Sustainable Cities: research and practice challenges

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Introduction

'…the city is rooted in the habits and customs of the people who inhabit it. The consequence is that the city possesses a moral as well as a physical organization, and these two mutually interact in characteristic ways to mold (sic) and modify one another.' (Park, 1915, p.578)

At the beginning of a new decade we have the opportunity to look forward and consider what we could achieve in the coming years. With reference to Park's quotation above, we have the chance to consider the desired future of both the 'moral and physical organization' of the city. The start of 2010 also marks the beginning of this new International Journal of Sustainable Urban Development, which invites us to think about how the subject of 'sustainable urbanism' might develop, and about the debates that authors may want to contribute to in the coming issues.

I have been invited to write in this first issue about the research and practice challenges facing those of us working towards sustainable cities. This is a call that requires both reflection on what has been achieved in the 30 years or so that 'sustainable cities' has been the leading global paradigm of urban development (Whitehead, 2003), and to venture some thoughts about where it might be useful to channel our efforts now and in the future.

I have identified two key challenges, drawn from my experiences of working on sustainable urbanism research projects, policies and monitoring strategies. The challenges are quite fundamental. They are, ***the challenge of 'the vision': do we know what 'the sustainable city' is?*** and ***the challenge of change: do we know how to bring about 'sustainable urban development'?*** In addressing these challenges, I am also citing other scholars and practitioners whose perceptive thoughts I have returned to time and again, and are highly relevant now. Of course, the challenges I identify are not exhaustive, but I am setting out some ideas that others may want to add to, refine or refute: hopefully in the pages of this Journal.

Sustainable Cities and Sustainable Urban Development

The subject of 'sustainable cities' is endlessly fascinating. There are now global and local commitments to make urban areas into 'sustainable cities' through various processes of 'sustainable urban development'. Numerous actors are involved in the academic and practical aspects of the endeavour. We see, for example, social scientists, built and natural environment specialists, engineers and artists all undertaking research, and developing strategies and programmes, to tackle elements of sustainable urbanism.

Yet knowing if we are actually making any progress towards sustainable cities is problematic. In one sense, so much has been achieved in raising the profile of sustainability and sustainable cities over the last 30 years that the rate of change is inspiring. Urban policies around the world are infused with the language of sustainability, and a multitude of exemplary initiatives can be found. Yet, in other ways, we seem to be going backwards, to the extent that it is hard to see where there is any room for optimism. Urban problems in developing countries are becoming more acute as populations rise and resources become scarcer. In the developed world we see massive new infrastructure and building

projects that defy any notion of sustainability, yet are celebrated by the public and professionals. So, while there have been huge advances in some areas of knowledge, and some impressive practical initiatives, a very contradictory, or at least fragmented, picture arises of change 'on the ground'.

Given this complex picture, it is sometimes hard to see where common 'sustainable cities' challenges may be identified. However, part of the problem in conceptualising progress centres around what we think we are aspiring to, what changes we want to make, and what we assess 'progress' to be. It is this conceptualisation of sustainable cities that lies at the heart of the challenges I set out below.

The challenge of 'the vision': Do we know what 'the sustainable city' is?

Despite the fact that the 'sustainable city' discourse is now relatively mature, precise conceptualisations are rare and contested. As Bulkeley and Betsill state: 'Despite … near universal recognition that sustainable cities … are a desirable policy goal, there is less certainty about what this might mean in practice.' (2005, p.42). We find the notion of the sustainable city immediately appealing, yet complex and intangible.

In reality, most disciplines working in the field of sustainable cities construct their own notion of what the concept means for them. We see 'ideal states' proliferate in many sectors. For example, in engineering, the sustainable city is defined when resources are used most efficiently. Systems are mapped, and losses and uncertainties identified. In the social sciences, sustainable cities are often described in terms of the goal of 'social sustainability'. It is the desired 'ideal', realised only when a particular conceptualisation of social equity or justice is evident in a spatial setting. Within the 'sustainable urban form' debate, the idea of the 'compact city' has been favoured, above other settlement patterns in policy for a number of decades (although with less agreement by researchers in the field, Williams *et al*., 2000). Yet these 'ideals', and the debates about them, remain within their discrete worlds, and are rarely acknowledged or understood outside their expert communities.

The issue here is that all interest sectors involved in achieving sustainable urban development have genuine but differing 'visions' of the future. As Guy and Marvin state: '…within the sustainable-cities debate, a diverse and expanded group of interests can be identified, each developing competing visions of what a sustainable city might become' (1999, p. 269.). None of these 'visions' represent the complete picture (although some claim to), as each is only a part of the complex 'whole' that is the city.

I have long agreed with Guy and Marvin that understanding this multiplicity of socially constructed visions (or 'pathways') of sustainable urbanism is at the core of advancing research and practice. It seems sensible to assume, for example, that the 'pathways' towards sustainability for Nairobi will be very different than those for Paris. However, it has been interesting to witness how many culturally- and geographically-specific ideas have been replicated across the world, with little consideration or investigation of their appropriateness (see for example Williams, 2004 for a discussion of the transferability of the 'compact city' model in developing countries). I also agree with Guy and Marvin's assertion that '… the role of research is to keep alive a multiplicity of pathways by opening a wider discourse and dialogue about the types of future we might be able to create.' (1999, p.273).

This said, we do also need to recognise that these multiple pathways need some coherence of purpose, otherwise the much reported 'conflicts and contradictions' within sustainable urbanism thinking and practice will continue with no conceptual 'anchor'. Here the generally agreed principles at the heart of sustainability discourse, the prudent use of environmental resources, and inter and intra-generational equity, still serve us well. However, as we all know, understanding and operationalising these concepts over different temporal and spatial frames are complex and political matters that will, no doubt, be the focus of much debate over the next decade.

