



Climate change: lived experience, policy and public action

Climate change

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5

Abstract

Purpose – The purpose of this paper is to explore the importance of lived experiences, as complementary knowledge to that provided by the sciences, for policy and intervention on climate change.

Design/methodology/approach – This conceptual paper draws on several strands within the context of climate change: knowledge and power; human engagement; the meaning of “lived experience” (and its association with “local/indigenous knowledge”); its capture through interdisciplinary and transdisciplinary inquiry; post-normal science; rationalist and public action approaches to policy and intervention. The paper combines these strands from their different literatures, previous work by the authors and interdisciplinary deliberation in a European climate change education project.

Findings – The case is made for taking account of lived experiences in climate change policy and intervention, and the dangers of not doing so. The paper, however, also identifies the challenge of establishing the validity of lived experience alongside forms of scientifically derived knowledge, and the practical challenge of capturing it in a form that is accessible to practitioners. It concludes by arguing that a public action approach to policy provides a better lens than the conventional rationalist approach to analyse the contested nature of climate science and the potential of lived experience to inform debates through active engagement.

Research limitations/implications – There has been no empirical study on climate change that addresses the research concerns. This would be necessary to forward the paper’s agenda.

Practical implications – The paper makes a case for formalising evidence that is based on lived experience in policy making and intervention, and the approach that is needed.

Originality/value – The work develops the concept of lived experience in the context of climate change. Its public action theory of knowledge provides a novel means of analysing and meeting the challenge of diverse knowledge on climate change.

Keywords Knowledge, Climate change, Policy, Climate science, Lived experience, Public action

Paper type Research paper

1. Introduction

This paper starts from the premise that lay rationalities of climate change, and related concepts such as local/indigenous knowledge, are born from the lived experiences of individuals and social groups. Lay rationalities are processes set within cultural, empirical and value beliefs within whose boundaries individuals and groups assess risks and make choices (e.g. to do nothing; mitigate; anticipate and adapt). This “all things considered” view within which climate change is understood and interpreted by lay people sometimes supports, sometimes conflicts available scientific evidence, and is banked for future reference in their lived experiences.

In previous work (Abbott and Wilson, 2012), the authors have defined lived experiences as evolved knowledge from:



International Journal of Climate
Change Strategies and Management
Vol. 6 No. 1, 2014
pp. 5-18
© Emerald Group Publishing Limited
1756-8692
DOI 10.1108/IJCCSM-04-2013-0040

- our individual and collective agency to reflect, engage with others and other knowledge, and act in response (drawing on Habermas, in Edgar (2006));
- our experiences of, and responses to, proximate impacts, events and influences, such as those that might be initiated by climate change; and
- the structures and power relations that define our socio-economic circumstances, livelihood opportunities and capacities for action.

As with lay rationalities and related concepts, lived experiences include practical knowledge gained over time of “what works” and conversely “what does not work”. What makes them simultaneously different from, and a source of, these other formulations is the recognition of:

- the dynamism and evolving nature of experiential knowledge through human engagement;
- the ways in which lived experiences are political as well as practical, being informed by interests of socio-economic circumstance and power relations; and
- most importantly, that lived experiences are not necessarily “local” to the site of investigation, in other words investigating scientists have lived experiences as well as the locals.

There is no doubt that knowledge of lived experiences is important for sustainability, in the sense that the latter is a social learning process that is driven by a vision of durability and resilience (Johnson and Wilson, 1999). This, however, is a somewhat abstract notion. The current paper, therefore, seeks to ground such knowledge as important for real-world policy-making and intervention on climate change. The integration of lived experience as an embedded part of the evidence base for climate change, however, faces three major challenges:

- (1) epistemological when considering lived experience alongside scientific knowledge;
- (2) conceptual in terms of how we conceptualise policy making and intervention; and
- (3) implementation in terms of capturing lived experience in a form that policy makers can use.

