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## Citizen engagement and urban change: Three case studies of material deliberation

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### ABSTRACT

Public participation in urban planning and development is a widely used process which seeks to enable better decision making. In this paper we address critiques of such deliberation – that it relies on the discursive to the detriment of experiential, material or affective modes of expression – and describe three case studies of participation which emphasise, in different ways, ‘material deliberation’. We close by discussing the ways in which such material deliberative practices can best be understood as components of a wider deliberative society.

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### Introduction

It is now almost three decades since an early issue of *cities* highlighted burgeoning practice and analysis of public participation in urban development (Coit, 1984; Ortecho, Sabagh, de Pipa, & María Cristina Bosio de Ortecho, 1984; Skinner, 1984). The case studies discussed – ranging from the development of affordable dwellings in Argentina to urban planning in Cambridge, MA – draw attention to the normativities of participation – that, as Ortecho et al. suggest, it is a “means for the exercising of rights and duties” (p. 580) – as well as to its inevitable difficulties and ambiguities. As Katharine Coit notes, participation is a tool which can be used for “purposes both progressive and reactionary” (p. 585).

The years since those papers were published have seen the importance of public participation and civic engagement in urban development widely acknowledged. Participatory GIS, for instance, has become well established in a variety of contexts (Bugs, Granell, Fonts, Huerta, & Painho, 2010; Cai & Yu, 2009; Dunn, 2007), while scholars have sketched out the diverse rationales, methods, and outcomes of public participation (Fiorino, 1990; Laird, 1993; Rowe & Frewer, 2005; Webler & Tuler, 2002; Webler & Tuler, 2006). While analysis has indicated that the tensions between progressive and reactionary purposes pointed out by Coit (1984) have remained – to the extent that participation has at times been construed as a ‘new tyranny’ (Cooke & Kothari, 2001) – the benefits of broad

engagement in urban decision making remain largely uncontested (Brabham, 2009).

Similar notions have also risen to the forefront of Science and Technology Studies (STS) over the last 25 years. In particular, analysis of the development and governance of emerging technologies and new technological infrastructures has urged elites to focus on ‘technologies of humility’ (Jasanoff, 2003) through “recent initiatives [which have] attempted to draw the public into decision-making and establish a more responsive culture for innovation” (Irwin, 2006, p. 300). Public debate, deliberation, and even controversy will, it is argued, enable socially robust science and technology (Fiorino, 1990; Macnaghten et al., 2005; Rip, 1986). As Brian Wynne notes, “a huge flowering of practical and analytical work aimed at such public engagement, dialogue and mutual understanding between science and publics has erupted since the late 1990s” (2005, p. 66).

In this paper we draw on these literatures on participation, urban development, and technoscience to discuss what is, in the context of both cities and technoscience, an important critique of current engagement practice: specifically, that in its focus on reasoned argument and scientific debate it delegitimises certain modes of interaction and meaning-making. In the first section we describe these critiques of deliberation to argue for new forms of ‘material engagement’ which highlight affect, materialities, and site-specific knowledge. In the second section we discuss three case studies of civic engagement with urban planning and technological development which start to move towards these material and affective forms of engagement. Finally, we discuss the limitations of these cases and suggest new ways forward for the practice of publically accountable urban change.

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## Material deliberation

STS is, as Anique Hommels has pointed out, a valuable resource for thinking about technoscience and urban development because it does “not simply address the impact of technologies on the city but also assume[s] an interaction between the two” (Hommels, 2005, p. 328). This approach highlights the agency of both citizens and technologies, emphasising that there is a degree of precariousness for all actors within the technology–city–citizen nexus (Brand, 2009; Coutard & Guy, 2007; Lauwaert, 2009). Seemingly powerful and ubiquitous technologies may be subverted, altered and even toppled by the obduracy of practices and people in urban environments, while those people may in turn have their actions limited and constrained by the technologies and urban spaces which surround them. Given this inevitable co-development of technologies, cities, and societies, it is seen as natural for co-production to be formalised as much as possible in the shape of deliberative and participatory planning (Lauwaert, 2009; Nowotny, 2003; Rip, 1986).

