Fred Hilmer gets down to business

Interview with the new Vice-Chancellor
Prescriptions for environmental ills: 2006 Jack Beale Lecture

Professor Steve Rayner, Director of the James Martin Institute for Science and Civilization at Oxford University’s Said Business School, will argue the case for supplementing conventional regulatory responses to environmental problems at the 2006 Jack Beale Lecture on the Global Environment.

Wicked Problems: Clumsy Solutions – diagnoses and prescriptions for environmental ills is the topic of the prestigious annual lecture, to be hosted by the Vice-Chancellor, Professor Fred Hilmer.

Professor Rayner says the planet is confronted with problems such as climate change and water shortages but organisational responses tend to accommodate rather than resolve them. “Conventional social responses, using efficiency, goal-setting and compliance measurement, inevitably fall short of desired outcomes.” He argues that different approaches to policy are required. In the case of environmental problems, this will mean government, business leaders, academics of diverse disciplines and the general community working together to influence complex systems.

Jack Beale AO, a visionary environmental leader and the state’s first environment minister, died in Sydney last month, aged 89. He received a master of engineering and honorary doctorate from UNSW, and maintained a close association with the University throughout his working life.

The International Biological Centre in Cambridge listed him as one of the 2000 Outstanding People of the 20th century and among the 2000 Outstanding Scientists, for his contributions to water resources and environmental sciences.

“Jack Beale achieved great success in so many aspects of his life: as an engineer, a scientist, a businessman, a politician, a generous benefactor and a kind and respected person,” said Professor Garry Smith, Director of the Institute of Environmental Studies. “He remained active in the environmental movement up until his passing, and his enthusiasm, generosity and wealth of knowledge will be sorely missed.”

The public lecture will be held at 6pm Tuesday 25 July at the Clancy Auditorium.

Inquiries to ies@unsw.edu.au.

Exchange students help in relief efforts

The earthquake that struck Indonesia in May left thousands of people dead and hundreds of thousands more homeless. Two UNSW arts students on exchange in Java have spent the past month assisting survivors rebuild their lives, particularly in some of the island’s most remote villages.

Kate Stevens and Saarah Jappie, both third-year students, are undertaking the overseas study component of their Bachelor of International Studies. Their assistance in the relief effort has been co-ordinated through the Australian Consortium for In-Country Indonesian Studies (ACICIS), which has been working alongside many NGOs in providing emergency relief and reconstruction in Yogyakarta and the surrounding region.

“Australian and Indonesian students have been busy working together to help those in need,” says Kate, who spent the first part of her exchange in Yogyakarta before moving to Malang. “While I was completely safe, some of my Indonesian friends lost their loved ones and homes.” Both students are planning to return to Australia this month.
**UNSW leads national dementia initiative**

The University has been chosen to lead a multi-million dollar Federal Government initiative focused on dementia. The project involves the establishment of three Collaborative Research Centres (CRCs) at UNSW, ANU and the Queensland University of Technology. The Primary CRC at UNSW will co-ordinate the work of the research groups.

The Minister for Ageing, Santo Santoro, announced last month that UNSW will receive funding of more than $3 million for the next three years, with total funding for the project of more than $7 million. The package is part of the government's $320 million dementia health initiative.

“It's important to act now to help tackle what is already a major health problem both here and overseas,” said UNSW Professor of Psychogeriatrics, Henry Brodaty, who will be the director of the Primary CRC. “The focus will be on assessment and better care outcomes.”

According to Professor Brodaty's research, “There is one new case of dementia every seven seconds around the world. The number of people affected by dementia will double every 20 years to 81.1 million by 2040.” There are currently around 200,000 Australians living with dementia.

The CRCs have three main aims: to improve the quality of life of people with dementia and their carers through a range of methods including research; translate research into clinical care and practice; and develop guidelines, tools and other resources.

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**Remember this: Public lecture on memory**

One of the world’s foremost memory researchers, Professor Martin Conway, will give a free public lecture at 6pm on Wednesday 19 July in the Clancy Auditorium. The lecture is part of the 4th International Conference on Memory, being hosted by UNSW.

Professor Conway is Professor of Psychology and Director of Research at the Institute of Psychological Sciences at Leeds University in the UK. In his lecture he will reveal how the findings from memory research are being applied in the areas of brain injury, education, careers, employment and the justice system. His research interests include autobiographical memory – how and what we remember and forget about our past – and the “reminiscence bump”, a period typically between the ages of 15 and 20 when we lay down key memories that shape our sense of self. More information is available on the website www.psy.unsw.edu.au/Groups/ICOM4/.

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**Maths counts intelligence**

The School of Mathematics has received an Academic Intelligence Award by business intelligence software provider, SAS Institute. The award, which was presented in Geneva at a meeting of 2000 international business leaders and IT professionals, cited UNSW’s outstanding innovation in bridging the gap between industry and academia. “Our close relationship with SAS helps us keep our course content at the cutting edge,” said Associate Professor James Franklin.

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**Putting the BAM in leadership**

Iain Densten, Associate Professor of Leadership in the School of Business at UNSW@ADFA, has been awarded best paper in the leadership stream at the British Academy of Management (BAM) Conference. The paper, Leadership: the driver of global knowledge management, investigates how leaders can use a range of leadership behaviours to convert “tacit knowledge” into “explicit knowledge” and generate new knowledge among staff.

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**Physics goes multimedia**

Professor Joe Wolfe and George Hatsidimitris of the School of Physics have received an $80,000 grant from the Carrick Institute for Learning and Teaching in Higher Education to develop a suite of multimedia resources to help tertiary students studying introductory physics.

“Physclips will consist of a suite of web-based multimedia presentations that cover about half of the key subject areas in a typical first-year university syllabus,” says Professor Wolfe. “When we complete the project in 2007, individual learning modules will be available online for download by teachers, students and anyone with a passion for physics.” Professor Wolfe’s educational websites have won numerous awards and commendations.

