

Centre for Sustainability

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GREEN ECONOMY GOOD FOR NZ

Centre Director Janet Stephenson is one of the authors behind the latest Royal Society of New Zealand 'Emerging Issues' paper, entitled Facing the Future: Towards a Green Economy for New Zealand. The paper summarises the scientific evidence that human consumption growth over the last century has had significant effects on the global environment, such as reduced water quality, loss of biodiversity and climate change.

"A green economy is one which is resource efficient, socially equitable and low-carbon, and there are many great Kiwi examples where companies, councils and communities are doing just this. The paper encourages discussion, collaboration and action across all sectors of society to make this kind of approach widespread," says Janet.

The paper concludes a green economy could dramatically increase sustainable economic, social and business wellbeing, but that New Zealand must act nimbly and with foresight.

For the full report please see: royalsociety.org.nz/expert-advice/

“ Interdisciplinary research on sustainability challenges in food, agriculture, energy and environment & people ”

Energy Cultures – interdisciplinary research on changing energy behaviour

Energy makes everything happen. Without electricity and other fuels, the economy wouldn't produce goods and services, freight and people would stay in one place, and homes would be cold and dark.

Energy is a big part of the cost of running a house, a business, and a vehicle. Some households spend over 10% of their income on energy. But energy is invisible, so it's easy to waste it without realising. And some people cut back on using energy to save costs, and their health suffers.

Using energy also brings its own problems. Climate change is largely the result of the world's high levels of using fossil fuels (like coal, diesel and petrol), and tiny particles from burning these fuels can create smog and lung disease. But if we cut back on fossil fuels, what else can we do?

We can be more efficient with the energy that we do use. We can make sure that any energy we use is not wasted, for example by insulating buildings. We can avoid spending on fuels by walking or cycling. We can generate more renewable electricity and low-carbon fuels like biofuels. We can adopt new technologies, like electric vehicles or solar photovoltaics. Over time, we will need to do all of these things and more.

Above all, what is involved is a change in energy culture. That is, changing the way we think about energy, the sorts of technologies we use, and our everyday practices. And this is what the Energy Cultures research programme is doing - investigating better ways to support changes in energy cultures in New Zealand's households, transport and businesses.

The Energy Cultures research programme began in 2009, and now involves 15 researchers from disciplines as varied as psychology, physics, law, economics, sociology and marketing. The research programme is led by Dr Janet Stephenson and is based at the Centre for Sustainability, with many of the research team being from other departments at Otago

University, and one each from Waikato University and system dynamics consultancy Synergia.

Energy Cultures is a novel way to think about energy behaviour, and it has created a lot of interest around the world. We've published a number of papers and reports, which can be accessed on the Centre's website (www.otago.ac.nz/csafe) or the newly-launched Energy Cultures website (www.energycultures.org). There are also links to various presentations and the fun Energy Cultures animation.

Key Information: *Energy Cultures is funded by the Ministry for Business, Innovation and Employment, with co-funding from EECA, Z Energy and Mercury Energy. It runs from 1 October 2012 to 30 September 2016. Dr Janet Stephenson is the Principal Investigator of the project.*

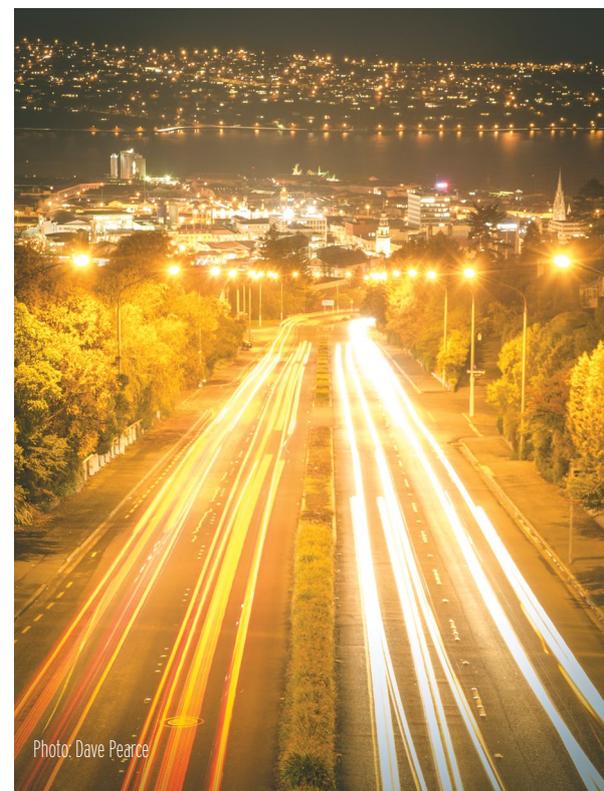


Photo: Dave Pearce

Director's Notes



POSTGRADUATES

Postgraduate students are an integral part of the Centre for Sustainability. I sometimes think of the Centre as being like a piece of colourful weaving, with the researchers and support staff being the warp and the students being the weft (the crosswise threads). The weft adds colour, creates unexpected patterns, and links the whole piece together. So do our postgrads!

