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Changing Cities

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Imagine a city that uses 100 per cent renewable energy…where most transport is by electric light rail, biking, or walking...where the solar office block is filled with green businesses… where the local farmers market sells fresh, bioregional produce…where parents meet in the parks and gardens while their children play without fear in car-free streets.

The image you'll have conjured is Vauban, a new eco-city of 5000 households within Freiburg, Germany. Vauban is famous for its achievements but what is little known is that the ideas that drove it and the community that built it were from a bunch of ordinary German householders determined to make something better for the future of their children and grandchildren.

This chapter sets a context for action to move us towards a sustainable society, and then examines two Australian grassroots initiatives.

Why Sustainability in Cities?

Cities have always been places of economic and social opportunity. They emerged when hunter-gatherer societies were transformed into settled societies based on agriculture.

Today's cities have grown large during the industrial era and still provide the main economic and social opportunities for the world's growing population. But cities are now having a significant environmental impact as they are based, at increasing rates, around the consumption of fossil fuels and materials. They must continue to provide opportunities, but they must become more like Vauban – sitting lighter on the planet. Indeed, the key question now is whether cities can not only reduce their impact on earth but also contribute to its regeneration.

Around the world, cities are becoming more sustainable through resilient buildings, alternative transportation systems, distributed and renewable energy systems, water-sensitive design, and zero-waste systems – with all the cleverness of a new industrial green revolution.

From new cities like Masdar in Abu Dhabi to redeveloped areas like Treasure Island in California, Vauban and Hanover in Germany, and BedZED and the new Olympic village in London, these pioneers are dramatically reducing their ecological footprints. But what needs to be done in our *existing* cities and what does the grassroots involvement of communities mean in this brave, new, green world?

Government Policies

Several key government policies can help cities move toward sustainability:

- Infrastructure to enable energy, water, transport, and waste to be managed with minimal ecological impact;
- A design to ensure that the infrastructure is efficiently available to all;
- Innovation through R&D and demonstrations to continually ensure that the latest eco-technology becomes mainstream;
- Tax incentives to direct investment into these new technologies and provide people with the price signal motivation to change their behaviour;
- Regulations to set the standards high enough for sustainability technologies to cover their externalities; and
- Education- and behaviour-change programs to ensure households and communities want to make the changes needed.

These policy mechanisms are expanded in Figure 1 to show they can help to decarbonise cities by focusing on the front end of the economy (where the energy enters the urban system through power plants, oil refineries, industry, etc) and through the end-user part of the economy (buildings, transport and households).

These all have their roles to play in the transition to creating low-carbon cities. Cities are built around people and if these policies do not reach inside how communities live and breathe then they will be much less useful; they will be policy without soul.

Helping Urban Residents Live Sustainably

BedZED is a carbon-neutral development and social housing experiment in outer London. When a detailed assessment of residents' ecological footprints was made, a huge variation was found in how people made use of the area's ecological features. The average footprint for some residents was around 4.4 hectares per person (still less than the average for London of 6.6 hectares), yet some residents were able to get their impact down to 1.9 hectares per person.

Experiences in many early European experiments in urban ecology may hold the explanation for this. Buildings and neighbourhoods that were not developed within a community can fail to achieve their design outcomes.

If innovations are imposed on people who do not know how to use the new buildings as designed or why they should use less power or water or fuel, residents can simply transfer their old consumptive lifestyles to the new 'eco' situations. The growth of sustainable cities will only be mainstreamed when the green transformation involves all elements of the policy process – especially the processes that help people *want* to change – the grassroots does indeed seem an essential part of the process.

Here we assess how far and effectively two grassroots movements, in Perth and Melbourne, are reaching into the Australian suburban soul.