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**Family story reveals health problem**

A UNSW academic has won the Australian Medical Association’s second annual Ross Ingram Memorial Essay Award. Dennis McDermott, a conjoint senior lecturer in the School of Public Health and Community Medicine, was presented with the $5000 prize at the AMA's national conference. In his winning essay, Unknown family at the taxi stand, McDermott draws on stories from his own family to illustrate some of the problems Australia has in caring for the mental health of Indigenous people.
The way forward: Hilmer

The new Vice-Chancellor, Professor Fred Hilmer, is excited to be back at UNSW. He was Dean of the AGSM for almost a decade before joining John Fairfax Holdings as Chief Executive Officer in 1998. On the eve of starting in the top job he spoke to Uniken editor Denise Knight.

Why did you choose to return to the University after a number of years in the corporate sector?
When I left Fairfax I had planned to go back to university in America in a writing and teaching role. Then I was approached to see if I would be interested in the Vice-Chancellor’s position so I started to think about it. I had very warm feelings about UNSW and I was concerned that the institution was losing ground because it had had instability in its leadership. I came here because to me, it was clearly a job that was worth doing and I felt I would be able to make a contribution. I feel honoured to have been given this opportunity to lead UNSW.

What are your aspirations for the University?
In many respects we are a leader in the tertiary field. If you think of us in terms of our professional and technical education areas we would be among the best in the country and the region. But for a lot of reasons, which I really don’t think are profitable to go into, we’ve slipped. We may have slipped because we were punching above our weight, and we can debate how good the measurements are, but whatever number you look at, the trend is going the wrong way.

What I’d like to do is draw a line under that and say, “Let’s not agonise why we are where we are, let’s understand what it would take to be a lot better than we are”. It’s really too soon for me to have a firm view but if you say there are three main spheres that we deal with in the University – research, teaching and management of ourselves – we can be better in all areas.

Certainly in research we’ve got great strengths, and we’ve had some good wins, but if you look at the aggregate numbers and some of the numbers behind the aggregates, we’ve clearly not done as well as we used to do. I think there’s wide agreement on this in the discussions I’ve had with Deans and senior management. And to some extent the seeds of doing better have already been sown by my predecessor Mark Wainwright, which is terrific, but we need to improve in research. It might mean we have to make some hard choices about what we’re prepared to back and what we’re not prepared to support, but we need to start from the basis of what will make us better.

In terms of teaching, we have again had a slight improvement on what was a bad result but we’re not at the top of the tree. UNSW was a great innovator in teaching – we were the place that introduced case teaching in the law school, we created a graduating option on the way to a medical degree, and we set up the Co-op Program. And yet if I look at those initiatives now they are all getting a little bit old and they’re being replicated and built on by other universities. So we’ve got to again become the innovative university that creates the overall student experience that others want to emulate.

One of our great competitive strengths is that because we are a newer university we haven’t been as bound up in tradition, which brings me to the third area: how we manage ourselves. I think we have become cumbersome and bureaucratic and I hear this uniformly: it takes too long to get things approved; it takes too long to make decisions; and that we see consultative processes as chances to stop things rather than as chances to build on them and approve a good idea. It makes me think of that famous quote: “We’ve seen the enemy and it’s us.” Staff should be able to do teaching and research, which means we need to streamline the operating side of the University so that we run well. I’d love to spend more money on research and teaching and less money on administration, so the question is how are we going to achieve this?

What do you see as some of the key challenges facing the higher education sector generally and UNSW in particular?
There is a very big challenge which has a dollar sign in front of it. The sector’s never had enough money and we have always been pushed for resources. So that’s obviously a big challenge and there’s no easy fix.
The types of endowments you would need to change the economics of the University are massive. There's also a challenge around the regulatory environment and whether we can't be freed up to pursue strategies without having to jump so many regulatory hurdles. We need to be more driven by what will produce the best research and the best student experience rather than by what will make the government happy. We need to spend less time in measuring ourselves and more time in delivering research and teaching, which is really the reason why we are all here.

What excited you about the job?
Universities, and certainly this University, are almost by definition exciting places. You really are at the forefront of ideas and you have a relationship with your community and if you do your job well, you expose people to not just ideas but the value of ideas, and the value of research and education.

We have some particular challenges. We have Singapore ahead of us and that is very exciting – I think there will be some sleepless nights but we’re on our way now. And we have some big challenges on the campus. I’ve already foreshadowed the bringing together of the AGSM and FCE as really a first step to facilitate an even stronger position in what is a huge area for us – commerce, economics, business and management.

What matters most?
I love learning and have always been passionate about education. I have really enjoyed the discussions I’ve had with people outside my academic area, such as in medicine and science, and trying to understand what they do and where we sit competitively. I’m a great believer in using ideas from different fields of knowledge and have always been interested in how ideas travel from one area to another.

You’ve really got to think about doing work of high quality and that to me comes out of leading a balanced life. I don’t admire workaholics. I do put a fair degree of emphasis on staying physically fit and that’s why I’m a keen cyclist, go to the gym and do a lot of different things.

His career
Professor Hilmer has had a distinguished academic career. He has a law degree from Sydney University, a Masters in Law from the University of Pennsylvania, and a Masters of Business Administration from the Wharton School of Finance, where he was appointed a Joseph Wharton Fellow. From 1989 to 1998 he was Dean and Professor of Management at the AGSM.

Prior to his appointment as Vice-Chancellor, which was announced in October last year, he was CEO of John Fairfax Holdings. Professor Hilmer has held directorships with some of Australia’s leading public companies and chaired a number of major public bodies, including the Commonwealth Higher Education Council and the National Competition Policy Review Committee. In 1991 the Australian Institute of Management awarded him a special John Storey medal for his contribution to the advancement of management thinking in Australia. He was made an Officer of the Order of Australia (AO) in 1998 for his services to management education, competition policy and workplace reform.
Media owners will use a variety of methods to limit rights of users with technology and contracts. No one is trying to justify mass-scale piracy but the end users get caught in the middle.

