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Can *participatory emissions budgeting* help local authorities to tackle climate change?

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ABSTRACT

A lack of concerted action on the part of local authorities and their citizens to respond to climate change is argued to arise partly from a poor relationship between the two. Meanwhile, local authorities could have a significant impact on community-wide levels of greenhouse gas emissions because of their influence over many other actors, but have had limited success with orthodox voluntary behaviour change methods and hold back from stricter behaviour change interventions. Citizen participation may offer an effective means of improving understanding between citizens and government concerning climate change and, because it is inherently a dialogue, avoids many of the pitfalls of more orthodox attempts to effect behaviour change. Participatory budgeting is a form of citizen participation which seems well suited to the task in being quantitative, drawing a diverse audience and, when successfully run, engendering confidence amongst authority stakeholders. A variant of it, participatory emissions budgeting, would introduce the issue of climate change in a way that required citizens to trade off greenhouse gas emissions with wider policy goals. It may help citizens to appreciate the nature of the challenge and the role of local government in responding; this may in turn provide authority stakeholders with increased confidence in the scope to implement pro-environmental agendas without meeting significant resistance.

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Abbreviations: LA, local authority; PB, participatory budgeting; PEB, participatory emissions budgeting; PMCA, participatory multi-criteria analysis

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1. Introduction

There is now overwhelming scientific consensus that anthropogenic climate change poses very significant threats to humankind's future life on earth (Pittock, 2009). Estimates vary as to the global average temperature rise that can be endured and the maximal concentration of greenhouse gases in the atmosphere consistent with that rise (Rockström et al., 2009) but there is little disagreement amongst those who accept the reality of anthropogenic climate change that very major changes are needed in human behaviour in order to manage the risk.

This paper discusses the limited response to climate change on the part of local government and citizens alike and explores the possibility of using citizen participation (a tool normally employed to support public decision making) to overcome the apparent stasis.

2. Climate change, local government and citizens

2.1. National government response to climate change

The UK has led national governments in establishing its 2008 Climate Change Act (UK Government, 2008) which commits the government to reducing emissions of most greenhouse gases to 20 per cent of 1990 levels by 2050, with intermediate targets for 2025. Whether these targets are sufficiently exacting or not, they underline the need for dramatic change. And this prompts the question of where the change will come from.

The change could take many forms and, in connection with this, Malone (2009) analyses arguments concerning climate change across a range of media, identifying 11 broad “families”, six of which relate to responding in various ways, with themes that range from nurturing greater international agreement, via technical advances, to preparing for the need to adapt. The variety of areas in which change is argued for helpfully demonstrates the roles of both individual actors (consumers and producers) and institutions. Government, in particular, is seen as the source of treaties and trading systems designed to manage down emissions. But it can also be the facilitator of change at the individual level by influencing the actions of individuals and organisations. So, if the material consulted by Malone is representative, government has a major role to play, a point emphasised by the UK government itself in its Carbon Plan: “While the public sector represents only around 3% of the UK's greenhouse gas emissions, it has a responsibility to lead the way in reducing them” (UK Government, 2011, p. 54).

2.2. Potential role of local authorities

In the case of local authorities in particular, there seems considerable potential. They can in the first instance achieve reductions of greenhouse gas emissions emanating from their “own estate and operations” as the now defunct National Indicator 185 phrased it (Department of Energy and Climate Change, 2011). They have much to gain from reducing these emissions, both in terms of saving money (through reduced energy costs) and through reduced contributions as part of the CRC arrangements that attach a penalty to each tonne of greenhouse gases (GHG) emitted (Environment Agency, 2010). It seems reasonable to suppose that financial and other incentives for local authorities to reduce their footprints will only increase as secondary legislation is enacted to follow the Climate Change Act.

Local authorities can additionally employ a range of mechanisms to reduce the emissions of citizens and organisations based in their areas.

“The capacity [of a local authority] to influence carbon emissions derives from the fact that virtually every activity by a local authority will have some sort of impact on carbon emissions—either directly or through the influence or control it exerts on another person or organisation. And in many cases, it is only local authorities who carry out these activities. A local authority can therefore potentially take action to ensure that such influence is positive and beneficial, principally through integrating

consideration of carbon emission reduction objectives across its existing activities” (Centre for Sustainable Energy, 2007, p. 12).

There are numerous areas of influence available to local authorities. The Department for Business, Enterprise & Regulatory Reform (2007) offers eight categories external to the council’s own estate and operations: environment, planning, housing, transport, schools and education, social care, economic development and regeneration, and energy advice. And local authorities have considerable powers at their disposal in terms of regulation, charging, guidance/marketing and investment (current financial constraints notwithstanding) as recognised in the memorandum of understanding signed by the Department of Energy and Climate Change and the Local Government Group (since renamed Local Government Association) (Local Government Group & Department of Energy and Climate Change, 2011). These powers are set to increase in light of the granting to local authorities of a general power of competence under the Localism Act 2011 (Department for Communities and Local Government, 2011a).

2.3. *Potential influence of local authorities*

A number of assumptions need to be made in order to arrive at an estimate of the possible overall impact of local authority interventions aimed at mitigating climate change. One attempt, made in preparation for the introduction of National Indicator 186 (per capita reduction in CO₂ emissions in the local authority area), reached the following conclusion.

“The results show that many LAs in England could expect to achieve between 11% and 13% reduction in emissions compared to 2004 by 2010 and between 19% and 23% compared with 2004 emissions by 2020” (AEA Technology plc, 2008, p. 55).

