



Our Swedish Ways

With its archipelago lake system lapping at the shores of red-patched villages, Sweden's urban landscape doesn't really look much like Australia's. But that hasn't stopped Swedish and Australian representatives sharing a 'Partnership for Sustainable Cities'. Touring Australian cities earlier this year, the concept's creator, architect Ulf Ranhagen, of Lulea University, Lulea, joked that since the partnership began in the late 1990s, Australian cities have been turning a bit 'Swedish green around the edges'. **Nicholas Montgomery reports.**

Sweden's E-Tag technology is used on Melbourne's City Link system.

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It may not be news to some, but Ulf Ranhagen believes that Australian cities such as Perth, Adelaide and Sydney will be consistently ranked in the top five liveable cities in the world in the next decade, rivalling Sweden's capital, Stockholm, currently voted the world's greenest city.

'It's good to see Australia adopting a holistic, four-level scale system for energy, waste, water and transport infrastructure,' he says. Although approving of new European-style 'green roofs' sucking up city carbon atop Australian buildings in our capitals, and such innovations as Swedish-style 'bike lockers' near public transport, Ranhagen says 'you can't just transfer Swedish experience directly to your context, you have to adapt and plan it.'

Victorian Environmental Minister John Thwaites, an influential advocate of the partnership, has been doing just that. He and his advisers have used the Swedish model intensively throughout Melbourne because it is, he says, 'a proven model of planning, clarity and results.' Indeed, if you look closely, the proof of the Swedish partnership is in any of Australia's major cities.

For one, using long-term planning, such as Melbourne and Sydney's 2030 scheme, city centres are quickly becoming denser – a markedly Swedish characteristic that compacts people and infrastructure into a cell-like metropolis for environmental efficiencies.

Although eight times the area of Swedish cities, Australian cities such as Adelaide, Melbourne, Brisbane



Pathways to a Swedish-style sustainable city

- **Density:** Bring communities, business, solutions and transport together. Create and oversee green wedges.
- **Link transport:** Public transport nodes, bicycles and city ring-roads form a transport network. Use road tolls to charge for driving distances and congestion.
- **Connections:** Supply transport, waste and renewable power infrastructure to homes. Eco-makeover old industries and buildings.
- **Cooperate:** Create business and public partnerships with smart green investment and regulation. Export technology.
- **Exchange:** Develop creative ideas technology and partnerships with world cities. Form a sustainable cities knowledge base.

and Sydney nevertheless have comparable people-per-hectare ratios. Meaning, explain Ranhagen and Thwaites, that the Swedish densification blueprint to position people, homes and transport close together can be readily employable.

The densification of Australian cities has already had clear successes. Close-together buildings are inter-conducting or pooling heat during winter and air conditioning in summer months; apartments closer to employment are cutting car use; and higher density communities are rising to sustainability challenges with innovative cooperation.

Densification has also created some inevitable tension too, with, for example, 'not-in-my-back-yard' movements protesting against development of old buildings. Squeezing urban geography together can sometimes aggravate the sustainability problems that densification tries to solve.

Cars stopping and starting frequently, for instance, discharge more carbon dioxide, and traffic jams can increase accidents as well as the community spectre of road rage. Of course, the pressure on city infrastructure also increases.

Enter the Swedish traffic flow and calming planning system. A traffic flow scheme together with a patchwork of 'micro-planned' interconnecting city ring-roads and 'smart roundabouts' reduce traffic chaos, according to Stockholm's Governor Mats Hellstrom.

Expressways mix with public circulation paths, through bridges and transit spaces, 'which link and loop development with residential neighbourhoods.' In unison, 'smart car sharing, networked bike lanes, and training truck drivers to 'drive right' advance traffic flow,' says Hellstrom.

Doesn't this sound like programs undertaken in our own cities? It turns out that Sydney and Melbourne's 2030 sustainable traffic plans converge around Swedish engineering. In fact, Australian cities have followed the Swedish road map for some time, says Roger Taylor from the Australian Institute of Traffic and Planning.

'In Melbourne, transit sites cluster people close to busy centres ... cycling around the city has grown with more people riding to work along 1500 km of bike lanes and paths ... and our transport nodes (zones connecting houses and streets to transport infrastructure) have been recognised by the Stockholm environmental awards,' he says. Meanwhile, 'smart buses' running on bio-diesel, ethanol and hydrogen, connect with trains and 'priority lanes for trams are under consideration.'

The City Link E-tag system is another of several technological transfers from Sweden to Australia, allow-

ing electronic road-toll payment without stops. The system, says Taylor, provides a specific, positive example of the Swedish-Australian sustainable city partnership. Used successfully in Sweden for travel time information, access control and parking, Australian cities expect to explore use of the E-tag for city congestion charging.

Other standard Swedish components are working beneath Australian cities, such as in Melbourne, explains Rutger Engvall, Vice-President of the Swedish Environmental Technology Network. These include stormwater filters that remove oil and other pollutants, typically installed in areas with high exposure to polluted stormwater in run-off from car parks, loading docks and industrial areas. Engvall thinks Australian cities can also find ideas 'for linking stormwater to homes, like in the Swedish concept.'