**David Vaile of the Cyberspace Law and Policy Centre on new copyright laws being proposed by the Federal Government – Sydney Morning Herald**

We believe there is good evidence that a balanced selection process that includes a structured or semi-structured interview such as that undertaken at UNSW will lead to selection of a better cohort of medical students who will make better doctors for Australia.

**Professors Peter Smith and Richard Henry on how universities select medical students – Weekend Australian**

We know that dark energy is there and causing things to accelerate. We can’t see it, we can’t identify it and we don’t know what it is. Answering these questions about dark energy and matter are the most fundamental questions in contemporary cosmology.

**Professor Warwick Couch, Head of the School of Physics and co-leader of the dark energy project – The Bulletin**

There is not a single Australian archaeological site demonstrating that humans ever killed megafauna. It amounts to an expression of faith, not fact.

**Dr Stephen Wroe of the School of Biological, Earth and Environmental Sciences on claims that Aborigines killed off Australia’s giant animals – Sydney Morning Herald**

We are fortunate that the sedition debate has been reopened. In many other areas, new laws have been enacted since September 11 without any possibility of re-examination. With the benefit of hindsight, some of these other laws can also be seen as deeply troubling.

**Professor George Williams, Director of the Gilbert + Tobin Centre of Public Law, on the review of the sedition law by the Australian Law Reform Commission – The Age**

When it comes to designer goods, Australians are economic rationalists.

**AGSM’s Dr Giana Eckhardt on research that found Australians reject the “snob” factor – Sydney Morning Herald**

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**Breaking the silence**

Aboriginal child sexual assault in NSW is rife, intergenerational, and goes largely undetected. As Alex Clark reports, a government taskforce has made more than 100 recommendations to fight the “epidemic” of abuse.

"Child sexual assault is a major issue for the NSW Aboriginal community but now we need to focus on finding ways to address it," says Professor Chris Cunneen, NewSouth Global Chair in Criminology in the Faculty of Law.

Professor Cunneen is the only non-Indigenous member of the NSW Aboriginal Child Sexual Assault Taskforce, established in 2003 by the state Attorney-General’s department. The taskforce’s report, *Breaking the Silence – Creating the Future*, finds that Aboriginal girls are more than twice as likely to be victims of child sexual assault as non-Aboriginal girls. It reveals a culture of silence and denial in many Aboriginal communities where people refuse to talk about abuse, or to condemn it. Perpetrators are people close to the child – most often described as grandfathers, fathers, step-fathers, uncles, cousins or brothers. The difficulty of reporting is compounded by the fact that they are often important people within the community.

“Child sexual abuse is a key factor in the high levels of violence, substance abuse, criminal behaviour and mental health issues in Aboriginal communities,” says Professor Cunneen. "It's a cycle of abuse where some of these consequences are also the causes of further child sexual assault."

Unresolved trauma, family breakdown, a lack of community engagement and an inadequate response from service providers are also cited as contributing to abuse. In spite of this, Professor Cunneen says, there is an overwhelming desire among community members interviewed for the abuse to stop and healing to begin. “An effective, co-operative response is needed that is community driven and works with government agencies in genuine partnership,” he says. It’s a theme that comes through strongly in the taskforce’s 119 recommendations which focus on strategies and initiatives to help overcome barriers faced by Aboriginal communities in accessing services across all levels of government.

“At present many Aboriginal people will only use non-government organisations because their fear and mistrust of government services is so ingrained,” Professor Cunneen says. “This is compounded by the fact there are currently no policy frameworks at either the state or federal level that address child sexual assault. There is also no single agency that currently provides training for its staff that specifically addresses child sexual assault in Aboriginal communities.”

*Breaking the Silence – Creating the Future* makes three broad “framework” recommendations for the NSW government: the establishment of a child sexual assault organisation to co-ordinate departmental responses; the appointment of an Assistant Commissioner for Children and Young People to deal specifically with Aboriginal children; and the appointment of “government champions.”

Professor Cunneen says “government champions” have been effective in Queensland where the CEO or Director-General of a government department becomes a champion of a particular community. “They deal directly with the community on a one-to-one basis which creates ownership and helps avoid the ongoing problem of government inaction.”

The report also recommends establishing community-based sex offender programs specifically for Aboriginal use. There are few programs available outside of detention centres and none are tailored for Aboriginal offenders, the report finds. “Investigation of cases also needs to be improved, particularly in rural areas where there is a lack of forensic services available,” says Professor Cunneen.

Despite the recent national debate on Aboriginal issues sparked by events in the Northern Territory, Professor Cunneen argues that child sexual assault has not been on the political agenda. “The barriers and gaps across the various departments and organisations mean that current approaches are ineffective for most Aboriginal people seeking help to deal with child sexual assault,” he says. “There’s no point in the government suggesting another big ‘talkfest’ as we’ve already done that. These problems have been around for a while and we need to start fixing them.”

The taskforce visited 29 communities, including Blacktown, Moree, Redfern, Mt Druitt and Orange, as part of its research and extensive community consultations. It was chaired by Marcia Ella-Duncan, the former Chair of ATSIC’s Sydney Regional Council.

The NSW government is considering the report’s recommendations and is expected to respond this month.
The head of the Muru Marri Indigenous Health Unit knows how to draw an audience. So when the opportunity came up to brief the House of Commons in the UK about Indigenous life expectancy and health problems, Dr Jackson Pulver jumped at the chance.

She was in London to attend a forum hosted by the London School of Hygiene and Tropical Medicine to mark the end of the Decade of Indigenous Peoples. The editor of The Lancet, Richard Horton, was facilitating a panel discussion. “He was gobsmacked at what we were presenting,” she said. “He found it impossible that Aboriginal Australians had such a terrible health profile. That’s because the quality of the figures is not good enough. In some parts of the state, the average age of death for males is just 35 years.”

That pivotal exchange two years ago has culminated in the journal’s first series on Indigenous health, published last month. It features a paper co-authored by Dr Jackson Pulver, Indigenous health in Australia, New Zealand, and the Pacific.

