



Research Paper

Making climate change visible: A critical role for landscape professionals



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HIGHLIGHTS

- Climate change can be made visible to the public by building local climate literacy with landscape architectural techniques.
- Signs of climate change can be seen in high or low carbon landscapes, and vulnerable or resilient communities.
- Landscape messaging through design, labelling, and signage helps people recognize climate change problems and solutions.
- Visualizations of future conditions can alter awareness and motivation on local climate change action.

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ABSTRACT

The central message of this essay is to make climate change more visible and meaningful to community members through landscape architectural techniques and building literacy. It identifies general principles for opening people's eyes to climate change, demonstrating the potentially powerful role that landscape can play in helping citizens to see and foresee climate change in their own backyards, where they care the most.

In this context, the author emphasizes the value of local landscape & place-based experience, as well as the importance of designing visible solutions. The essay describes two linked frameworks that address respectively the possibility of seeing and recognizing climate change, and the need to consider not only climate change impacts but also its causes, mitigation and adaptation solutions. Landscape architects and landscape planners can play an integrative, educational & visionary role in creative design and engagement of communities on climate change. The essay offers four pathways for landscape professionals to integrate & enhance public engagement and literacy on climate change, through: applying landscape messaging to make climate change more visible on the ground; using compelling visual tools that reveal signs of climate change in local landscapes and depict resilient, low-carbon futures; local climate change visioning processes to help communities understand the implications for communities; and helping neighbours to self-educate and mobilize for local climate change action. Better training and a professionally endorsed code of ethics for visual media are needed to support this vital work.

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1. Introduction

Climate change is getting worse, but society is not responding accordingly (IPCC, 2014). Scientists have become very worried and are increasingly trying to communicate better, some of them (such as James Hansen, formerly Director of NASA's Goddard Institute for Space Studies) even becoming activists (Mann, 2014). However, psychological research and the evidence of global politics confirm that science and science communication are not enough to stim-

ulate behaviour change or substantive action on the climate crisis (Moser & Dilling, 2007). This essay discusses the need for experiential learning, place attachment, social pressure at the local level, as well as enhanced planning, to help mobilize community-level awareness and action on climate change. It explores the unique potential of *local landscapes, landscape professionals, and their visual media* in helping to deliver or reinforce these as catalysts of social change, through making climate change more visible where people live.

This essay draws on concepts and examples advanced in the author's book on *Visualizing Climate Change* (Sheppard, 2012), in order to convey some of its key messages to a wider readership, and particularly to encourage further discussion and development

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of a leadership role for landscape professionals in addressing climate change. Intended for a general audience, the book proposes a new way of seeing our communities: through a perceptual *climate change lens* which can reveal what climate change looks like in everyday landscapes, and help develop the public's literacy on climate change at the neighbourhood scale (Sheppard, 2012). This calls for landscape-based approaches and landscape architectural tools, to help people read the signs of climate change all around them, engage in responding to climate change, and foresee future consequences of their action (or inaction). The book argues that the local landscape scale and these techniques have been largely neglected by scientists and most policy makers working on climate change.

Accordingly, this essay both summarizes and goes beyond the author's previous work, in advocating a key role and an urgent moral imperative for landscape professionals to become more prominent actors in social change on climate change issues. By applying our special skills in revelatory design, landscape visualization, and visioning methods, perhaps we can help communities to see and engage with climate change better at the local level. Building on broad principles and two frameworks outlined in *Visualizing Climate Change*, this essay focuses on roles and specific pathways through which landscape professionals (defined here as landscape architects and planners, landscape researchers, and related communications practitioners) can contribute to community capacity-building and better climate change planning processes. The essay also reflects further development of several concepts and findings since *Visualizing Climate Change* was published.

The rest of this essay proceeds with general principles from the literature on better engagement of the public on climate change (Section 2); the unique potential of landscape in engaging people with climate change, leading to a framework for integrating landscape with behaviour change and climate action (Section 3); the need to consider all aspects of climate change holistically in learning to recognize it in the landscape, introducing a second framework for categorizing climate change features in communities (Section 4); development of critical roles, guidelines, and pathways for landscape professionals to engage in this area of work (Section 5); and concluding recommendations.