While there are many examples where contemporary policy making in environmental fields often does attempt to capture local knowledge through impact assessments, economic and social valuations and so forth, such attempts are by no means universal. Nor should local knowledge be confused with lived experience as already noted. In particular, local knowledge is invariably codified and incorporated as practical data, missing entirely the political and power dimensions that lived experiences would contribute. Moreover, local knowledge, particularly in developing countries, is not presented directly to policy makers as, say, physical scientists may present their knowledge, but is represented in this process by social scientists.

The paper proceeds as follows.

Section 2 describes the overall approach to our inquiry. Sections 3 and 4 comprise our findings. Section 3 makes the case for inclusion of lived experiences within rationalist

policy making on climate change. Section 4 reviews the methodological and epistemological (in relation to science) challenges for such inclusion.

Sections 5 and 6 aim to take the subject matter forward in the light of our findings. In this, they make a case for reconceptualising the role of knowledge in policy-making and intervention on climate-related challenges away from a rationalist towards a public action understanding, and discuss briefly the implications of such a move.

2. The overall approach to the inquiry

This paper is a “think-piece”. It is not, therefore, based on empirical research by the authors designed specifically to address its subject matter, although this in no way detracts from what the authors aim to achieve. “Think-pieces” are critical for knowledge. They challenge existing knowledge and provoke discussion, thus creating space for identifying new empirical research agendas.

The paper combines two general sources. First, it represents a critical reflection on what others have written on related subjects. Examples include empirical work on local/indigenous knowledge in the global south (while being wary that these are not the same as lived experience); interdisciplinary and transdisciplinary approaches to the “wicked problem” of climate change; post-normal science; policy and public action. We further refer to our development of the concept of the lived experience of climate change which draws on fundamental philosophical inquiries into the nature of communicative engagement (Habermas, 1990) and knowledge and power (Foucault, 1980). The concept is thoroughly investigated in our previous paper (Abbott and Wilson, 2012). In the current paper we do not elaborate further on it, beyond what is contained in Section 1 above.

We illustrate our inquiry at several points by referring in particular to two recent papers concerning the use of local/indigenous knowledge and social adaptation to climate change that have appeared, respectively, in the *International Journal of Climate Change Strategies and Management* (Derbile, 2013; Shaffril *et al.*, 2013).

Our second source comprises our deliberations with colleagues on the collaborative European Union-funded “lived experience of climate change” project 2009-2012, which created Masters curriculum that is designed to complement the usual science-based approach[1]. These colleagues and ourselves came together from nine higher education institutions across six European countries, and represented a wide range of natural science, engineering and social science disciplines.

3. Lived experience and rationalist policy making on climate change

The dominant rationalist approach to intervention on climate change is predicated on a linear process which starts with the scientific evidence that there is a problem. Thus, in this linear process, evidence of global warming and of projected bio-physical and socio-economic impacts drives policy, which in turn drives interventions. The principal body for drawing together the state-of-the-art scientific (natural and social) evidence is the United Nations Intergovernmental Panel on Climate Change (IPCC) that was set-up by the United Nations Environment Programme and the World Meteorological Organisation in 1988, and which has reported since through its periodic Assessment Reports. The IPCC’s 4th Assessment Report was published in 2007 and publication of the fifth is awaited in late 2014[2].

Within this rationalist, science-led approach, a strong claim can be made to include lived experiences as part of the evidence base for policy and intervention, for three reasons:

- (1) To avoid doing harm, in other words to avoid mistakes where a grasp of lived experience is fundamental to understanding the complexities of the context to which policy is to be applied. Nyukuri (2010) provides the example of East African Governments that took over protection of rainforests. One way they were able to do this was through the clean development mechanism of the Kyoto protocol, where forest protection (envisaged as being a key component of carbon capture) offset carbon-releasing development elsewhere. Such protection, however, has had a harmful effect on local communities who have depended on forest resources for their livelihoods. Providing these communities with the means to express their lived experiences could have avoided this situation and arrived at a more nuanced form of forest protection which achieved a “win-win” – for the forest dwellers (whose interest is in seeing their livelihoods preserved) and for climate change mitigation. Attention to lived experiences of such groups would have been time well-spent.
- (2) To demonstrate what is already being done “bottom-up” to adapt and mitigate through everyday innovations of individuals and groups. Poor people, especially in the south, who are vulnerable to climate change, respond rapidly to its impacts. They have no choice because their livelihoods and well-being depend on such responsive ability. Sometimes their response is not one that a national government would wish. For example, whole rural communities might abandon their way of life and migrate to the nearest city, generating a new set of problems both at their new and “home” locations, as has been recorded in coastal areas of Bangladesh after flooding. Many people, however, do not take this course of action, but remain and adapt to their changed circumstances. Examples in poor rural areas include selectively breeding seeds with climate variability resistance and building houses on stilts on the Pacific Islands to protect against floods. Other examples are found at the annual “Community-Based Adaptation Conference” which shares practices and ideas, and ensures that innovations, which would otherwise be unseen, are recorded. The conference alternates between sub-Saharan Africa and South Asia and is organised by the International Institute for Environment and Development[3].

In the private sector, businesses are likely to fail if they do not innovate. It is usually the case, however, that the public sector moves more slowly. Yet the poor cannot wait and innovation which integrates traditional knowledge with new techniques is critical for survival. This recently became apparent in the following example which was reported internationally in newspapers[4].

Sumant Kumar, a young farmer from the Nalanda district of India’s poorest state, Bihar. Unlike the Punjab, Bihar has not seen the benefits of a green revolution policy, yet Sumant grew an astonishing 22.4 tonnes of rice on one hectare of land. He made world news, challenging attempts at increasing yield by the Chinese scientist and “father of rice” Yuan Longping, the World-Bank and other renowned rice research institutions, as well as European and American seed companies that incorporate genetic modification. In what is labelled a “system of rice (or root) intensification” (SRI), the technique combines a “less is

more” innovation with a traditional-knowledge soil and is seen as one of the most significant developments in rice growing in the past 50 years. Simply put, under guidance from an NGO, Sumant nurtured and transplanted rice seedlings one by one when these were very young instead of the clumps of three to four that most rice growers do. They were also spaced in a larger 25 cm interval grid pattern to keep the soil drier (instead of traditional soggy soil), allowing for weeding around the plants and giving them space to spread roots. Simultaneously, Ravindra Kumar in a neighbouring village dramatically increased yields of wheat, and others have had similar success with potatoes, sugar cane, yams, tomatoes, garlic and aubergines.

In the face of population growth, hunger and impending crisis induced by climate change, it is not surprising that the Indian Government has plans to include SRI (and its other operational aspects) into policy very quickly. This is why it is so important to capture the everyday innovations which are taking place on the ground. It informs policy makers of what is possible and it invites them to tap into a wealth of creativity. It also invites policy to work with what is being done rather than possibly against it.

Demonstrating “bottom-up” practical adaptation and mitigation is the usual reason given in the literature for incorporating local or indigenous knowledge into rationalist policy making and intervention (Derbile, 2013). Its importance is also now taken on board in some quarters. For example, the International Union for Conservation of Nature and Natural Resources (IUCN, 2009) has developed an adaptive capacity framework on social adaptation to climate change to record and evaluate what is being done on the ground (Shaffril *et al.*, 2013).

- (3) For public acceptance and intervention legitimacy. This is less tangible than the other two reasons and has not generally been analysed in the literature, but it is arguably essential. Here, taking account of lived experiences highlights the potential for opposition by social groups to adaptation/mitigation intervention because of potential disruption with respect to their interests. Depending on the size and influence of such opposition, this is a recipe for policy retreats in the face of political struggle, the very thing that the rationalist approach with its technocratic foundation seeks to avoid. For example, at a macro-level, note the policy retreats on climate change in the face of global economic slowdown, where the mantra of growth and jobs has largely replaced “save the planet” as the major public concern. At a local level, witness the often strong public opposition to interventions, such as to the establishment of land-based wind farms in several European countries, again leading to retreats with respect to policy on wind energy. In high income countries generally, note again the opposition to attempts to persuade people to use private cars less and public transport more. In short, lived experience acts as a reality check on top-down policy and intervention that is driven by expert knowledge. Taking it into account forms a feedback loop to an otherwise linear process. More generally, listening to lived experiences relates to the “art of modern government” through knowing the population’s needs and wants, what Foucault (1979) termed “governmentality”.