STS arguments for public participation in technological development (Jasanoff, 2003) have tended to draw on the wider literature of deliberative democracy, and are grounded in an understanding both of deliberation as a normative good (Cooke, 2000) and as a form of communication in which “deliberators are amenable to changing their judgments, preferences, and views during the course of their interactions, which involve persuasion rather than coercion, manipulation, or deception” (Dryzek, 2000, p. 1). In this model, deliberation involves the exchange of reasons towards new outcomes, ideally in the form of consensus (Cohen, 1989). Processes used have drawn on techniques from political science: citizens juries (Wakeford, 2002) and councils (Davies, Wetherall, & Barnett, 2006), consensus conferences (Joss & Durant, 1995), or scenario workshops (Andersen & Birgit, 1999). This list is not exhaustive. As in urban planning, there is an extensive and now well-established suite of formats to be drawn upon in participatory decision-making or citizen debate on technological development (Rowe & Frewer, 2005).

Many of these techniques, however, are open to the same kinds of critiques that have been levelled at deliberative democracy as a whole: as a number of scholars – and in particular those writing from feminist perspectives (Squires, 2008; Young, 2001) – have pointed out, it relies heavily on notions of ‘reasoned discourse’ (Elam & Bertilsson, 2002). It is the spoken word that is important: the to and fro of conversation and the persuasion of your hearers through rational argument (Davies et al., 2006). The nondiscursive is thus excluded within this framework. As Young writes,

Because he [sic] suspects some agreements of masking unjust power relations, the activist believes it is important to continue to challenge these discourses and the deliberative processes that rely on them, and often he must do so by nondiscursive means – pictures, song, poetic imagery, and expressions of mockery and longing performed in rowdy and even playful ways ... One of the activist’s goals is to make us wonder about what we are doing, to rupture a stream of thought rather than weave an argument. (Young, 2001, p. 687).

For Young, then, much deliberation has a fundamental drawback: in its reliance on rational discourse it will ignore meanings and arguments which cannot be conveyed in this mode. Knowledges and views which draw upon, for example, the unspoken, material, or affective – Young’s “pictures, song ... expressions of mockery and longing” – are thus excluded. As Elam and Bertilsson point out, this disproportionately disadvantages non-scientists: “By valuing rationality, reserve, selflessness and powers of argumentation, deliberative democracy is a democratic politics played out on scientists’ home turf” (Elam & Bertilsson, 2002, p. 18).

It is at this point that contemporary thinking on technology and democracy arrives at an important intersection with current debate on planning and urban development. Rationalistic models of planning – though dominant for much of the discipline’s history – have in recent years been subject to significant critique with regard both to theoretical position (as “an approach based wholly on process, with little regard either to political conflict or to the specific character of the terrain on which it was working”; Fainstein, 2000, p. 452) and ‘on the ground’ assessments of the ways in which planning actually occurs (Healey, 2003). Susan Fainstein (2000), reviewing contemporary trends in planning theory (including communicative and radical planning), notes that all are essentially postpositivist: all “doubt the applicability of the scientific method to urban questions; none of the ... approaches relies on scientific justification as the rationale for its vision” (p. 453). Here, then, we see parallels with the STS research – and, increasingly, the practice of science policy in many European countries (House of Lords, 2000) – that has successfully argued that decision making in science should not itself be scientific (Wynne, 2005).

Building on, though in fundamental disagreement with, the work of communicative planners such as John Forester and Patsy Healey – which she argues suppresses “crucial questions of difference and marginality and their relationship to social justice” (Sandercock 1998, p. 97) – Leonie Sandercock has outlined critiques of the old “modernist planning wisdom” in particular detail (1998; 2001; 2003). Sandercock rejects communicative planners’ belief, inspired by Habermas and Rawls, in rational and equitable discussion – the idea that, as Susan Fainstein writes, “the planner’s primary function is to listen to people’s stories and assist in forging a consensus among differing viewpoints” (2000, p. 454). Instead she takes as her starting point Healey’s notion of planning as “managing our co-existence in shared space” (Healey, 1997, p. 3) and explores this with an unashamedly utopian scope, examining what it would mean to live in ‘cosmopolis’, a “society in which difference can flourish ... as we continue to struggle for economic and environmental justice” (1998, p. 218). In doing so she deconstructs what she calls the ‘heroic’ model of planning as rational, comprehensive, scientific, progressive and neutral: these pillars of planning wisdom, she argues, need to be removed from their prominent position in the training of future planners and complemented (not replaced) by an ‘epistemology of multiplicity’ which highlights the recognition that:

all knowledge is embodied; it is historically situated; it is shaped by language; and it is embedded in power relations. A good planner will be sensitive to all these ways of knowing, without privileging any one of them. And part of the skill of a good planner will be her perception of when to use which ways of knowing (Sandercock, 1998, p. 217).