At any one time we usually have 12-15 postgraduates, and many are international students. They usually have at least one supervisor at the Centre, and one or two from discipline-based departments of the university, so their studies are truly interdisciplinary. Most are studying for their PhD, which takes at least 3 years. That's a long time to be studying one topic, but there's also a whole lot of socialising, sharing ideas, doing the quiz at morning tea, challenging each other's thinking, and supporting each other through the hard times. Their work makes an important contribution to the research excellence of the Centre, and their findings are communicated via conferences, academic papers, reports and directly to stakeholders, and of course the thesis itself.

The last 6 months have seen many PhD theses being handed in for examination: Angga Dwiartama (Indonesia); Dave McKay (NZ); Ikerne Aguirre-Bielschowsky (Mexico); Bonface Manono (Kenya); Nave Wald (Israel); Adrian Nel (Zimbabwe); Grant Humphries (Canada); and Rachel Buxton (Canada). Topics are as varied as children's energy literacy, the relationship between seabirds and ENSO and the impact of irrigation on earthworms; all important threads in the tapestry of sustainability.

Our postgraduates become part of our small community, and so graduation is a time of both celebration and sadness. Luckily, even though they leave, they still mostly stay in touch, and the world now has dozens of CSAFE graduates who we still consider to be part of our family. Go well, graduands, and continue to weave sustainability into the futures you are helping create.

Nāhaku noa, nā

Janet
Dr Janet Stephenson

Featured News

Clusters of Energy Cultures

Are you Energy Extravagant? Energy Efficient? Energy Easy? Energy Economical? We've identified these four main clusters of Energy Cultures amongst New Zealand households. Energy Extravagant use the most energy per household, don't invest much in energy efficient technologies, and aren't efficient in their daily activities. They tend to have kids, quite big houses, and reasonable incomes. Energy Efficient households usually have insulation, heat efficiently, have energy-efficient light bulbs, and use energy-saving practices in drying clothes, drawing curtains, and turning off lights. Energy Easy have invested in efficient technologies but aren't too fussed about behaving efficiently. And Energy Economical, who are mainly in rental accommodation, don't or can't make physical efficiency improvements, but are very careful about their activities so as to use as little energy as possible. We believe policies should recognise these clusters and the different ways they might be supported to become more efficient.

Rēkohu visit a learning experience

Deputy Director Marion Johnson and research bursary student Sam Jackson recently returned from fieldwork in Rēkohu/Chatham Islands, where Marion interviewed Moriori elders on Henga (one of the Indigenous Agroecology project's research link farms) about farming on Rēkohu and the Moriori vision for the land.

"We spoke of the importance of the kopi tree to Moriori and, unsurprisingly, it plays an important role in agriculture with livestock feeding on the foliage and berries, and the leaves also being used for healing," says Marion.

Sam also had the opportunity to discuss ideas for her research, which involves reconnecting youth to the land. A highlight for both was planting trees to provide shelter in the Moriori ethnobotanical gardens and visiting trees they planted two years ago.

Policy pathways clearer after agriculture workshops

A better sense of what agricultural policy would be viable within the context of pastoral systems was one of the observations to come out of a series of workshops organised by the Agricultural Intensification and Climate Change project.

The workshops, organised by the Centre's Chris Rosin, Henrik Moller and Fullbright student Madeline Hall in collaboration with The Agribusiness Group and AERU, were held around New Zealand and attracted agriculture and research organisations, policy makers and farmers.

The sessions explored and defined the concepts of intensification, resilience and climate change then participants were asked to rank potential policy options and work through how each pathway might go forward.

"We're working toward a report with policy recommendations for the Ministry of Primary Industries, which will promote the adoption of appropriate agricultural intensification practices in the meat and dairy sectors while pursuing mitigation of, and adaptation to, climate change," says Chris.

