

Enhancing climate science- a question of boundary work

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To the Editor- Extending the important debate on interactions between climate science and policy, Morecroft et al.ⁱ provide a useful view from those who advise policy-makers and environmental managers. Their point about turning policy into practice more often should be welcomed as part of a plan to communicate tangible examples of success, and good news stories, to policy-makers. This is particularly vital in light of Viner and Howarth's commentary in the same issueⁱⁱ, which highlighted the lack of practitioners' knowledge in IPCC reports.

In combination with the paper to which Morecroft et al. refer most prominentlyⁱⁱⁱ, both contributions warrant a careful unpacking of the concept of 'boundary work'. In the context of enhancing the impact of climate science, boundaries may briefly be described as 'socially constructed and negotiated borders between science and policy.'^{iv} Whilst seminal researchers in Science and Technology Studies (STS) originally tended to use boundary work in a defensive sense, where scientists keep out disciplines deemed to be pseudo-scientific^v, later STS scholars acknowledge the fluidity of a boundary, arguing that its position can be constructively coordinated^{vi}. Although not assessed in detail here, the concept of boundary work holds much resonance for climate scientists struggling to reconcile their role in policy negotiations. Morecroft et al. seem to argue for the maintenance of the scientific boundary, rigidly defending the traditions and methods of science against calls to be policy prescriptive. To keep the boundary between science and policy firmly in place, the authors suggest improving communication of science to non-experts, yet this is precisely what Rose contends is inadequate in his original article

Rather, Rose's commentary argued that policy-makers widely understand the threat of climate change, but find it difficult to forge a policy agenda purely based on this realisation in the midst of competing concerns. It promoted a constructive approach to boundary work; in other words, the article suggested moving beyond merely defending scientific and technical rigor (which of course remains important), and instead actively called for the

production of policy relevant science. In doing so, Rose was clear to point out that better communication of knowledge alone is rarely influential, as the relationship between science and policy is seldom linear.

STS scholars recognise that constructive boundary work might initially sit uncomfortably with scientists^{vii}, particularly those who consider that an inherent paradox results from an entrepreneurial effort to promote individual studies to the policy community^{viii}. Whilst acknowledging that there is a fine line between brokering, advocacy and being prescriptive^{ix}, this correspondence argues for a close engagement with the concept of boundary work from the scientific community. Further empirical testing and engagement with this topic will help illuminate more clearly what the role of the modern scientist should be in relation to policy formation, a question which has not been adequately answered thus far^x.

ⁱ Morecroft, M. et al. 2014 *Nature Climate Change* **4**: 842-843

ⁱⁱ Viner, D. and Howarth, C. 2014. *Nature Climate Change* **4**: 848-850

ⁱⁱⁱ Rose, D.C. 2014., *Nature Climate Change* **4**: 522-524

^{iv} Cash, D. et al. 2002. Salience, credibility, legitimacy and boundaries: Linking research, assessment, and decision-making, *Faculty Research Working Paper Series*, Cambridge, MA, USA, John F. Kennedy School of Government

^v Gieryn, T. 1983. *American Sociological Review* **48**: 781-795

^{vi} Bijker, W. E. et al. 2009. *The Paradox of Scientific Authority: The Role of Scientific Advice in Democracies*, The MIT press, Cambridge MA, London, England

^{vii} Jasanoff, S. 2013. The Science of Science Advice, pg 62-68 in Doubleday, R. and Wilsdon, J. (eds) *Future Directions for Scientific Advice in Whitehall*, available September 2014 at <http://www.csap.cam.ac.uk/media/uploads/files/1/fdsaw.pdf>

^{viii} Pullin, A.S. & Knight, T.M., 2012. *Environmental Evidence* **1**:15

^{ix} Spierenburg, M. 2012. *GAIA* **21/2**: 125 –134

^x Sutherland, W. et al. 2012. *PLoS ONE* 7(3): e31824. doi:10.1371/journal.pone.0031824