4. Challenges to including lived experiences in policy and intervention

There are, however, problems associated with trying to incorporate lived experience into rationalist policy making and intervention. In this section we highlight and discuss two fundamental challenges.

4.1 The methodological challenge of lived experience

This first challenge arises because policy makers tend to prefer their evidence in the form of numbers. As Peter Adamson, the founding editor of the *New Internationalist Magazine* in 1973 who subsequently had a distinguished career with the United Nations Children's Fund (UNICEF), stated recently in an article celebrating the magazine's 40th birthday:

Statistics and measurement may seem abstract and lifeless. But their power should not be underestimated. Measurement guides policy, informs advocacy, makes possible transparency and accountability, and fuels media and public debate. Ultimately it is the choice of measures that is the clearest statement of aims and objectives (Adamson, 2013).

It is not surprising that policy makers may prefer quantitative data which is easier to digest. Numbers are a way of reducing complex factors embodied in evidence so that they are easily comprehensible and inform generalisations out of which policy and intervention may be specified. They inherently categorise and therefore simplify complex phenomena, such as human responses to climate change. It is clear, however, that policy requires much more than numbers alone for it to be seen as legitimate.

For policy legitimisation and the shaping of acceptable practices, voices of the people have to be heard directly, not through representation by others, as is evident in the recent history of women's and Black movements in the UK. Thus, qualitative data has become increasingly important in facilitating effective policies, decision making and practices for social issues such as health, education and criminal justice, all of which are influenced by citizen participation and encounters.

Lived experience evidence is also intrinsically qualitative. Nevertheless, taken in conjunction with any quantitative scientific climate change data, it can create a better understanding of discrepancies and/or convergence between scientists, policy makers and citizens.

A strong argument can be made that there are innumerable unique lived experiences and one cannot incorporate every one. It is not the case, however, that experiential evidence cannot be systematically addressed. For instance, social scientists have developed several models of an analytical framework (Ritchie and Lewis, 2003) and thematic networks approaches (Attride-Stirling, 2001). These go beyond the patterning of numbers to identifying the interconnectedness and power relationships that form the crux of social behaviour. This analytical capability is enhanced by the recent discourse on how to bring together data produced through the diversity within qualitative methodology (Noblit and Hare, 1988 (seminal paper)), and indeed synthesise it with quantitative evidence to produce a comparatively "whole" and systematic understanding, exemplified in medical studies for instance (Barnett-Page and Thomas, 2009). Meta-ethnography, as this synthesis is sometimes known, thus adds value to any complex analysis such as with climate change.

4.2 *Lived experience and the scientific basis of evidence*

While science reduces to numbers, lived experience is reductionist in a different way – it reduces to context, which might be that of a group, but equally might be personal context. Thus, although it is usually linked to global issues where lived experiences are to some extent shared by groups of people, it still cannot easily be generalised beyond that context. Additionally lived experience is characterised by its sheer diversity, and with diversity comes disagreement and contestation.

At root, lived experience is subjective, whereas the numbers that inform rationalist approaches to policy are based on “objective”, scientific evidence. Thus, the estimates of global warming, its causes and mechanisms, and its effects on climate are informed by the natural sciences, especially physics and meteorology. The bio-physical impacts of changing climate on animal (including human) and plant life are informed by the life sciences. The socio-economic consequences of these bio-physical impacts are informed by the social sciences, especially economics and the relative ease with which the discipline can be represented by numbers. This last is exemplified by the influential Stern Report into the economics of climate change, which was commissioned by the UK Government. Stern and his co-investigators estimated the cost to the world economy of doing nothing to mitigate climate change. This cost was expressed as a number range to take account of uncertainty in the economic assumptions, 5-20 per cent of world gross domestic product (Stern Review, 2006).

