THINK LOCAL

As the international agenda around climate change stalls, leadership and action by cities is more critical than ever, writes Martin Brennan of ICLEI – Local Governments for Sustainability.

There is a growing realisation that, given the escalating urbanisation of the planet, cities will need to play an increasing role in action on sustainability, in general, and climate change in particular.

But local governments have long been a key element of sustainable development. In the 1980s it was through local conservation strategies, in the early 1990s it was under Local Agenda 21 and since the late 1990s it was courtesy of programs such as Cities for Climate Protection.

These have been visible signals of the localism inherent in sustainability. They have brought together people from across the community to talk about what they faced in common and how they could take action collectively.

The underlying principle of this is the power of doing lots of small things and aggregating the actions of cities around the world. This has, in fact, never been more important as local governments can help provide climate change solutions to an international system that is stymied by national interest.

Cities and local governments around the world are providing leadership and making a significant impact on carbon emission reductions. Some are seeing support from their national governments, but many have been active despite the intransigence of their national government or its failure to recognise the role of city and local governments.

Unfortunately the realpolitik of the Copenhagen

Cities house half the world's population and consume 80 per cent of world energy.

climate summit last December left the role of local government in the wash. Despite extensive efforts during the past two years through the Local Government Climate Roadmap process launched at the Bali Conference of Parties (COP), the Copenhagen Accord did not include any reference to local government.

As the 100-plus pages of the draft agreement dwindled to the three-page Accord, there was little doubt that local government would be left out. Still, it was good to see Climate Change Minister Penny Wong state strong support for local government.

Half of the world's population now lives in cities and consumes 80 per cent of world energy. Shoring up national government recognition for local action is our challenge in this second decade of the 21st century, for without their commitment and financial support the political and community support base for action will diminish against the increasing tide of scepticism and denial.

Deciding the future

While ICLEI will continue to support an international agreement on climate change – one that is inclusive of the role of local government – our local role and responsibility is critical at this time as we continue to build the political will and commitment among our city leaders.

The capacity and preparedness of local government to sustain and support climate change actions should remain our primary mission. It seems to me 'COP-Local' should be the agenda of local governments around the world.

COP-Local would facilitate conferences at the local and regional level and drive innovative actions that would deliver the reduction in carbon emissions necessary for the future of the planet. The aggregated responses of local governments working in partnership with NGOs, business and civil society would provide political motivation and direction to national governments.

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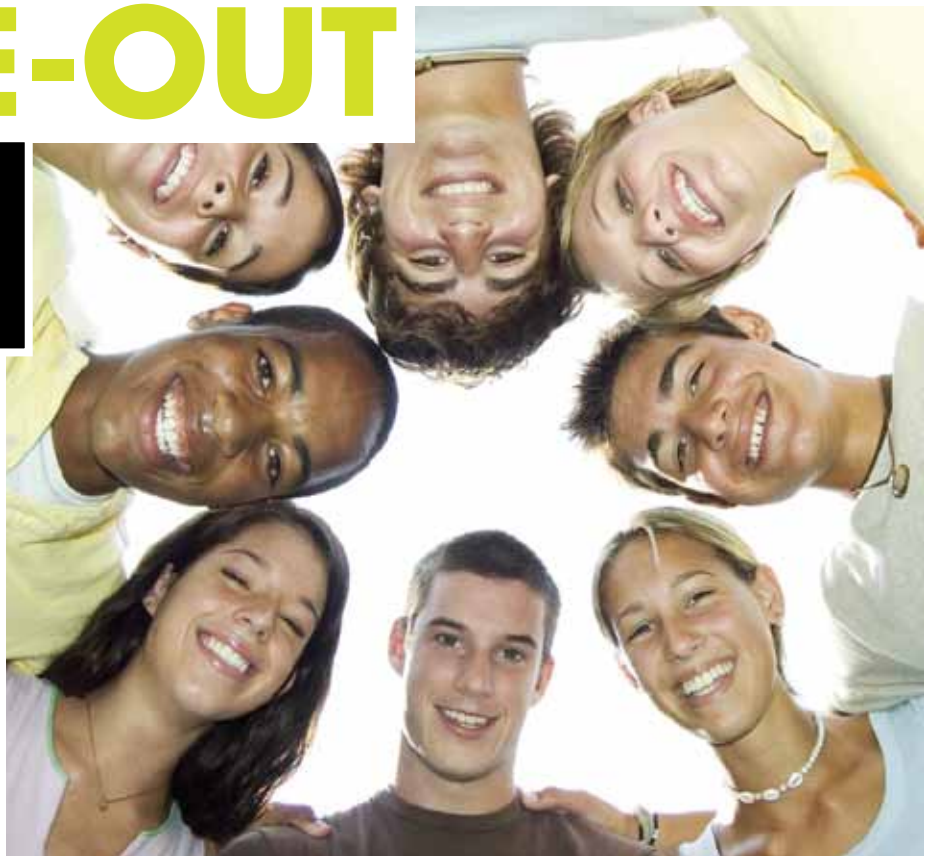
The form and functioning of cities will be critical to the future of our planet. The challenge we face is not to 'predict' the future of cities, but to decide it. This will require local governments – in collaboration with national governments – to plan, build and operate cities with distributive systems for energy, water and food, and to manage our cities as eco-systems in which the city is a catchment.