“The paper in The Lancet is a great start to getting the issues clearly spelt out for all to see,” she said. “For each country, we provide an overview of the Indigenous population, its colonial history, and current health and social outcomes.”

While the figures are shocking – the life expectancy for Indigenous Australians is 17.2 years less than for the total population – Dr Jackson Pulver says the “true picture is even more appalling … it’s just hidden. Those statistics do not include figures from NSW which is where most Indigenous people live. That’s because the quality of the figures is not good enough. In some parts of the state, the average age of death for males is just 35 years.”

A lot of the services that used to be tailored to suit Indigenous populations have been scrapped in the name of rationalisation and mainstreaming.

The publication comes at a time when Indigenous health and social issues are in the spotlight, with findings of widespread sexual abuse of Indigenous children and family members, and endemic health problems.

“We seem to have deaf ears in this country,” said Dr Jackson Pulver. “There is a staggering indifference to the health problems among Indigenous people. When it comes to getting something real happening, few are putting their hands up.

“As a non-Indigenous Australian, you can expect a school, access to a hospital or midwife, but in Indigenous communities, you simply can’t. People have to sign away assets, rights and dignity, and agree, for example, to wash their children’s faces three times a day in exchange for a petrol bowser.”

And despite all the reports, summits and plans relating to Indigenous health over many years, Dr Jackson Pulver argues the situation continues to deteriorate.

“A lot of the services that used to be tailored to suit Indigenous populations have been scrapped in the name of rationalisation and mainstreaming. This alienates those people who are most in need, leaving them reticent to return for another round of similar treatment.”

The work of the Muru Marri Indigenous Health Unit will never go away, she says. “Our role is everything from getting issues like this out into the community, assisting Indigenous doctors to get through the system and helping non-Indigenous doctors and researchers understand the needs of the Indigenous people they work with.”

The Lancet launched the series in collaboration with the London School of Hygiene and Tropical Medicine and Survival International. Dr Jackson Pulver also presented her research on Indigenous health outcomes to the Australian Institute of Health and Welfare’s conference in Canberra last month.
If nuclear is the answer, what is the question?

Frank Muller, Institute of Environmental Studies

The current nuclear debate raises two related issues. Is nuclear power a good energy option for Australia? And, should Australia back President Bush’s plan for a global nuclear revival, both diplomatically and by deepening our involvement in the nuclear fuel cycle? While public attention has focused on nuclear reactors, it would appear that the Federal Government’s main agenda is expanding uranium mining and paving the way for enrichment and even taking back other countries’ radioactive wastes.

In either case, the Prime Minister’s panel is too unrepresentative and lacks the breadth of expertise required to build a consensus on the scientific, technical, institutional, social, economic and ethical issues that are involved. More importantly, though, the whole exercise puts the cart before the horse. If nuclear power is the answer, what is the question?

There are two urgent questions that Canberra should be addressing. First, what energy choices will enable Australia to contribute to deep cuts in global greenhouse gas emissions over coming decades while pursuing economic prosperity, social justice and international security? Second, what steps should Australia take to address the growing threat of nuclear weapons proliferation and the de facto breakdown of the Nuclear Non-Proliferation Treaty? In each case, the government’s nuclear inquiry only seeks to answer a small part of a much larger puzzle.

Charting a low-emission energy future involves numerous issues that are outside or incidental to the inquiry’s terms of reference and beyond the expertise of its members.

How can we tap the substantial low-cost opportunities for improving Australia’s energy efficiency already identified by governments? How do we ensure investment flows to demand-side projects when they are cheaper than upgrading networks or building new power plants?

How large is the potential for meeting energy demands, reducing emissions and boosting regional economies by better using Australia’s abundant decentralised renewable resources like biomass, wind and solar energy? What are the barriers to cost-effective projects and how should they be addressed?

What role should natural gas play, both through combined cycle base-load plants and smaller scale distributed cogeneration of electricity and heat. What is the best path for trialling commercial scale low-emission coal technology? And how can Australia gain greater economic advantage from its leading position in photovoltaics and other sustainable energy technologies?

The role of nuclear power can only be considered alongside these other options. Do renewables or cleaner coal require the same high level of public subsidies that the Australian Nuclear Science and Technology Organisation (ANSTO) says will be required for nuclear power? Is the role of subsidies to help establish new industries or to permanently underwrite investment risks? How quickly can the different options be brought to market and contribute to reducing greenhouse emissions? Which have the greatest potential for lower costs as they mature? Which fit best with our move towards more decentralised, customer-oriented energy markets?
What planning procedures, regulatory authorities and other laws do the different technologies involve, and what are the associated costs and the implications for the rights of employees and local communities?

To chart a course for seriously tackling greenhouse emissions, we need an inquiry with the mandate and expertise to answer such questions.

**Nuclear power: Not green or clean**

Mark Diesendorf, Institute of Environmental Studies

With growing international concern about global climate change from human-induced greenhouse gas emissions, the nuclear power industry has attempted to change the image of its product into that of an energy source that is “clean, green and cheap”. In reality, all the problems that worried us about the nuclear industry in the 1970s and 80s are either unchanged or have become worse. In the latter case the risk of proliferation of nuclear weapons has increased; the risk of terrorist attacks on nuclear facilities post September 11 has increased; and with the freeing up of markets for electricity, it has become clear that the cost of nuclear power is even higher than previously calculated.

Nuclear power, based on existing technologies, is a dead-end side-alley on the pathway to reducing CO₂ emissions.

Even the claim disseminated by the nuclear industry – that its product emits no greenhouse gas emissions – is incorrect. In reality, every step (except reactor operation) in the long chain of processes that makes up the nuclear fuel “cycle” – mining, milling, fuel fabrication, enrichment, construction and decommissioning of the reactor, and waste management – burns fossil fuels and hence emits carbon dioxide (CO₂).