Because scientific enquiry is the usual source of evidence (and hence numbers) for rationalist policy making, it is understandable that assertions have been made to treat local/indigenous practical knowledge as a science (Derbile, 2013). It is also true that scientific investigation often (but not always) confirms local/indigenous knowledge on a subject. This does not, however, make local/indigenous knowledge, or lived experience as the source of such knowledge, a science and we should be wary of making assertions of this nature. Lived experience and its derivatives is a dynamic process of evolution, often over many years and generations. It is evolutionary, responding to events, where local/indigenous knowledge is one aspect of it that represents knowledge gained in practical use. It is not, however, generally purposeful or generated systematically.

In contrast, the sciences (natural and social) do represent purposeful, systematic approaches to inquiry in order to gain knowledge. They are often in relation to important subjects, and are bounded by the key concepts of those subjects. For example, the physics of climate change is fundamentally related to thermodynamics, while the economics is related fundamentally to markets (the aforementioned Stern Report referred to climate change as “market failure”). These and other key concepts make up the frameworks which give each science its basis for, and rigour of, inquiry. The frameworks, however, also define the boundaries and hence the limits of what can be known within that field of inquiry.

Thus, while lived experience is not a systematic process, it might be argued that it is a systemic one, where the boundary is one's life. Such a boundary is inherently broad and permeable through not being tied to any particular framework. In short, by refusing to conceptualise it as a science, lived experience is potentially liberating in terms of the insights it might provide. We should not, therefore, invite it to be judged by scientific criteria. It can stand its own ground as a complementary knowledge to that provided by the sciences.

Having made the point that lived experience (and its derivatives) is an approach to knowledge that is distinct from the sciences, we must not take the argument too far and reject all comparison, particularly when we investigate the use of both. Thus, we question the assumption of polarity in use between lived experience and scientific forms of knowledge on five grounds:

- (1) The sciences (and there are many) that provide the evidence for climate change operate in the real world, not in a laboratory where relevant variables can be carefully controlled. Science in the real world is never exact because, unlike in a laboratory, simple cause and effect cannot be established – there are too many variables influencing the situation at once. Thus, the natural science of climate and its biophysical impacts is inherently open to doubt, diverse interpretation, and, just as with lived experiences, contestation. If this is an issue for the natural sciences conducted away from the laboratory, it is even more of one for the social sciences. In addition to considering the biophysical impacts on human life, the social sciences have to consider geography, social stratification, forms of livelihood, human behaviour and so on in calculating the socio-economic consequences of climate change, all of which add to the complexity, diversity of knowledge and potential for contestation.
- (2) Climate science, in particular, establishes trends, and hence the likely future, in terms of global temperature rise, weather patterns and their biophysical and human impacts. In contrast, lived experience is an accumulation of past experience which can project into the near future, but not necessarily the distant future which is the horizon of many climate scientists. However, climate change impacts in the form of extreme weather variability (such as prolonged droughts and floods) are happening in the present globally, and with some severity in many parts of sub-Saharan Africa, while rising sea levels are already also having an impact on small Pacific Islands. In richer countries, interventions to adapt to and/or mitigate climate change have their own human impacts in the present. It is not true, therefore, that lived experiential knowledge does not embrace trends. These may be limited in time span compared with scientific predictions, but that simply points to the need for dialogue and complementarity between different kinds of knowledge.
- (3) The biophysical impacts of climate change as determined by the sciences can be just as context-specific as lived experiences. In fact, they partially inform the specificity of the latter. This is because climate change modifies what people experience on a daily basis – the weather. Patterns of weather, including extreme events, are themselves context-specific in their biophysical impacts such as droughts and floods, and it is not yet possible to predict on a local scale what weather event will happen where.
- (4) Lived experiences are “lay” experiences, but they should not be confused as applying only to “lay” people. Scientists too have lived experiences, where claims to setting them aside in the name of scientific objectivity are disingenuous to say the least. What scientists choose to measure and how they interpret results is always filtered through their pre-existing knowledge and predilections, informed by their own lived experiences, which only adds to the diversity of knowledge on climate change.

