



Your Sustainable Community – an *Echo* supplement

THE BYRON SHIRE



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Consider your power as a consumer

We consume too much of what is bad for us – and for the planet.

That is perhaps one of the first realisations in the process towards living a planet-friendly life. Another important realisation is that as consumers – although always human beings first – we have the power to change our consumption patterns and lessen our impact on fragile ecosystems. We learn that, in some cases such as plastic bags and fast foods, we can give up consuming altogether.

Authors as diverse as Arundhati Roy and Naomi Klein (www.naomiklein.org) have emphasised the important role of the individual consumer in changing the way business – and politics – is done. It is social movements composed of passionate individuals which have changed legislation for the better in the areas of social welfare, human rights and environmental protection, usually long before their political leaders have wished to.

Changing entrenched political and social behaviour that threatens the natural environment which sustains us can be both difficult and rewarding. But change we must, and there are plenty of signs that outdated, fossil-fuelled ways can be supplanted by a shining solar future.

In the following pages we point to some small steps – and grander ideological notions – which may help in learning to live sustainably. We look at what can be done on the home front and at the local organisations which are helping to develop the big picture on sustainability. We also insist on a spell in the chill room because the eco-learner needs to take time to relax, recharge and laugh as well.

I hope you will find plenty here to inform and entertain you. To state the bleeding obvious, we have only one home, and now is the perfect time to get involved in protecting it.

Michael McDonald, editor

## Gas politics: a social movement with bite

Graeme Williams

The Gasfield Free campaign has emerged as one of the most potent social movements of our time. A profusion of yellow triangles now emblaze letterboxes and fence posts across the northern rivers and a growing number of our towns and villages have declared themselves 'Gasfield Free' following impressive door-knocking surveys, town meetings and massive public marches through the streets. This mass opposition to invasive gasfields provides a timely reminder that communities are a powerful force for change.

Remarkably, resistance to invasive gasfields has united rural conservatives with progressive environmentalists. It's this diversity of participation that gives the movement the potential to transform the broader public debate about the role of fossil fuel mining in modern Australia. Genuine conversations about the value of clean air and water, and the importance of preserving farmland in an age of food insecurity, contradict the common assumption that the division between farmers and environmentalists is irreconcilable. The movement shares a belief that governments of both persuasions have failed to stand up to the power of the fossil fuel industry.

Veteran change agent and gas campaigner, Aidan Ricketts, believes the Gasfield Free movement is a natural response to an unhealthy democracy in Australia. He suggests that a multi-decade process has seen the fossil fuel industry entrench power in Australia's state and



Farmers and community protesting at Pilliga Forest to stop CSG mining. Photo David Lowe

federal parliaments and the only antidote can be found in a broad social movement. Evidence of early success can be seen right here in NSW where sustained non-violent direct action by the community has contributed to an unstable policy environment and a tangible slowdown in the gas industry's progress, with several exploratory companies now suffering on the stock exchange.

### A way to go

While the movement has begun the process of winning the hearts and minds of the people, the fact that the policies of both the Labor and Liberal/National Party remain committed to privileging the fossil fuel industry over community concerns indicate that the Gasfield Free movement still has a way to go before any victory can be claimed.

Prior to the 2011 NSW state election, the Liberals and National Party released a policy stating that mining and coal seam gas extraction should not occur on agricultural land or other sensitive

areas. According to Greens MP and mining spokesperson, Jeremy Buckingham, the NSW government has failed regional communities with over 96.5 per cent of NSW still vulnerable to coal seam gas fracking, including most areas valued for their agricultural, environmental and tourism

values. Almost three years into the government's term, NSW's best agricultural land can still be legally mined; coal and coal seam gas development is being pursued in our water catchments and near our cities and towns; and our last remaining forests in the state's northwest face

bulldozing to make way for Whitehaven's Maules Creek coal mine and Santos's Pilliga coal seam gas project.

The upcoming NSW state election in March 2015 will be the point at which the Gasfield Free social movement and electoral politics converge. Ricketts believes the issue transcends party politics, but squarely lays blame with the sitting National Party members for Ballina (Don Page), Tweed (Geoff Provest), Clarence (Chris Gulpatis) and Lismore (Thomas George) who he believes are betraying north coast residents every day with their inaction on this issue.

### Decline in votes

Naturally, there will be an expectation that broad community opposition to invasive gasfields will be reflected as a decline in votes for north coast National Party MPs at the ballot box. The ferocity of

this movement should sound an electoral death-knell for any candidates not behind its aspirations.

For the Gasfield Free social movement to have any lasting influence on Australia's policy direction, it needs to give itself greater political resonance. This must move beyond swapping one self-invested, major party back-bencher for another every three to four years or spawning a new single-issue party. Rather, it requires shifting the mainstream political frame to one that favours the rights of communities and a livable planet ahead of the vested interests of the fossil fuel lobby. This will entail transforming the underlying cultural attitudes of voters, emphasising the mainstream nature of the movement and ruthlessly pursuing candidates and political parties that continue to support the interests of the fossil fuel industry over communities.

## Tracing the cycle of food waste in order to break it

Australians waste nearly 50 per cent of the food they buy – about 4.1 million tonnes per year or 9kg of food from every home, every week. This increases our carbon footprint through transport costs and greenhouse gases from decomposition. Researchers from the University of South Australia (UniSA) have now traced the cycle of food waste in a three-year Australian Research Council (ARC) project.

Reducing household food waste has proved difficult because the reasons for over-purchasing are not rational; they have strong emotional and cultural determinants. Thus, changing this behav-

our requires understanding food purchase, preparation, recycling and disposal as sociocultural and economically determined behaviour. 'Zeroing in on Food Waste: Measuring, understanding and reducing food waste' was conducted as part of a collaboration with Central Queensland University, Flinders University, the Local Government Association of SA and Zero Waste SA.

UniSA PhD candidate Christian Reynolds and the research team estimated the breakdown of food waste from farm to beyond the household using an economic modelling technique known as input-output

material flow analysis, which allowed him to trace the wastage of food throughout the supply chain. Reynolds based his initial figures on the 'National Waste Report 2010', which was produced by the intergovernmental National Environment Protection and Heritage Council.

Having undertaken economic, environmental and psychological modelling of food wastage in South Australia, the researchers now know exactly what we waste, how it is wasted and where it goes. Households are said to be the worst culprits, accounting for more than half Australia's 7.3 million tonnes of food

waste every year. Retailers, restaurants, wholesalers and the education sector round out the top five.

Reynolds is one of 12 early-career scientists unveiling their research to the public for the first time thanks to Fresh Science, a national program sponsored by the Australian government through the Inspiring Australia initiative.

'Now that we have identified the top food wasters,' he said, 'we can tailor programs to reduce food waste in each sector.'

See the Food Waste Project at [www.facebook.com/CQUniFoodWaste](http://www.facebook.com/CQUniFoodWaste)

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**TRANSFORMING THE PAST INTO FUTURE**

## A bio-powered crystal ball

Mark Byrne

Let's get the bad news over with fast. About ninety per cent of the north coast's energy (the stuff that comes through plugs in the wall, not via caffeine hits or chakra balancing) still comes from outside the region, and nearly ninety per cent of that is fossil fuelled.

