Effective Communication on Local Adaptation: Considerations for Providers of Climate Change Advice and Support

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Highlights There is a reduction in adaptation action despite science continuing to produce actionable material. Climate change adaptation advice and support must be salient, credible and legitimate among other things.

Keywords Climate adaptation · Science-practice interface · Climate knowledge · Local action · Stakeholder engagement

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INTRODUCTION: ENSURING USER UPTAKE OF CLIMATE SCIENCE

Climate change is a global issue with impacts felt at the local level, where many solutions to climate risks are implemented (Howarth et al., 2021). Working at the climate adaptation, science-practice interface requires interaction and collaboration across scales, sectors and stakeholders to identify climate risks, potential solutions and decision points that provide opportunities to enhance adaptation. However, with scarce resources, skills and capacity, resilience and adaptation are seldom embedded in local climate action plans. In part, overcoming barriers that occur at the science-practice interface requires careful consideration of the credibility, salience and legitimacy of scientific knowledge.

This chapter explores the challenges that emerge in the science-practice interface and the extent to which the translation of climate science into action is enhanced or inhibited when it comes to adaptation action and building resilience. Through a case study exploring efforts to bridge the gap between national climate risk assessments and adaptation planning, we analyse how the balance of salience, credibility and legitimacy of knowledge is considered at the science-practice interface and discuss implications of this for local climate adaptation. There are a number of ways to examine the science-practice gap and to consider the barriers to uptake and implementation of robust adaptation processes. With calls for clearer and more useful scientific information (McNie, 2007), this gap is often presented as a communications problem, with scientists urged to communicate more effectively, simplify findings, engage proactively with users and find innovative routes to specific audiences (Bidwell et al., 2013; Hine et al., 2014; Lemos et al., 2012). However, scientists are often not trained in the art of science communication and meaningful engagement that enables mutual understanding of ‘real-world’ needs and the ability of science to meet them. In addition, potential users of scientific information often lack sufficient understanding about their adaptation evidence needs to communicate these effectively to scientists.

We need to understand the barriers and issues for decision-makers whose evidence requirements may vary widely, and there is a growing need to understand how to translate science more effectively into practice to inform decision-making at different scales. In this chapter, we explore how this translation can happen effectively, and in particular, we explore whether our established way of thinking about the science-practice gap

(placing the burden of communication on scientists) is helpful. Or alternatively, whether we need to rethink the emphasis and focus to enable a productive two-way conversation between science and practice.

THE EVOLVING LANDSCAPE OF LOCAL CLIMATE ADAPTATION IN THE UK

The recognition of the importance of climate change adaptation in the UK gathered momentum around the turn of the twenty-first century. From the outset, the need for science-to-practice engagement and communications to support local adaptation was recognised, and regional climate change partnerships (CCPs) were established in England to gather evidence and support risk assessments and adaptation by local authorities, businesses, communities and other actors. In 2008, the UK Climate Change Act enshrined adaptation in law, and from 2008 to 2010, local authorities were required to report against a national indicator (NI 188) on their preparations for a changing climate. To support this effort, the CCPs were given resource by government to boost coordination of knowledge sharing and collaboration. They worked closely with the UK Climate Impacts Programme (UKCIP), and later with the Environment Agency's Climate Ready support service, to turn the science into decision-support tools and resources to tailor advice and support according to specific audiences, ensuring research met real-world needs rather than just filling academic knowledge gaps. Examples of this activity include the dissemination and development of tools like UKCIP's Business Areas Climate Assessment Tool (BACLIAT) and Local Climate Impacts Profile (LCLIP); a Business Resilience Health Check; regional-level sector impacts studies and sector-specific adaptation guides; and national programmes of training and engagement for everyone from health sector practitioners to highways officers and planners—including a nationally-accredited qualification on business resilience. CCPs also worked with local and regional stakeholders to produce regional 'translations' of the first UK Climate Change Risk Assessment in 2012 and supported the production of local risk assessments informed by both of the national assessments.