In common with other deliberative practitioners from communicative as well as radical planning traditions (see Forester 1999), Sandercock emphasises a somewhat amorphous notion of dialogue as integral to the practice of this epistemology of multiplicity, with ‘knowing through dialogue’ one of a number of skills she suggests planners should be adept in (others include knowing through experience and learning by doing). While this may involve the creation of spaces in which diverse groups can “say what they [feel], to speak their feelings, no matter how toxic, or painful, it might be for others to hear” (Sandercock, 2001a, p. 24), she also emphasises the need for participation to become a process of “emotional involvement, of embodiment” (Sandercock, 2001a, p. 26). Here, then, we reach a point of synergy with STS thought. Participatory deliberation and decision making should draw on techniques which, as Sandercock says, acknowledge the whole person,

including the affective, intuitive and embodied, as well as the situated and relational nature of the deliberative process.<sup>1</sup> What could and should this look like?

It is this question that we explore in the rest of this paper. Based on the STS and planning theory we have discussed, we describe some of the ways in which practices around urban planning are starting to go beyond a Habermasian focus on rational discourse to acknowledge the material and affective. For the purposes of this discussion, then, 'material deliberation' is used as a shorthand for processes of deliberation and citizen engagement which incorporate an awareness, openness or sensitivity to non-traditional modes of deliberative interaction, including, but not confined to, the sonorous (music, singing, laughter, shrieks, noise), the discursive (gossip, storytelling, anecdote, polemic, drama), the material (objects, bodies, sites, places) and the affective (hate, love, fear, attachment, nostalgia, intuition, pleasure). Such engagements therefore show a sensitivity to the situated nature of all encounters, deliberative or not, as embedded in particular spaces, material configurations, and temporalities.

Our key question in this paper is therefore a (deceptively) simple one: given the critiques of traditional forms of deliberation that we have discussed, how can things be otherwise? Our argument so far has framed some key terms of reference by outlining the ways in which contemporary scholarship has started to answer this question (Young's "pictures, song, poetic imagery, and expressions of mockery and longing", 2001, p. 687; Sandercock's 'insurgent plannings' which acknowledge "experiential, intuitive and contextual knowledges", 1998, p. 205). Our analysis operates, then, through a set of categories based on what these writings suggest will be important dimensions in going beyond the discursive: embodiment and materiality, emotion and affect, (undervalued) genres of talk, openness to diversity. These categories are provisional – though not without power given that they certainly represent key lacunae in the way in which deliberative planning, in both urban development and technoscientific policy, is imagined and discussed – and we use them as tools for the exploration of practices which are themselves still emergent, rather than as a rigid analytical structure. Indeed, given the upstream and experimental nature of current practices of 'material deliberation', it seems likely that a relatively open and ethnographic exploration of such practices is best suited to the further development of theory.

In the next section, then, we start to reflect upon how public participation on urban futures can be imagined and carried out in ways that draw upon notions of material deliberation. We do this by describing three examples of deliberative reflection on water governance (taking this area as an example of future-oriented technological decision making), exploring the ways in which these can be understood in terms of our categories of materiality, affect, modes of talk that are supported or encouraged, and openness to diversity. The key framework for our analysis is thus the extent to which these three case studies of emergent material deliberation allow the expression of different modes of engagement. Importantly, what we present is by no means a comprehensive theoretical or empirical model. Instead we are interested in testing out, and opening up for wider discussion, the notion of material deliberation through a set of real world examples which speak to this concept.

### Three case studies of material deliberation

While the work of those who have argued for attentiveness to the affective or creative is increasingly influential, this remains

patchily applied to practice (Metzger 2011; Sandercock 1998). How then to select cases which might help us to explicate our discussion of material deliberation? Briefly, we are building on three factors in selecting our examples.