Notwithstanding the uncertainties underlying these projections (and the fact that they relate only to CO₂ rather than the full basket of greenhouse gases), the contrast between the scale of these numbers and the three per cent quoted in the Carbon Plan helps to show that, though the local government sector may not itself be responsible for a large proportion of overall emissions, it appears to have the potential greatly to reduce emissions in general because of its influence over other actors.

This analysis merits further scrutiny because of the types of intervention that are considered in the analysis. In the report, three categories are formally identified on the basis of jurisdiction, ranging from measures that rest wholly with central government¹ (but that would affect community-level emissions), through national measures “but can be improved in performance with influence by LAs” (AEA Technology plc, 2008, p. 36), to measures arising at the local level. This helps to emphasise the ability of the local authority sector both to initiate activity itself and to have a significant effect upon the impact achieved by central government initiatives. More interesting, though, is the diversity amongst the measures investigated in terms of how the change might come about. Included in the list are regulatory measures, financial incentives (both those promising rebates and those threatening penalties), educational and marketing interventions; this collection in effect therefore spans the range within an authority’s power. What is not discussed (and this, in fairness, lies outside the scope of the report) is whether the bundle of measures presented can be expected to meet with general acceptance when imposed upon or implemented amongst various actors including citizens, businesses and other types of organisation.

2.4. *Limited local authority action*

This question of acceptability is of crucial importance because, despite the gravity of the threat of climate change and the considerable influence that local authorities appear to have, they are not yet responding as they might. Three quarters of English local authorities have not instituted a target to reduce carbon emissions across their area by 2020; of those that have, only a quarter have set a target of or above 40 per cent, the amount recommended by the Committee on Climate Change

¹ For this reason, the quoted figures probably overstate what the local authority sector could achieve through its own interventions.

(Local Government Chronicle, 2011). If a local authority's failure to set a testing reduction target is evidence of avoidance of the challenge of climate change, the local government sector can be argued to be underperforming.

There may be several reasons for this apparent lack of action amongst the bulk of authorities. Research conducted from the perspective of the transport sector in particular concluded the following:

“Key drivers [for action on climate change] identified during the study included:

- strong political leadership providing high-level support and direction;
- working towards adopted commitments and targets;
- commitment from council officers; and
- community support.

Challenges and barriers which emerged included:

- climate change scepticism amongst councillors and the community;
- competing and conflicting objectives such as cutting carbon in the face of economic growth; and
- resource pressures and reduced budgets” (Atkins, 2010, p. 2).

The lists demonstrate how easy it is for progress to be frustrated. At present, British local authorities are continuing to deal with a significant reduction in resources over the past two years which has forced them to make difficult decisions about cutting services; given this, a sizeable proportion have set climate change as an issue to one side (Scott, 2011). And though the research by AEA Technology Ltd. (2008) lists a range of possible interventions, their financial and political deliverability is not addressed. Ranged against the local authority keen to effect reductions is a series of obstacles, many of them external: the majority of emissions arise from decisions of private actors and, to the extent that these decisions are regulated, the regulation comes from central government. Whilst the Localism Act provides some new powers to local authorities, it does not confer the capacity to raise local taxes, thereby depriving the motivated authority of a key policy lever on the one hand, and the means to generate revenue that could pay for mitigation measures on the other.

A further reason for limited action to date may be the lack of compelling incentives. Local authorities' existing duties with respect to climate change are limited: a survey of requirements imposed on local authorities by central government departments, conducted as part of the current administration's localism and decentralisation agenda, reveals only six which explicitly mention climate change or greenhouse gases, from a total of nearly 1300.² Whilst this of course does not constitute a comprehensive investigation of the burden placed on local authorities by central government in respect of climate change, it nonetheless provides a sense of relative weight. And this may help to explain the campaign led by the non-governmental organisation Friends of the Earth during the development of the Energy Bill (now Energy Act 2011) for the imposition of carbon budgets on local authorities (Friends of the Earth, 2010).

It is important too to consider a wider context for the performance of local authorities. The pure science of climate change and the consequent imperatives for action can be seen as part of a “story-line” (Brand and Thomas, 2005) in which they feature to a greater or lesser extent in a given setting, reflecting the balance of power amongst relevant actors and their motivations. Whether or not a local authority acts as it might in response will not necessarily be a matter of hard fact but more the prevailing status of environmental problems in the wider social discourse.

2.5. *Relations between authority stakeholders and citizens*

Thus there are strong and understandable financial, procedural and social reasons for the limited degree of action to date, but these do not explain the very significant *range* of performance across

² Two databases of duties placed on local authorities by central government departments are available online (Department for Communities and Local Government, 2011b); these were searched for references to climate change, greenhouse gas and associated terms.

authorities—why have some set exacting targets and others not? This can partially be explained by the varying extent to which local authorities experience problems such as traffic congestion or poor air quality which can be linked to climate change. It is probably also a function of the relationship between council officers, members and constituents, a recurring theme in the findings of Atkins (2010). For example, its report mentions a public consultation conducted in York in which citizens placed the economy and quality of life above other considerations including climate change; this sentiment may be common but councillors in some areas would formulate policy in line with it whereas others may be prepared to overrule it.

It is well established that politicians respond to their perceptions of public opinion (for example Soroka and Wlezien, 2005). The risk is that, because citizens and businesses are not yet ready to make major changes in response to climate change (see Section 2.6), authorities themselves hold back, for fear of prompting a backlash. Meanwhile, citizens may fall back on the relative inaction of political institutions as grounds for not themselves making changes (Höppner and Whitmarsh, 2010). This vicious circle, already complex, is further complicated by the involvement of the media, whose interventions can serve to concentrate or distort the views of citizens, thereby influencing the actions of government disproportionately or inappropriately (Page, 1996).