Over the past 20 years there have been several calculations of CO₂ emissions from the nuclear fuel cycle. The most detailed comes from Van Leeuwen and Smith (VLS) (2005) who find that emissions are only small when high-grade uranium ore is used. But there are very limited reserves of high-grade uranium in the world and most are in Australia and Canada. Once these are used up over the next several decades, low-grade uranium ore (comprising 0.01 percent or less yellowcake) will have to be used. For low-grade ore, CO₂ emissions from the nuclear fuel chain become comparable with those from an equivalent combined cycle gas-fired power station.

In response, the nuclear industry cites a report by Swedish utility, Vattenfall, which only considers a single power station, obtains lower emissions than VLS in the case of high-grade uranium ore and apparently doesn’t address low-grade uranium at all. This report has not been published and is not available on the internet – only a summary (see www.environdec.com), that does not reveal most of the assumptions or results. VLS’s report, which is based on the analysis of many uranium mines and power stations, stands unrefuted at present.

A technically possible solution to the shortage of high-grade uranium would be to switch to fast breeder reactors, which produce so much plutonium that in theory they can multiply the original uranium fuel by 50. But so far fast breeders have all been technical and economic failures. The pro-nuclear study from the Massachusetts Institute of Technology, entitled *The Future of Nuclear Power*, does not expect the breeder cycle to come into commercial operation during the next three decades.

Thus nuclear power, based on existing technologies, is a dead-end side-alley on the pathway to reducing CO₂ emissions. On the other hand, a national scenario study by Hugh Saddler, Mark Diesendorf and Richard Denniss, *A Clean Energy Future for Australia*, shows how Australia could reduce its CO₂ emissions from electricity generation by nearly 80 percent by 2040, based on a mix of efficient energy use, renewable energy and natural gas. A paper is in press in the journal *Energy Policy*.

**Living sustainably: Physical fact not political issue**

Richard Corkish, School of Photovoltaic Engineering and Renewable Energy

Perhaps the only positive aspect about the sudden infatuation with nuclear energy is that the Federal Government has now effectively rejected the major thrust of its own 2004 White Paper, which committed us to a fossil-fuel future. So when we get over this nuclear fuss we should be able to get on with improving our energy efficiency and with what this country excels at: renewable energy. It seems utterly clear that humanity’s long-term survival depends on living within the physical constraints of the planet, including energy supply. This is a physical fact, not a question for political discussion.

Australia has been at the forefront of renewable energy developments for decades, with the thermosyphon and evacuated tube solar-water heaters, a continuing stream of important solar-cell technologies, concentrator systems for both thermal and photovoltaic solar energy, and technical and policy issues concerning integration of renewable energy into existing electricity grids. UNSW has played a prominent role in these developments.
Yet, even now that we have belated general acceptance of anthropogenic global warming, we still seem bent on avoiding energy sustainability at any cost. Fortunately, most of the world is taking the problem seriously and demand is booming elsewhere. China, for example, is opening factory after factory for solar cells, with strong government support. But are energy efficiency and renewables up to the job? Certainly they are, at least with the help of gas-fired generation.

When we get over this nuclear fuss we should be able to get on with improving our energy efficiency and with what this country excels at: renewable energy.

The Allen Consulting Group published a report in March for the Business Roundtable on Climate Change that estimates the effect on the economy of reducing Australian greenhouse emissions by 60 percent by 2050, relative to 2000. Their modelling assumes big increases in renewables and reductions in coal use (particularly brown coal), the introduction of a carbon price signal in 2013 and the exclusion of nuclear. Their “early action” scenario is easily affordable, predicting only a slight reduction in GDP growth. GDP would grow to $2 trillion by 2050 instead of by 2047, which clearly doesn’t cost the earth.

Australia is good at renewable energy, a true “sunrise industry”. We need to promote and implement it here and globally, not divert our resources with red herrings like nuclear energy and carbon sequestration, neither of which can fix the problem on the necessary timescale, if ever.

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### Striking conclusions on unproven technology

**Rob Passey, Hugh Outhred, Iain MacGill, Stephen Healy – Centre for Energy and Environmental Markets**

The Prime Minister’s dramatic call for an open debate on the use of nuclear power to generate electricity makes it clear that Australia must reduce its greenhouse emissions, which continue to rise. Coal-fired power stations are responsible for more than 30 percent of the country’s emissions. In 2003, the Prime Minister’s Science Engineering and Innovation Council (PMSEIC), chaired by Australia’s then Chief Scientist Robin Batterham (while simultaneously Chief Technologist for coal-mining company Rio Tinto), strongly promoted carbon capture and storage (CCS) as the solution to greenhouse emissions from coal-fired power stations. A report prepared for PMSEIC, concluded that, contrary to many other international studies, CCS would cost little more than conventional power generation. This was a striking conclusion given that the technology is unproven and at least a decade away from possible commercial application.

There are clear parallels with the current debate on nuclear power. Australia’s current Chief Scientist, Dr Jim Peacock, is quoted as being in favour of nuclear power. A report prepared for ANSTO was used to support government claims that nuclear power could be competitive with coal-fired power stations in Australia. Yet the report clearly states that if Australia was to build the first nine AP1000s (an advanced and as yet untested nuclear power plant design) and, like conventional power stations, the owner takes the financial risk, “then the nuclear power station produces electricity at a cost that is significantly higher than would a new coal-fired or CCGT power station”.

Rather than deciding to pick yet another “winner”, the Federal Government should focus on establishing a policy framework that drives near-immediate emission reductions from proven abatement options while developing promising emerging technologies.

Different international studies reach widely divergent conclusions on the cost of nuclear power. This isn’t really surprising because many aspects of the industry are difficult to price. Deregulated competitive energy markets certainly have shown little interest in investing in new nuclear plants. The ANSTO report further confuses the issues with risks of an unproven advanced plant design, a multiple power-station program, unclear financing and liability arrangements.

The use of uranium to produce electricity has a variety of social, environmental and economic impacts throughout the conversion chain – mining, processing and enrichment, power generation, and storage or reprocessing of spent fuel and radioactive waste. These should all be considered in any assessment of nuclear power. More importantly, there is a wide variety of other low-emission options that can generate electricity, including gas-fired generation and renewable energy technologies of many kinds, and considerable untapped potential for improved end-use efficiency and more frugal use of energy. A portfolio approach will probably provide the least-cost and least-risk outcome.