ELECTRIFYING NEWS

Electric vehicles make more sense in New Zealand than in many other countries, because they have very low carbon emissions. This is due to the fact that over 3/4 of our electricity is made from renewable resources.

Profiles

Staff

Dr Ann Pomeroy

Nearly thirty years after first interviewing a group of sheep and beef farmers in Central Hawkes Bay and the King Country for her PhD, Ann was awarded a C Alma Baker Trust grant to go back and see what's changed. Ann, who had managed the rural social research programme at the Ministry of Agriculture, joined the Centre in 2011 as a Senior Research Fellow to carry out this research.

"It was utterly fascinating to return to the study areas and to revisit the people I'd interviewed previously," she says. "I was amazed how many of the farm couples were still engaged in farming and really saddened by some of the accidents and tragedies which some had experienced". She found that 49% of the people she interviewed or their children/grandchildren are still on the same farms, and only 9% had gone into dairying. "While this is a small study, it is somewhat indicative of hill country sheep-beef farming elsewhere in New Zealand. It's from this study that I learned about farm turnover, succession and debt."

The study also contributes to a Ministry of Business, Innovation & Employment funded project on understanding factors that build resilience in New Zealand. It adds to resilience research being carried out since the Canterbury earthquakes.

Ann has also worked with the New Zealand Geographical Society to gain a student perspective on resilience by running a schools geography research competition.



Student

Bonface Manono

Worms may not typically be a key factor when it comes to choosing where to study, but they were vital for PhD candidate Bonface Manono, an ecologist with a background in biology and environmental studies.

Bonface, needed a farming country to carry out his work on worms and soil microbes - something that would have been much harder in his home country Kenya, where termites and ants are more common.

"Everybody says worms are good but what's the goodness? We can't say worms are good if we don't measure it," says Bonface. "It's the same with microbes. People say they're important but we don't measure them."

Bonface spent seven months on farms in the Waimate District region as part of his PhD research, collecting soil samples for chemical analysis and earthworm measurements (diversity and distribution) from irrigated and unirrigated fields receiving effluent or not. He also measured gas fluxes from pasture soils over the short term irrigation cycles and gathered farmer knowledge on earthworms and soil microbes.

He recently met with the farmers involved to share key findings, which showed that, on the whole, irrigation and shed effluent spreading build soil quality and promotes earthworm density.

"Farmers were excited to own the research, and looked motivated to support more studies for farming sustainability."

Bonface's thesis is currently being examined and he has headed back to family in Kenya to take up a lecturing position.



Photo: Dave Pearce

Publications

Bell, M., Carrington, G., Lawson, R., & **Stephenson, J.** (2014)

Socio-technical barriers to the use of low-emission timber drying technology in New Zealand. *Energy Policy* 67, 747-755.

Ford, R., Stephenson, J., Brown, N., & Stiehler, W. (2014) Energy Transitions: Home Energy Management Systems (HEMS). Centre for Sustainability, University of Otago.

Rotarangi, S. J., & **Stephenson, J.** (2014) Resilience Pivots: Stability and Identity in a Social-Ecological-Cultural System. *Ecology and Society*, 19(1), 28.

Stephenson, J., Berkes, F., Turner, N. J., & Dick, J. (2014) Biocultural conservation of marine ecosystems: Examples from New Zealand and Canada. *Indian Journal of Traditional Knowledge*, 13(2), 257-265.

Rock, J., Sparrow, A., Wass, R., & **Moller, H.** (In press) Building dialogue on complex conservation issues: Cultural perspectives of

management and biodiversity in a conference setting. *Conservation Biology*.

Hopkins, D., & Stephenson, J. (2014) Generation Y mobilities through the lens of energy cultures: a preliminary exploration of mobility cultures, *Journal of Transport Geography* 38, 88-91

Cooper, M., & **Rosin, C.** (In press) Absolving the Sins of Emission: The Politics of Regulating Agricultural Greenhouse Gas Emissions in New Zealand. *Journal of Rural Studies*. DOI: 10.1016/j.jrurstud.2014.06.008

Rosin, C. (2014) Engaging the productivist ideology through utopian politics. *Dialogues in Human Geography* 4, 221-224.

Buxton, R.T., Jones, C., Moller, H., & Towns, D.R. (2014). Drivers of seabird population recovery on New Zealand islands after predator eradication. *Conservation Biology* 28, 333-344.

New Faces



Todd Croad is a PhD Candidate supervised between the Centre for Sustainability and Department of Politics. He is a recipient of the Todd Foundation Postgraduate Scholarship in Energy Research and a University of Otago Doctoral Scholarship. Todd's thesis examines energy policy in New Zealand, specifically the issue of policy stability and resilience.