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- (5) A criticism of the subjectivity and context specificity of lived experience is that contending accounts may be seized upon by opposing political actors to support their interests, thus neutralising one another in the policy process. The same criticism is, however, also made of contested science, and much climate science falls into this category. Several decades ago, Dorothy Nelkin noted for planning decisions that it matters little that some knowledge might be more scientifically credible than other knowledge, but the very fact of dispute helps to neutralise competing claims (Nelkin, 1977).

We present these five grounds, not to denigrate either scientific enquiry or knowledge of lived experience, but to give both a sense of perspective and in so doing not raise expectations beyond what they can contribute. It is of note that the issues surrounding the ability of science to deal with complex real-world problems, of which climate change is a prime example, find their counterpart to lived experience in the notion of “post-normal science”, about which there is a significant literature. The argument here is that inquiry into such problems through standard scientific analysis involving controlled experimentation and abstract theory building reveals at best only a partial understanding. Instead, a complex systems approach is advocated, which recognises that any “system” is itself an intellectual construct and that human beings are embedded in their own systems. In other words, human subjectivity (and therefore partiality) becomes a factor in the knowledge generation project, although this need not be seen as a limitation. Echoing our claims that relatively unboundaried lived experience can be liberating in the knowledge it constructs, post-normal science scholars too consider that awareness of human subjectivity may enrich the analysis (Funtowicz and Ravetz, 2013).

5. From a rationalist to a public action approach on the use of knowledge in climate change policy making and intervention

The more we deconstruct the numbers that supposedly inform policy and intervention on climate change, the more we conclude that the problem lies less in the scientific evidence *per se*, or in the problematic of capturing lived experiences. Instead, we contend that the greater issue concerns the underlying assumptions of a rationalist approach to policy and intervention on climate change. Thus, we seek an alternative approach which acknowledges diversity and contestation of knowledge, inherently has to accommodate lived experiential knowledge, and fits better with how policy and intervention is made in actual practice, whether this be at international gatherings under the auspices of the United Nations or at a grounded, local level.

We refer to the alternative as a “public action” approach, after Mackintosh (1992), where policy is a continual social process of being made and-remade, rather than an expert-led prescription. It recognises that the scientific knowledge which results in the numbers of an evidence base is as contested as lived experiential knowledge, and that robust policy and intervention are constructed from the engagement of both. It further recognises that, yes, the science has to be robust, but so too has political acceptability and legitimacy of policy and intervention proposals. Nor does the public action approach claim to be easy. There are real issues of power at play, concerning whose knowledge counts, and the political use of contested knowledge to cancel evidence claims. However, we should also recognise that, despite the challenges, difference and diversity are

sources of social learning and new knowledge. We do not learn from being the same (Johnson and Wilson, 2009, pp. 65-86).

All actors within a policy process are informed by a knowledge base which is used to justify their respective positions. This knowledge base may overlap with those of other actors to the extent that a negotiating alliance is formed. For example, at an international level, the common negotiating position of the European Union countries is evident (Breitmeier and Otto, 2012). Equally, however, the knowledge bases of different actors may be in contention. This is why, in the words of Hulme (2009), we “disagree about climate change”.

At root, knowledge is a source of power, or attempts at power, for actors within a policy process. It is used both to promote policies and interventions, and to attempt to block them. The following is a topical example from the UK.