The five local government areas between the Clarence River and the Queensland border are responsible for about 1.3 million tonnes of CO<sub>2</sub> entering the atmosphere every year. And we don't have a coherent plan to change that.

The good news is that change is happening even without a plan, thanks mostly to the massive uptake of rooftop solar in the region. With over 20 per cent of all households having gone solar, as a region we are likely to be second only to south-east Queensland.

### Solar benefits

The marketing from this year of small, affordable battery packs to backup PV systems for evening and morning use will make solar more useful. Still, there's scope for much more. On average enough sunlight falls on the north coast every day to power our homes and businesses for about a year and a half.

Where does all this energy go? Some of it is absorbed into the ground or reflected back into space. But the biggest industry on the north coast isn't cattle farming, or health, or education. It's photosynthesis.

The largest potential renewable energy resource is in

the production of energy from the waste products from agriculture – if we can do it in an environmentally responsible way. Everything from methane from livestock waste to electricity generation from bagasse (sugar cane trash) could be used. This is where the north coast has a natural or competitive advantage. Within a decade, we could become the bioenergy capital of Australia.

There are already two large sugar mill cogeneration plants at Condong and Broadwater. When operating at full capacity, they can provide about a quarter of our region's peak electricity consumption. The previous operators had trouble making a go of them, but the new operators are hopeful they can do better, especially if they can use other feedstocks as well as bagasse.

### Cogeneration

Camphor laurel has been tried, but it ran into trouble on environmental grounds, as well as being only marginally financially viable. This brings us to the environmental issues around bioenergy, not all of which are acceptable in a region with very high biodiversity and an environmentally conscious population.

There are concerns that proposed changes to NSW environmental regulations and the federal Renewable Energy Act will allow the logging of native forests for energy generation and the creation of renewable energy certificates. The forest industry is adamant that this will not happen because it would be uneconomic. But TEC has been told the changes in

NSW are at the behest of the timber industry.

The other emerging issue around bioenergy is air pollution. There is much interest in generating energy and biochar from burning waste in pyrolysis plants, from backyard furnaces to the proposed \$9 million facility at the Ballina Waste Treatment Centre. But the literature is unclear about the circumstances under which these plants might lead to the production of highly toxic dioxins and other pollutants.

So while there is reason to be positive about the future for the region's bioenergy future, we have to tread carefully to ensure we avoid anything like the backlash that has occurred against CSG.

### In the pipeline

Some other developments to look out for. A lot of people would like to go off-grid to be 100 per cent renewable and maybe to save money, too. However, the economics don't stack up yet where you have the choice of an existing grid connection. And while there's no doubt that network businesses have been gouging consumers in recent years, if lots of consumers go off-grid it will leave those still connected – mostly renters and low-income households – left to foot more and more of the bill to pay back the loans the networks took out to pay for these 30-year assets.

There are, though, some developments that will make better use of the existing grid, especially at local levels. One of these is virtual net metering, which would allow

continued opposite ➤

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### Little Houses #1



Architectural design firm BLDG Workshop and the industrial design firm 608 Design have modelled their 'Bunkie' on the traditional Canadian 'bunkhouse' or holiday cabin. The designers plan for the Bunkie to be precision-cut in a factory using a computerised milling device known as a computer numerical control (CNC) router. See more at bunkie.co



**A bio-powered crystal ball**  
 ► continued from page 4

consumers to get a lower network charge (which makes up about half your bill at present) where they are getting energy from nearby, such as a community-owned solar farm on a public building.

That reform is still in the pipeline. Right now, though, landlords can benefit from installing solar systems by becoming 'exempt sellers', like retailers providing energy to their tenants for a discount to their normal retail contract.

We are also likely to see elec-

tric vehicles – bicycles, motorcycles and cars – become more popular locally as their purchase price drops, and as councils and businesses start to introduce charging stations to overcome 'range anxiety'.

Let's not forget, though, that the easiest way to reduce greenhouse emissions is to use less energy. Reduce, reuse, recycle applies just as much to energy as to consumer 'stuff'. Better building design and retrofits are key here. We may live in a subtropical region, but electricity demand is still highest in the winter months, when we still need space and water heat-

ing, most of which currently comes from burning coal and gas.

The energy sector is slowly shifting from the old centralised model of a few big dirty power stations supplying lots of passive consumers, to a two-way or decentralised system in which consumers take control of the generation and export of their own energy, with the aid of smart meters and interactive web- and smartphone-based tools.

Wouldn't it be great, though, if our councils got together and committed to a really ambitious goal to reduce greenhouse emissions and increase renewable energy?

There is no reason why the north coast couldn't be nearly 100 per cent renewable, or even carbon positive, by 2030 at the latest.

All this and more will be on the table (and at the EV expo in car park) at the North Coast Energy Forum in October, which this year will be held in the Tweed (thanks to Tweed Council's support). Check out our Facebook page for updates.

■ Mark Byrne is energy market advocate at the Total Environment Centre and convenor of the North Coast Energy Forum. You can contact him at [markb@tec.org.au](mailto:markb@tec.org.au).

**Little Houses #2**



75-year-old starchitect Renzo Piano, whose firm takes on gigantic office buildings, has created a tiny house called Diogene after the minimalist ancient Greek philosopher Diogenes. This aluminium-clad wooden hut is less than 2.5 square metres in size. See more at <http://bit.ly/diogenehouse> and Piano's site at [rpbw.com](http://rpbw.com).

**Little Houses #3**



Well, not strictly a little house but it could be – this treehouse concept by Farrow Architects is for the E'terra Samara 5-star eco resort, located in the Bruce Peninsula, Canada. It consists of twelve suspended one-bedroom tree house villas nestled into a forest which is part of the UNESCO World Biosphere Reserve. See more at <http://bit.ly/eterratree>.

**History:**

Since 1976, Santos Organics has been a local community owned business dedicated to sourcing and supplying the highest quality vegetarian, organic, biodynamic and GM-free whole foods at the best price possible.

Santos has grown into a unique and ethically driven social enterprise with two retail stores, a warehouse and an online shop. Unlike most businesses, all profits from our sales are either reinvested in the business or distributed to local, regional and global charities and non-profit environmental organisations in the form of food and/or money donations.

We have also been actively supporting the campaign against CSG mining and are **in no way affiliated** with the Santos Energy company.



The first Santos store in Dalley St, circa 1980



**Ethics:**

Santos Organics are passionate about supporting local farmers who grow organic fruit and vegetables, free from chemicals, fertilisers or genetically modified organisms. One of our long-term goals is to bring

about a large increase in local organic food production.

The ethical sourcing and purchasing of products is of paramount importance to us.

**Our Ethics Officer thoroughly researches the ingredients and packaging of everything on our shelves so our customers can shop with confidence.**



goal of recycling 100% of our waste.

**Recent Initiatives:**

Santos Organics values and promotes environmentally sustainable practices in our stores with the use of biodegradable bags and compostable take away containers, as well as giving all our organic green waste to local gardeners and farmers.

We also work with local organisations to recycle all of our soft plastic waste with a

Currently, Santos are installing solar panels at all three of our locations so that we can generate our own electricity and take a step closer to becoming a completely sustainable organisation.