It will require citizens to be both consumers and producers and to be participants in local decision-making and climate change action. Investing in future COPs therefore needs to be measured and expectations limited to ensure the work of local governments continues to be positive and outcome-driven.

Martin Brennan is deputy CEO of ICLEI Oceania and director of its Cities for Climate Protection program.

SUSTAINABILITY INSIDE-OUT

Six NSW councils have joined to develop a program that will filter a culture of sustainability from the inside out to their communities. Richard Collins reports.



Building the skills and literacy around sustainability is important.

Sustainability is best envisioned as an inside-out process, reckons Mehreen Faruqi of Mosman Council, rippling outwards from personal values to work behaviours to organisational culture and, ultimately, triple bottom line performance. It's a model that requires organisations to engage right along that chain. It is also about a conversation, not a directive.

Local government has a long way to go to embrace the philosophy. Recent analysis of projects under the NSW Stormwater Trust found education and learning are not seen as core tools for achieving sustainability. It remains a marginal activity among the competing pressures of council life.

But the proximity of councils and shires to their communities makes them particularly well suited to driving education around sustainability, both internally and externally. There's no shortage of pilot work underway on how to deliver initiatives with strong organisational and community buy-in, with sustained outcomes and direct links to other council business including policy development, regulation enforcement and service delivery.

One effort that just kicked off in NSW is a three-year partnership between Ku-ring-gai, Mosman, Wyong, City of Sydney, Bathurst-Orange-Dubbo and Coffs Harbour councils, plus the NSW Department of Environment, Climate Change and Water (DECCW).

In December, Faruqi, Mosman Council's manager of environment and services, convened a gathering of all 170 council staff to open up sustainability conversations across council departments and to start talking about what it might mean for each job function.

"It is also critical we link responsibilities for sustainability to professional review and work plans and development processes," she said. "That is something we are trialling at the moment, adding questions about how do you implement sustainability in your daily work practice."

It is just the beginning of the process, but she hopes it will get the wheels turning. By March she hopes to have finalised the shape of the broader research program, including a 'Community of Practice' to facilitate a whole-of-organisation approach to delivering effective sustainability engagement and education.

A culture of awareness

Wyong, on the NSW Central Coast, is already recognised for its efforts to build organisation culture around sustainability. In December, it won the Local Sustainability Award at the NSW Local Government Excellence in the Environment Awards for a program it calls Sustainability in Wyong Shire.

It started in 2007, when seed funding from the Urban Sustainability Program was used to engage Sustainable Futures Australia to help raise awareness for sustainability among staff, councillors and key community stakeholders.

"As part of the Sustainability in Wyong Shire project, we have developed a sustainability decision-making framework and [six] sustainability principles that help our staff make better decisions for the future," said Gina Vereker, the council's director of shire planning.

"We are already seeing the results with projects such as the use of recycled bottom ash in road bases, recycled plastic in shared pathway, seats and bollards across the shire, and our commitment to the Greenfleet program already implemented."

That's the external stuff. The council has also made changes to internal operations.