The UK Government is promoting strongly a renaissance of the nuclear power industry. This is partly for reasons of energy security, so that the UK is not dependent on major oil-producing countries for its energy needs. It is also, however, because nuclear power is claimed to be a “green” energy, as it does not release carbon dioxide or other greenhouse gases. Thus, it is considered a potentially significant contributor to climate change mitigation. There is a big problem however – what to do with the radioactive nuclear waste that is produced in the process, which has been described as the “Achilles heel” of the nuclear industry (Blowers and Sundqvist, 2010). One proposal that has received serious attention is to bury the waste under a mountain in the English Lake District. This, however, is a National Park, one of the most scenic areas in the UK, and on the provisional list of UNESCO World Heritage sites[5]. There is, therefore, strong opposition to the proposal where both proponents and opponents marshal scientific knowledge to support their respective cases. Proponents cite preliminary geological evidence that the rock is potentially safe for storing nuclear waste, opponents cite different geological evidence that it is not safe. Moving to a different science, proponents cite economic arguments that jobs will eventually be created in the nuclear industry on the deprived North-West coast of England (just to the West of the Lake District National Park), while opponents cite economic arguments that the Lake District Tourist Trade is worth a huge amount of money and that it will be adversely affected if the proposal goes ahead, thus losing jobs.

This example illustrates that, whatever side one takes in a policy dispute, scientific knowledge is called upon, in this case the sciences of geology and economics. Scientific knowledge, therefore, is hegemonic on all sides of the debate. The question then becomes, within a public action analysis, the extent to which lived experience has a role to play in this and similar, climate-related, policy disputes.

Such a question is impossible to answer with any certainty because, unlike scientific knowledge, lived experience is not generally codified. We can speculate that the scientists informing both sides of the dispute are informed by their lived experiences in their interpretations of the sciences of geology and economics as applied to this real-world situation away from the laboratory. We can also speculate reasonably that those who live in the deprived areas of the North-West coast of England have a longstanding commitment to the nuclear industry (the world’s first atomic power station was opened there in 1956) which they also see as their main hope for future prosperity. For many other people, however, both locally and nationally, their “lived experience” is of a beautiful, isolated place where one can remove oneself from the humdrum of daily life. The nearest we can find to a written, codified, expression of this experience is in a 2013 calendar, produced by

the *British National Newspaper, The Guardian*. The calendar's April page shows a photograph of the head of Ennerdale, the valley where the nuclear waste site would be installed if the proposal is approved. Towering above it is the snow-capped mountain of Great Gable, and in the foreground is Black Sail Hut, a solitary small building at the foot of the mountain, which once belonged to shepherds but is now a basic Youth Hostel. The caption below the photograph has been written by the summer caretaker of the hostel:

To be the first on Great Gable at dawn, or last to leave Pillar [another mountain high above the valley] at sunset; to drink tea outside the hut with only the sound of the river rushing by; or see the Milky Way at night: all these are common at Black Sail, but make a season there special.

Such sentiments do not constitute a science, nor can they be expressed in numbers. They almost certainly informed, however, the estimated 500 people who turned up in Ennerdale on an icy day in February 2013 to demonstrate against the proposal, and the 50,000 + who have signed a petition against the valley's use as a location for storing nuclear waste. 500, 50,000: these are extremely crude proxies for feelings felt, but a few days after this demonstration the municipal authority responsible for planning in the area decided not to continue with investigating the potential of the site for nuclear waste.

The point of this example is that lived experience is not impotent, especially if widely shared. Undoubtedly, also as in this example, other factors such as the science being in dispute and cancelling out its respective proponents, help. Lived experience is, however, a hidden source of power (it is not part of reports or referred to in debates) which makes it unruly, unlike the systematic processes for delivering the science. It thus makes the creation of public policy and intervention to greater or lesser degrees an unruly process, a political process, in that, despite rationalist appearances to the contrary, it does not develop systematically.

Alongside our public action view of policy, therefore, we have a public action view of knowledge which is used to support policy positions. We have described it above as a somewhat unruly, political process of disputed scientific evidence and oppositional lived experiences. Unruly processes (even where the degree of unruliness is quite minor as in our UK example above), however, tend to lead to polarisation of conflicting interests, where one party "wins" and another "loses".