The challenge of change: do we know how to bring about 'sustainable urban development'?

If we understand and respect that there are multiple visions of 'the sustainable city', and indeed multiple pathways to achieving it, then we need to accept that 'making' our cities more sustainable (through sustainable urban development processes) will be dependent on a similarly wide-ranging selection of actions. Some actions will be 'top-down' and require strong leadership and, perhaps, large-scale investment programmes, other changes may be bottom-up, and rely on, for example, shifts in behaviour. These changes shift in prominence in any given place, and will happen at different paces (some over weeks, some decades), and at difference spatial scales (for example, the home, street, neighbourhood, city and city-region).

This multi-faceted conceptualisation may also help us 'place' our activities when striving to bring about urban change. At present the range of actions focused on achieving sustainable urban development is often characterised as being split between 'technical' and 'social'. Research, practice and expertise tend to coalesce around either the scientific and technological advances that need to be made or around social change, largely couched in terms of behaviour, economic or governance shifts. These two spheres of action (technical and social) are often seen as separate and opposing. For example, Bulkeley and Betsill argue that: 'This propensity for analyses of urban sustainability to focus on technocratic models and wish-lists of measures which should be introduced … has meant that critical questions concerning the political struggles which take place in defining what urban sustainability might entail have been neglected.' (2005, p. 43). They are suggesting that it is the concentration on technical issues that is responsible for an absence of a political debate. We also see engineers and scientists criticised for not understanding how their technologies fit with urban policy, or not grasping if and how they will be taken up by end users.

I suggest that the challenge for the next decade is to move genuinely past this dualistic thinking. We will not make much progress in sustainable urban development with an 'either/or' approach. The huge urban challenges we face, in areas such as climate change, energy, poverty, health, housing and transport require an integrated approach. We need to continue to advance our understanding of technical *and* social change. However, we also need a much stronger evidence base around the 'intersections' of social and technical knowledge and practice. We need to understand how social contexts and processes can enable the development and use of sustainable technologies and how technologies can shape and educate us. Guy and Marvin conceptualise a research challenge as being to: 'map the multiple constructions of the sustainable city, to understand the changing social contexts that produce them, and to build an understanding of the multiple logics emerging to re-order social relations, resources flows and urban form.' (1999, p.272). To achieve this requires both a deepening of specialised knowledge in some areas, a respect for, and understanding of, different research approaches and traditions, and some genuinely new ways of working. It also requires different partnerships and coalitions, perhaps between scientists, social scientists, politicians and the public; and it requires open minds.

Of course, many people are working in this way already. We are seeing a growth in inter-, multi- and trans-disciplinary research and practice. It was interesting to see that the outcome of a recent Symposium in the UK to identify 'Sustainable Urban Environment Grand Challenges' concluded that some of the major problems to address are socio-technical. The Symposium comprised mainly engineers and physical scientists, yet the key challenges included aspects of behaviour, policy and urban governance change. One of a number of the 'visions' that participants developed was that of 'A city where individuals, businesses and organisations can make the most sustainable choices and they are supported through technology, appropriate design of the physical environment, information and feedback' (EPSRC, 2009). As a partial working vision this seems useful.

Hopefully, this multi-faceted view of sustainable cities will also enable us to be more aware and, perhaps, optimistic about the processes of 'sustainable urban development'. It may help us take on board that not all change can be planned and managed, and that some unforeseen outcomes may still lead us up desirable 'pathways'. This is particularly important in an era of globalisation, when even the best laid plans can be incredibly difficult to implement. We have seen recently that, in developed countries, some of the most ambitious and interesting sustainable development projects (e.g. new eco-settlements and public transport infrastructure projects) have been abandoned or postponed as a result of the global economic crisis. However, the downturn has also allowed some smaller-scale, innovative schemes to be realised and has provided time for some developments to be improved in terms of their sustainability credentials. There has also been a renewed interest in community-based approaches to sustainable living, and some significant pro-environment behaviour shifts, as people try to make limited resources go further. Of course, we do not know what the net effect of the crisis will be for the sustainability of urban areas; there will be winners and losers. But we can, at least, see opportunities within the crisis for maximising chances to move along desirable pathways in some cities.

Taking the challenges forward

I have highlighted what I see as two of the most interesting and critical challenges in sustainable urban development: understanding the 'vision' (or visions) and developing a deeper understanding of the multi-faceted processes of change required to achieve more sustainable cities. I have offered a conceptualisation of multiple pathways and processes (drawing on Guy and Marvin, 1999) and have argued that a move to a deeper understanding of the interplay between social and technical solutions for sustainable cities is required. I hope that this journal provides a forum to explore 'visions' from a number of perspectives and to share knowledge on the multiple pathways that sustainable urban development may take. One of the Journal's main aims is to present multi-disciplinary work, and this is to be welcomed.

Park said, in 1915, that 'It is the structure of the city which impresses us by its visible vastness and complexity, but this structure has its basis, nevertheless, in human nature, of which it is an expression. On the other hand, this vast organization which has arisen in response to the needs of its inhabitants, once formed, impresses itself upon them, in turn, in accordance with the design and interests which it incorporates.' (1915, p.578). Let us hope that in the coming decades cities develop in response to their inhabitants' needs for a sustainable future and that, as Park suggests, the design and interests of sustainability are impressed upon the people too. It will be critical that we move towards a sustainable future through both the 'moral and physical organization' of the city.

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