Rather than deciding to pick yet another “winner”, the Federal Government should focus on establishing a policy framework that drives near-immediate emission reductions from proven abatement options while developing promising emerging technologies.

Nuclear power is not a near-term option for Australia and its future prospects depend on whether advanced reactor designs continue to be developed overseas. It is therefore a lower policy priority than our immediate abatement options. The Federal Government inquiry should be used as an opportunity for a broad debate on Australia’s energy future.
For almost a decade, Nigel Lovell has been working on an implantable bionic eye that will restore some vision to the profoundly blind.

It is one of two devices that have just attracted NHMRC grants totalling almost $600,000. The other is a wearable ambulatory monitor for falls detection and monitoring in older adults.

The work is slow and painstaking but to Professor Lovell and his team at the Graduate School of Biomedical Engineering, it's worth the wait.

“In my mind, there's no point designing a technology or conducting an experiment unless one can see a path where it may be applied,” says Professor Lovell. “In some cases the end application or product may be more than a decade away – but at least the pathway exists.”

Over the years, Professor Lovell's team has successfully developed a sophisticated neurostimulator that can elicit responses within the visual cortex that are consistent with light perception.

In many prevalent conditions leading to profound blindness, including retinitis pigmentosa, age-related macular degeneration, and other retinal dystrophies, the photoreceptive layer of the retina is badly affected but adjacent neurons remain largely intact, and are able to be activated by electrical stimulation.

Only a handful of research centres around the world are devising nerve stimulators for the visual system. The chief difference between these devices is the site where stimulation occurs. It can happen within the visual cortex, or in the eye itself.

The UNSW system uses epiretinal implants, stimulating electrodes within the eye. Two units communicate by radio telemetry. One is external to the eye, comprising a camera, functionality to translate the image into something the patient can understand, and a transmitter. The second unit comprises a receiver and the electronics responsible for electrical stimulation.

This unit would be implanted in the lens cavity of the eye and connected to a flexible electrode array that transfers charge to the nerve cells of the retina.

This area of work is where engineering directly impacts on society ... with the long-term outcome being improved quality of life for people with disease.

Professor Lovell and his Australian Vision Prosthesis Group have been awarded an NHMRC grant of close to $400,000 to conduct animal trials to test various aspects of their prosthesis. It may also lead to some preliminary trials in humans.

For the ambulatory device, which attracted a grant of $200,000, the research team is working with MedCare Systems to develop and trial a wearable monitor that identifies normal and abnormal ambulatory patterns to detect and prevent falls in the elderly.

Professor Lovell is a director of MedCare Systems, a company run by former head of the School of Electrical Engineering and Telecommunications, Professor Branko Celler.

The trial will investigate performance and usability issues and allow the collection of new data. Falls are a serious public health problem among the elderly because of their frequency, associated injuries, and the potential high costs of emergency care.

While we will see results on the wearable monitor in the not too distant future, much remains to be done before the bionic eye can be used clinically, according to Professor Lovell.

“To take an implantable device to market is a long and expensive process akin to taking a medication to market,” he says.

But it's a reality he readily accepts. “This area of work is where engineering directly impacts on society,” he says. “Without wanting to sound too altruistic, it's the human side of engineering – with the long-term outcome being improved quality of life for people with disease.”

Q&A

Why do what you do?
In both my research areas we have a team of great collaborators, students and professional staff. When I go overseas, I take little joy in travelling alone. It's the same with research; it's a journey that should be shared. If the dynamics of the group are strong and vibrant, then progress of research is greatly accelerated.

Things you value most in a day?
Family and friends and a good surf or beach swim. A close third is some inspired research.

Least known talent?
That I can get this far in life without having any real talents.
Stand up and be counted

Xiaoyuan Shang’s report for Save the Children UK has exposed the large number of unassisted orphans in China and prompted unprecedented change in government policy. As Alex Clark reports, orphans have, for the first time, become the responsibility of the state.

There are more than half-a-million orphans in China as a result of industrialisation, HIV/AIDS, road accidents and child abandonment. Most live in rural areas that have, until now, had no comprehensive social policies designed to meet their needs.

“Many orphans live with extremely poor families experiencing severe financial hardship,” says Shang, a research fellow at UNSW’s Social Policy Research Centre (SPRC). “Care is often inadequate and access to education and medical attention can be scarce.”

So to finally see the Chinese government actively shoulder its responsibility to protect children’s rights is “a remarkable turnaround in policy”, says Shang.

With the support of an ARC linkage grant, researchers from Beijing Normal University and Save the Children UK’s office in China, Shang began two research projects in 2004 – to map the number of orphans in China, and to assess the costs required to support them.

“Data like this had never been collected before so it was very challenging,” she explains. “After we finished mapping the number of orphans in the southern Chen Zhou region we successfully petitioned the government to conduct a nationwide census that exposed the large numbers of orphans and their care arrangements.”

For her second project, Shang worked with fellow chief investigator Professor Peter Saunders, the director of the SPRC, to adapt a methodology he had used to estimate the cost of raising a child in Australia.

She examined the ad hoc social assistance programs currently helping Chinese orphans and through focus groups and in-depth interviews determined the actual cost of bringing up each child.

“While no comprehensive social assistance existed, we found two-thirds of orphans received financial assistance through programs including urban minimum income subsidies and rural assistance schemes for the extremely poor, such as the ‘WuBao’ system. Unfortunately in rural areas none of the existing programs adequately covered a child’s most basic needs and one-third of orphans were receiving no regular assistance at all.”

In many cases, extended family has to provide food, clothing and other basic needs, creating a financial burden. Shang explains how this can lead to orphans being put at risk and, in extreme cases, they become victims of physical abuse or are forced to leave home.

“Those living alone become easy recruits for criminal organisations,” she says. “Others drop out of school and became child labourers to support themselves and their younger siblings.”