Policies and mechanisms	Examples	
	Front end	End users
Regulation	Mandatory emissions reporting – ie NGERS Renewable Energy Target (RET) Clean coal requirements	Building codes – ie BASIX, star ratings; carbon neutral reqt. Mandatory energy disclosure (buildings) Mandatory energy performance standards
Market-based instruments	Emission Trading Schemes Carbon Tax	Voluntary carbon trading National Carbon Offsets Standard Subsidies and Rebates i.e. Solar panels, home insulation, green loans, etc
Moral pressure	International Treaties Corporate social responsibility (large businesses and utilities)	Carbon neutral businesses and local governments Corporate social responsibility (small businesses) GBC ratings Other environmental ratings for buildings Green power
Infrastructure and services	Smart Grids Renewables links to grids Public transport (shapes cities) Infrastructure Australia (require a carbon reduction) Solar Flagship Program	Smart meters Electric Vehicle plug-in facilities Infrastructure for walking/cycling/transit Green infrastructure for local developments Green Transformers (City of Sydney) Power utility energy efficiency programs
Education	Energy efficiency pgms, Solar Cities Pgm	Household Sustainability Audits, Travel Smart Living Smart
R&D and demonstration	Investment in CCS/Clean coal Solar flagships Renewable Natural Gas	Carbon neutral communities Design models for low-carbon planning and building of precints
Visioning/strategic planning	Garnaut Report and Energy White Paper	Strategic planning, Clinton Climate Initiative ICLEI cities
Governance/focus	PM's Energy Efficiency Plan	COAG Urban Planning focus on reducing carbon

Figure 1. Decarbonising policies and mechanisms.

Living Smart

Living Smart is a program developed by the City of Fremantle with Murdoch University to enable householders to learn about their own lifestyles and begin to find ways they can change. It has been incorporated into a large-scale State Government initiative now but at the same time it has developed its own life with groups of Living Smarties springing up across Perth suburbs and in country towns.

Living Smart grew out of TravelSmart, a community-based program to help householders reduce their car use. It has reduced the kilometres travelled by vehicle by around 12–14 per cent in communities across the world – a result that seems to last for at least five years

after the program ends. Where transit is not good and destinations are more spread out, the program may only reduce car use by eight per cent, but where transit is good it can rise to 15 per cent. This is not a revolution, but it has many synergistic positive outcomes.

When people start to change their lifestyle and can see the benefits, they not only persuade their friends of the value, they become advocates of sustainable transport and climate change policies in general. Governments find it easier to manage the politics of transformation to reduced car use when the communities they are serving have begun to change themselves. An example of this was the development of Perth's rail system. As shown in Figure 2, Perth has been progressively rebuilding its rail system since the decision to re-open the Fremantle railway line – first electrifying the old diesel system in the late 1980s, then extending 29km to the north in the early 1990s and finally 72km to the south in 2006.

The modern electric rail system now moves people down four urban corridors faster than road traffic (eg, Melbourne's rail system averages 33kph while Perth's averages 70kph). Hence since 1992, the Perth rail system has moved from carrying eight million passengers a year to 60 million. The new Southern Rail has been particularly successful and now carries 55,000 people a day, compared with 14,000 who used to take the bus; this is the equivalent of eight lanes of traffic. In parallel to the building of the rail line, Perth had some 200,000 households undergoing the TravelSmart program. This has helped in the conversion of people from car use

Figure 2. The Perth city railway network, illustrating the expansion of rapid public transport associated with the north–south spread of the city since the 1980s.

to train use, as the Southern Suburbs Railway increased public transport patronage by 59 per cent in areas without TravelSmart but by 83 per cent in areas where TravelSmart was deployed.

The TravelSmart program recognises a fundamental principle about cultural change: it works best when the change is supported by a community: when it is part of the development of social networks that support changes in lifestyle. TravelSmart develops this social capital around sustainable transport modes. It does this through relationships established with

> ### Fiesta in Freo
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> One of the most inspiring outcomes of Living Smart is Hulbert Street in Fremantle where Shani and Tim live. The whole street has been drawn into living more sustainably since attending a Living Smart course together. Half of the houses have solar power; most recycle their grey water into gardens that are part of a community-based food production system that now includes goats and bees as well as vegetables and fruits; there's a Hulbert Street Choir; Friday night movies in the street; and a Hulbert Street Sustainability Fiesta which attracts 5000 each year.
>
> An evaluation of people attending the Fiesta showed that over 80 per cent were going to change something in their lifestyle after seeing the street and its low-carbon household activities. See www.sustainability.curtin.edu.au/CUSP Films for the story of Hulbert Street.

the TravelSmart personnel and with others in the local community who are making the same first steps to get out of their cars.

