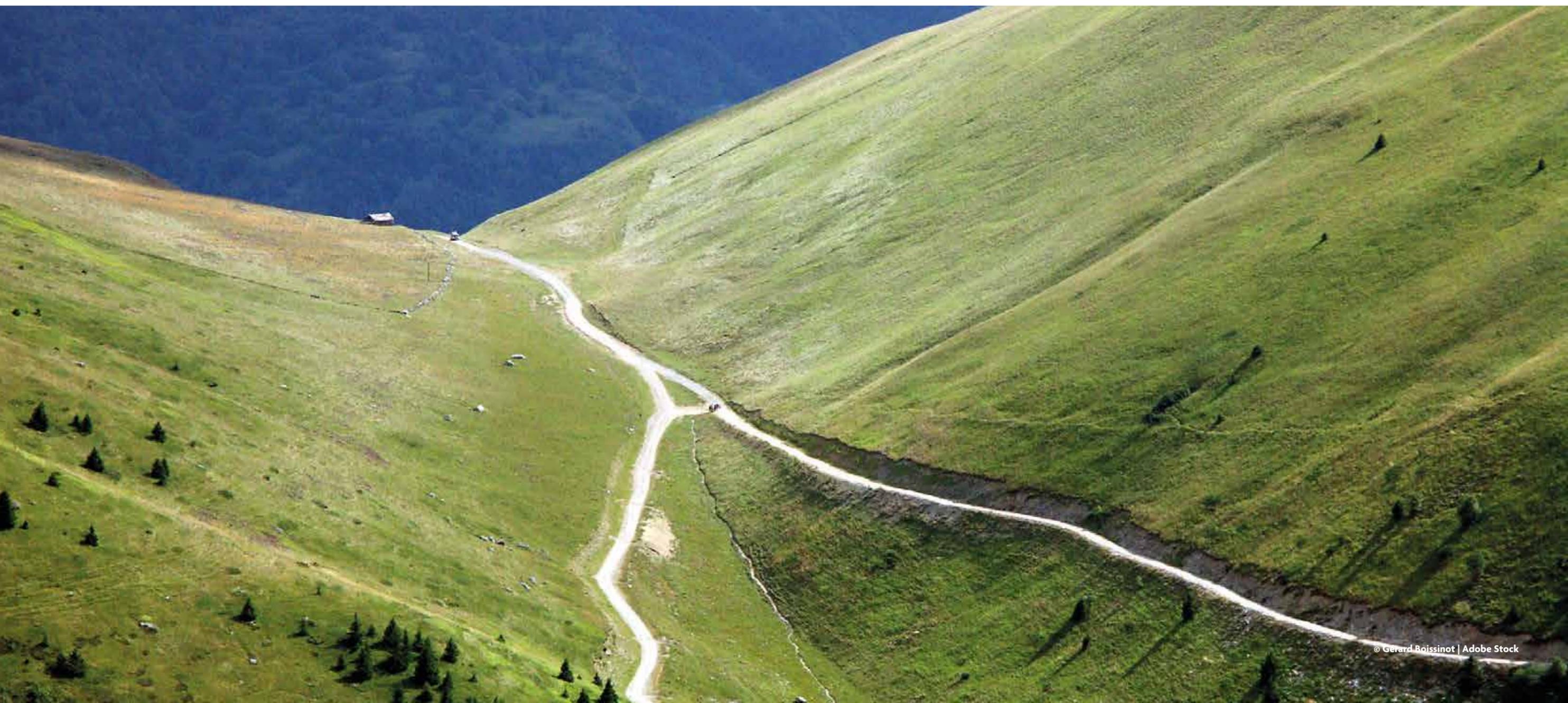
PERCEPTION OF RISK

The impacts of climate change are evident, with extreme weather events increasing in frequency and severity. Scientifically informed warnings about the future risks posed by climate change are becoming clearer.[1] However, current climate policy is deficient and will not stave off the risks posed by climate change, many of which pose a high risk to life.[2] Existing national climate policies and pledges set us on course for a 2.7C temperature increase above pre-industrial levels – well above the Paris Agreement ambition of limiting warming to 1.5C.[3] This brings into focus the mechanisms by which scientific research on climate risk, emissions reduction and achieving net zero are being translated into policy and action.