"We have set up a project assistance team to ensure council projects meet our sustainability principles, introduced a swap station which encourages reuse of council resources, we use biodegradable bags for our waste bins and we provide all new staff with information on sustainable decision-making."

The council was also commended at the awards night for its Environmental Procedure Manual, which covers its own developments.

"The Environmental Procedure Manual provides a framework for council staff

to assess and mitigate the environmental impact of their projects," Vereker said.

"The manual allows our staff to easily identify all necessary approvals and licences that may be associated with current and upcoming projects, ensuring they minimise the effect on our local environment."

Weeding out bad practice

In 2006, a Ku-ring-gai Council staff member unintentionally impacted an endangered ecological community when clearing some weeds. The incident highlighted gaps in knowledge, communications and practice within the council.

It also triggered development of its Environmentally Sensitive Lands Training Program, which has now been used by DECCW for its accredited course in Biodiversity Management for local government.

The program aims to ensure any action of Ku-ring-gai is mindful of its impacts on environmentally sensitive areas, particularly within the three endangered communities in the area.

The program, which is tailored to suit the target staff audience, is delivered in modules, with content related to specific topics such as general environmental awareness, plant identification, weed management and complying with current legislation.

It has been integrated into staff induction and delivered to everyone from operational and outdoor staff to development control officers, senior staff to councillors. Information is presented both in formal and informal formats, including practical exercises, written notes, Q&A and site visits and is available on council's intranet.

No spin, no jargon

Part of the challenge is the jargon surrounding sustainability and the proliferation of different tools promising to improve the way systems operate. In a bid to demystify the process, the Urban Sustainability Support Alliance in NSW has partnered with the Institute of Sustainable Futures to develop the 'Sustainability Tool Selector: A Guide for Local Government'.

The guide being launched this month is designed to help councils navigate the myriad options available. It is being rolled out in tandem with a series of Sustainability Tools workshops that will showcase the tools that can help councils evaluate their processes, make decisions, develop performance indicators, and track their sustainability progress on an organisational and project level.

> **"Councils can use this training and a new Sustainability Tool Selector to compare the different ways of incorporating sustainability**
> – Cr Bruce Miller, Shires Association

"Councils can use this training and a new Sustainability Tool Selector to compare the different ways of incorporating sustainability without all the marketing spin and jargon that so often gets in the way," said Cr Bruce Miller, president of the Shires Association.

Building the skills and literacy around sustainability is important, says Faruqi, but so is the willingness to embrace change.

"We need to have the courage to fail. Sustainability does demand innovation and that is not going to come without us trying new things. We have to accept the fact that things might not work and, even if they don't, we will still learn from that." WME

TRADING WASTE

A listing on the stock exchange couldn't be more exciting than posting an unwanted resource on the Waste Exchange, could it? Richard Collins explains.

Auburn and Parramatta lord mayors Hicham Zraika (L) and Paul Garrard flank Ian Kiernan.

The Duck River Catchment hardly sounds the place to look for the latest development in small-scale industrial symbiosis, but it is. The 39km^2 industrial precinct in the heart of Sydney is home to more than 600 businesses, including at least 27 potential sources of e-waste, 13 likely generators of wood waste, 13 generators of food and organic waste and six that may generate carpet waste.

The two councils that share the catchment, Parramatta and Auburn, have teamed up to develop an online waste exchange as part of a new multi-strand Streamline program to reduce the resource use of companies in the region.

"This program will not only have environmental benefits, it will also benefit businesses in the Duck River catchment achieve financial, social and environmental sustainability, as well as helping them achieve positive environmental goals," said Parramatta Lord Mayor Paul Garrard.

Waste exchange databases, operating in Europe since the early 1970s, have a mixed reputation. Many have failed after being stripped of valuable resources or left without active administration, but there is renewed interest in the concept locally.

The two Sydney councils, with an Environment Trust grant, have engaged the Institute for Sustainable Futures (ISF) to go back to first principles and design an exchange with added functionality. ISF project manager Julian Fyfe is betting the development of a decision support tool to provide members with local resource recovery options will provide greater value than a static site.