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# A civil society protects its fragile marine life

Mary Gardner

The recent calm of summer goes deep. I snorkel out to the reef and find one other woman and seven juvenile green turtles. We all look at each other from below and above the crystal blue water of the Cape Byron Marine Park. One turtle has two metal tags clipped to its front flippers. The tags were put on by people from the Australian Seabird Rescue in Ballina. Once this creature nearly died, eating a plastic bag or tangling with fishing debris. But she was found, nursed back to health and released. It's a good sign that she is with other turtles again. To use a local phrase, it's a 'positive change for marine life'.

That catchphrase is the name of the non-profit organisation (NPO) based in Byron Bay, founded in 2011 by Karl Goodsell. The group is another good sign. With a thousand members, Karl and his team run research about plastic debris on Main Beach and Broken Head and campaign against shark finning and the degradation

of the Great Barrier Reef. The group are filming current controversies in Queensland, where expansion of coal mining and shipping meets with community and international protest. UNESCO is waiting for the Australian government to meet its recommendations for care of this World Heritage site. Last month, WWF and the Australian Marine Conservation Society, two other NPOs, published their assessment. They explain how the federal and state government are both failing as caretakers and call for positive change.

## Positive change

Positive Change for Marine Life is one of the young players in the new branch of civil society. Such community-based groups are active in their region as well as in the national and international arenas. The management team are young adults and many of its members are young people who gladly wear their hearts on their sleeves. Through this NPO, they are involved with some of the most critical issues of our times.



Image from [www.savingwater.co.za](http://www.savingwater.co.za)

This is one remarkable facet of the new civil society, which is influencing policy makers worldwide.

The director of the Centre for Civil Society Vern Hughes writes there are 700,000 not-for-profits in Australia, of which 665,000 are entirely voluntary. From the five per cent that do employ staff, there are 20 groups whose leaders are being called together for the November summit of the C20. Yes, the Civil Society Summit, in Brisbane, which will address and work with the G20. One of them is Dermot O'Gorman from Australia WWF. Yes, that same group calling the

government to task about the Great Barrier Reef. Just as does Positive Change for Marine Life.

## Marine problems

The marine problems addressed by civil society are enormous. Each of its elements is connected. A few weeks ago, for the first time in my life, I swam alongside an adult turtle. It was about 1.6 metres in length and therefore likely to be well over 100 kilograms. Not so long ago, such large animals were quite common and numerous. They lived crowded with other marine life in waters which were 30 per

cent less acidic than now.

That acidification is still rising as the ocean absorbs more carbon dioxide. This is the 'other carbon problem'. The change plays out in many ways. Most recently, scientists are reporting fish that are acting more nervously. Their sense of smell is not as good as before. Neither is their vision as sharp. Their eggs and sperm are not as fertile.

A well-documented impact of changing acidity is the recent death of billions of baby oysters at the leading commercial hatchery in the US state of Washington. Similarly, on February 24, another company reported the death of 10 million scallops in Georgia Strait. Aquaculture faces many hazards so these companies monitor their waters very closely. If they can identify such losses with their captive animals, what does this mean for all the others in the wild?

Internationally, civil society is promoting the use of renewable energy and contesting expansion of fossil fuel industries. Contributing to

acid ocean domino effects are the planned expansions of coal and gas mining here in Australia. The NSW/QLD schemes hope that by 2020, 944 million tonnes would be shipped overseas, up from 156 million in 2011.

That's why many people see divesting from these industries as a moral imperative. It's also linked to their support of the Coal Seam Gas Free efforts, another action group of civil society.

Protection actions and campaigns are important social forces. They are also sources of learning and with that, other kinds of change. Around Byron, the volleys identifying marine plastics on the beach tell others how it affects turtles that they can point to in the Bay.

If civil society can help tip events in some positive ways, when they are seniors themselves, they can swim with not just a single adult turtle, but many, many more of them.

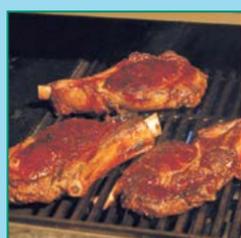
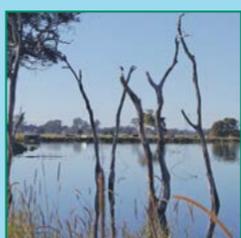
■ Mary Gardner is a biologist, writer and tutor.



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**Land for Wildlife**  
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**Biodiversity Grants**  
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**TWEED SHIRE COUNCIL**

For more information phone (02) 6670 2400 or go to [www.tweed.nsw.gov.au](http://www.tweed.nsw.gov.au)

# Local government gets serious about working sustainably

Eve Jeffery

The ideas of conservation and sustainability are no longer just the realm of hippies and bespectacled professional students applying for funds. The issue of living sustainability is steadily moving into the mainstream as the penny drops and, on a global level, we realise steps must be taken.

Many government sectors are starting to take seriously the need for us to create a sustainable 'now' if we want a healthy future in any form, and local governments on the north coast are doing their bit to roll the snowball down the hill before it melts.

## TWEED

The Tweed Shire Council first established its Sustainability Program in 1997. It was created in response to recommendations from the 2012 Rio Earth Summit.

Tweed Council is progressively implementing a range of initiatives to reduce the environmental impact of its purchasing decisions, initiatives include the use of recycled-plastic products for park and street furniture, recycled office paper, low-toxicity office stationery products, green cleaners and water/energy efficiency standards for whitegoods and tapware.

Koala Connections aims to provide a secure future for koalas by increasing the area, quality and connectivity of koala habitat in the Tweed and Byron shires. Habitat loss, wildfire, dogs and cars have all taken their toll and the koala population in this area is now in a perilous situation. Through this and other conservation programs, Council is working with local landhold-

ers, NSW National Parks, Rural Fire Service, Friends of Koala, Team Koala and the Nature Conservation Council to address threats and improve habitat for koalas across the Tweed Coast.

Local residents can look forward to a range of events in 2014 that support efforts to reduce our environmental footprint. Free festivities to celebrate World Environment Day will return to Knox Park on Sunday June 5, and in August the free Sustainability Home Expo returns to Tweed Civic Centre to provide renters, home owners and renovators with more workshops and access to local suppliers of sustainable-living products and services.

## LISMORE

Lismore City Council is committed to building sustainability.

At the core of Council's work is the \$3.65 million Materials Recovery Facility and Glass Processing Plant, which will recycle waste from other regional councils and crush coloured glass to turn into asphalt and roadbase.

The facility will employ 13 local people to sort an average of 15,000 tonnes of recycle a year, doing away with the need to transport it to Queensland for processing.

General manager Gary Murphy says little changes have also made a big difference to Council's emissions and bottom line. 'In the last year alone, simple staff ideas have saved thousands', he said. 'Idea such as installing a new tank that reduced water bills by \$32,000 in 2013 and a concerted, Council-wide effort to curb electricity consumption and minimise fuel usage. Lismore City Council's in-house electricity costs rose



Byron Shire's sustainability officer Kim Mallee with the ten-kilowatt solar panel system at the Myocum landfill, putting back power into the grid.

just two per cent despite IPART's predicted increase of 18 per cent.'