The first relates to our understanding of the nature of deliberation. We conceptualise this rather generally, taking inspiration from the notion of a 'deliberative society' (Parkinson, 2006) in which a wide range of activities, from protests to consultations or consensus conferences, together constitute deliberative engagement (Bucchi & Neresini, 2007). In thinking about what public participation should look like, then, we do not limit our discussion to activities which have direct links to policy or planning (Davies, McCallie, Simonsson, Lehr, & Duensing, 2009). Just as the STS notion of anticipatory governance, for instance, is understood as a broad-based societal capacity for reflection upon the directions emerging technologies are taking, rather than decision making alone (Barben, Fisher, Selin, & Guston, 2008), we understand deliberation as incorporating spaces in which public debate occurs but which are not traditionally viewed as sites of formal public participation. The cases we describe are therefore drawn not only from deliberative decision making but also from other forms of public debate on water governance and urban change.

Second, and returning to our analytical interest in the role of materiality, affect, mode of talk, and diversity, the cases selected should be different enough to provide some contrast, such that, taken together, they allow discussion of all of these categories. While complete representativeness is not possible, our aim has been to study cases which have some key differences across this spectrum of (potential) qualities of material deliberation.

Third, given the degree to which expressions of emotions, knowledges and materialities remain emergent in participatory practice, access and availability are inevitably issues which shape case selection. To a large extent, any discussion of material deliberation in practice will be defined by the nature of contemporary experimentation.

Based on these factors, we discuss three cases: a modeling-oriented 'Decision Theater'; an online game; and a series of activist art projects. In what follows we briefly describe each one and reflect upon how it relates to material deliberation as outlined so far.

#### *Modeling as deliberation: Decision Theater, ASU*

Many of the literatures which urge deliberation to go 'beyond discourse' note that sketches, visualisations and images can be useful in doing this (Forester, 1999; Sandercock, 2003). It is, for instance, argued that "visualisation eases the public participation process by helping stakeholders to understand the alternatives that planners propose" (Shen & Kawakami, 2010), while Leonie Sandercock tells the story of one artist-practitioner who "asks people to draw what's on their mind concerning a particular topic" (Sandercock, 2003, p. 80). Our first case picks up on this notion of the visual character of deliberation by focusing on immersive computer modeling as a means of engaging stakeholders and publics.

Our example is the 'WaterSim' model developed at Arizona State University's Decision Center for a Desert City (DCDC) and used to support dialogue between stakeholders in water governance in Phoenix (Gober et al., 2011; Wutich et al., 2010). This model – which incorporates data on business and residential water use, urban planning, and weather patterns, amongst other things – is presented in a visualisation structure called the Decision Theater, a "research facility and decision lab exploring and understanding decision making".<sup>2</sup> The theater is a single room,

<sup>1</sup> STS scholarship would also emphasize the agency of the material, and the need for processes which acknowledge this (Latour, 1993).

<sup>2</sup> Taken from the Decision Theater website: [www.dt.asu.edu](http://www.dt.asu.edu) (accessed August 2010). See also the DCDC website: <http://www.dcdc.asu.edu> (accessed August 2010).



seven-screen immersive environment which allows participants to look at complex data, models and sophisticated visualisations and, based on these, to test out the outcomes of decisions they make. Within WaterSim, for example, participants can make choices about groundwater use, planning and residential water use regulation, and inter-state relations (Arizona currently imports much of its water from other states); the WaterSim model then makes predictions about what these decisions will mean for water sustainability, state finances, and the lives of Phoenixians (Gober et al., 2011). The stakeholders who use the Decision Theater – generally policy makers without backgrounds in the technicalities of water systems, but occasionally lay publics – are thus immersed in technical data sets made accessible to them through graphics, visualisations and narratives of cause and effect (White et al., 2010). As a whole, WaterSim is “part of a long-term effort to engage Phoenix policy makers and residents in a structured discussion about the choices that lie ahead with respect to water policy” (Gober et al., 2011, p. 17); it is thus primarily a means of “facilitating discussions” and “highlight[ing] critical tradeoffs” (Gober et al., 2011).