Likewise, Engvall says that Swedish District heating technology 'is being applied in the manufacture of insulated pipes' intended to lock in water evaporation. Victoria's Yarra Valley Water Director Tony Kelly says Victorian water companies are now investing \$80 million to advance Melbourne's trade waste and water piping systems along Swedish lines.

But the Swedish waste and water idea is decidedly complex and will be difficult to match: Stockholm's underground 'loop cycle' vacuums household waste through three separate pipes for recycling. Used in passenger aircraft toilets worldwide, the Swedish vacuum system has evolved into a 'split waste' toilet called 'Dubbletten toilet,' which is currently being tested

Above left: Architect Ulf Ranhagen with Swedish Crown Princess Victoria during their recent visit to Australia.

Swedish-Trade Australia

A view of Hammarby Sjostad, Stockholm's largest sustainable urban project. Victoria Henriksson





Melbourne's Docklands exemplify recent efforts to build denser communities in Australian cities.

Nick Axaris

in Australian buildings. Former industrial ports, regenerated as 'eco-suburbs,' further integrate this 'loop cycle' by connecting homes to pump and biogas plants driven by waste, tidal, solar and wind power.

Although Australian city homes are behind their Swedish counterparts in environmental advances, similar self-sustaining eco-villages are converging around disused Australian industrial hubs. 'But in this area,' says Ranhagen, 'Australian cities need to show more working examples.'

The observation is acute when you consider that 60 000 to 80 000 old buildings lie vacant in Australia's capital cities. However, major eco-developments, such as the Inkerman Oasis residential community housing

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in an old Melbourne municipal depot, did win a Stockholm eco-award in 2002. The 245-unit development, which links up solar technology, waste recycling, cross-flow ventilation and green roofs, has since become an 'ambassador program' between the two countries. Other industrial spaces overhauled to run on solar power, such as marketplaces in Melbourne, show that Australian cities could implement the Swedish-style satellite eco-communities within their boundaries, believes Ranhagen.

But the relationship isn't all a one-way green street. While learning from Australia's fondness for eco-parks, eco-farms and urban regeneration in the city precincts of Adelaide, Melbourne and Sydney, the Swedes are taking transfer of a geographical-based planning support device used to build those 'green wedges'. Ranhagen considers areas separating green regions of the city, supplemented by geographical information, extremely important for Sweden. 'You can get very high urban qualities applying this idea,' he points out.

Ranhagen further notes that the idea of 'carbon neutralising' in Australian cities by en masse tree plant-

ing means that 'the vegetation improves the air quality in a considerable way, and storm run-off water from the built-up areas can be filtrated.'

With shifting public and private responses, Australian cities are also showing the Swedes how to market sustainability, says Stockholm Governor Hellstrom. Given that Sweden takes a tough tax approach – even landing aircraft befall a heavy emissions-dependent tax – the Swedes 'are very impressed by the social engineering campaigns to save water.' Smart public relations and 'true cost' water pricing have already saved one year's national, annual use of city water in Australia.

Our 'smart green regulation' has also shifted five-star efficient controls onto city homes. Under a new energy audit scheme designed to measure energy use and force efficiency practices and renewable energy changeovers, businesses now face the prospect of losing Environmental Protection licenses if they can't tighten up.

But as with Sweden, the regulatory environment isn't stifling innovation; quite the reverse, as the eco-tech and clean-tech industry is booming. 'The Swedish have viewed the sustainable challenges as a billion-dollar business opportunity and marketed the technology worldwide,' says Victorian Environment Minister John Thwaites. 'With our world-renowned research, technology and business we can do, and are doing, the same.'

Interestingly the Swedes are learning from the myriad initiatives listed in the International Council for Local Environmental Initiatives (ICLEI) and Melbourne City creation, the Melbourne Sustainable Business Directory, where enterprises offer world-first green home loans and green plumbers, to name a few products. Business links through the directory have also culminated in the stand-out project of the Swedish and Australian collaboration: a hydrogen and solar-sail powered eco-ship concept being developed by Wallenius Wilhelmsen's Stockholm and Sydney branches.

The benefits of the Swedish–Australian partnership are also globally significant. As Hellstrom points out, programs like E-tag 'have been installed in cities in Europe and Latin America as a consequence of Melbourne's good reputation.' Currently, the model demonstrated by Stockholm is also being imported further afield, too, as an 'eco-satellite city', into Luodian Town, Shanghai, China, and Toronto's waterfront in Canada. Mexico, Thailand and Romania are among another 53 countries participating in 230 sustainable-city partnerships and projects that range from simple learning-tool kits and policy advice to technology transfers and engineering.

Meanwhile, full-blown, Swedish-style eco-towns may be a few years off in Australia yet, but city dwellers are beginning to appreciate design spin-offs from the Swedish–Australian partnership. As their cities move closer towards more environmentally efficient operation, the mutually beneficial relationship between the two countries, greatly separated by geography but increasingly close in ideology, seems set to remain dynamic and fruitful.

More information:

Stockholm Partnerships for Sustainable Cities:
www.partnerships.stockholm.se

Melbourne Sustainable Business Directory:
<http://203.26.235.226/sustainablebusiness>