Shang’s research confirmed that only RMB 2995–3785 (A$500–650) a year was needed to meet the basic needs of raising a child in rural China. Her subsequent report submitted to the Chinese government highlighted how a relatively insignificant financial outlay would score the government political points and enhance its image.

In October 2005 the Chinese President, Hu Jintao, officially acknowledged orphans as the weakest social group, stressing the need to find effective social assistance measures to help them. By April 2006 the Ministry for Civil Affairs had drafted a new policy, which was subsequently signed by 15 of the government’s ministries and marked the most dramatic boost in orphans’ welfare since the People’s Republic of China was founded in 1949.

“The policy stresses that all parentless children in and out of the state orphanages, minors without guardians, lone children drifting between towns and any other children not under the protection of adults will be covered by the government’s new policy,” says Shang.

The new policy … marked the most dramatic boost in orphans’ welfare since the People’s Republic of China was founded in 1949.

Each ministry has been assigned an area to look after in the new program including living assistance, education, medical care, employment, housing and legal rights. The government has allocated part of its budget to implementing the new comprehensive program that promises to provide free healthcare and free education to orphans. Local officials across the 23 provinces of China are currently involved in the implementation process.

“Save the Children wanted the research to pressure the government into making changes,” Shang says. “But I think this has exceeded their wildest expectations.”

Opening the prison gates

An Australian human rights delegation was given access to China’s new approaches to non-custodial corrections during a visit last month. Professor Chris Cunneen, NewSouth Global Chair in Criminology in the Faculty of Law, was a member of the group invited by the Chinese government to examine and discuss possible alternatives to prison. The initiative is part of the Human Rights Technical Assistance Program established under the Free Trade negotiations between Australia and China. The Australian Human Rights and Equal Opportunity Commission has provided human rights advice and conducted discussions on juvenile justice, corrective services and domestic violence issues.
Australian contemporary artist and COFA doctoral candidate Susan Norrie is one of three artists chosen to represent Australia at the 2007 Venice Biennale. The Australia Council made the announcement last month. “My aim for the next Biennale is to show the richness and diversity of Australian contemporary art,” said John Kaldor, the commissioner of the Australian exhibition. “Susan Norrie, Daniel von Sturmer and Callum Morton have each established a strong reputation as innovative artists at the forefront of our visual arts practice.” The artists will work in different sites at the Biennale, which comprises about 70 national pavilions in the Biennale gardens and across the city from June to November next year. Norrie is affiliated with the College’s Centre for Contemporary Art and Politics (CCAP), which fosters research activities by theorists, artists, and curators in the fields of visual culture, current political issues and new media. She will present her PhD work in Venice – a video installation that explores pervasive geopolitical issues of a planet in turmoil. The work will be experiential, physically immersing audiences and transporting them to precautionary tales of an uncertain future. “I feel an enormous responsibility to document the truths of our experiences, not just simply erase history and support a collective amnesia,” she said. Norrie will also be exhibiting in the Busan Biennale in South Korea in September this year.

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The subtle revolution

Chinese literature was not propelled into the modern era by imitating its Western counterparts. According to a new monograph, this conventional view ignores subtle developments in classical Chinese poetry that reflected a new consciousness, ruminating on the demise of the last dynasty and the emergence of a Republic. By Alex Clark.

The Subtle Revolution: Poets of the ‘Old Schools’ during Late Qing and Early Republican China by Dr. Jon Eugene von Kowallis examines for the first time in English three major groups of Chinese poets from 1862 to 1917.

“This was a pivotal period in Chinese history, including a major civil war, heightened foreign aggression, the 1911 Revolution and the collapse of the last dynasty – the Qing,” says Dr Kowallis, Head of the Department of Chinese and Indonesian Studies in the School of Modern Language Studies. “Many argue it also saw classical-style poetry grind to a halt – petering out like the political fortunes of the dynasty.”

Scholars have often credited the infusion of new images from abroad and the language and ideas of the West for Chinese poetry’s transformation to “modernity”. Dr Kowallis’ research demonstrates that Western influence was not a prerequisite to modernity – instead, Chinese poetry evolved through the articulation of significant cultural, political and literary changes taking place both on the international scene and within Chinese society. Writers of this period evoked a modern consciousness using traditional imagery. “A kind of cultural transformation occurred, undeniably a reaction brought on in part by extraordinary circumstances and a political crisis unprecedented in Chinese history,” he says.

Dr Kowallis was honoured at the Association for Asian Studies’ Annual Conference in San Francisco earlier this year for his monograph. His research has examined Chinese humour and the classical-style poetry of Lu Xun (1881–1936), the founder of modern Chinese literature. His current research topics include Chinese film and television.
The persistence of memory is easily taken for granted until it fails. We forget a computer password. We misplace our reading glasses. We can’t recall the name of a familiar face. Am I having a “senior moment”, we ask ourselves? Am I showing signs of Alzheimer’s disease?

Neither, probably. Given the colossal volume and variety of data we store and retrieve over a lifetime, it’s astonishing that we don’t suffer these memory lapses more often.

Memory has long fascinated scientists and this month UNSW plays host to the 4th International Conference on Memory (ICOM-4), which has attracted 700 delegates from 40 countries.

Like memory itself, ICOM-4’s scientific program – which features more than 500 presentations – is crammed with an extraordinary array of content. Scholars will share findings in the dozens of niche areas that comprise memory research including brain injury, emotion, ageing, eyewitness accounts, stress, arousal, trauma and abuse, amnesia, and the science of pinpointing memory through new advances in brain imaging and neuroanatomy.

A host of international scholars who have shaped modern scientific understanding of memory are delivering keynote addresses. They include Daniel Schacter, Harvard University; Henry L. Roediger, Washington University; Robyn Fivush, Emory University; Fergus Craik, University of Toronto; and Martin Conway, University of Leeds.

Psychologist Henry Roediger will discuss how repeated test-taking produces better memory recall than repeated studying. His research shows that the dreaded “pop-quiz” – given early and often – may be a student’s best friend when it comes to understanding and retaining information for the long haul.