## BYRON

Byron Shire Council, like many in the 21st century, retains the services of an officer whose sole purpose is to keep and eye on sustainability.

Kim Mallee has been with Byron for almost two years and she is pleased at the direction we are heading in.

Kim is the author of a report which is available to the public on how things are travelling, sustainably speaking. 'It's a bi-annual report showcasing the sustainability programs for the Byron Shire community', says Kim. 'It's available for everyone on the website or people can email us for a copy.' (sustainability@byron.nsw.gov.au)

Kim says that there are many projects going at the moments that people would be interested in knowing about or being a part of.

'The largest tangible project that we have done recently would be the solar hot water system at the First Sun Caravan Park. That's a system for 10,000 litres of hot water per day.'

Kim says Council been work-

ing quite a lot throughout the year on energy. 'We are looking at renewable energy within the Byron Shire and regionally. We have been working collaboratively across the region with other councils and departments through Sustain Northern Rivers (SNR). Specifically we put on a bio-hub forum in Ewingsdale in December which brought together a range of industries to look at how we can increase the amount of bio-energy and bio-fuel related projects.'

Kim says so many of the current projects are ongoing. 'We continue to work with

the Mullumbimby Community Gardens and the emerging Shara Community Garden, which is really progressing. There are a lot of new garden beds there and they have a rotunda; and they are having weekly working bees on a Wednesday. It's happening, it's vibrant and it looks amazing now.'

Kim is also very excited about the roll-out of the green waste bins, which should come to fruition in August. Council is inviting people to have input into the rollout and have on the home page of their website and competition for survey participants.

'People can complete the new online Recycling, Garbage and Organics - Community Survey for a chance to win one of three food vouchers to spend at the local Farmers Markets.'

## BALLINA

Ballina is pretty excited about biochar. Ballina's Biochar and Waste-to-Energy project received received \$4.25 million under the Federal Government's \$1 billion Regional

Development Australia Fund (RDAF). The amount was matched by the Ballina Shire Council to leverage a total project value of \$8.5 million.

'Our biggest thing is biochar at our waste facility', says mayor David Wright. 'It's goes a long way to helping get rid of CO2 emissions. Biochar is unique in the world and the federal government has recognised this with their support.'

The Ballina project will be the first of its kind in Australia and once operational there is the potential to install similar systems elsewhere.

Ballina also encourages sustainability internally as well as both in the business and public sectors. 'We have implemented bio diesel in our fleet, solar power for street lights, our walkways are solar powered and use energy-efficient globes, and we have solar panels on many of our major buildings', says Mayor Wright. 'I am fairly proud of what we have done.'

■ Eve Jeffery is a photojournalist for Echo Publications. Her personal website is at [www.treefaeriefotos.com](http://www.treefaeriefotos.com).

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# Leaders meet to nut out core regional actions

Melissa Hargraves

There are many challenges and much to protect here on the northern rivers for ourselves and generations to come.

Sustain Northern Rivers (SNR) have organised a leaders forum this year to reaffirm the priorities for collective regional action, further an understanding of the shared purpose in collaboration and celebrate the successes of regional partnerships to date.

The northern rivers region of NSW covers approximately 20,732 square km and incorporates seven local government areas (LGAs).

According to SNR it is home to more than 292,000 people and almost 5,500 businesses.

We have the highest biodiversity in NSW and the third highest in Australia. We have ageing infrastructure and services are stretched. We are older than the rest of the state and many of us don't make enough money to live here.

Our region has a growth rate of up to 2.6 per cent

compared to NSW rate of 1.2 per cent and we have the highest unemployment rate in the state.

There is a housing crisis in the northern rivers and getting around is difficult.

There are impending threats from unsustainable industries that falsely promise cheap local energy and can only offer short term employment, many of those workers being imported from other regions.

## Broader focus

SNR was formed in 2008 and has a broader sustainability focus under a distributed leadership model that will enable the northern rivers to live and work more sustainably.

The SNR membership includes councils, state government departments, university and TAFE, community organisations, including youth and natural resource agencies in the region.

The collaboration is a dense network of organisations creating a force that is larger than the sum of its parts.



'We can do more together,' says Ben Roche from SCU, head of sustainability, partnerships and community engagements.

'If we didn't have SNR there would be no inclusive alliance of organisations who are really trying to take a collective approach to sustainability change.'

'There are lots of organisations that are leading specific agendas and that is fantastic, but we need to have conversations,' he said.

Mr Roche explained the complexities of differing agendas among 26 member organisations.

'Yes it is complex but we need to do it and we need

to build understanding between each organisation,' he said.

Many of the organisations including state government do business outside the northern rivers.

## Climate change

'SNR helps anchor organisations to this region,' he said.

Mr Roche explained how SNR was founded in 2008 around adaptation to climate change and mitigation.

'While the core focus of SNR is climate change, it engages with related sustainability issues around core themes of food, transport, energy, biodiversity and social innovation,' he said.

Mr Roche is one of the representatives from SCU and explained how the leadership model of SNR is about modelling new ways of working together.

'We look at new ideas around distributed leadership and how to work in a more systemic way so we try not to be overly hierarchical,' said Mr Roche.

'We are a non-profit model who are not trying to create competitive advantage for any particular organisation so we have shied away from letting industry into the core of SNR,' he said.

'Not because we don't think industry is a part of it but we work with industry through the working groups.'

'We want members to think regionally not just organisationally, without having to compromise.'

Qualities of sustainability such as intergenerational equity and the precautionary principle are fundamental to the core value of SNR.

'Sustainability is composed of a bunch of interrelated trends and issues and it is

really about us at a systems level acknowledging that,' he said.

This year SNR will meet on April 15 for a one-day regional leaders' forum in Lismore. The forum is the first of what will become an annual gathering.

## Planning ahead

The first part of the day will bring together senior representatives with decision-making authority to focus on strategic direction and forward planning specifically for a sustainable northern rivers. The core business of SNR will then be conducted by the working groups.

'We are asking all the leaders of the member organisations to come together and have a big conversation about what does the agenda for sustainability need to be in the region... what are the big challenges and what are the priorities for collaboration.'

Mr Roche said the forum is not about SNR branding or spin, rather it is to reconfirm everyone's commitment to

continued opposite ►

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# Electroecstatic airflow

Sapoty Brook

I love electric transport. Just the experience of gliding quietly along a road has elements of bliss. Of course, being on just two wheels has the added elements of leaning and air flow that can be ecstatic.

The vulnerability of cycle riding worries me. A few years ago I was thinking about the super-storms our descendants will have to face. I was wishing for some electric transport chargeable with solar, but I could not afford an electric car.

It occurred to me that the risk of motor cycling was small compared to category 5+ storms. It seemed fair to my descendants to reduce their risk infinitesimally by taking on the risk of riding an electric motorcycle. If I didn't do my best to eliminate my carbon footprint, how could I hope anyone else would?

After a couple of years using 25 km/h electric bicycles (pedelecs), and a moped scooter limited to 50 km/h, I was finally ready for a freeway-capable electric stallion. Opportunity struck in the form of an ex-display model, appropriately green and with 8,000 watts of hub motor grunt, for just under \$4,000.