The fear of a backlash on the part of local authorities may be justified. Citizen opinion of politicians tends to be poor and citizens' evaluation of local authority performance can be volatile (e.g. Ipsos MORI, 2009). This seems a difficult position from which to attempt to effect dramatic, all-encompassing change. But there is also the possibility that politicians have an inaccurate understanding of citizen opinion, possibly because of a range of biases in play (Brög, 2000). They may therefore be more fearful of a negative response to policy changes than they need be. And climate change scepticism is a further concern: if an influential segment of any of the groups – members, officers or constituents – argues against the need for significant change in response to climate change, this introduces a further obstacle to progress.

2.6. *Citizen attitudes to climate change*

Awareness of climate change as a phenomenon amongst UK citizens is reasonably high though this is not supported by an equally extensive knowledge of its likely impacts (Höppner and Whitmarsh, 2010). Similarly, citizens are familiar with many of the behaviour changes that may be necessary to mitigate climate change but their readiness to make them varies, with car use, for example, identified as an area of relatively great resistance to change (Marsden and King, 2009). It could be said that citizens have not yet *engaged* with climate change.

It is possible to characterise this current position of citizens as a failure in communication and/or leadership on the part of government; it is equally possible to say that citizen opinion shifts slowly and that the current position is to be expected given the magnitude of change needed. But a requirement imposed by the Climate Change Act to reduce emissions by 50 per cent against 1990 levels by 2025 makes the identification of the correct explanation somewhat academic: citizen behaviour needs to change greatly. Economic and/or regulatory measures may deliver the bulk of this change but a shift in citizen attitudes seems necessary in order either to foster additional behaviour change beyond that which economic/regulatory measures produce, to smooth the way to the enforced change, or to do both.

As with the local authority sector, though, it is helpful to look at the role of the citizens in a wider context. The degree to which climate change will matter to them is a function of its status in the discourse as well as the attributes of the individuals themselves. That a proportion of citizens are concerned about and responding to climate change is not in doubt; but they do not represent the majority. Of the many existing typologies that may help to explain this, one is the “group-grid cultural theory” developed by Mary Douglas (e.g. Douglas et al., 2003) which classifies individuals according to the nature of their social environment including their relationship with the prevailing power structures, and which can be used to offer some insight into their likely response to climate change. Of the four categories set out in the theory, the *egalitarians* might be thought of as the already active. In contrast, the *individualistic* type is likely to be sceptical about the phenomenon, the *fatalistic* type will rationally conclude that action is useless, whereas the *hierarchical* type will not see the problem as requiring an individual response. That is, only one of the

four types is predisposed to take action. This is but one typology but it is possible to imagine a similar pattern emerging if others were applied.

2.7. *Changing citizen attitudes and behaviour*

Much effort has been expended on promoting attitudinal and behaviour change amongst citizens with respect to climate change. Regulation and financial penalties have been applied to only a limited extent so far, and there has been experience of strong opposition to some such measures, including the carbon tax now adopted in Australia (BBC, 2011). Instead, there appears to date a greater emphasis on financial incentives (e.g. discounts on energy-efficient equipment) and on communication. Again, these measures can be characterised as either successful or unsuccessful depending on expectations concerning impact. With respect to communication, research has cast doubt on whether mainstream methods such as advertising will succeed on their own (e.g. Staats et al., 1996). In addition, the assumption that citizens need only to understand climate change in order to make the transition in terms of attitude and behaviour (the *Public Understanding of Science* doctrine) has fallen from favour (Wilsdon and Willis, 2004).

These developments have led to increased interest in social marketing as a tool of change. It too, though, has its detractors where climate change is concerned. Corner and Randall (2011) conclude that climate change is not suited to treatment using “classical” social marketing for several reasons. First, successful social marketing depends on tailoring messages/interventions to the values of the audience; this can only work in the case of climate change if those values are congruent with the changes necessary, which seems not to be the case, at least at present. Second, one of the pillars of social marketing theory – that small changes will lead to large changes – may not apply in the context of climate change: small changes such as recycling more are often easy to make *within* an individual’s value system whereas the large changes required (such as giving up air travel) may be at odds with it. Third, social marketing tends to emphasise individual difference through the segmentation process that is used to tailor messages. But climate change is a collective problem requiring collective solutions, including those which draw on high social capital. In particular, Corner and Randall conclude that successful action concerning climate change may therefore need to take the form of communication with groups rather than individuals.

2.8. *Discussion*

The previous section sets out an argument that standard approaches to effecting behaviour change on the part of citizens may have inherent limitations and this may be a more convincing argument for their slight impact so far than that such approaches have not been used in sufficient volume. There is the further issue that citizens may have more than one reason for resisting standard approaches as paternalistic (see Section 3.2).

If citizen attitudes and behaviour with respect to climate change are not changing quickly enough in response to “classical” attempts on the part of government to alter them, and if this lack of progress is causing government to hold back, there appears to be an argument for trying different approaches. Further, if Corner and Randall (2011) are right that communicating at the group level may work better than engaging with individuals, such a new approach might best be in some sense collective. Reflecting all these points, the potential role of citizen participation is discussed below in Section 3.

3. **The potential role of citizen participation in tackling climate change**

3.1. *Definition*

Citizen participation in public decision making is diverse and a wide range of terms is in use to describe its variants. For the purposes of this discussion, it is helpful to adopt the definition offered

by [Sprain \(2008\)](#), which stipulates that public (citizen) participation needs to be action/activity/involvement, by the public (either individuals or organisations), to influence government decisions/action/policy. So, for clarity, this definition excludes participating in ballots to elect politicians, participating in the decision-making processes of non-public bodies (e.g. works councils), and participating in groups or activities with an essentially social or community focus.