Decision Theater can be understood as a decision support system, one of class of tools which seeks to aid decision-making in situations of complexity (Sánchez-Marrè, Comas, & Poch, 2008). To what extent, however, are sites such as the Decision Theater and its computer models enabling new forms of deliberation to occur? Certainly, many such sites feature interfaces which allow non-specialists to interact directly with technical information. The Decision Theater is immersive and experiential; through techniques such as 3D visualisation, stereo sound, and computer renderings it places users in multi-sensorial environments which simulate the potential outcomes of decisions (one Decision Theater model, for instance, allows viewers to ‘fly-by’ an urban space to assess the effects of different building heights). These techniques rely on ‘non-verbal communication’ (see Sandercock, 2003) and act both as stimulants for discussion (Gober et al., 2011) and as a new way of experiencing the decision making process (White et al., 2010).

Such tools, however, have serious limitations when measured against theories of deliberation as integrating different forms of knowledge (Sandercock, 1998; Sandercock, 2003) and thus our interest in openness to diversity. They ultimately configure deliberation as an invitation for non-specialists to engage with scientific discourses, worldviews and framings, leaving little space for co-created meanings: while deliberation becomes a whole body process, it remains essentially premised upon scientific framings. Decision Theater and similar visualisation devices sit squarely in the tradition of Sandercock’s ‘heroic planning’, utilising a “view of knowledge that privileges technical rationality and instrumental problem-solving ability” (Sandercock, 1998, p. 62).<sup>3</sup> This is clear, for instance, in Shen and Kawakami’s discussion of a visualisation tool developed to aid town planning in Japan (2010). Though the tool “successfully allowed participants to deliberate on a common image” (p. 108) this success was premised upon it helping people to “understand the concepts of the design alternatives” (p. 110, emphasis ours). Such tools are, in other words, fundamentally *illustrative*, designed to aid comprehension of a particular set of choices which have been pre-determined by scientific or planning data and analysis. The emphasis remains solely on cognitive-oriented decision making (Sánchez-Marrè et al., 2008). They therefore allow little scope for the transformation that is integral to more radical notions

of deliberation (Sandercock, 2001b) or for a genuine openness to diverse forms of knowledge.

#### *Experimenting with gaming: Sigtific Lab*

As the previous case suggests, the use of IT and multimedia tools is an important development in urban governance, and one which has been widely taken up in the context of public participation (Cai & Yu, 2009; Cockerill, Tidwell, & Passell, 2004; Dunn, 2007; Shen & Kawakami, 2010). Our next case is of a process which builds on these tools to use multimedia and gaming to uncover intuitive, crowd-sourced knowledge: a one day virtual game focused on water and energy trends and organised by the Institute of Electrical and Electronics Engineers (IEEE) and the Institute for the Future (ITF). The massively multiplayer game ‘Sigtific Lab’ was developed to support IEEE members in exploring the future of water and energy, and acts as a tool for a group to create ‘micro-forecasts’, tweets which respond to a scenario focused on energy and water challenges.<sup>4</sup> The game ran for 24 h, crowd-sourcing knowledge production by asking participants to “Spotlight unexpected challenges that others may be missing, help reveal solutions that only the collective brainpower of the IEEE can uncover, and transform the way the world looks at water and energy”. Players were given a six minute orientation video laying out a scenario about the future of water and energy (see Sigtific Lab, 2010) and were then asked to consider: “How will the world work differently in 2020, as we try to manage the water/energy dilemma?”. Users were prompted to play ‘positive imagination’ and ‘dark imagination’ cards before being asked to put forth a ‘bold idea’, build further on the ideas of others, or ask questions. Participants were thus asked to temper, respond to, or unpick the utopian and dystopian perspectives of their fellow players. During the 24 h of play time, ‘lab monitors’ scanned participants’ posts for the most “promising and provocative” and made other participants aware of these ideas by highlighting them, awarding points to the player, and blogging about them.