2. Problems and principles in engaging society on climate change

Even in America, where climate change is still denied by some, a majority of the public has long had a concern over climate change (Leiserowitz, Maibach, & Roser-Renouf, 2009; Nordhaus & Shellenberger, 2009). Yet, despite this and the scientific consensus, society at large has been slow to act. According to psychologists, there are many social barriers to action on climate change (Gifford, 2011), due in part to perceptual gaps that exist in connecting climate change to people. Science and science communication are usually not enough to change minds, behaviour, or policies, and are often abstract and remote for lay-people (Moser & Dilling, 2007). Professional experience and research (e.g. O'Shea, 2014) suggest that conventional outreach, planning processes, and policies are also not reaching or mobilizing communities substantively. For example, despite British Columbia's aggressive province-wide emission reduction targets (80% reduction by 2050 from 2007 levels), a recent survey found that most respondents were not aware of any of British Columbia's climate policies (Rhodes, Axsen, & Jaccard, 2014).

One of the perceptual disconnects is the relative invisibility of climate change and greenhouse gases (GHGs) (Metz & Below, 2009; Moser & Dilling, 2007). Even though scientists warn of doom

& gloom, and extreme weather events periodically dominate the news, most of the time (especially in developed countries) it is hard to believe the truth about climate change, as it is difficult to see. As McKibben (2012) puts it: "it is hard to picture climate change, because carbon dioxide is invisible – if it were brown, we would have stopped producing it long ago." Because "our daily perceptions appear to contradict the serious messages issuing from the IPCC" (Castree, 2015), we find it difficult to connect the dots across scales and distances in space and time, such as between:

- "everyday community environments and global climate change, local landscapes to climate change science, or urban lifestyles to changes on the land beyond the city
- the causes of climate change and the resulting impacts, linking local causes and distant effects, or current habits with future conditions" (Sheppard, 2012, p. 27).

The future is of course not visible and therefore gets discounted, not just by economists (Pahl, Sheppard, Boomsma, & Groves, 2014).

The social and psychological literature on climate change suggests that we need more than information alone to bridge these perceptual gaps and reach the public. Van Der Linden (2014) argues that public campaigns need to make the climate change context explicit, and argues for integrating the knowledge/information approach with the 'affective-experiential' and 'social-normative' approaches, in order to influence behaviour. Recommendations often invoke the following specific approaches:

- *Experiential learning* (Weber, 2006), involving personal experience with emotional meaning in order to engage people in active social environments.
- *Place attachment*, caring about your 'hood' due to individually or collectively determined meanings, related to spatial characteristics and the prominence of specific social or physical elements in the landscape (Scannell & Gifford, 2010).
- *Social or peer pressure*, motivating behaviour through comparison with others. Our neighbours can be a powerful force, encouraging uptake of climate change solutions or representing a critical barrier to behaviour change. The "eyes on the street" effect means that practical actions taken by neighbours to fight climate change can be immediately seen and shared, helping to establish new social norms from observation of what is considered the appropriate course of action (APA, 2009).
- Use of *visual learning tools* to make climate change attributes more "concrete" to people (Leiserowitz, 2007) and act as prompts for behaviours (McKenzie-Mohr & Smith, 1999). Visual media and realistic experiential landscape visualization in particular have been found to increase engagement, enhance learning, tap emotions, and affect behaviour in some cases (e.g. Bishop, Ye, & Karadaglis, 2001; Schroth, 2010; Sheppard, 2005; Winn, 1997).

These findings can be distilled into three broad *principles* for engaging the public on climate change more meaningfully (Sheppard, 2012):

- *Make it local*: making climate change more salient and immediate by pulling it into a community context that people care about, using the local landscape to express climate change issues and focus action.
- *Make it visual*: harnessing the power of visual perception and imagery in making concepts and realities of climate change and carbon both clear and compelling; showing what climate change really looks like.
- *Make it connected*: looking holistically at the 'big picture' on climate change, integrating all aspects of climate change that interact with society and affected environments across scales –

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