3.2. *Why use citizen participation to address climate change?*

At first sight, there appears an incongruity between a problem that has been defined as one of attitude and behaviour (both individual and institutional), and a set of methods intended to contribute to public decision making. Whilst possible limitations of orthodox tools to foster behaviour change have been discussed in [Section 2.7](#), there remains a need to justify the use of citizen participation to achieve the same goal.

The primary justification lies in the nature of communication between government and citizen. Most orthodox behaviour change methods, however well disguised, consist of efforts on the part of the authority to make the citizen adopt a way of behaving. This can be seen as paternalistic by citizens and may provoke a negative response, especially if the authority's own behaviour does not appear unimpeachable ([Halpern et al., 2004](#)). In contrast with this "top-down" method, properly-conducted citizen participation creates a more balanced dialogue between authority and citizen, reducing the likelihood of resistance ([Rowe et al., 2008](#)). It can also result in satisfaction amongst participants ([International Association for Public Participation, 2009](#)) and elected members ([Kathlene and Martin, 1991](#)).

Connected to this point is the fact that both authority and citizen have a role to play in mitigating climate change. Orthodox behaviour change methods tend to concentrate attention only on the citizen's role, the implication being that the authority's role is to be discussed elsewhere, if at all. This creates a further asymmetry that could lead to resentment. There is a positive converse to this: according to the theory of social proof, one actor is likelier to "do her/his bit" if others are seen to be doing theirs ([Aronson, 2010](#)).

A final reason for using citizen participation is that, when asked, citizens typically say they wish to be more involved in public decision making ([Ipsos MORI, 2010](#)). Leaving aside possible inconsistencies between this stated desire and actual behaviour in response to offers of involvement, this position is striking given that, in contrast, citizens would not normally be expected to say that they wanted government to spend more time and money trying to change their behaviour.

Thus the uneasy relationship between citizens and government and the limited potential of "classical" communication may offer a dual justification for employing citizen participation as a means of accelerating progress in climate change mitigation. Bringing citizens into the governmental decision-making process may help to modify citizen attitudes and behaviour; it may also help to overcome some of the barriers seen as obstructing authorities themselves in addressing climate change.

3.3. *Possible difficulties with using citizen participation*

The previous section began with the expression of doubt about the match between the method (citizen participation) and the objective (institutional and individual behaviour change). In particular, there is no guarantee that citizen participation will lead directly to actions or events that reduce greenhouse gas emissions. In certain cases, the two could be explicitly linked (for example by involving citizens in the selection of mitigation methods, as discussed in [Section 6.2](#)), but citizen participation is a tool that can be applied very widely and there is nothing intrinsically pro-environmental about it. Therefore, for citizen participation to be a suitable intervention for tackling climate change, it is very important that it be appropriately specified.

Such a specification could help to ensure that the subject matter and/or method were such as to promote climate change mitigation, but there is again no guarantee that citizens, given a free hand, would select pro-environmental measures since, as discussed in [Section 2.6](#), willingness to adopt

more pro-environmental behaviours or to accept more pro-environmental government interventions is weak. To some extent this may arise from a general human tendency to make sub-optimal decisions, cited by various authors as evidence against the use of citizen participation (Chong and Druckman, 2007; Marshall and Tse, 2010; Shafir and LeBoeuf, 2002).

A further reason for doubting the suitability of citizen participation is that it is not automatically successful and can, in certain circumstances, lead to a worsening of relations between authority and citizen, in the case of climate change thereby reducing rather than increasing the probability of an upswing in mitigation efforts. This risk can be managed to an extent through careful process design but it arises largely from prior events and circumstantial factors such as the institutional (Section 2.4) and social (Section 2.6) context. There is a further risk that an individual or group will hijack a citizen participation process; again, good design can help but it cannot entirely neutralise the risk.

4. Identifying a suitable form of citizen participation

4.1. Introduction

Where citizen participation takes place, a *question* is typically being addressed and a *method* (or set of methods) used to address it. In this section, the formulation of an appropriate question is discussed; the characteristics of that question are then used as the basis for identifying a suitable citizen participation method.

4.2. Question definition

The natural starting point in defining a suitable question or problem is the impasse identified in Section 2. A question could be formulated along the following lines: “what should government and citizens do to accelerate action to counteract climate change?”

There have been citizen participation exercises following this general line. For example, in World Wide Views on Climate Change (Bedsted and Klüver, 2009), citizens from 38 nations deliberated on climate change in advance of the COP15 meeting in Copenhagen. Their conclusions were distilled into nine key messages which are consistent with much that has been written about how best to respond to climate change. Those messages, though, tend to lack specific prescriptions and were drawn up as if in ignorance of the policy context in which states must act. The lack of specificity is likely to have arisen from the need to aggregate across a large number of contributions; this is a problem common to all citizen participation exercises that are not designed to produce a definitive answer (i.e. that do not include a well-defined means of aggregating preferences). A perhaps more significant issue is the absence of any acknowledgement of policy realism: it is one thing to stipulate that certain states should reduce emissions “25–40% or more by 2020” (Bedsted and Klüver, 2009, p. 4); it is another to display an appreciation of the competing pressures faced by governments and of the practical business of instituting and pursuing such a target, including the implications for individual citizens. Government stakeholders might look at these conclusions and think them laudable but feel the conclusions do not demonstrate much about the likely response on the part of citizens (in particular, the participants themselves) and institutions if those recommendations were unquestioningly implemented.