Wow! It is such a joy to silently cut through the air at 100 km/h on the freeway on my way to Byron. At thirty cents worth of electricity for ten kilometres it is financially liberating too, but even more so for daytime charging when it is solar off the roof that gets me from A to B.



This Sunday I am going to an electric vehicle (EV) expo in Brisbane. I did the same a couple of months ago to attend a coal mining divestment ceremony at an ANZ bank. Electric trains go from Varsity Lakes Railway Station. Getting there pushes the range boundary of my electric stallion to 70km. Its limit is 55km at 100 km/h, so I hover just under 90 km/h to conserve electrons, and lie forward to reduce my wind resistance.

I keep an eye on a rear view mirror, primed for action, just in case a vehicle approaching from behind does not see my fluorescent vest and flag. I reach Varsity Lakes with the orange low-charge warning light flashing on the dash. My pre-arranged charging socket at a friendly 'On-crete' store in the local industrial estate awaits me, followed by a five-minute walk to the station.

Some day I will add a few more kilograms of lithium batteries, like a backup tank. Then it will be 100 km/h all the way to the station. I have to admit that I do keep an eye on the price of second-

hand electric cars, though.

When I am supreme ruler of the Earth my first act will be to legislate EV standards for batteries to be easily removable. Automated battery changeover stations will replace petrol stations and all batteries will be owned by the energy companies. Electric cars will be dirt cheap without the capital cost of batteries.

Putting fingers on the keyboard again, I have returned from the EV Expo. There I learned the secret of the Tesla Model S, which is an eagerly awaited electric car about to be released in Australia.

It has the amazing range of 450km using quite an unstable type of lithium battery. The battery is made safe by arranging the cells so that if one cell burns the neighbouring cells cannot catch fire. However, with a \$100,000-plus price tag this magnificent car reduces range anxiety at the expense of price anxiety.

■ Sapoty Brook provides electric bikes Australiawide from beyond-oil.com.

## Sustain Northern Rivers ► continued from page 8

having a regional alliance. 'This is unashamedly about the northern rivers... we are a substantive alliance focused on generating change,' said Mr Roche.

The working groups will gather the priorities established from the forums morning agenda and convert those into action plans.

SNR has four core working groups: food, energy, transport and biodiversity.

'Our working groups are where all the action takes place,' Mr Roche said.

There are many stories of significant change that the

member organisations will share at the forum. One of those is the recently formed Biodiversity working group.

'This is bringing a range of agencies critical to biodiversity in our region together at a time when it is fair to say that there are significant changes across the sector,' he said. 'With changes to many state government agencies there is a need for an inclusive network to promote collaboration and coordinate strategy for the region.'

Other examples of great work from the SNR collaboration were the Month of May local food celebrations last year. SNR were also able to create a single point of consultation and put

forward positions on state government reviews on transport.

SNR looks at emerging opportunities for the region in addition to responding to threats.

SNR is focused on renewable energy as Mr Roche explained: renewable energy is the only sustainable form of energy.

'Sustainable energy is about a long-term and intergenerational solution – whether or not people think that non-conventional gas is an interim transition fuel or not, our focus should be 100 per cent around the transition to renewable energy in the region.'

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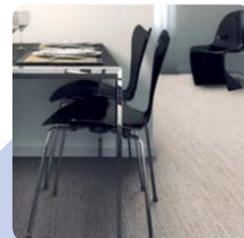
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## Trends in sustainable home design

Dave Lawrence

With so many new and innovative products emerging in the home building scene we are spoilt by choice as to what to use to build our new dream home. Will the walls be hempcrete, Tilt Up, SIPS, strawbale, Hebel AAC, reverse brick veneer, post and beam, rammed earth or mudbrick?

All great products... all in varying shades of green. The choices are seemingly endless.

So, how to choose?

Well, as always when confronted by so many choices and so much information, one way to decide is to consider costs, availability of installers and their reputation, proven track record, speed of construction, suitability of the site and other factors.

For me personally, having been involved in both alternative building methods and mainstream methods over the last 25 years, I favour a combination of traditional techniques and materials with a contemporary twist.

### Great way to go

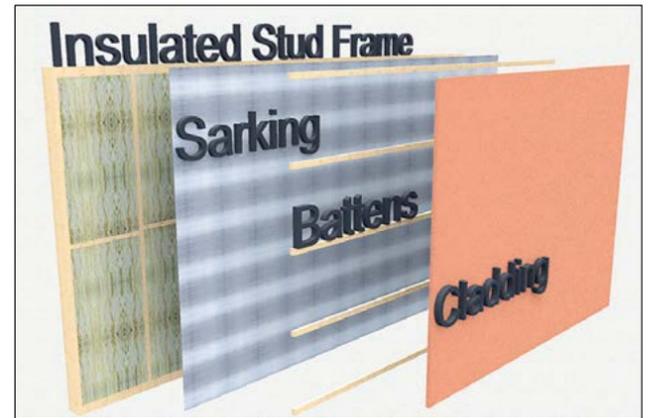
If time is an issue and funds are limited but you still want to build an energy-efficient home, I think that advanced timber framing is a great way to go.

Advanced timber framing refers to incorporating relatively new techniques (new to residential building market, not new to commercial building) that other countries have adopted in recent years, which are slowly being adopted by progressive architects and designers here.

'Stud frame' houses have, for many decades, used 90mm wide studs to build a load-bearing frame. Entire wall frames are pre-manufactured offsite (saving time) and erected in a day. The roof is added, sarking is wrapped around the outside, doors and windows inserted, cladding is added and you have a weatherproof shell.

This system has worked pretty well for a long time but there is definitely room for improvement.

Following are some simple adaptations to an age-old building method that will allow timber-framed houses to compete with any form of construction on a thermal performance basis.



### Wider stud framed walls

The 90mm cavity between the studs is where the wall insulation goes, and 90mm is the limiting factor. By spacing studs wider (120 or 140mm), you have the possibility of increasing the thickness of the insulation, and thus the house will be better insulated.

### Double stud frames

Another possibility, especially useful on the western side of the home, where the hot afternoon sun needs to be curbed, is to use double-framed construction. The outermost frame is insulated, then a cavity, with all the services being placed within the innermost frame.

The benefits to this system are that the insulation is not compromised by wiring and pipework, giving both superior acoustic and thermal insulation. A deeper reveal is also created allowing any window frames to be recessed within the wall, further protecting them from unwanted heat gain. Depending on the width of the windows and the thickness of the walls, the windows themselves can even be angled within the wall itself, as they have been done to great effect at the Tweed River Art Gallery and the Byron Community School.

### Rain screen cladding

The type of cladding (monolithic versus overlapping planks) used over the wall frames is one of the main influences on how much moisture penetrates through to the frame itself, with monolithic being the most susceptible to moisture ingress.

The second line of defence to prevent the frames getting wet after the cladding, which deflects the bulk of the water, is the builders wrap (aka sarking) which is wrapped around the frame

before the cladding is fixed.

One issue it creates is that the cladding itself is usually fixed directly over the top of the sarking with no gap for any moisture to escape, or for heat to be reflected outwards. (In order for sarking to also function as a reflective insulator, it needs airspace to bounce the heat back into).