The guiding principle behind all work on local climate adaptation was that it had to reflect the needs and priorities of the decision-makers and practitioners who would use it. A tool or resource might be generic, but it could be presented in a way that would be meaningful for the

audience and applicable to the practitioner's role or task. This meant a fair amount of stakeholder engagement—including relationship building, translation and understanding of context and priorities—that researchers do not often have the time or skill to achieve. However, since the withdrawal of NI 188 and the disbanding of most CCPs a few years later, there is a gap in the supply of locally-relevant evidence and the coordination of stakeholder engagement for awareness and capacity building. In recent years, the support for engagement and science-to-practice coordination has disappeared, but the need for it remains as urgent as ever. The UK's Climate Change Committee (CCC) has recognised this in their reports on the UK's progress on adaptation (CCC, 2021, 2019a). In preparation for the third UK Climate Change Risk Assessment (CCRA), the CCC commissioned a team led by current and former CCP coordinators to conduct a study of how to improve the CCRA's accessibility—and thus ensure that the National Adaptation Programme effectively addressed the country's main climate risks.

CASE STUDY: ASSESSING ACCESSIBILITY OF THE UK'S CLIMATE CHANGE RISK ASSESSMENT

The Climate Change Committee (CCC) is an independent statutory body established under the 2008 Climate Change Act to advise the UK and devolved governments on emissions targets and to report to Parliament on progress towards mitigating and adapting to climate change. In 2019, the CCC's Adaptation Committee commissioned a consortium led by Sustainability West Midlands (SWM) to lead a project to improve the accessibility of the UK third Climate Change Risk Assessment Evidence Report, due to be published in 2021 (CCC, 2019b). The aim of the project was also to 'provide the CCC with advice and products to improve the impact of the CCRA by enhancing its accessibility to its primary customers, which are UK Government departments, the devolved administrations and government-funded arm's length bodies' (p. 3). Whilst local government is not considered a primary customer, the CCC's efforts to improve the take-up of scientific evidence provide useful learning for efforts to promote adaptation at the local level. Evidence has shown that the first two CCRA's, published in 2012 and 2017, whilst demonstrating improvements, were difficult for government officials and stakeholders to access and use effectively (Howarth & Painter, 2016; Howarth et al., 2018). The third CCRA, as with the previous two, will

inform the subsequent National Adaptation Programme (NAP) produced by the Department for Food, Environment and Rural Affairs in 2023. Accessibility of the CCRA's products, an understanding of the context in which these will be received and used, is fundamental to an effective NAP and to building the UK's resilience to climate change impacts.

The project delivering this work is ongoing, and hence, we have focused our (thematic) analysis on the tender document used to commission it (see CCC, 2019b). We acknowledge therefore that the delivery of this work may differ from what was set out in the tender; nevertheless, we see this as a useful way to explore how the accessibility strategy of the CCRA3 Evidence Report was informed by the guidance provided for the commissioning of this research and whether this considered aspects of salience, credibility and legitimacy in the project aims.

We conducted this analysis using Cash et al. (2002)'s framework on credibility, salience and legitimacy. It suggests that the boundary between science and policy or science and practice is one of the barriers to effective uptake of scientific knowledge to inform decision-making. In order to overcome this, Cash et al. argue that evidence used to inform decision-making must be *credible* (e.g. authoritative, believable, trusted), *salient* (information relevant to decision-makers' decisions) and *legitimate* (information produced is unbiased and fair and considers the values and needs of different actors). The challenge with this, however, is that actors on either side of the science-practice boundary see and value credibility, salience and legitimacy differently. Consequently, in order for scientific knowledge to be taken up and connected to action, efforts to facilitate this must be simultaneously credible, salient and legitimate to all stakeholders involved (Kunseler et al., 2015). However, often credibility is the predominant focus and salience and legitimacy are given different, lesser weights and efforts to address one can enhance or dampen the efficacy and focus of the other attributes. For example, efforts to give more prominence to legitimacy of information can affect (negatively or positively) the extent to which it is salient to the audience in question. This framework has been used to explore similar processes assessing the usability and accessibility of climate change evidence (Howarth & Painter, 2016) and provides a useful and user-friendly way of analysing the CCC's tender document for its CCRA3 accessibility project.