In fairness to the organisers of the exercise discussed above, a question as broad as how to accelerate action on climate change is almost bound to produce platitudes. More to the point, given that the link in this discussion between the proposed intervention (citizen participation) and the desired outcome (more pro-environmental programmes and behaviours) is *indirect*, a question based on the desired outcome is not automatically the optimal choice. In addition to the risk that it will produce quite bland results, a distinct concern is that the explicit mention of climate change will bias participation. Where citizens are free to decide whether to take part, the use of the term will probably draw environmentally-motivated individuals more than those less interested in the topic (in line with evidence elsewhere that propensity to participate is related to personal interest in the theme, e.g. Gaskell (2004)). Use of the term may also elicit exaggerated pro-environmental

statements and positions as a result of social desirability bias (Nederhof, 1985). It does not, however, seem possible to achieve the desired outcome by excluding climate change from the question completely; instead, climate change perhaps needs to feature implicitly.

In order that the question can be used in multiple settings, it is necessary that it be generic in form. Thus a question about a particular intervention (whether to adopt or reject nuclear power, for example) or location (where to build a piece of infrastructure, for example) would not be suitable as its application would be limited to a particular setting/circumstance or one very like it.

To summarise, the above discussion indicates the following:

- the question must require of participants that they arrive at a firm answer as opposed to vague policy prescriptions;
- it must realistically address trade-offs between the risks of climate change and competing policy demands;
- it should not mention climate change explicitly;
- it must be transferable in spatial and temporal terms.

This suggests that the question should be of the form “which measures should we implement?” Such a question would need to be framed by some well-defined constraints relating to climate change and one or more other policy indicators in order that citizens’ deliberations displayed the necessary degree of realism.

4.2.1. *Relevant characteristics of the question*

As it was defined in Section 4.2, the question to be posed to citizens has the following characteristics likely to inform the selection of a method of citizen participation:

- It is inherently quantitative in character: for trade-offs to be dealt with, some sense of relative magnitude of impact across dimensions is essential. In the case of climate change in particular, the specific targets brought forward by the Climate Change Act imply a need for similarly exact numbers at the local authority level.
- It has a comparative component: the question will, through the imposition of constraints, require citizens to weigh up impacts across more than one indicator in order to arrive at a chosen way forward. In order that this convinces elected members, it may be desirable for this comparison to be methodical to ensure consistency.
- It should arrive at a conclusion which the sponsoring authority could implement: local authority stakeholders are likely to be sceptical of a mechanism which produces only general statements of policy direction.
- The constraints require explanation: the provision of some information is essential—citizens are almost certain not to have a full understanding of the greenhouse gas emissions associated with a given intervention and may well not know a great deal about greenhouse gases and their potential contribution to climate change.

4.3. *Categorising citizen participation forms*

There are numerous taxonomies of citizen participation forms (Arnstein, 1969; Beetham et al., 2008; Brodie et al., 2009; Sprain, 2008; Steenbergen et al., 2003). Most of these are based on relationships of power and/or the impact of participation on the citizen. More relevant to this discussion is the work of Rowe and Frewer (2005), which establishes a typology based on methodological characteristics.

Rowe and Frewer identify six “key mechanism variables”: participant selection method; facilitation of information elicitation; response mode; information input; medium of information transfer; and facilitation of aggregation. They then divide citizen participation methods into three categories (communication, consultation and participation) and subdivide these categories to reflect significant differences of character across methods. Each of these subdivisions is then characterised by its “level” against the six key mechanism variables.

4.4. Matching citizen participation method to question characteristics

For the purposes of finding a method that suits the question defined in [Section 4.2](#), two subdivisions of Rowe and Frewer's *participation* category appear most relevant. Their participation types 3 and 4 share the following attributes:

- Open response mode—allow free contribution rather than limiting participants to choosing from a fixed set of options.
- Flexible information—participants are not limited to a pre-set quantity of information.
- Face-to-face—citizens gather to participate.
- Structured aggregation—the views of participants are brought together according to a pre-arranged method.

Participation Types 3 and 4 differ as follows:

- Type 3 methods involve a controlled (i.e. recruited) set of participants whilst Type 4 methods are open to all.
- Type 3 methods involve “facilitated elicitation” (the presence of an individual who attempts to ensure that the views of all present are heard) whereas Type 4 methods do not.

Rowe and Frewer do not claim that they are working with an exhaustive list of methods so it is possible that certain types of citizen participation would straddle the categories/types they have defined. In particular, participatory budgeting (PB) does not feature in their list. This may be because PB is often characterised more as an empowerment tool rather than a decision-making method, but it is nonetheless an interesting omission given its prevalence (see [Section 5](#)).

4.4.1. Discussion

Looking at the key mechanism variables in turn:

- For Rowe and Frewer, the issue of open/closed response mode relates to maximising relevant information obtained from participants: a fixed list of options limits participants to voicing their views on those options; in contrast, the freedom to develop new ideas is likely to draw more from them. If decision quality were the primary consideration, open response would seem the obvious candidate. Given the indirect goals of this exercise, though, this attribute may seem less important. That said, it is strongly argued in the literature on deliberative democracy that participants should have the freedom to contribute to the list of options (e.g. [Christiano, 1996](#)) and there is also reason to think that participants' satisfaction with a process of citizen participation will be enhanced by the ability to make such contributions.
- Given the attributes of the question that has been defined, the capacity to seek information flexibly about options and their attributes appears essential; it seems unlikely that a sufficiently comprehensive information set could otherwise be prepared in advance that would not be overly burdensome for participants to assimilate.
- There is an ongoing debate on the need for citizen participation to take place face-to-face. Advocates of e-participation argue that carefully managed on-line methods can be successful (e.g. [Lowry, 2009](#)) and, by not requiring participants' presence at a particular place and time, they obviously have certain advantages over face-to-face methods (though they are also restrictive in that they require participants to have access to and confidence with the necessary technology). For the purposes defined here, it appears that a face-to-face method is essential: in order for local authority stakeholders to be convinced of citizens' readiness to accept a more pro-environmental programme, it seems very important that they witness for themselves the interaction between participants. There is also a case for making sure that citizens participate in the presence of authority stakeholders as a means of building trust.
- The need for structured aggregation leads directly on from the requirement for the citizen participation process to lead to a single answer.

