Book review

Urban Retrofitting for Sustainability: Mapping the Transition to 2050

T. Dixon, M. Eames, M. Hunt, S. Lannon (eds), Routledge, London, UK, 2014, ISBN 978-0-415642514, \$95-00, 304 pp.

This book is based on research conducted as part of the Engineering and Physical Sciences Research Council-funded Retrofit 2050 project 'Re-engineering the City: Urban foresight and transition management' 2010–2014, and is a useful source for policy-makers, urban designers and researchers.

There are plenty of statistics here that make the case convincingly for the focus of carbon dioxide reduction efforts to be on retrofits in cities: 80% of greenhouse gas emissions can be attributed to cities; 70% of our current building stock is expected to be in use in 2050; between now and 2050 the world's urban population is expected to increase by 84% to some 6.3 billion.

After a review of the history of sustainable urban planning in the UK, the book considers the thinking surrounding the process of transition to a sustainable city. There is a recognition that cities will follow different trajectories and that 'one size does not fit all'.

There is a chapter on decision support tools for sustainable urban retrofit planning based on systems dynamics and using Cardiff as a case study. This is followed by a chapter on economics and financing that draws extensively on the experience of Leeds.

I found this latter chapter one of the least enlightening. For example, it asserts that 'the economic returns on major-scale investment in low-carbon cities could be very significant indeed'. There are plenty of 'mini-Stern' reviews about that reach this conclusion, but I have not read one yet that goes on to attempt a proper diagnosis of why that investment is not happening.

Instead of attempting that diagnosis, the next chapter takes us through urban governance and planning and then central government incentives, such as feed-in tariffs (FITs), the renewable heating incentive (RHI) and the Green Deal. In order to meet the Department of Energy and Climate Change 2020 target for cutting emissions, the book notes that the urban retrofit sector needs to invest at six times the current rate.

There is a section on urban retrofit in three BRICS cities – Sao Paulo, Mumbai and Cape Town – that notes that 'urban retrofitting is often focussed on ...

the priorities of capital and urban elites rather than citizens living in low income areas'.

The chapter on place making makes the point that different urban form components change at different timescales. Transportation and sewage infrastructure, for example, tend to persist for centuries and the disruption and expense involved in remedying bad planning can be colossal: the scheme to bury Boston's downtown artery set the city back US\$15 billion(sic). Similarly, a later chapter notes the 'considerable challenge' posed by retrofitting sustainable drainage systems and rainwater harvesting systems.

The EC1 area in Islington is cited as an example of a successful integrated approach to retrofitting, embracing both buildings and open spaces.

The chapter on energy poverty criticises current retrofit regimes as 'too slow, too shallow or both' in the context of carbon dioxide reduction ambitions. The deep renovation that is needed would attract costs three to five times higher than allowed for under the Green Deal.

The section of the book on smart grids is a comprehensive primer on the subject. There are also chapters on water and waste management that provide a well-considered strategic overview. The book's conclusions include that 'the complexity of cities, the relative inertia of the built environment, and strong sunk investment costs all present formidable challenges for a managed transition towards sustainability', and that 'It is at the city scale that the battle for a sustainable urban future by 2050 will be won and lost.' That sums up the received wisdom that seems to underpin the whole volume and lends to it a certain myopia. However, do we not need to advance at a global level and a national level in terms of binding targets and legislation before we can move forward at a local level? It is primarily on account of the landfill tax that we have achieved substantial reductions in commercial and industrial waste volumes. It is only because of FITs, the RHI and the Green Deal that the rather insignificant progress we have made towards the 2050 emissions goals has been made at all; and the carbon dioxide goals of all UK cities include an element of assumed grid decarbonisation, which in turn revolves around national energy strategy.

This tendency towards myopia and the lack of a proper diagnosis of the lack of investment means that the book does not live up to its strapline. The quality of the content is excellent, but only part of the map is visible here.

Chris Whitehead