By fixing battens over the top of the sarking, and then the cladding to the battens, we create a ventilated cavity, thus improving our wall system in several ways: the sarking's insulative value is increased as there is now an air gap for the heat to bounce back to. Any moisture that penetrates the cladding now has a drainage plane through which to escape (similar to weep holes on cavity brick walls). The internal face of the cladding dries out quicker after rain (due to air movement and evaporation), thus reducing maintenance costs.

This method is also known as rain screen cladding, and is compulsory now in new homes in New Zealand. It was introduced there after the 'Leaky Homes' debacle, in which many thousands of new houses with monolithic cladding, minimal eaves, minimal flashings, and untrained incompetent installers built, well... leaky homes.

Both New Zealand and Australia, until relatively recent times, have been considered to have fairly benign climates (relative to cold northern hemisphere countries, from where our earliest builders originated) and have not placed great emphasis on building durable energy efficient homes, partly owing to low energy costs.

With energy prices going through the roof, we are now playing catchup with the rest of the world.

■ Dave Lawrence is the founder of Byron Energy Efficient Design and Drafting [www.beedad.com.au](http://www.beedad.com.au).

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## College of sustainable knowledge

Story & photo Eve Jeffery

The Byron Community College is committed to embedding sustainability principles across the college's activities. The college offers a wide range of sustainability-oriented courses including hands-on education in energy efficiency, food growing, composting, tours of sustainable communities and houses, chemical-free bush regeneration and energy-efficient house design for the subtropics.

They have won awards for their innovative and holistic approach to sustainability and now have produced another aspect to education in the form of a book for teachers.

Published by the college the end of 2013, *Sustainability for Educators – A Toolkit of Learning Activities and Resources*, by Katrina Shields and Lisa Hoggard, is a hard copy and e-book for all types of educators from universities to TAFES and high schools with a lot of easy-to-use activities, theory and case studies.

### Catalyst

The book, sprinkled with cartoons by Phil Somerville, is an engaging and accessible collection of teaching and learning resources designed to catalyse this transformative education. It is essential reading for educators wanting to embed skills for sustainability into learning and professional development programs.

Katrina Shields has been with the college for several years and has been instrumental in maintaining the high standard of both sustainability education and practices at the facility. She says the book was created because there



Sustainability educator Katrina Shields.

simply wasn't anything else like it available.

'As educators in this field, we saw the need and I couldn't find anything that fitted. I was at a study course with Lisa in Sydney and I said, "We have so much great material here, let's see if we can get some funding to put out this book", and we did.'

The book introduces seven principles of sustainability for education: **transformation and change** – to equip people with the skills, capacity and motivation to plan and manage change towards sustainability within an organisation, industry or community; **education for all and lifelong learning** – which is driven by a broad understanding of education and learning that includes people of all ages and backgrounds and takes place within all possible learning spaces; **systems thinking** – to equip people to understand connections between environmental, economic, social and political systems; **envisioning a better future** – to engage people in developing a shared vision

for a sustainable future; **critical thinking and reflection** – value the capacity of individuals and groups to reflect on personal experiences and worldviews, and to challenge accepted ways of interpreting and engaging with the world; **participation** – at all levels is critical for engaging groups and individuals in sustainability; and **partnerships for change** – to make use of genuine partnerships to build networks and relationships, and improve communication between different sectors of society.

The book puts the case for moving towards sustainability. 'The science is clear: we are in deep trouble. Climate change is real. Even without this, all environmental indicators show us we cannot continue on our present path, much but not all of these trends are reversible. Carbon emissions need to drop drastically and soon.'

### Good feedback

Katrina says the book was also supported by the federal government because there was a gap in educational resources. 'The good thing is we are getting orders from England, Canada, from all over, and we are getting really good feedback. Some institutions will be digitally licensing so they can use it for their educators.'

For more information about any of the sustainability courses or *Sustainability for Educators – A Toolkit of Learning Activities and Resources*, visit the Byron Community College website: [www.byroncollege.org.au](http://www.byroncollege.org.au).

■ Eve Jeffery is a photojournalist for Echo Publications. Her personal website is at [www.treefaeriefotos.com](http://www.treefaeriefotos.com).

### Little Houses #4



Not only do you get a little house to admire, but also a documentary to go along with it! Half Cut Tea is a two-person team that travels the country looking for artists and telling their stories through short documentary films. They followed the adventures of Nick Olson and Lilah Horwitz, who quit their jobs and set off to build a glass cabin in the mountains of West Virginia. See more at [halfcuttea.com](http://halfcuttea.com).

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# Eco-geeks fight back against climate complacency

## Sapoty Brook

We have been burning lots of carbon to build coastal infrastructure and housing. Unfortunately, without rapid intervention it will all eventually go under; and with ocean acidification it may only be jellyfish that reap the long-term benefits

Last year we crossed the 400ppm threshold of CO<sub>2</sub> in the atmosphere. Also the global mean sea level rose by 3.2 millimetres in 2010 – nearly doubling from the rate of 1990. The United Nations' climate science body, the IPCC, projected sea levels would rise between 26 and 82 centimetres by 2100.

The West Antarctic ice sheet is shedding ice at an accelerating rate – currently at about 150 cubic kilometres per year (European Space Agency). The continued losses from the huge ice sheets of Greenland and Antarctica will threaten and eventually inundate vulnerable coastal cities under 65 metres of sea water.

## Shallow thought

You might think it is hard to stay confused about climate change when the global weather continues to thrash around like a rabid dog on heat. However, the shallow thought of the climate science deniers keeps us bogged up to our axles in political stupidity. For example, the recent displacement of the cold polar vortex to North America became the denier's proof of cooling. Anyone who has boiled an egg knows that the cooler water doesn't always stay neatly at the top. The more heat you apply the more vigorous and chaotic the circulation. This is what is termed

a 'dissipative process'. The shallow-thought-industry serves to put more money under the mattress for the coal-rich Koch brothers and their ecocidal mates.

## Hope and research

But there may still be hope. The world's scientific deep thinkers are increasingly focused on finding solutions. Elimination of fossil fuels and waste materials are the objectives.

Solar panels are being improved with lower cost and greater efficiency. Battery technologies are being created safer and with faster charging. Electric car designs such as BMW's series hybrid and Tesla's Model S are tackling range anxiety. Electric scooters and ebikes are proliferating around the planet. Biogas and biochar technology is improving. Thankfully, developed nations are becoming less efficient at producing babies.

Perovskite is a dirt cheap photovoltaic material that has recently attracted a lot of interest from solar researchers. It has similar solar efficiency to silicon panels but, potentially, at a quarter the price. Oxford Photovoltaics is one startup company trying to compete with conventional silicon panels.

Another approach involves using dyes in dye-sensitised solar cells (DSSC). The dyes deteriorate after prolonged exposure to UV light. So Prof Orlin Velev of North Carolina State University is circulating dye through the DSSC to replenish it, similarly to plant leaves.