The same approach to cultural change that TravelSmart uses has been applied to other aspects of sustainability at the household level, in Living Smart. It deals with a broader range of changes that people can make in order to live more sustainably, including travel; home energy and water use; the products we buy; recycling; food gardening; and community building. The program helps to provide household infrastructure for new green technologies such as solar power, grey water recycling, energy- and water-efficient appliances; house design issues to ensure there is maximum daylight and minimum waste of energy; and most of all, information on how to live with a lower footprint in household daily activities.

Living Smart brings sound and locally relevant material into people's homes. The eco-coaches who have worked with the first 15,000 households in a trial have found enormous enthusiasm: 74 per cent of households are interested in making changes. Half of the households are signing up for workshops, coaching for special energy meters, advice on gardens, and home audits.

Evidence of the grassroots growth in Living Smart can be seen from its exponential spread across Perth and into country towns, in groups that are either self- or community-funded.

Lighter Footprints

Concerned citizens in Boroondara, Melbourne, set up Lighter Footprints. It is not driven by government funding (as the WA projects have been), and it is not an isolated action but is part of a movement of climate action groups around the country. Lighter Footprints grew from the response of one person to Al Gore's film *An Inconvenient Truth* in 2006 – a letter written to the local paper asking that if anyone else felt that we were in a diabolical situation, and that we might be able to do more *together* than separately, then please get in touch. Twelve

people attended the first meeting. There's now a core of about 30–40 people with a base of community support (over 600) through email and a blog website (www.lighterfootprints.org).

So what is significant about a group like this in working for change? It has no formal structure or membership or resources. (Other groups do choose to formalise their structure and raise funds to assist their activities, so this is but one approach within the wider climate change movement.)

It has taken many people on personal journeys of discovery through discussion and access to information. Many have changed their own practices to lighten their carbon footprints. But what became apparent to the group, surprisingly quickly, was the scale of change required from local, state and federal levels of government to build sustainable cities, and that personal choices are but one element of the whole picture. This group's focus has become one of watching for decisions being made that impact on sustainability and targeting them. The emphasis on pressing for political change, rather than just individual practice, is illustrated here by its organised support for introduction by the Australian government of a carbon tax (below).

Lighter Footprints supports the Earthball Relay – highlighting the importance of the carbon tax legislation. Oct 2011.

Lighter Footprints has identified various strategies for fostering change through community action, and by pressing for action on climate change, including:

• Run forums on climate change with candidates for every election, both state and federal, over the years (two state and two federal). Survey all candidates for local election on their views on climate change and relevant action, and then post results in local press and on website;
• Hold regular large public forums on issues of relevance and interest to the community;
• Support campaigns to achieve national outcomes such as a carbon tax;
• Run monthly meetings with speakers;
• Run small project group meetings, also monthly, on federal/state politics, and on local government and community issues;
• Make submissions to local government on budget and strategic plans as well as to state and federal government on climate change policy;
• Establish regular meetings with local council officers;
• Talk to the local paper on many issues related to climate change;
• Visit politicians in the area, so they know who the group is and what they stand for;
• Run stalls, speak to local groups, attend conferences (local and national), hold workshops;
• Write letters to the daily papers;
• Set up a website/blog, and keep it relevant;
• Keep up a lively information base for members through email;
• Support local network links around the nation;
• And, not least, build friendships.

One example of the impact of Lighter Footprint's actions involves a submission made to Boroondara Council supporting the draft Activity Centre Strategic Plan in 2011. This strategy supported the development of medium-density residential and commercial buildings in designated areas around public transport and retail nodes of three-storey levels – higher in different cases – and was perceived by Lighter Footprints as fundamental to the long-term reduction of carbon emissions from energy use and transport in our local community.

