By Gerd Winter

Changing habits of urban living

Australia is a lucky country - in love with the idea of living in a warm environment and almost unlimited spaces, and a lifestyle supported by cheap electricity. We used to not care too much about the gap below our front doors, entry point for wind and weather sending regular chills down the spine of Northern Europeans coming here? We have made almost a tradition out of living by this principle, in the way we built houses and we planned – or not planned - our cities. But it may now come back to haunt us.

In part, we have already woken up to reality as the price for energy has increased, and our neglect starts to bite. We think now of double glazing and proper insulation of our homes. The immanent price tag on carbon will most likely become another potent driver in the ecological make-over of Australian residential and commercial buildings. That at least is the message of Maria Atkinson, director of the Green Building Council Australia and head of Sustainability at the global corporation Lend Lease, delivered at the recent UK Think08 conference:

"Using existing technologies... I can make you a building a 100% more efficient for no cost if you give me $34 a ton for carbon." (The speech is currently on Youtube: www.youtube.com/watch?v=lkBV_cB0XPM).

However, as heartening as these developments are, the layout of our burgeoning cities is where decades of poor planning may resist the quick fix. In a recent interview with the ARDR, Professor Ian Lowe, president of the Australian Conservation Foundation, pointed out that "Brisbane with ~1.25 million people has roughly the same surface area as Greater London and Greater Tokyo with, ~8 and ~12 million people respectively. This makes it, for example, almost physically impossible to provide an efficient public transport system for all the journeys that people are forced to make because of poor urban planning. Because of this, he says, we are going to have more difficulty adapting to a world of scarce and expensive oil than almost anywhere else...."

photo: Cyron Ray Macey

The urban sprawl of Australian cities: a focus area of sustainable urban development. The photo shows Brisbane suburbia.

Peter Newton, professor at the Institute for Social Research at Swinburne University of Technology, attributes part of the complacency of city managers and governments to the regular ranking of Australian cities among the top 10 most liveable in the world. "Liveability, however, does not equate to sustainability," he says. Prior to 2006, Newton was chief research scientist at CSIRO leading the Urban Systems Program and also program director, Sustainability, in the CRC for Construction Innovation. Drawing on more than a decade of experience he has embarked on a series of books that are to lead the way to more sustainable urban planning. The first in the series, *Transitions: Pathways to More Sustainable Development in Australia*, was just released in July, with contributions from more than 90 leading scientists. Newton says that what motivated him to compile the book were insights he gained working on the *Australian State of Environment: Human Settlements Reports* prepared for the Federal Government in 2001 and 2006. These showed a growing pattern of resource consumption and decreasing sustainability of our urban settlement systems, where problems and vulnerabilities start to emerge that are bound to become quite critical with climate change, peak oil and dwindling food supplies.

The challenge is, he says, how to begin winding back the unsustainable ecological footprint of our major cities, which is about 8 hectares per capita, 3-4 times the global average. It can be done, he says, through technical innovations that facilitate future urban systems which see waste as a resource, make better and more integrated use of land and transport and create green buildings.

His book outlines solutions in each of these areas. They require product processes or technology that Newton broadly categorises as 'Horizons of innovations'. The first two Horizons comprise innovations that are commercially available and ready for universal application (Horizon 1) or have been used in a number of cases but may need to be adapted and performance assessed for different purposes (Horizon 2).

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Energy efficient light bulbs and hybrid cars, respectively, are examples of Horizon 1 and 2 innovations.

Horizon 3 innovations bear the greatest challenges but promise also the greatest impact on sustainable urban living. These innovations may already exist in laboratories – like the hydrogen fuel cell - but need to be

further developed and performance assessed. Horizon 3 innovations will have the capacity to provide key aspects of a sustainable urban future built on decentralised, distributed renewable energy systems, integrated urban water systems using city catchments and recycled water systems, and eco-industrial complexes which use waste as a resource.

Newton sets out four main pathways towards sustainable urban development by mid century. The first two pathways comprise the adoption of (1) technical innovations in the construction process and (2) virtual construction design to assess performance before the actual construction of a building begins – a major focus of a second book to be released in autumn next year.

The greatest challenges, says Newton, lie with the next two pathways requiring Horizon 3 solutions. These pathways will (3) encourage a refocus of urban planning on rebuilding our existing occupied built environment - our sprawling city suburbs - and (4) address attitudes and behaviours of city dwellers towards consumption. Our consumption patterns hold the key to sustainable living and change may be conflicting with our economic growth and consumption oriented system.

Our consumption is, however, in parts determined by the environment we live in. Newton just received an ARC discovery grant to research how consumption is affected by the built environment and hopes to find clues how to effectively intervene. "I couldn't imagine that manufacturers would put a product out unless it had been fully examined, yet we tend to think that we do not need to do that in terms of constructing our cities," he says. "This complex system which is our 21st century city, one of the most complex things that exist, has been virtually ignored, from a research perspective, in terms of trying to better understand it, let alone manage it."

The transition to sustainable urban developments will require national leadership which, much to his frustration, has been missing for at least the last 15 years. "I believe there is a critical role for Federal Government to play, in particular for the long term critical infrastructure planning of our mega-metropolitan regions," he says. "John F Kennedy said we neglect our cities to our peril because in neglecting them we neglect the nation." Regrettably, in Australia there hasn't been the connectivity at the federal level in understanding how significant our metropolitan regions are to the nation in terms of their economic health, their social health and their environmental sustainability, he says.

The inertia observed in sustainable urban planning is to some extent dictated by the way we approach it, which is incremental and restricted by short electoral cycles. Hence there is absence of a longer term perspective. "Within an electoral cycle we do not even get to articulate that vision," he says. "There needs to be a different thinking in an organisational, planning and political sense which is reflecteda new kind of organisational governance body."

Photo: Envirowise. UK

Sustainable urban development requires changes in waste managment: "moving from the current extract-process-assemble-use-dispose paradigm to one where waste, once minimised, is seen as a resource stream for cradle-to-cradle and eco-industrial manufacturing processes" [from 'Transitions: Pathways towards sustainable urban development', edited by Peter W Newton, published by CSIRO Publishing, 2008]

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Likewise, there is a good case for a research body that integrates the existing fragmented expertise.

In 2005 the Australian Technology Network (ATN) of Universities outlined a proposal for a Cooperative Research Centre for Sustainable Cities declaring that "setting up such a CRC is particularly timely as it coincides and would interact positively with the Solar Cities Program being implemented by the Australian Greenhouse Office." The proposal did, however, not proceed.

Why has it not been implemented? Newton says that the CRC has been on the cards ever since the CRC program came up but "there was simply not a receptor in Canberra." There is the idea, he says, that these issues are too hard to be dealt with, a view not shared in other parts of the world. There were House of Representative enquiries into sustainable cities in 2005 and an enquiry into a sustainability charter end of 2007. "Not one of the recommendations was ever implemented," says Newton. There needs to be a change and it has to come soon if significant hardship is to be avoided. "There is an urgency to the process."