The goal was to quickly present scientific and technological facts woven into an alternative future in such a way as to “transport players into an alternative future world where compelling conditions demand their attention, and to structure engagement so as to elicit personal forecasts and strategic foresight that would not otherwise emerge” (Institute for the Future, 2010). The game is flexible: players could participate for five minutes or become more involved by playing multiple cards, building a profile, commenting on play, or working to win the game through a pointing system based on the quality of their contributions. The final outcome comprises a multi-vocal narrative of future worlds, with a mass of possibilities, values, dissonances, controversies, technologies, assumptions and conflicts sketched out through the sustained engagement of diverse actors.

Sigtific Lab can be seen as part of a tradition of ‘serious gaming’ (Mayer, 2009): it relies on playful engagement with potential futures but uses this engagement to develop new thinking on the possibilities for global water infrastructure. In its insistence on the necessity of a multiplicity of voices it builds on the notion of the deliberative encounter in the most traditional sense – the reasoned exchange and negotiation of diverse positions (Chambers, 2003). There are important differences, however, specifically in the game’s lack of interest of forcing – or indeed achieving – consensus and in its openness to different communicative genres such as opinion, hearsay, value and affect. Thus while comments appear which draw on technoscientific rationalities (“energy requires energy to flow – transmission costs” for example), other

<sup>3</sup> One might argue that, while the data presented within Decision Theater and similar spaces is scientific and technical, there is nothing to stop any resulting discussion from incorporating other forms of knowledge such as intuitive or affective responses to the models depicted. While this is, hypothetically, the case, it is worth noting that there is no means for any feedback of such responses into the WaterSim model or its decision structure (cf Gober et al., 2011).

<sup>4</sup> See the web record of the game at <http://water.sigtific.org/blog/>.

players make more personal or emotive statements (“I resolve to use only carpools, public transport or walk for the next one year”).

This celebration of difference has important parallels with recent thinking both in urban studies (Sandercock, in particular, argues for planning which “acknowledges and respects diversity and difference”, 1998, p. 124) and in political theory more generally. Pløger (2004), for instance, has applied the work of Chantal Mouffe on the ubiquity of unequal power relations to the context of planning by arguing for the importance of ‘strife’: the continual negotiation of difference through adversarial relationships. Strife, he argues, is inevitable and should not be airbrushed out through reference to consensus. Rather:

The system must make strife a productive force in the processes and make strife part of the institutionalised governmentality or ethos. I think public participation processes and political fields of action that stress openness, temporality (temporary solutions), respect for difference . . . and the need to live with inconsistencies and contingency, are needed. (Pløger, 2004, p. 87).

“Openness”, “respect for difference” and the acknowledgment of inevitable “inconsistencies” are certainly intrinsic to Sigtific Lab. Strikingly, though, it fails to live up to notions of material deliberation in precisely the opposite way to our first case of the Decision Theater: in its commitment to materiality and embodiment. While Decision Theater – however weak in its engagement with multiple knowledges – makes participation a whole body process in which participants can become sensuously immersed in potential futures, Sigtific Lab focuses on text (its tweet-length ‘playing cards’) solely mediated through the computer screen. There is little scope for participants to touch, hear or see the futures constructed through the game – players cannot, for instance, upload images or sound clips. While its openness to diversity enables a kaleidoscope of perspectives on, in this case, water and energy use, these perspectives are in practice limited in their expression by the medium of the game.

#### *Art and activism: taking sea level change to the streets*

Both Decision Theater and Sigtific Lab incorporate, to differing degrees, scientific information and arguments. Our final case moves beyond the notion of exchange of technical information altogether in order to highlight taken-for-granted spatialities and affective ties to urban space. A series of projects over recent years use climate change projections of sea level rise to raise awareness of environmental issues. The Blue Line Projects physically manifest blue lines in the urban landscape, either as a line messily painted on pavement, as blue-clad marchers, or as street signs demarcating a potential future. The affective, playful actions and responses these engagements provoke can be read in terms of Iris Marion Young’s description of activist engagement: events that incorporate “pictures, song, poetic imagery, and expressions of mockery and longing performed in rowdy and even playful ways” (2001, p. 687).