Results of our analysis, using Cash et al.'s (2002) framework on salience, credibility and legitimacy criteria, are presented in Table 9.1. *Salience* of CCRA3 is addressed throughout the tender document with a

Table 9.1 Considerations for Cash et al.’s (2002) salience, credibility and legitimacy criteria in the CCC’s tender documentation (CCC, 2019b)

	<i>Example reference in tender document</i>
Salience For example, relevant to decision-makers’ decisions	‘Both Government and the CCC are therefore interested in understanding how CCRA2 was used by its primary customer group (UK Government departments, devolved administrations and arm’s length bodies), what the barriers were to obtaining the information required for different stakeholders to develop their plans, and how the summary materials should therefore be produced for CCRA3 to assist in improving its usability and impact as a resource for Government’ (Background section, p. 4) ‘The aim of this project is to help the CCC to present the CCRA3 Evidence Report in such a way as to best enable the Government, devolved administrations and arm’s length bodies to use the outputs effectively in their resulting national adaptation programmes’ (Aims and Objectives, p. 4)
Credibility For example, authoritative, believable, trusted	‘It is important for the CCRA to be carried out in a robust, independent and transparent way, and for all supporting evidence, assumptions and rationale to be provided’ (Background section, p. 3) ‘The CCC has limited budget/staff to undertake a major communications campaign in-house, and contractors will need to be mindful of this when formulating their recommendations’ (Challenges, p. 10) ‘All applicants will need to identify and propose arrangements for initial scrutiny and ongoing monitoring of ethical issues. The appropriate handling of ethical issues is part of the tender assessment exercise and proposals will be evaluated on this as part of the ‘addressing challenges and risks’ criterion’ (Ethics, p. 11)

(continued)

Table 9.1 (continued)

	<i>Example reference in tender document</i>
Legitimacy For example, unbiased, fair and considers values and needs of different actors	<p>‘Getting to the heart of the accessibility issue for CCRA3; this will include taking into account differing perspectives from different stakeholders and judging what outcomes would work best to improve the impact of CCRA3 for its main customer. Considerable knowledge and experience of communications best practice will be required’ (Challenges, p. 10)</p> <p>‘Understanding the perspectives of stakeholders sufficiently to work out what they need. This may be very simple materials rather than more innovative forms of communication. User needs must come before the desire for innovation or being ‘on trend’ in this project’ (Challenges, p. 10, text in bold emphasised in document)</p>

focus on the use of the report by its primary customer group (i.e. government) and the extent to which lessons on how previous CCRA3s were used to inform decision-making could help improve usability and impact of CCRA3. This is specifically addressed by capturing views of government officials and other stakeholders (business is given as an example) of barriers to uptake and use of CCRA3 1 and 2 Evidence Reports and supporting materials such as charts, diagrams and descriptions of the risks and opportunities. There is, however, no explicit mention of consulting stakeholders (government and others) as to what specifically they require to enable the effective use of these materials and any institutional, capacity, resource or knowledge barriers that will affect CCRA3 uptake. Nevertheless, stakeholders were consulted throughout the project via surveys, interviews and workshop sessions about what barriers and enablers they saw to the effective use of the CCRA materials. In addition, the selection of project outputs analyses (e.g. sector fact sheets, country summaries, new CCRA website) also supports a strong emphasis on salience.