This is especially salient following the considerable role that science played in the UK's response to the Covid-19 pandemic, where the translation timeframe for new research was reduced from 17 years to a matter of days.[4] There are clear differences in political and societal willingness to readily adopt scientific research relative to the immediacy of the risk's impacts. The pandemic response demonstrated that when risks occur in real time substantially greater willingness to quickly adopt scientific insight occurs compared to when risks unwind over longer timescales.[5]

Climate change-related impacts would make the risks faced during the pandemic pale into insignificance.[1] Yet they remain largely perceived as an anticipated future outcome that will be thrust upon future generations.

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But the need for immediate anticipatory action to realise net zero means that urgent policy action here and now is essential, as the climate will take decades if not centuries to stabilise from the emissions that have already been discharged since the start of the Industrial Revolution. This contrasts heavily with the months it took for the effects of decisions made during the pandemic to manifest.[6]

However, the effects of climate change *are* happening now, in real time. Alarmingly, the extent of carbon dioxide emissions already released amounts to such a level that the global atmospheric system is starting to behave in ways that scientists are struggling to anticipate through modelling tools – suggesting that the effects could be greater and happen sooner than predicted.[7] Therefore, revisiting the question of how we can improve the translation of climate risk analysis for better policy decision-making is timely.

THE RESEARCH–POLICY RELATIONSHIP

At present, research exploring how climate risk analysis is integrated into policy decision-making remains finite, subject to limited funding[8] and relatively poorly understood.[9] The concept of policy paradigms[10] highlights that, rather than a clear-cut distinction between analytical and decision-making functions in policy design, policy-making is shaped by divergent agendas and values. The role of co-production and boundary work (operating at the boundary between science and politics to shape the discourse) around science and policy in conferring legitimacy on analytical policy
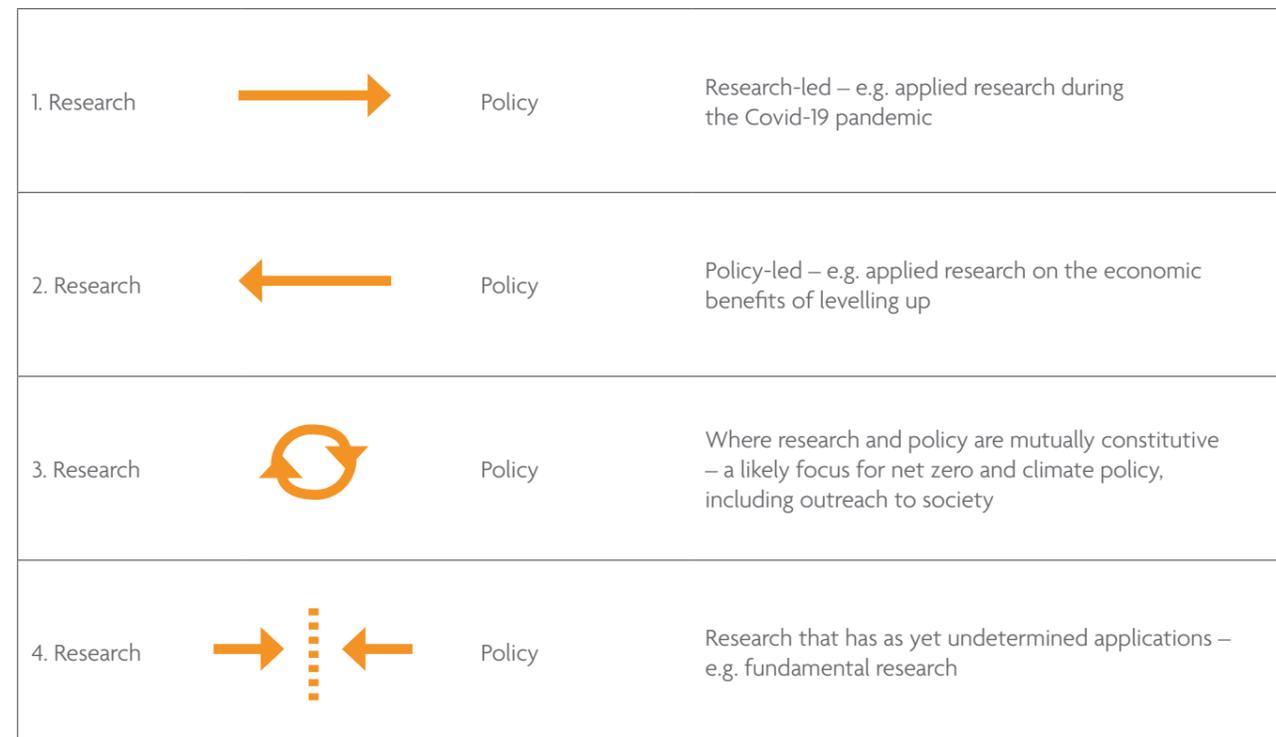
▲　Figure 1. Research–policy relation categories with examples. (Source: Based on Boswell and Smith[12])

inputs is well documented.[11] Furthermore, according to Boswell and Smith[12] current science–policy relations emphasise perceived cultural differences between the scientific community[13] and policy-makers.[14] The distinction is emphasised by the fact that: 'Politics is not fundamentally preoccupied with what is true, but with what is relevant to securing power and producing collectively binding decisions.'[9]