“Our study indicates that testing can be used as a powerful means for improving learning, not just assessing it,” says Roediger. His work suggests that students who rely on repeated study alone often have a false sense of confidence about their mastery of the material. “Incorporating more frequent classroom testing into a course may improve students’ learning and promote retention of material long after a course has ended.”

Keynote speaker Robyn Fivush will highlight the importance of storytelling in the forging of autobiographical memory – the “facts” and events that we recall of our life. She says narratives provide a way of “making sense” and “creating meaning” from our everyday experiences.

Fivush has published extensively on the critical role of family reminiscing in forming childhood memories and establishing bonds between family members. Families who regularly eat dinner together, she says, have better-adjusted, more self-confident kids than those who don’t.

Like it or not, our memory starts eroding from middle age, says University of Toronto psychologist, Fergus Craik. It’s not all bad news, however. Craik will tell the conference that while memory for specific events declines from our forties on, other types of memory can hold up well with advancing age. These include memory for well-known words, facts and ideas, and even memory for information held in the mind for a short time, such as telephone numbers.

Harvard psychologist Daniel Schacter will speak at ICOM-4 about the distinction between conscious and nonconscious forms of memory, and the mechanisms responsible for distorted memories and forgetting. A leader in the field, he has published more than 250 scientific articles and chapters.

“Memory’s errors are as fascinating as they are important,” says Schacter, whose book, The Seven Sins of Memory, describes memory’s fundamental transgressions as transience, absentmindedness, blocking, misattribution, suggestibility, bias and persistence. “Just like the ancient seven deadly sins – pride, anger, envy, greed, gluttony, lust and sloth – memory sins occur frequently in everyday life and can have serious consequences for all of us.”

ICOM-4 runs from 16 to 21 July. More information is available at www.psy.unsw.edu.au/Groups/ICOM4/.

UNSW’s memory bank
The School of Psychology will have a strong profile at the conference with 27 academics and postgraduate students taking part. Speakers include Richard Bryant (post-traumatic stress disorder), Richard Kemp (face recognition and eyewitness memory), Amanda Barner (autobiographical memory), Rick Richardson (neuropsychological underpinnings of early memory), Ben Newall (decision making), Brett Hayes (memory development), Chris Mitchell (memory for cause), Karen Salmon (children’s and parent’s memory for traumatic events), and Julie Henry and Skye McDonald (memory following brain injury).
I started at UNSW in 2003, having decided to move back to Australia from that uncontained aquarium some know as The Hague. Having spent a few years studying and working in international law in the United States and Europe, it has been interesting to engage in a very different debate about international law in Australia. As Director of the International Law Project at the Gilbert + Tobin Centre of Public Law, it is interesting to have observed, analysed and discussed Australia’s response to a number of events over the last few years: the Iraq war, Australia’s signing of a free trade agreement with the United States, David Hicks’ continuing detention in Guantanamo Bay and the AWB scandal. There’s an ancient Chinese curse, “May you live in interesting times” … certainly the curse of international lawyers at the moment!

Regrettably, it has come time to leave UNSW and go back to grey skies. In October, I will commence my PhD at Oxford University, examining the constitutional law of the United Nations.

What do you like most about your job at UNSW?
Fabulous students, fabulous colleagues and the coffee cart.

Pet hate?
Tasteless tomatoes.

What are you reading/listening to at the moment?
Listening to Antony and the Johnsons – a 34-year-old fella who looks like a frumpy middle-aged woman, and has a voice that pierces your ribcage. Reading Beasts of No Nation by Uzodinma Iweala – a haunting novel written from the perspective of a child soldier in a West African nation. It is a frustrating truth for academics that, in the end, novels are far more effective than academic writing, reports or statistical surveys to assist us to better understand the world we live in.

Best advice you’ve ever received?
My dad consistently gives me two pieces of advice, “Live a lot, laugh a lot, love a lot” and “If at first you don’t succeed … skydiving’s not for you”.

Favourite expression?
“I pity the fool” – BA Baracus.

Who inspires you?
People who can make serious contributions to life and the world they live in, and maintain their lightness.

Ideal dinner party guests?
Carla del Ponte, the Prosecutor at the United Nations Yugoslav Tribunal, and the two prime Yugoslav war criminals still at large – Ratko Mladic and Radovan Karadzic. More a cunning plan than a dinner party.

What does international law mean to you? Why is it important?
International law – while not always complied with – provides an important set of standards by which government conduct can be measured. It also provides a framework for burden sharing and co-operation in a world of sovereign, and potentially self-interested, states. It is surprising that debate about international law in Australia is often marked by popular and political anxiety about unwarranted intrusions into Australian sovereignty. As a middle-sized nation in a volatile region, it is in our strategic interest to support the international legal framework – in the end, it is a relatively conservative body of law, developed by states, providing lowest common denominator standards aimed at equality, justice, peace and security. To spin the words of a former UN diplomat, international law is not intended to take the world to paradise, but is there to prevent the world from going to hell.

No country is an island

There is an urgent need for the public and politicians to better understand the growing significance of international law to our society argue the authors of No Country is an Island: Australia and International Law (UNSW Press).

Launched last month by journalist David Marr, the book explains the mechanics of Australia’s engagement with international law and suggests possible reforms. “We propose changes to the way Australia currently agrees to accept new international rules that ensure when we take on a new obligation we actually follow through on our commitment,” says Devika Hovell, who along with co-authors Professor George Williams, Professor Hilary Charlesworth and Madelaine Chiam, examine recent cases where international law has played a role.

“By violating or failing to comply with international law we risk losing its protection in the long term,” says Hovell. “It’s not in Australia’s strategic interest to take that approach.”
American critics who argue that the Bush Administration’s doctrine of pre-emption is destabilising to international order and likely to pull down the fabric of the international system, the US is successfully moving forward developing a dual-track approach with an emphasis on both bilateral and multilateral security co-operation.

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