The *credibility* of the work needed is emphasised strongly from the outset with a focus on robustness, independence and transparency. A

strong emphasis on learning from wider contexts emerges as does quality assurance, with open and regular communication between the awarded project consortium and the CCC. The robustness of the project is further enhanced by engagement between the consortium and other CCC-funded CCRA3-relevant activities to ensure consistency, alignment and ultimately trust in the outcomes and outputs. With a major output of the work being a communication strategy for CCRA3, the tender highlights the limitations of the CCC in-house team in terms of capacity, resource and skills, to deliver such strategy. Whilst this may be seen as calling into question the ability to deliver the recommendations set out by the project, we consider this to be a positive acknowledgement of existing gaps and a constructive way to ensure the delivery of the work takes this into consideration.

The *legitimacy* of the work is prominently reflected in the project. Acknowledging limitations of previous CCRA3s, the awarded consortium is expected to take seriously previous concerns as well as the needs and views of end-users to improve take-up of the findings of CCRA3. This speaks strongly to Cash et al.'s legitimacy criteria and prioritises this over a 'desire for innovation or being 'on trend' in this project' (p. 10). This is a requirement both in the outputs produced and in the method of working with government officials.

Credibility, salience and legitimacy are fairly well considered in the tender document and help shape and define what is expected. However, there is little to indicate how the project views the end result of the effort; that is, what success looks like and how this will address issues discussed above in regard to capacity of end-users to deliver on the recommendations made. In particular, a clear formulation of what the issue is, beyond simply improving communication and instead outlining clearly what issues exist for different decision-makers across different policy areas, levels and sectors, requires a sustained monitoring effort.

CONCLUDING REMARKS

By exploring the CCC's efforts to improve accessibility and uptake of the CCRA3 in the light of the salience, legitimacy and credibility framework, we seek to encourage more critical consideration and analysis of the way in which climate change science is taken up in practice to inform adaptation measures and resilience on the ground, including at the local level. We note, however, that communication alone is not the sole issue to consider,

and that the results of this accessibility project will not be known for a while. We also note that the main audience identified by the CCC for both this project and the CCRA3 is central government, despite an awareness that CCRA3 outputs will also be used to inform local adaptation and resilience.

The barriers to uptake considered as part of the CCRA3 accessibility project referred mainly to ongoing developments in the production of the CCRA3 visual and written outputs and government timelines, with little mention of the pressures and processes that may affect use, usability and accessibility of the CCRA3 products by end-users (and end-users beyond the primary customer group, particularly at the local level). Even where the best science and communication are in place, other barriers may exist. Organisations often lack critical capacity in terms of personnel within organisations to use the science (e.g. often there is nobody with climate change adaptation in their job description), and they may lack knowledge and skills to use the science (i.e. adaptation requires a different set of skills from many other environment-/climate-related roles like carbon mitigation or waste/circular economy) and of how climate change relates to a particular organisation's objectives and priorities; there is the perception of adaptation as an environmental issue with lesser importance; a lack of support from leadership can manifest in a lack of urgency and resources assigned to adaptation, and regulatory frameworks can also inhibit consideration of climate change or longer-term risks. Similarly, other policies and priorities often compete or conflict with climate change adaptation. Finally, the emphasis on a 'science first' approach to adaptation rather than a 'context-based' approach can lead to unnecessary and distracting confusion over the uncertainties of climate science.

The accessibility project meets the credibility, legitimacy and salience tests as set out by Cash et al., and as such could stand as a good example of how to consider or commission communication in the science-practice space. However, the results of this work remain to be seen and evaluated. The authors suggest that any future evaluation considers the role of other, non-communication-related barriers to uptake, namely capacity and the lack of an enabling environment.

Often the provision of science and evidence to inform practice is explored as are the gaps, challenges and barriers to 'using' scientific evidence. What is needed is a better and deeper understanding of where the relationship between science and practice breaks down and how this manifests at a local level where many climate adaptation solutions are

implemented. How science is communicated is only one of many challenges; there is also a need to recognise the range of other factors that act as barriers to take up.

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