The strategy was opposed by other associations of community groups who saw it as a threat to current ways of living within the city in the name of support for the environment. These groups heavily lobbied the Boroondara Council. In the end, the council supported the Activity Centre Strategy by one vote. The council said it took into account the quality of the argument and not just the numbers. This provides encouragement that small groups supporting common-good outcomes can influence outcomes for sustainability, which the whole community then absorbs.

The dissonance between the conservationist groups and the climate action groups relates to their differing views of the future – on the one hand, preserving the current state as far as possible, and on the other, requiring significant change in living patterns. There can be agreement on the restriction of McMansions and the preservation of tree canopies and parks, but the reduction of car dependence, and the need for significantly

denser development around transport nodes and along transport routes, is quite fiercely disputed. Local government (as much as the other levels of government) must choose the kind of leadership role it will play in the face of the these issues, and good presentations (rather than rantings) from local community groups can be pivotal.

There are now around 40 groups similar to Lighter Footprints across Victoria, not including the many groups that are part of the Transition Towns network or the rest of the Climate Action Network within Australia. It is the start of a vast and growing social movement that can lead to significant political change to address global warming, which will drive the sustainable cities of tomorrow.

ACTIONS FOR 2020

A range of policies can make cities more sustainable, but all of them will work better when supported by community action. The culmination of household grassroots action movements like the ones outlined above, combined with all the other policy initiatives that are happening, may be the beginning of a transformation, not just in the actual savings in fossil fuels and other valuable materials, but in the growing sense that the actions of households and communities can help achieve the transition to more sustainable cities. All important social movements have become mainstreamed through developing their own social capital. This hope is the currency of growth toward sustainable cities.

Actions

1. Join a local Climate Action Group and record the lobbying actions taken and their consequences.
2. Record your household energy, water and fuel use and see if they are being reduced. Make projections to see if your reductions could keep up with Australia's commitment of five per cent by 2020 and 80 per cent by 2050.
3. If you were to generate a community within your street based around reducing your footprint, what would be on the list of things that you would do? Invite a group of neighbours to afternoon tea to test out your list, and go from there.

Further Reading

Changing Cities

Ashton-Graham (2008). TravelSmart and Living Smart Case Study in Garnaut Climate Change Review. www.garnautreview.org.au/CA25734E0016A131/WebObj/Casestudy-TravelSmartandLivingSmart-WesternAustralia/%24File/Case%20study%20-%20TravelSmart%20and%20LivingSmart%20-%20Western%20Australia.pdf

Climate Action Summit 2012. http://www.climatesummit.org.au

Lighter Footprint. http://www.lighterfootprints.org

Newman, P., Beatley, T., Boyer, H. (2009). *Resilient Cities: Responding to Peak Oil and Climate Change*, Washington DC, Island Press.

Newman, P., and Jennings, I. (2008). *Cities as Sustainable Ecosystems*, Washington DC, Island Press.

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VISION FOR A SUSTAINABLE SOCIETY

MELBOURNE SUSTAINABLE SOCIETY INSTITUTE

The Melbourne Sustainable Society Institute (MSSI) at the University of Melbourne, Australia, brings together researchers from different disciplines to help create a more sustainable society. It acts as an information portal for research at the University of Melbourne, and as a collaborative platform where researchers and communities can work together to affect positive change. This book can be freely accessed from MSSI's website: www.sustainable.unimelb.edu.au.

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Foreword

The last two centuries have seen extraordinary improvements in the quality of human lives. Most people on earth today enjoy access to the necessities of life that was once available only to the elites. Most people enjoy longevity, health, education, information and opportunities to experience the variety of life on earth that was denied even to the rulers of yesteryear. The proportion of humanity living in absolute poverty remains daunting, but continues to fall decade by decade. The early 21st century has delivered an acceleration of the growth in living standards in the most populous developing countries and an historic lift in the trend of economic growth in the regions that had lagged behind, notably in Africa.