- Does the method need to be open to all? Of the many arguments regarding representativeness that could be put on this point, the most relevant is from credibility: if the process is open to any citizen, this makes it much less susceptible than a selective process to complaints of unfairness or manipulation.
- In differentiating between facilitated and unfacilitated methods, Rowe and Frewer may be guilty of simplification. Here, the work of Stirling (2005) elucidates. He offers a distinction between “opening up” (where the task is to explore a problem without necessarily aiming for a firm conclusion) and “closing down” (where an answer is sought). Facilitated elicitation (of information) may well be necessary in “opening up” settings in order to ensure that the outcome of the exercise reflects the views of all participants. Its contribution is subtler in “closing down” settings where there exists a robust means of preference elicitation (i.e. voting): here, facilitated elicitation is not required to *establish* participants’ preferences but it may nonetheless prove valuable by making explicit the range of participants’ opinions, with the possible consequence that some adjustments of position take place. It could also be useful in light of the need, identified in this section, to provide information flexibly to participants—a facilitator could both elicit information and meet information needs.

4.5. A shortlist of methods

The discussion in Section 4.4 appears, on balance, to favour methods conforming to Rowe and Frewer’s participation type 4—the argument in favour of uncontrolled selection is strong, whilst the issue of facilitated elicitation is less conclusive. The example of type 4 participation given by Rowe and Frewer is a town meeting following the New England model and including voting. Such town meetings enjoy some legislative and budgetary power in relevant American states (Williamson and Fung, 2004) so they are not automatically transferable to the UK setting. This power is a significant attribute in that the meeting’s decisions are enacted, in contrast to the many forms of citizen participation whose outcomes are used to a greater or lesser extent by politicians who remain in control of the ultimate decision.

To the example of town meetings could be added participatory budgeting (described more fully in Section 5) which also conforms to the attributes of participation type 4. And, though it is not a widely-recognised citizen participation method, participatory multi-criteria analysis (PMCA) (Stirling, 2006) could be designed to satisfy the same operational principles. PMCA involves citizens in a process of scoring options against a set of agreed criteria, then using weights to distil each option’s performance into a single score in order to arrive at a preferred option.

It may in fact be helpful to characterise participatory budgeting (PB) and PMCA as special, quantitative cases of the town meeting. Town meetings arrive at policy and budgetary decisions through debate and voting. Similarly, PB arrives at decisions through voting but these relate to the allocation of budget to activities so its scope is somewhat more narrowly defined; it is, in effect, the quantitative component of the town meeting. PMCA could equally be used to arrive at binding decisions concerning policy, budget or both provided the sponsoring authority imbued it with the necessary status in the decision-making process.

The discussion in Section 4.4 of attributes of the question to put to citizens suggests that PMCA might be a suitable decision-support tool—it is a quantitative technique and is explicitly designed to handle trade-offs between competing priorities as a way of moving towards a single answer. And multi-criteria analysis has been used in settings involving citizens on various occasions. The problems tackled have tended to be quite specific, typically centreing on a particular location or the search for the optimal way of implementing a pre-defined intervention. Participant numbers have tended to be controlled (perhaps by adopting the citizens’ jury model—Smith and Wales, 1999). Or, where access to the overall participation exercise is open, citizens may not be included in the setting of weights or detailed scoring (Laniado et al., 2010, p. 6). This is to some extent understandable, as multi-criteria analysis is ordinarily a quite demanding process in cognitive terms and the management effort required might become excessive if there was extensive public interest.

The prospect that PMCA would need to be either subject to controlled selection or in some way abridged in order for it to operate in an open-access setting casts doubt on its suitability as a method, despite its evident strengths. Open access has been identified as a desirable (perhaps essential)

characteristic of the tool used; meanwhile, conducting certain key stages of the process behind closed doors might provoke resentment amongst participants, with unwelcome consequences. For these reasons, participatory budgeting will be the focus of the remainder of this article, on the basis that it may, overall, be the method best suited to the task.

5. Participatory budgeting

5.1. Introduction

The following is a helpful working definition of participatory budgeting (PB): “a mechanism (or process) through which the population decides on, or contributes to decisions made on, the destination of all or part of the available public resources” (*Global Campaign on Urban Governance, 2004, p. 20*).

PB is generally agreed to have been first practised in Porto Alegre, Brazil in the late 1980s (*Baiocchi, 2003; Wainwright, 2009*). It has since been widely exported and examples of it are found in all continents though, other than in Latin America and so-called developed countries, it tends to have taken place under the auspices of development organisations (*Shah, 2007*).

In the UK, varying styles of PB have been used across public bodies, including health providers (*Tower Hamlets Partnership, 2010*), police authorities (*Church Action on Poverty, 2011b*) and fire authorities (*Church Action on Poverty, 2011a*). There has been a degree of coordination of the work done in the form of a pilot project sponsored by the then Office of the Deputy Prime Minister, followed more recently by a national evaluation project (*Department for Communities and Local Government, 2010*). The early phase of government interest included the establishment of the Participatory Budgeting Unit (PB Unit), a non-governmental organisation with a specific mission to roll out PB in order to assist people in poverty in the UK. It provides a range of practical support to organisations considering or delivering PB.