Studies have been made of the operating cost of including weather-dependent electric power sources such



as wind and solar in the grid. In the USA the fuel saving from switching on and off fossil-fuelled generators to accommodate wind and solar power fluctuations is fifty to two hundred times the cost of the fossil power plant wear-and-tear. That's huge operational savings, which kick-in especially after renewables pass 13 per cent of the electricity supply!

Another way of smoothing the electricity supply is to store excess energy in batteries. Super-ecogeek Elon Musk (PayPal, Tesla, SpaceX) is chairman of SolarCity. He recently announced a lithium battery-based system for power storage called DemandLogic. The basic idea is to store energy when power is cheap and release it when power is expensive. Lithium batteries have halved in price in two years and will continue to fall rapidly. The newer LiFePO<sub>4</sub> lithium battery technology is surprisingly clean and green.

Globally, the pointy end of pressure on fossil fools is the divestment movement which originated from 350.org and the reluctant leading activist, Bill McKibben. Apartheid

crumbled under the pressure of a global divestment movement. So if you want change that stops the eco-meltdown then put your energy, time, and money behind the divestment movement.

Nationally, we have our prime minister trying to reduce carbon emissions by mining more fossil fuels. You see, the government income from fossil fuel mining will pay for the Direct Action incentives for industry to reduce emissions. That means Australia may meet the five per cent reduction in emissions by 2020 while supplying enough fossil fuel to other countries to melt an icecap. Make sense to you? Oh well, Labor was playing on the same side in the war against nature. Be careful who you vote for.

## What more can you do?

If you have grid-connected solar panels, try to avoid giving your daytime power to the grid for the pathetic 8c/kWh credit. The company will sell your power to your next door neighbour and probably use the profit to drill gas

your stove with an induction cooktop so you don't waste energy heating anything but your food. That's assuming you are not already a raw foodie, of course.

While regionally we continue our love affair with rooftop solar, for larger-scale energy many local experts believe that our region is ideally suited to bioenergy. Last December RDA-Northern Rivers coordinated the Northern Rivers Bio Hub Workshop. People with a wide range of relevant know-how and experience explored the constraints and opportunities of bioenergy in our region. Germany has many successful examples with sophisticated digesters, and even conversion of biogas to near pure methane using solar-generated hydrogen. It makes sustainable sense to grow such technology here too.

■ Sapoty Brook is an author (eco-eating.com) and entrepreneurial engineer who has grown an internet business for electric bicycles and electric scooters (beyond-oil.com). He also researches an invention called 'vacupulsion' which has potential to provide solar-hydrogen-powered flight.

## Little Houses #5

Tengbom Architects has designed a student unit, which is affordable, environment-friendly and smart, both in terms of design and choice of materials, for students at the University of Lund.



The project is a collaboration with wood manufacturer Martinsons and real estate company AF Bostäder. In 2014, 22 units are expected to be built and ready for students to move into. See more at tengbom.se.

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# Co-operatives: the business of sustaining ourselves

Nina Bishop

Human addiction to financial success drives the big end of town. The emotions of aggression and self-interest are considered the primary drivers of the market. Survival instincts on steroids.

Jon Ronson, author of *The Psychopath Test*, suggests that the psychological profiles of the heads of some governments and big corporations often resemble that of a psychopath.

Scientific research shows, however, we are hard-wired for cooperation and empathy as much as for competition and aggression. Nature provides us with a feelgood bonus (oxytocin, serotonin) when we work together cooperatively. Cooperatives are the 'sweeter' end of town, more suited to those who are interested in sustaining themselves while developing and exercising their skills in empathy and cooperation.

Cooperatives can be a farm, a business or any organisation with the underlying principles that ownership, control and the benefits are shared. Decisions are made by consent or consensus (but may unanimously agree on another



method of decision making). Some choose to be guided by the sociocratic model. Sociocracy means to rule by the 'socios', people who have a social relationship with each other, as opposed to democracy: rule by the 'demo', the general mass of people.

## Habitat for co-operatives

Since the start of the recession in 2008, the co-operative sector in Great Britain has grown by over 20 per cent, outperforming the British economy for four consecutive years, according to Co-operatives UK. While big

corporations' behaviour was at an all-time low, people's distrust for them was then and continues to be at an all-time high. Britons are turning to co-operatives, taking greater control of their own destiny and growing their own way out of recession. Fifty-six per cent operate in disadvantaged areas and of the 15.5 million members, 88 per cent are working to minimise their environmental impact. Cooperatives operating in the renewable energy sector have seen the widest growth.

In Spain and Italy (and Greece to a much lesser degree) cooperatives are thriving and making a real difference. Cooperative-based economies are now seen as a serious alternative to austerity policy measures.

## Byron Shire, are we motivated?

Sure, we haven't had the economic tragedy that was the thrust into more social enterprise for Great Britain and parts of Europe. We are, however, dealing with economic and employment issues ourselves:

Our property prices, and therefore rents, are high in many parts of the shire and yet we are surviving on some of the lowest incomes in the state. The fluctuating nature of our biggest industry – tourism – provides less stable employment. About 25 per cent of residents over 15 years receive some form of welfare payment or pension according to the Australian Bureau of Statistics.

On the other hand, it seems many Byron Shire residents are enthusiastic about sus-

tainably produced food and ethical business.

Byron Shire's CO\*OP KULCHA opened its doors in June last year at Byron Industrial Estate. The emphasis is on wholesome food with a focus on organic, ethically produced and as many local, regional and Australian products they can find. 'Empowering access to ethical, affordable whole foods' is their catchphrase. The cooperative is best suited to those who are willing and able to give their time and energy each month to ensure its smooth running and long term survival.

Co-op members come along with baskets jangling with jars ready to be filled with all sorts of whole foods, including the current 'super' foods. There's a table for members' excess garden produce to swap or sell, where people might stop and chat about a weird looking heritage vegetable that just came in. Clearly relationships between members and local farmers are being built and knowledge exchanged. There's a happy vibe indeed

with occasional hectic bursts when people realise they have other things to do.

## Biodiversity in business

Co-ops may not be for everyone; there is that 'people thing', the possibility of a conflict of ideas and approaches. But these people issues are also present in private enterprise, with the added problem that employees often feel powerless to change their work environment. In a cooperative, if the members' agreed objectives are clear and worthy, there can be a good deal of unity and focus, with tangible outcomes that follow.

Cooperative, socially minded people have ample cause to act, particularly with the present political landscape and climate change. Cooperative businesses have proven to be resilient in hard times. They are an important component in the business of sustaining ourselves.

■ Nina Bishop is a sustainability educator and a member of Co\*Op Kulcha.

## Little Houses #6

We can't write about little houses without mentioning the versatile, extremely strong shipping container, a simple building block which can be put to many imaginative uses as habitat. There are several companies in Australia which sell shipping containers, and the secondhand ones can be almost as good as new. The Intermodal Steel Building Unit Association is also worth a look for its news updates and architectural drawings: [isbu-info.org](http://isbu-info.org). Pictured is the Manifesto House in Curacaví, Chile, designed by James & Mau Architecture utilising shipping containers.



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# Cubist ecochanges

Story & photo Eve Jeffery

Universities are living growing entities – self-propelling, ever-evolving machines. They educate people who in turn create amazing things to benefit human and animal kind and the planet, then the uni can use those ideas to teach the next bunch of enquiring minds, ad infinitum.