The relational categories (see **Figure 1**) reflect how existing mechanisms for translating research into policy are heavily posited on a supply and demand construct. This applies in particular to categories 1, 2 and 4, and emphasises the need for better mutually constitutive research aligned with net zero and climate change to develop collectively binding decisions. In the UK, Impact Acceleration Accounts – strategic funding awards that are applied for only following completion of a research programme – further entrench the notion that policy impact is an afterthought rather than an integrated, integral function of the research process. Other mechanisms – such as developing relationships and networks and undertaking internships, secondments and fellowships – highlight the need to better understand respective distinct cultures in a systemic rather than ad hoc fashion through the establishment of structures, whereby researchers and policy- and decision-makers engage in an ongoing dialogue as evidenced by category 3.[15]

IMPROVING TRANSLATION TO REDUCE RISK

A recent study by the UK Universities Climate Network examined the nature of the research–policy translational interface through a combination of literature review, case study assessment and input from policy workshops with stakeholders.[16] Issues explored included: why the plethora of climate risk assessments and decision-support tools available to decision-makers are not translating into effective policy action on climate risk; what the challenges, complexities and uncertainties associated with the translational process are; and how the research translation pipeline could be improved to achieve more effective decision-making.

Substantial synergies and alignment within the scientific and policy-making communities were found, which allows category 3 of the research–policy relationship to be better hardwired and potentially institutionalised. Researchers seek impact to re-shape the social world they describe. This implies that research–policy models to promote engagement with knowledge users do not have to result in the aforementioned cultural distinctions. Both researchers and policy-makers have a fundamental interest in securing societal buy-in and collectively binding decisions to address information gaps and market failures. Both recognise the role of societal stakeholders in providing the policy-enabling environment to 'legitimise' the actions of decision-makers to motivate action on climate change.
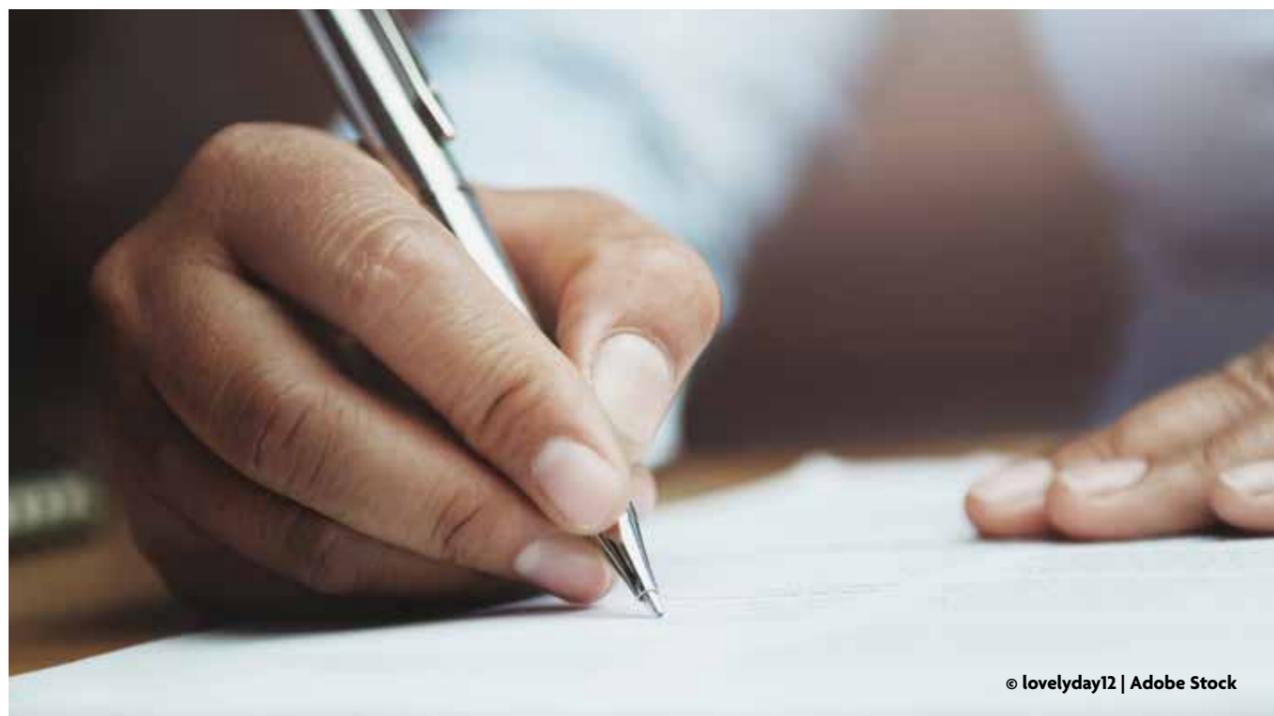
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The role of communicating climate risk, therefore, goes beyond the discrete end-of-process component of decision-making and policy design to which it is often relegated. There exists an increasing need for researchers and policy-makers to enable inclusive societal dialogue about pathways forward to achieve net zero and the trade-offs that need to be considered. Opening the discussion in this way would force societies to confront the disruptive reality that limiting global average warming to well below 2C, let alone 1.5C, is only achievable by making transformative changes throughout all elements of society, the impacts of which could be unequally distributed, thus making the inclusion of diverse stakeholders and viewpoints an imperative.