The PB Unit is part of a more recent partnership promoting PB in England under the current administration’s banner of Big Society. This initiative, *Your Local Budget*, has involved the selection of nine pioneer authorities whose principal challenge is to bring PB “into the mainstream” (with some discussion continuing as to whether this means whole-authority budgets, the normalisation of the practice or something else (*Bowers and Bunt, 2010*)).

Evaluation to date of the PB experience in the UK shows that it has tended to consist for the most part of “community chest” exercises, with relatively small discretionary sums being made available to communities to allocate to projects. It has been common for the allocation process to take the form of a “beauty parade” in which applicants have presented their proposals at a public meeting (*Department for Communities and Local Government, 2010*) prior to a selection process.

5.2. Variation in practice of participatory budgeting

Practice of PB varies considerably across a range of dimensions. The following are some of the more significant in the context of climate change:

- Directness of influence—some PB exercises are allocated a sum of money which is spent on the measures selected, whereas in other exercises the conclusions of the citizens are taken into account by elected members in reaching their decisions;
- Whether mainstream—in Porto Alegre, citizens are deciding how a proportion of the city’s overall budget is spent in contrast with most UK examples where a discretionary sum, distinct from the main budget, is allocated;
- Sum of money—there is considerable variation in the relative sums of money being spent through PB exercises though, even in Porto Alegre (widely hailed as amongst the most progressive examples), the amount under consideration is still only three per cent of City Hall’s budget (*International Association for Public Participation, 2009*);
- Freedom of choice—certain PB exercises are limited to selecting from a fixed list of options pre-determined by the sponsoring authority whilst others involve more freedom to determine the interventions on which money might be spent;

- Nature of decision-making process—in Porto Alegre (and the recent example in New York City (Taylor, 2011)), the deliberation process continues for some months and involves a sequence of meetings and assemblies; UK examples have tended to be considerably quicker with decisions made over the course of a single meeting. Some methods require presence in person as a qualification for voting whereas others combine a public meeting with the opportunity to vote by post or online;
- Voting process—practice varies from a show of hands to electronic voting; the preference system used, though yes/no in the majority of cases, can involve more sophisticated approaches such as strength of opinion and ranking.

5.3. *Impacts of participatory budgeting*

From the instrumental perspective, the principal strengths of PB lie in its accessibility and immediacy: whereas the purpose of other forms of citizen participation (such as citizens' juries or deliberative polling) is not automatically transparent to participants and the effect on the policy-making process can be obscure, there is a clarity about the concept of setting budgets/allocating funds that places PB apart. Participants have reason to think, in attending, that their contributions will have an influence on the policies or measures subsequently pursued by the organising body. This is quite obviously the case if participants are explicitly allocated a sum of money to spend. Moreover, PB is viewed as a method that can "inspire" (Blakey, 2008, p. 63) and that perhaps, because of this, can bring in larger crowds than are seen at more orthodox citizen participation events.

The evidence is that PB attracts a diverse range of participants (SQW et al., 2011) and one that is therefore perhaps more representative of the group whose views are being sought by the sponsoring institution than could be expected from more orthodox methods of citizen participation such as open-access surveys and exhibitions. The consequences of this may be (a) that the political engagement achieved through PB therefore enjoys a higher status and (b) that the institution's future policies better reflect the wishes of its constituency than would be the case if a less representative group had participated in the planning process. Senior authority stakeholders may also be more persuaded by witnessing a process that has drawn a group other than "the usual suspects".

In fact, in the case of the UK pilots, "those [elected members] that were involved reported improvements in relations with their constituents" (Department for Communities and Local Government, 2010, p. 114). This must be taken alongside the finding that certain elected members felt sidelined by the PB process, particularly where they were not directly involved in its planning (SQW et al., 2011). The implication appears to be that PB has the capacity to improve elected members' connections with their constituents, provided the members are involved from the beginning and do not object in principle to a process that they see as at odds with representative democracy.

There is a range of evidence concerning the policy and wider social impacts of PB. For example, though comparisons are not straightforward, it is argued that Porto Alegre has benefited from the PB process, now having better sewerage, more schools and lower levels of truancy than comparable cities not using this method (Wainwright, 2009). And, before its reputation was marred by scandal, the Workers' Party (which founded the PB process in Porto Alegre) continued to enjoy high levels of popularity in the city (de Sousa Santos, 1998).

In the UK, the evidence of impacts is mixed but, in Manton, Nottinghamshire (a highly deprived community in relative terms), a recent evaluation report suggests that residents are taking more ownership over services being provided in their area (SQW et al., 2011). The same evaluation found evidence of increased satisfaction with local services across several locations including Manton. The examples of Porto Alegre and Manton are not necessarily representative because, in both cases, PB has been part of a wider strategy of building social capital, but they serve to show what PB can help to achieve.

5.4. *Strengths and weaknesses*

The discussion in Section 5.3 points out the following strengths of participatory budgeting as a method of citizen participation:

- It draws a larger and more diverse group of participants than is typical of citizen participation exercises.
- If well-run, it can lead to improved relations between citizens and elected members, and increased satisfaction with local services on the part of citizens.
- It can lead to general improvements in service delivery.

Set against these strengths are certain limitations.

Being a budgetary process, PB is constrained in scope to measures involving expenditure, thereby excluding regulatory and other non-financial interventions. In one sense, this is not a weakness, in that many citizens may think that the budget is “where the action is”, but it does mean that they are not considering the fullest range of possible actions.