Southern Cross University was established in 1994. The last 20 years have seen the facility expand and the ideas of sustainability play a big part in that growth.

Just last month it was announced that farmers will benefit from an agricultural program. Reducing agricultural greenhouse gas emissions and building soil carbon will be the subject of four collaborative projects between Southern Cross, the NSW Department of Primary Industries and primary industry groups.

The projects are funded through the Australian Government's Action on the Ground program and will trial on-farm abatement technologies, practices and management strategies to reduce agricultural greenhouse gas emissions or sequester carbon in soils while maintaining or enhancing productivity. The four projects will receive more than \$2.6 million of Australian Government funding and will run until May 2017.

## Reflections

One of the interesting projects at SCU is an art installation. *Cubic Reflections* is an interactive art and research project at Southern Cross University which engages with sustainability as a concept and process of cultural change.

Created by David Rousell, the cubes, which appear to be mirrors, on closer inspection are actually photographs, which serve not only as visually intriguing objects but as metaphors for lifelong learning, reinforcing the idea that our life, learning and employment experiences are multi-dimensional and non-linear in nature.

David is an artist, educator and researcher based in Murrumbidgee. Originally from Connecticut in the United States, he migrated to Australia in 2001 to complete a Bachelor of Visual Arts



David Rousell with one of the cubes that highlights the movement and change in the environment and encourages ideas of sustainability in our environment.

specialising in sculpture and glassblowing.

David has worked as a practising artist for the past ten years, and currently works as a sessional academic in the School of Education at Southern Cross University, where he is conducting a doctoral research project exploring the connections between art, education and sustainability in tertiary learning environments. His research interests are interdisciplinary, and cross the boundaries between ecological philosophy, aesthetics, pedagogy, speculative fiction, site-specific art, anthropology, and sustainability.

## Mapping solutions

'So far there has been an installation and interactive mapping project at Lismore campus which engaged students and staff; this was a pilot study', says David. 'Following that I extended the project across all three campuses and developed learning activities for each site which were associated with sustainability.'

'We then had several hundred year seven students come to each campus. They learned about the different learning environments and disciplines on campus, including education, environmental science, legal studies, the library, nursing, midwifery and psychology, etc.

The students also engaged with learning activities at each cube location, in order to imagine their own solutions to issues. They used discussion, writing and draw-

ing to engage with significant questions, such as: How can we construct our cities and towns in a way that also preserves and respects our natural environment? Think about why the environment is important. If you were an engineer, what would you design to help us live more sustainably with our environment; and, Imagine that you are the last animal of your kind (like a polar bear, for example) on Earth. Explain why you need to have your rights defended. What rights do you think you're entitled to? How have humans changed the environment that you depend on for food and water?

## Digital layers

David said he has received great feedback from people who are involved in the program.

'The project is continuing to grow into a series of permanent installations on a larger scale, with digital layers of interactive content which are site-specific.'

Twelve of David's cubes have been sprinkled around the Lismore campus and, since the pilot began, another five each were installed at the Coffs Harbour and Gold Coast campuses.

David says the the project is quite complex and will itself continue to grow, expand and create more facets of itself including literary works and other artistic and educational applications.

Anyone is invited to discover the cubes. For more information visit the uni website: [www.scu.edu.au](http://www.scu.edu.au).

# The Laughing Planet: humour as a sustainable resource

Mandy Nolan

Sustainability has become one of the key buzzwords of our era. As we reach the environmental tipping point we're slowly realising that perhaps its best to consume conservatively or maybe not at all.

The more we use the less we have. It is an inevitable outcome, almost existential in nature, considering that eventually our existence will render us non-existent. Many people may claim to work in sustainable industries. But I believe I work in one of the most sustainable industries of all: comedy.

Humour, my friends, is the world's greatest untapped resource, and unlike oil, or coal, or gas, the more you mine, the more you have. Humour is the magic pudding of the sustainability world. Instead of fracking for gas, we should be fracking for laughs. Far fewer chemicals are required. In fact, none at all. But guess what: laughter actually produces chemicals that are good for you.

Laughter operates on three

different levels: biophysical, biochemical and bioenergetic. Every time you convulse in a laughing fit, lymph fluid is moved around your body, thus oxygenating your organs. This experience helps boost your immune system, clearing out waste products from your organs and tissues.

Your lymph system doesn't have a separate pump. All you need is me, or Akmal, or Ellen, or any number of comedians to pump your lymph for you. So next time you cackle at my rendition of giant flapping labia during my 'labioplasty is evil' rave, consider this: it's not just rude, lewd and terribly improper – it's lymph drainage.

Laughter also increases the oxygenation of your body at a cellular and organ level. When you laugh you intake vast amounts of oxygen. It's probably because you've got your mouth wide open and you're repeating this gulping movement in some sort of quasi-hyperventilation situation. Sure, you look like a dick, but you are fully oxygenated!

Oxygen can destroy some parasites, bacteria and even cancer cells. You really can



laugh yourself well. And you know what: laughter doesn't make your hair fall out or give you thrush.

Laughing also boosts circulation. When you're distributing oxygen around your body you are exercising your abs, your face, and the flexibility of your joints. Basically the harder you laugh, the better your workout. And guess what: you can do it in a chair!

When you laugh your body creates healing biochemicals. It has been said that for every minute you laugh you produce around \$10,000 worth of healthy body chemistry. If you had to buy these chemicals over the counter in the quan-

failure to succeed we in turn gain protection against the harm caused to us by our personal failure to succeed. How neat is that?

I have worked as a comedian for 28 years. I have taught comedy for 16, and I have conducted comedy workshops for people with dementia for the past five years. I am constantly stopped with comments like 'I felt so good the next day', 'you made me feel really normal!' or 'my stomach hurt!' (that's a workout, people, not a gut infection!). Nothing really compares to the enormous benefits I could see humour having for people with dementia.

Laughter connected people, helped form friendships, develop empathies, unlock stories, released playfulness. In one case humour actually caused a woman who had not spoken for two years to speak. She's been speaking ever since.

The first major study on the impact of humour therapy on mood, agitation, behavioural disturbances and social engagement in dementia patients found a decrease in

agitation and a lessening of depression. In the research conducted by Dr Lee-Fay at the University of NSW, it was even suggested that humour therapy was as effective as antipsychotic drugs! Wow, comedians as powerful as the drugs made by Pfizer! And guess what, we don't have any side-effects. Our jokes aren't made by children in the third world. Old jokes don't wash out to sea and cause fish kill. When you make new jokes you don't have to cut down any rainforest. And our jokes are sustainable. We can tell them again and again and again.

Why be known as the Lonely Planet, when we can be the Laughing Planet? Humour is our greatest resource. It is in endless supply as it creates something out of nothing! And you know the biggest joke of all?

Nobody takes it seriously!

■ Mandy Nolan's new book *Boyfriends We've All Had (and Shouldn't Have)* is out in paperback and ebook from April 1. See more at [www.finch.com.au/author/mandy-nolan](http://www.finch.com.au/author/mandy-nolan) and [www.mandy-nolan.com.au](http://www.mandy-nolan.com.au).

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