Fulbright Graduate Student **Madeline Hall** arrived in February to complete a Master's degree in Environmental Sociology. Through her research, Madeline aims to better understand farmers' decision-making mechanisms in navigating climate change science and market uncertainty and to assess their likelihood of participating in voluntary carbon adaptation programs.



Sam Jackson is a research intern, Nō Taitokerau ia engari i tipu ake ia ki Murihiku, focussing on connecting Moriori youth to Rēkohu (Chatham Islands). She is also working with Marion Johnson on the Indigenous Agroecology project - looking at Māori relationships to land. Sam and Marion recently spent a week at Rēkohu talking with whānau and planting trees.



PhD Candidate **Fatima McKague's** research will focus on policy issues and behavioural interventions to tackle fuel poverty. Originally from the Maldives, Fatima has a University of Otago Doctoral Scholarship and is supervised between the Centre for Sustainability and the Department of Marketing. Fatima is also the coordinator for the Otago Climate Change Network (OCCNet).



Masters student **David Reynolds** is investigating the politics of food insecurity in New Zealand. He has also worked as an intern at the centre looking at a method for quantifying food waste in New Zealand, and on clarifying a social science perspective on the palitability of entomophgy (eating insects) to western cultures.

Upcoming Events

THURSDAY 28 AUGUST, Wren Green, *Sustainable development or 'business-as-usual'?*

THURSDAY 11 SEPTEMBER, Lin Roberts, *A better life with a smaller footprint? Understanding happiness, satisfiers and nature's contribution*

THURSDAY 25 SEPTEMBER, Elizabeth Soal, *Water Management*

THURSDAY 9 OCTOBER, Three community Groups, *Sustainable living: A community model*

THURSDAY 23 OCTOBER, Sara Walton, *Energy transitions in a development context*

For more information on our Seminar Series – please see <http://www.otago.ac.nz/csafe/seminars/>

Youth car culture losing appeal

In the past, young people waited with eager excitement for the day they could learn to drive. Once they passed their test, they would save to purchase their first vehicle. This was considered a 'rite of passage' into adulthood. For a long time, the percentage of people with driver's licences was increasing; so too were rates of car ownership and annual driving distances. But in the past decade research has shown that the way people travel is changing. In particular, reports from industrialised countries are showing that Generation Y (16 – 35 year olds) are less likely to get a driver's licence or own a car, than earlier generations. Those who do get a licence are driving fewer kilometres.

The Energy Cultures 2 team is interested in why this change is occurring, if it's happening in New Zealand, whether it will continue long term, and what this might mean for future transport policy and planning. There are lots of ideas to explain why this change has happened; is it the global financial crisis, which disproportionately affected young people? Lifestyle trends to stay at home longer, stay in education longer, and marry later? Increasing concern about the environment? Replacement of desirable items from a car to a smart phone? Or all of these; or something else entirely?

There are many guesses about why these changes are happening, but there hasn't been much research so far. So the Ministry of Transport has commissioned Dr Debbie Hopkins to conduct a series of interviews with Generation Y in Dunedin, Auckland and rural New Zealand. These interviews are designed to gain in-depth understandings of the factors that are changing young people's 'mobility cultures'.



Visitors to the centre

US resource economist **John A. "Skip" Laitner**, who leads the Economic and Human Dimensions Research Associates team of consultants, had a busy time when he visited the Centre in March.

Following his talk at NER's Energy Conference 2014 in Wellington, Skip spoke at the Dunedin Chamber of Commerce, delivered a seminar for the Centre and was interviewed on Dunedin Television. He also developed research collaborations with Director Janet Stephenson around the Energy Cultures research programme.

Fulbright Fellow **Laura Ginsburg** has been a visiting researcher at the Centre looking at dairy farmer decision making. She was interested in the considerations dairy farmers make in their specific production location and how policy, environment, and culture can influence those decisions.

She has focussed on production strategies (grass-based vs. confinement, breed of animal, number of milkings, equipment, seasonality, and so forth) because of the importance these decisions can make to a farming community and beyond.

Research Associate in Energy and Behavioural Psychology **Gesche Huebner** also visited the Centre in March from the University College London Energy Institute, to strengthen existing links and learn more about the Energy Cultures framework. Gesche's current research involves understanding temperatures and heating patterns in homes and their links to health, energy, and socio-demographic and building variables.

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