The first Blue Line Project gathered people to paint a blue line along the pathway of sea level rise, involving children and adults in Hawaii in a playful citizen action with a fundamentally serious message. This project, focused on Hawaii’s climate future, was run by Blue Planet Foundation, the Sierra Club, and 350.org, and made use of minimal scientific information, instead focusing on public discussion and awareness raising in the broadest sense. In 2007 the ‘Sea of People’ rally in New York City organised thousands of citizens dressed in blue clothing and costumes along an imaginary sea level line – representing the projected eastern and western waterlines across Manhattan in a ten foot sea level rise scenario – in an effort to raise Congressional awareness of climate change and the city’s vulnerability to water. A similar but more

distributed project occurred in 2009, when a blue line was physically drawn along anticipated new sea levels according to different scenarios. 181 countries participated in this mass collective action, which sought to draw attention to the potential local impacts of climate change and which was combined with a variety of educational programs and other outreach activities.

These projects take space and place seriously, planting the future in the present through communal action. Candy notes:

The blue line projects in essence mount an implicit spatial argument for paying attention to climate change: the distinctive configuration and use patterns of space being perhaps the fundamental condition of the urban experience, the foreshadowed encroachment by the ocean is reason enough, at least for those with long-term real estate investments close to the future waterline, to pay attention. (Candy, 2010).

In these actions, then, interactivity and immersive experience draw attention to the very concrete effects water may have on everyday lives in the future. Familiar places are disrupted – both in terms of the ‘inconvenience’ of rallies to passers-by and in spatial re-imaginings of taken for granted sites – such that potential futures intrude upon the present. These events create a ‘jolt’, a noticing of possibilities and potentialities which are generally occluded by mundane experience. While the Blue Line Project was an awareness-raising activity rather than being directly connected to policy, it caused a shift in public debate as both participants and passers-by are forced to consider water and urban space in new ways. Its appeal to intellectual and emotional assumptions regarding well-known spaces thus stimulates individual and shared discussion around potential futures and the relationship between water and the city.

In doing this it is not only reminiscent of Young’s arguments for the value of subversive activism that operates outside of the boundaries of Habermasian forms of deliberative democracy (2001) but of discussion of the need for manifold modes of knowledge expression. Sandercock, in particular, has argued not only for the power of non-traditional discursive forms such as storytelling (2001b) but also that of “music, painting, poetry and theater” (2003, p. 79). She writes:

Once we pay attention to these symbolic forms of expression, and learn how to ‘read’ them, we can learn from them about what’s on people’s minds, their hopes and anxieties. . . . we may be able to use such alternative ways of communicating in the planning process, as part of community consultation, or as a tool of community organising. (Sandercock, 2003, p. 79).

Here Sandercock’s emphasis is on “symbolic forms of expression” as communicative tools for understanding the knowledges and concerns of particular groups or for aiding the smooth progress of participatory processes. Her argument is extended, however, by Jonathan Metzger’s recent treatment of art in the planning process (2011): Metzger argues not just that art and artists can assist communication but that they are an important part of the “deep mental unhooking and suspensions of habits” that radical planning requires (p. 4, cf. Sandercock, 1998). Art can, in other words, “conjure up strange and unfamiliar/defamiliarising situations that . . . enable [an audience, participants or stakeholders] to look upon themselves and their situations with new eyes” (p. 11); in this ‘making strange’ the very quality of deliberation is changed, so that “antagonistic posturing could be transformed into fruitful, agonistic dialogue” (p. 20).

Here, then, we have a model for activities such as the Blue Line Project – processes which are about disruption of taken-for-granted assumptions (about the city, citizens or technology, for instance) rather than deliberation of an already-fixed set of options

for the future. The emphasis within such projects must be on the responses of those entangled in them – the “new eyes” that are engendered through their experience – and indeed this is the case with the Blue Line Project and its avowed aim of awareness raising and education. It is also here, however, that we might note a key difference with Signitic Lab, a project whose strength was in its emphasis on multiplicity of voice. In contrast, the first iteration, at least, of the Blue Line Project presents a single and essentially static future, with the ten foot sea level change its central premise (the second iteration presents a range of possible sea level rises). The onus, then, is upon the viewer to do any work in making the future multiple – and, without any formal mechanisms for dialogue or discussion, to do so alone.