"For starters, this is focused on SMEs and, for them, space is an issue. That means we need quick turnaround once the waste is listed," he said.

"So we are going to show all the local recovery options, not just exchange opportunities. The site will let people enter the type of waste, load, frequency and contamination level; the list of recovery options will narrow as more parameters are entered."

Options include food waste to the EarthPower digestion plant and recyclables to Sydney Turf Club, as well as the waste exchange opportunities.

Tracking opportunities

A Duck River Catchment business needs survey revealed little awareness of existing council sustainability initiatives, but a willingness to engage.

"Waste seems to be the best leverage for immediate sustainability returns," it concluded, given the catchment's mostly small and medium firms flagged waste as their key potential environmental impact.

Indeed there's evidence of some informal waste exchange already taking place, such as by private brokers (especially in chemicals) and facilitated by government on an ad-hoc basis.

The councils hope to broaden and deepen the process with a formal exchange. A workshop with local businesses last year identified a number of barriers, including conservative business attitudes to waste, a lack of manufacturers to utilise recovered waste locally and perceptions of conflicting council and government waste codes and standards.

Fyfe's task in the next few months is to develop several case studies with participating companies that highlight how waste in the region flows and what the recovery opportunities are. He's signed up a catering business and, tentatively, a hard plastics company to the waste-tracking task.

He'll also be hoping to repeat some good news stories, such as that of local yeast manufacturer AB Mauri. A few years ago it found an animal business that could make use of the waste sludge from its molasses treatment process, turning a waste disposal cost into a $30,000 a year profit.

Another drawcard Fyfe's hoping to build in is the capacity to calculate the indicative sustainability savings of the various recovery options, from the simple avoided tonnes to landfill to the more complex greenhouse gas savings. That feature is a work in progress, but seen by participating businesses as very nice to have.

He hopes the waste exchange will go live on the Streamline project website in August or September, initially focusing on key waste streams including organics, wooden pallets and electronic waste. WME

FACT FILE

Local waste exchanges

- RENEW Waste Exchange – www.renewwasteexchange.org.nz
- WastePro Waste exchange – www.wasteexchange.net.au
- City of West Torrens – www.wtcc.sa.gov.au/site/page.cfm?u=741
- Freecycle – www.freecycle.org
- Scoodi – www.scoodi.com

NIP ALGAE IN THE BUD

Lake bed aeration helps turnover urban lakes to reduce algae.

New energy efficient aeration for algae control mimics the way nature 'turns over' water, making sure algae blooms don't occur. By Scott Tucker.

Lakes usually 'turnover' in spring and autumn as temperatures change, bringing nutrient rich water low in dissolved oxygen (DO) to the surface and enriching it with atmospheric oxygen. This provides beneficial bacteria enough oxygen to break down nutrients, making them unavailable for algae and creating an overall healthier environment.

Unfortunately, nature's twice a year turnover simply isn't enough in manmade impoundments, most of which are managed by councils. They need a hand.

Urban lakes usually provide perfect conditions for algae growth – warm water, nutrients and sunlight.

Chemical controls provide a quick fix but may remain in the sediment, creating long-term problems. It can also result in fish kills as oxygen is stripped from the water by decomposing algae. Further, the dead algae simply become nutrient-rich sludge ready to feed the next bloom.

Aeration improves a lake's ability to break down nutrients and, when combined with enzymes or beneficial bacteria, can naturally control blooms. But how to aerate, that is the question?

One common option is floating aerating fountains, which look good but have limited applicability and some significant downsides, which I'll get to later. A new option in Australia is Vertex lake bed aeration systems, which mimic nature by bringing bottom waters to the surface to enable gas exchange.

The benefits are multiple. A case study on a 21-acre lake at Vero Beach in Florida increased DO levels from zero to 7.5ppm at 4m depth, boosted Secchi Disc readings of water clarity from 900mm to 2m deep, decreased nitrogen levels from 0.28ppm to 0.06ppm and phosphorus levels from 0.71ppm to 0.33ppm. It was achieved using only 2.25 horsepower for the entire lake.

Bubbling efficiency

Vertex systems require very little power as they use shore-based compressors to pump air into diffuser stations at strategic locations on the bottom of the lake. Millions of bubbles are released from each station and rise to the surface, taking bottom water with them.