The study made three recommendations aimed at policy-makers and other stakeholders, including academic researchers and third-sector organisations.

1. Enhance collaboration. This refers to improving collaboration between decision-makers, policy-makers, analysts, researchers and other stakeholders in the co-development and co-design of operational climate risk assessments and policies. Specific effort must be given to unpacking the nuances of risk, uncertainty and complexity in system contexts to highlight how audience worldviews and the way decision-makers investigate the world can distort climate policy design and effectiveness, especially when system contexts are complex. There is a tendency for policy-makers, operational planners and the analytical community to think with perspectives that are often deterministic, optimised and technocentric, which blind decision-makers as to how to reconcile the management of uncertainty, complexity, non-linearity and emergence that prevail in managing climate risk in policy design. It is fundamental that we move beyond reductionist perspectives that characterise

problems as complicated rather than complex. Instead, the multiple technological disruptions simultaneously being stimulated within a highly interconnected and reflexive socio-economic system need to be recognised.

2. Identify research and capacity gaps. There are remaining gaps around climate risk decision-making under uncertainty and working with stakeholders across decision value chains can help to address them. The focus of much climate decision-support research is on developing modelling capability, despite this representing only a small part of the decision-making process. A more holistic approach to climate policy design and decision-making research should be operationalised: one that embraces deep uncertainty, adopts participatory approaches and enables climate communication and decision-making to exist in an iterative exchange with policy development rather than separate from it. The

role of many integrated components for decision-making also need to be better understood – ranging from the role of mixed methods[17,18] and exploratory modelling[19] to culture and psychology[20,21] in climate decision-making, and the role of narratives,[22] visualisation[23] and language[24] in conveying aspects of decision-making to different audiences.

3. Co-create effective translation mechanisms. These are required to better embed decision-support tools into policy and employ a participatory approach to ensure inclusion of diverse values and viewpoints. Developing climate policy by relying solely on expert knowledge in traditional elite-to-elite fora can lead to groupthink and a lack of insight as to what the disparate range of societal decision-makers consider important. A more inclusive approach is needed where participatory approaches allow multiple values to be considered. Although recent

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climate assemblies have calibrated the capacity for solution sets to be societally acceptable, these remain poorly connected to policy design and their effectiveness in generating more traction around issues relevant to net zero still needs to be assessed.[25] Despite a surge in activism amongst young people, youth participation in climate policy design remains limited. This has significant implications for climate justice, as younger generations will be most affected by the future impacts of policy decisions made today.

CONCLUSION
As the protracted and somewhat distant COP process testifies, more effective translation of climate risk analysis into policy is required. It is imperative that research and policy-making are better integrated through improved dialogue between researchers, policy-makers and society. We have ample evidence about the risks posed by climate change, but this evidence must translate into improved policy for climate action if we are to address the enormity of the climate risk challenge. Resources are not currently being targeted towards this aspect of the climate risk challenge and research timelines are not well matched to the needs of the policy-making community. If this

does not change, it is likely that the policy response to climate change enacted through the COP process will continue to lack the effectiveness required to achieve a climate-stable future. **ES**

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