A further possible difficulty arising from a focus on budget is a disjunction between the amount spent on an activity and its unit cost. If, for example, a given authority spends the same amount on education as it does on social care, this conveys nothing about the extent of need and relative cost of achieving progress in these two sectors, which may leave citizens ill-placed to prioritise the allocation of new funds. This problem provides an argument in favour of presenting participants with a menu of well-defined projects to which they can allocate funds, since the project descriptions will hopefully provide some sense of both volume of activity and likely societal gain. Where this approach is not taken (perhaps because the PB sponsor wishes not to be so prescriptive), another option is to provide participants with training designed to familiarise them with the budgeting process. A third option is to attempt to include the concept of unit cost in the decision-making process (Research for Today Ltd, n.d.), though to do this makes the process begin to resemble multi-criteria analysis, with its attendant problems.

Because PB is not inherently deliberative, there is no requirement for participants to reflect upon the choices before them in advance of casting their vote. This can lead to reflex voting and/or voting to serve personal interests (London Borough of Tower Hamlets, 2010). Perhaps in light of this risk, the Participatory Budgeting Unit firmly argues that PB must include deliberation (Participatory Budgeting Unit, 2008, 2009).

PB having been introduced, a variant of it that may serve in tackling climate change is now discussed.

6. Participatory emissions budgeting

6.1. Introduction

In Section 3, a case was made for using citizen participation as a tool in addressing the challenge of climate change. The required characteristics of a putative method of citizen participation were discussed in Section 4 in the context of a suitable question on which the participation would be centred. This led to the identification of participatory budgeting as a method of citizen participation seemingly well suited to the task and PB was then briefly surveyed in Section 5. In this section, the concept of “participatory emissions budgeting” is introduced and explored.

6.2. The concept

In Section 4.2, discussion of the question to be posed of citizens concluded with a question of the form “which measures should we implement?” and an accompanying assertion that it would be preferable for climate change to feature implicitly than explicitly. The concept of participatory emissions budgeting (PEB) adopts this model in that citizens are invited to make choices about the allocation of funds to projects. They must carry out this allocation whilst conforming to two constraints—one financial, the other relating to greenhouse gas emissions.

The complex relationship between activities and their associated emissions makes it necessary to base the exercise on the selection of *projects* rather than the allocation of funds across budget heads,

because it is not possible to estimate the emissions associated with spending an additional quantum on, say, transport, without being quite specific about the nature of the investment. But there would be a need to manage the risk that imposing a fixed menu of projects would engender feelings amongst participants that they were being denied freedom of choice (as identified in [Section 4.4.1](#)); within reason, therefore, it should be possible for participants to contribute to the definition of the project menu.

In order for PEB to achieve the benefits associated with “classical” PB, the menu of projects needs to reflect the general concerns and interests of citizens. This will help to ensure a diverse range of participants. In particular, it would be unwise for the menu of projects to consist only of climate change mitigation measures (though mitigation measures may feature in the list as a means of “buying” back emissions to “spend” on other projects).

It seems that some degree of deliberation is necessary if only to demonstrate to the sponsoring authority that citizens have accepted the rationale for a greenhouse gas emission constraint and are willing to work within it. Other, instrumental arguments in favour of deliberation could be tested through varying the extent and nature of deliberation designed into the process.

6.3. *Development*

There are numerous technical factors involved in developing PEB for implementation. This section provides a very brief overview.

- A method for estimating emissions associated with an intervention is required as an input to PEB. It is likely that a hybrid of the process-based approach and input-output modelling will be most suitable ([Wiedmann, 2009](#)). The development of a suitable method needs to take into account policy questions such as whether to adopt a territorial- or consumption-based measure (the presumption being that consumption-based measures are more meaningful) as well as technical issues such as the management of uncertainty and the extent to which upstream and downstream emissions are to be included.
- Another essential input to the process is a suitable greenhouse gas emission constraint reflecting the issues above and taking into account the financial budget and the nature of the projects available for selection. In order for the policy objectives of PEB to be achieved, it is probably sufficient for this constraint to be a demanding one (i.e. that it force participants to make difficult trade-offs between policy outcomes they desire and consequent emissions) without it having to be precisely consistent with any broader climate change objectives set by the authority.
- The starting menu of projects needs (as stated in [Section 6.2](#)) to address the range of citizen concerns and wishes but must at the same time be manageable in size. Given the range of activities within the typical local authority’s purview, this suggests either concentrating on a single sector (e.g. housing) or accepting that the menu can at best consist of a small sample of activities the authority could undertake but, in either case, there is scope for regulatory and charging measures to feature in addition to those based principally on expenditure.
- Questions of recruitment method, degree of facilitation, nature of information provision, expression and aggregation of preference (as discussed in [Section 4.2.1](#)) need also to be resolved.

7. Discussion and conclusion

A case has been made for developing participatory emissions budgeting as a means of tackling an apparent stalemate between citizens and their local authorities, a stalemate which may partially explain both the lack of action on the part of authorities and resistance to change on the part of citizens. The proposition is that PEB may avoid the pitfalls of orthodox behaviour change interventions whose top-down nature can engender resentment amongst citizens whilst excusing sponsoring authorities from having to justify their own actions. Instead, it may create a more collaborative process based on dialogue in which citizens may come to appreciate the environmental imperatives, and authority stakeholders may be convinced that there is greater popular acceptance of pro-environmental measures than they had thought. It is possible that PEB will also lead participants to make pro-environmental behaviour changes individually.

An initial pilot of PEB has been carried out and the tool is now being developed in preparation for a series of further trials. A thorough evaluation will help to show to what extent the hypotheses concerning its impacts are borne out in reality. If it proves successful, PEB may become a tool used by local governments to help make the necessary progress towards major emissions reductions.

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