The bubbles don't directly provide oxygen; they are the vehicle that moves the water from depth. Aerating fountains, on the other hand, provide aeration in shallow water but can't bring up bottom water in deeper lakes.

Because it's a lot easier and cheaper to move air than water, the Vertex system has significant energy savings. Floating aerators are energy hungry, meaning many users put them on timers that turn off at night. Unfortunately, aeration must run 24/7 – in fact because plants and algae produce oxygen during the day but consume it at night, it's actually more important to run them overnight.

> **Urban lakes usually provide perfect conditions for algae growth – warm water, nutrients and sunlight**

Another reason floating aerators are turned off at night is noise. Vertex compressors are extremely quiet and located in lockable cabinets that can have extra insulation added if near silence is required.

There's little risk of the equipment being stolen as it can be located almost anywhere and there's nothing visible on the water other than a discrete boil where bubbles break the surface.

Long distances between water and compressor are covered using PVC pipe rather than electrical cable, which helps reduce installation costs and provides greater flexibility in terms of location, noise control and security.

Other benefits compared to floating surface aerators are that there's no power in the water and no risk of airborne pathogens. Maintenance costs are less because it's done from shore and rarely (if ever) does equipment need to come out of the water.

No aeration system can provide a 'one size fits all' solution and sizing an aerator on volume or surface area alone is likely to fail. Vertex systems are custom designed using proprietary software that takes into account surface area, depth, volume, slope of bank, shape of lake, use of water, inflows, outflows, source water and other factors.

You even get calculation data and an aerial map showing the location of air stations within the lake.

Vertex lake bed aeration systems offer an energy efficient method of naturally reducing algae and providing healthier aquatic environments for all to enjoy.

Scott Tucker is a lake management consultant specialising in manmade water bodies. More at www.clearwaterlakesandponds.com.au WME

MEANINGFUL MEASUREMENTS

Upgrading systems to capture carbon data need not be a nightmare. By Garth Lamb.

Adelaide's Campbelltown City Council is among the first organisations to purchase TechnologyOne's latest software to help measure and understand its carbon profile.

The council already ran other aspects of its operations through TechnologyOne systems, including payroll and finances, and found it was already capturing most of the raw data needed to calculate its emissions profile from electricity, fuel and gas use, and waste outputs.

By adding some new modules, Campbelltown "will simply take the next step to collate this information, apply the relevant formulae to calculate its emissions, and present the information in a meaningful way".

Power and fuel use make up the bulk of its carbon impacts, as they do for most service-based organisations. These factors readily show up on invoices, such as electricity bills, that are already captured through accounts payable.

"I worry that people are trying to over complicate this," said Peter Gill, TechnologyOne's GM of business intelligence. "It's actually not that difficult… it's not a big deal to add a couple of fields to [existing] data capture," such as recording litres of fuel, as well as the cost.

"With a minimal change to what you are already doing, you can [then] capture the detail you need to do emissions reporting."

He said about 200 councils currently use some TechnologyOne software, and for many of them it is "not a big deal" to upgrade to carbon reporting functionality.

The fact council could use the system to showcase its achievements to the community made it particularly attractive.

Dedicated emission reporting software providers are also "springing up all over the place," although Gill cautions too many different systems can complicate matters, especially if it requires double-entry of information.

This was an issue for Campbelltown. CEO Paul Di Iulio said previous work with a global climate protection program, "required a lot of duplication, necessitating months of work manually rekeying data". The major benefit he highlighted of the TechnologyOne upgrade was the ability "to capture all the relevant data in one place".

It will use the Enterprise Budgeting module to create an emissions budget, setting forward projections and keeping across the performance of each department. The Business Intelligence module collates real-time data and directs it to relevant staff.

The 'BI Dashboard' can display a number of gauges showing progress toward specific targets, using traffic light colour codes and percentages. Di Iulio said the fact council could use the system to showcase its achievements to the community made it particularly attractive.

"We will be able to run reports instantly in a simple, intuitive and appealing format that anyone with an interest can read and understand," he said.

Capture all your relevant carbon data in one place.

For more information visit www.technologyonecorp.com

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