## Conclusion

Our argument so far has been that, when considering the future of our cities and their technological infrastructures, it is important to make use of different formats and approaches which highlight not (only) reasoned arguments for particular developments but also the affective connections, materialities, and experiences which structure public interactions with urban spaces. Such approaches may also have the additional benefit of further opening up participatory processes to those who are not adept in the exchange of universalised, scientific arguments (Elam & Bertilsson, 2002). Using an analytical framework which has emphasised the ways in which embodiment and materiality, emotion and affect, (undervalued) genres of interaction, and openness to diversity are configured within deliberative and engagement processes, we have explored three examples of such material deliberation. In answer to the question we asked in Section 1, then – how can deliberation go beyond the discursive? – it seems that there are a range of formats in existence which start to do this. It is clear, however, that this is a nascent field of both practice and analysis: while research is increasingly highlighting the importance of affect in decision making (Slovic et al., 2004), explicit use of the material and affective in urban participation remains unusual (cf. Brabham, 2009; Rowe & Frewer, 2005). In addition, and significantly, the cases we have detailed vary in their commitment to different aspects of material deliberation. Signitic Lab, for example, highlights the power of multi-vocal spaces – online or otherwise – while Decision Theater, for all the weaknesses of its sole reliance on scientific expertise, enables its participants to become physically immersed in future scenarios.

It is on this point – the inevitable incompleteness of any one process or format – that we want to end, developing the ‘deliberative society’ model cited earlier (Section 2) within the context of urban planning and technoscientific governance to argue for the power of combining different approaches and tools in running public participation processes.

The notion of a society-wide approach to deliberative democracy is taken from the work of John Parkinson, a political theorist who has written on the legitimacy problems of traditional small-scale deliberative processes (2006). The solution, he argues, is to “think about legitimacy as being created across multiple deliberative moments in a wider deliberative system” (p. 174). He writes:

...different types of institution can make different legitimate contributions to a wider deliberative system. We can think about this in two ways. The first is to adapt the social research idea of triangulation, using multiple methods to look at the same data. ... The second approach is to use timing and sequencing. (Parkinson, 2006, p. 165)

Parkinson is concerned with the practice of deliberative democracy in liberal democracies, and sketches out a model that combines traditional forms of democratic representation with small

and large-scale deliberative processes: this is productive, he argues, both in terms of the triangulation of findings and in having the capacity to intervene in decision making in the right way at the right time. In the context of smaller scale decision making and public debate around urban planning we might apply his notion of “multiple deliberative moments” rather differently, to stress not only that there is no ‘one size fits all’ approach to public participation (Webler & Tuler, 2002) but that combining different methods and approaches around any one issue may be the most effective way to achieve material deliberation. No one process, in other words, is sufficient in reaching Sandercock’s vision of ‘insurgent radical planning’ (1998) within a particular issue or decision. Deliberative spaces such as Decision Theater, Signitic Lab and the Blue Line Project all have their strengths and weaknesses: all such projects involve trade-offs as pros and cons are weighed up by organisers and a balance struck (emotional impact against the presentation of multiple futures, scientific rigour against space for citizen voices). It may, we suggest, be more productive for planners to think of public participation as comprised of a kaleidoscope of practices rather than a single static event.

A similar point has been made with regard to public engagement with science and technology. STS scholarship has increasingly moved from viewing public participation as typically involving a one-off process such as a consensus conference towards defining it much more broadly as:

the diversified set of situations and activities, more or less spontaneous, organised and structured, whereby nonexperts become involved, and provide their own input to, agenda setting, decision-making, policy forming, and knowledge production processes regarding science. (Bucchi & Neresini, 2007, p. 449)

Here, then, we see an ecosystem of participation, within which different kinds of ‘involvement’ may affect “knowledge production processes” in different ways. This model will allow those interested in the intertwined futures of technology and the city to reach for anything from activist protests to science-oriented consultations or art projects when thinking about public participation; in Sandercock’s terms, “democratic and culturally inclusive planning must draw on many ways of knowing” (1998, p. 217). Our final point is that such a model of public participation may not only be more effective in accessing, and enabling the expression of, these different ways of knowing, but may also simply be easier for those tasked with bringing it about. In allowing practitioners to draw on what already exists – social movements, art, music, gossip, technical knowledges – around a particular issue, public participation can make use of the full resources of the deliberative societies we live in.

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