Ultimately it is knowledge itself that is the loser through this polarisation because the opportunity to put diversity to constructive use has been lost. Can the process be made less unruly, therefore, by incorporating lived experiences at an early stage and consciously avoiding polarisation before it is too late? Possibly, but not in a notional sense of, say, hiring a consultancy firm to extract information from the public through, for example, a consultation, a survey or even a focus group session. Rather, there needs to be a fundamental shift from viewing knowledge, whether scientific or lived experiential, as something to extract and represent in the policy process, to viewing it as a process of generation through engagement between diverse scientific and lay actors. In other words, such a process would involve accepting that different lived experiences need to engage actively with the sciences as well as one another, and providing the space for this to happen.

6. Conclusion

In this paper, we have made the case that:

- Lived experience might be the source of, but is not to be reduced simply to local knowledge or similar formulations. It can be distinguished from these rather static formulations by its dynamism, its diverse proximate and broader socio-economic influences, its constant reinvention through engagement with other forms of knowledge, and by the fact that it is not necessarily “local” to the situation under investigation. As a result we argue that lived experience captures more fully how citizens feel about and articulate climate change.
- Lived experience of climate change is not oppositional to that provided by the sciences (physical and social), but complementary to them. It provides unique insights into innovations that take place in everyday lives to adapt to climate change, the political legitimacy of proposed interventions, and ways of avoiding interventions that are harmful to already vulnerable people.
- Many of the challenges of incorporating lived experiential knowledge into climate change policy debates are also applicable to the sciences, including the fact that scientists themselves have lived experiences which influence how they interpret their findings.

In conclusion, therefore, we reject fundamentally the notion that knowledge for policy making is produced in order for it to be extracted. We contend, rather, that it is only through engagement that we may break down the epistemological boundaries between different forms of knowledge, get to know what unites us as well as what divides us, and learn with as well as from each other (Wilson, 2006). It is important, moreover, not to fall into the trap of believing that this process is mainly a matter of disseminating and sharing information, especially scientific information to lay people (Shaffril, 2013). We reject this “knowledge deficit” model, preferring instead to create spaces of active engagement where different forms of knowledge inform discussion and debate, a process of what Habermas (1990) calls “communicative action”. In this process, tackling deprivation, maintaining the beauty and sense of remoteness of a mountain valley, and action to mitigate climate change need not be oppositional, although they remain political.

In our public action theory of knowledge, therefore, we take on board that policy making in practice is in fact a highly political process, and as such is more unruly than many policy makers would have us believe. In this unruly process, lived experiential knowledge plays an influential, if hidden part. If it is to become part of a more “ruly” process we have to find ways of institutionalising it and its engagement with other forms of knowledge. The concept of knowledge, or action learning, spaces is useful here (Johnson and Wilson, 2009, pp. 41-42), but how we might create them and populate them is beyond the scope of this paper.

This is the appropriate point at which to conclude the paper. While, as pointed out in the Introduction, there are many examples of using local knowledge, or similar formulations, in the policy process, we contend that they are all essentially extractive and therefore limited in what they deliver. Our lived experience concept combined with a public action approach to knowledge calls for a fundamental challenge to them, and their replacement by a communicative process. How we can enact, through for example knowledge spaces, such a fundamental shift in how we conceptualise the generation and use of knowledge in climate change policy processes, is the key question for future research.

Notes

1. For access to these modules, see any one of the following open educational resource sites: <http://labspace.open.ac.uk/course/view.php?id=8168>, www.opener.ou.nl/, <http://repositorioaberto.uab.pt/?locale=en>, <http://ocw.innova.uned.es/ocwuniversia/ciencias/climate-change-from-science-to-lived-experience>
2. www.ipcc.ch/
3. www.iied.org/cba7-seventh-international-conference-community-based-adaptation
4. Our account is taken from John Vidal in Bihar, India, *The Observer*, 16th February 2013.
5. UNESCO – United Nations Educational, Scientific and Cultural Organisation. For the list of UNESCO World Heritage sites, see: whc.unesco.org/Culture/WorldHeritageCentre/TheList

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