These beneficent developments are accompanied by another reality. The improvements are not sustainable unless we make qualitative changes in the content of economic growth. The continuation of the current relationship between growth in the material standard of living and pressures on the natural environment will undermine economic growth, political stability and the foundations of human achievement.

The good news is that humanity has already discovered and begun to apply the knowledge that can reconcile continued improvements in the standard of living with reduction of pressures on the natural environment.

The bad news is that the changes that are necessary to make high and rising standards of living sustainable are hard to achieve within our current political cultures and systems.

Hard, but not impossible. That is a central message from this book, drawn out in Craig Pearson's concluding chapter.

This book introduces the reader to the many dimesions of sustainability, through well-qualified authors.

Climate change is only one mechanism through which current patterns of economic growth threaten the natural systems on which our prosperity depend. It is simply the most urgent of the existential threats.

Climate change is a special challenge for Australians. We are the most vulnerable of the

developed countries to climate change. And we are the developed country with the highest level of greenhouse gas emissions per person.

There are roles for private ethical decisions as well as public policy choices in dealing with the climate change challenge.

This book is released at the time of 'Rio+20', a conference in Brazil to review the relatively poor progress we have made towards sustainability in the past 20 years, and soon after the introduction of Australia's first comprehensive policy response to the global challenge of climate change. Australia's emissions trading scheme with an initially fixed price for emissions permits comes into effect on 1 July 2012. The new policy discourages activities that generate greenhouse gases by putting a price on emissions. The revenue raised by carbon pricing will be returned to households and businesses in ways that retain incentives to reduce emissions. Part of the revenue will be used to encourage production and use of goods and services that embody low emissions.

The policy has been launched in controversy. Interests that stand to gain from the discrediting of the policy argue that it is unnecessary either because the case for global action to reduce greenhouse gas emissions and the associated climate change has not been proven, or that the new policy places a disproportionate burden on Australians.

The health of our civilisation requires us to bring scientific knowledge to account in public policy. Everyone who shares the knowledge that is the common heritage of humanity has

a responsibility to explain the realities to others wherever and whenever they can.

The argument that the new policy places a disproportionate burden on Australians can be answered by seeking honestly to understand what others are doing.

The critics of Australian policy argue that the world's two largest national emitters of greenhouse gases, China and the United States, are doing little or nothing to reduce emissions, so that it is either pointless or unnecessary for us to do so.

China has advanced a long way towards achieving its target of reducing emissions as a proportion of economic output by 40 to 45 per cent between 2005 and 2020. It has done this by forcing the closure of emissions-intensive plants and processes that have exceptionally high levels of emissions per unit of output, by imposing high emissions standards on new plants and processes, by charging emissions-intensive activities higher electricity prices, by subsidising the introduction of low-emissions activities, and by new and higher taxes on fossil fuels. China has introduced trials of an emissions trading system in five major cities and two provinces. This adds up to a cost on business and the community that exceeds any burden placed on Australians by the new policies – bearing in mind that the revenue from Australian carbon pricing is returned to households and businesses.

The US Government has advised the international community of its domestic policy target to reduce 2005 emissions by 17 per cent by 2020. President Barack Obama said

to the Australian Parliament that all countries should take seriously the targets that they had reported to the international community, and made it clear that the United States did so. United States efforts to reduce emissions are diffuse but far-reaching. They now include controls on emissions from electricity generators, announced in March 2012, effectively excluding any new coal-based power generation after the end of this year unless it embodies carbon capture and storage. From the beginning of next year they will include an emissions trading system in the most populous and economically largest state, California.

The United States is making reasonable progress towards reaching its emissions reduction goals, with some actions imposing high costs on domestic households and businesses.

Australia has now taken steps through which we can do our fair share in the international effort, at reasonable cost. It would be much harder and more costly to do our fair share without the policies that are soon to take effect.

What Australians do over the next few years will have a significant influence on humanity's prospects for handing on the benefits of modern civilisation to future generations. This book will help Australians to understand their part in the global effort for sustainability.

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15 April 2012

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