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## Front cover:

Aerial view of Camp Florentine and Coupe FO044A.  
Photo by Rob Blakers.

Uncle Colin Walker, Yorta Yorta Nation outside the Yenbena Indigenous Training Centre.  
Photo: Soc Hedditch

**Below:** April 10-12, easter weekend, over 50 people gathered with Wiradjuri Traditional Owners to protest the largest gold miner in the world, Barrick Gold, who are operating on Wiradjuri land in Lake Cowal. In this photo Neville Chappy Williams, Traditional Owner (Mooka/Kalara United Families, Wiradjuri Nation) leads supporters in a smoking ceremony onto Barrick's mine operations. 28 protesters were arrested having breached security and made their way into the open cut pit of the mine.  
More at: <www.savelakecowal.org>  
Photo: Fiona Lee

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 **Friends of the Earth**  
www.foe.org.au

Chain Reaction is produced in Melbourne, Newcastle and Perth. We acknowledge the traditional owners of these lands and the fact that Aboriginal land has never been ceded.

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The board provides big picture thematic and political advice to the CR editors, advice on themes for future editions, as well as helping to ensure that a broader range of sectors/ constituencies are represented in the articles. The CR editorial team are still responsible for content, editing and design and so any problems, omissions or other failures are ours!



image: Newcastle climate change protest  
www.risingtide.org.au



# EARTH NEWS

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## **Tribunal blocks mining lease on sacred site in WA**

In the first case where a company has failed to win a mining application on land granted under the Native Title Act, mining company Holocene was denied a lease over Lake Disappointment in WA in May. The Western Deserts Lands Aboriginal Corporation, which holds the native title area on trust for the Martu people, hailed the decision as “a historic and special day”. WDALC director Brian Samson said the tribunal had established that the area targeted by Holocene for the mining of potash was a “very significant” sacred site for the Martu.

## **Hot rocks and greenhouse emissions**

Geothermal ‘hot rocks’ energy could reduce Australia’s emissions by about 10%, a new report by WWF-Australia finds. The report, ‘Power to Change: Australia’s Geothermal Future’, conducted with the Australian Geothermal Energy Association, found that introducing geothermal energy into the grid by 2050 would reduce the amount of greenhouse gas emissions generated by electricity by 25%.

AGEA chief executive Susan Jeanes said geothermal energy could provide all of Australia’s electricity sustainably, without greenhouse gas emissions. “SA ... is the heart of the geothermal industry in Australia at this stage... as 70-80% of the work is happening in SA,” she said.

The report shows 318 people are employed in the nation’s geothermal industry but 3800 jobs could be created by 2020, increasing to 9500 in 2030 and 17,300 in 2050.

WWF-Australia chief executive Greg Bourne said the exciting thing about geothermal energy was it could supply power 24 hours a day, seven days a week.

Geoscience Australia estimates using just 1% of the heat resource in the ground would provide enough electricity to produce 26,000 times Australia’s annual energy consumption.

The report is posted at <[www.wwf.org.au/publications/powertochange](http://www.wwf.org.au/publications/powertochange)>

Studies on geothermal energy in Iceland have raised concerns about the impacts of gaseous emissions containing hydrogen sulphide and traces of mercury, boron, arsenic and aluminium. <[www.ipsnews.net/news.asp?idnews=46969](http://www.ipsnews.net/news.asp?idnews=46969)>

## **WWF-Australia report on wave energy**

Wave energy could provide clean, renewable power and thousands of Australian jobs for the future, according to a report by WWF-Australia. Greg Bourne, WWF-Australia chief executive, said investment in the industry would create up to 3210 jobs by 2010. He called on the federal government to give wave energy prominence in the Renewable Energy Target Scheme.

Managing director of wave energy developer Carnegie Corporation, Michael Ottaviano, said studies at the company’s plant showed there was great potential for the industry to flourish. He said Australia had several optimal sites for wave energy plants including Geraldton and Albany in WA, Port MacDonnell in SA, Phillip Island in Victoria and the southern and central coasts of NSW.

“Australia has the largest and most consistent wave energy resource globally. At least 35% of our current baseload power needs could be generated from the Southern Ocean,” Ottaviano said.

The report, ‘Power to Change: Australia’s Wave Energy Future’, is posted at <[www.wwf.org.au/ourwork/climatechange/powertochange](http://www.wwf.org.au/ourwork/climatechange/powertochange)>.

## **SA government sets 33% renewable energy target**

SA Premier Mike Rann is claiming South Australia will be the first state to meet Kevin Rudd’s 20% target for renewable electricity generation, seven years ahead of schedule in 2013, and has set a new target for the state of 33% by 2020. Rann said SA would reach the 20% target by 2013 because SA has 56% of the nation’s wind power, 90% of its geothermal investment and 30% of solar power. SA Greens MP Mark Parnell welcomed the 33% target but challenged the Premier to legislate for it by amending the state’s Climate Change and Greenhouse Emissions Reduction Act.

SA has a legislated (but non-binding) target of reducing overall greenhouse emissions to 13 millions tonnes annually by 2050. However, if the Olympic Dam uranium/copper mine expansion proceeds, it will be responsible for one-third to one-half of that total, making it all but impossible for the target to be achieved.

## **Green jobs**

An analysis by Environment Victoria found about 26,000 jobs could be created in Victoria in five industries with the right investment and policy shifts. EV campaigns director Mark Wakeham said Australia has been

slow out of the blocks in embracing green jobs – while US President Barack Obama has pledged \$A212 billion over 10 years to create five million green jobs, Australia offered little before the federal government promised \$3.9 billion for ceiling insulation in a recent stimulus package.

The five industries are:

Solar hot water - target 1590 jobs  
Rail manufacturing - target 9150 jobs  
Wind - target 4000 jobs  
Energy and water efficiency - target 9050 jobs  
Recycling - target 2310 jobs

More information: <[www.envict.org.au/inform.php?item=2027](http://www.envict.org.au/inform.php?item=2027)>.

See also the two reports released by the Climate Institute in May 2009, 'Regional Employment and Income Opportunities Provided by Renewable Energy Generation', and 'Clean Energy Jobs and Investment in Rural Australia', posted at <[www.climateinstitute.org.au](http://www.climateinstitute.org.au)>.

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## Energy Transformation Continues Despite Economic Slowdown

The REN21 Renewables Global Status Report released in May finds that global power capacity from new renewable energy sources (excluding large hydro) reached 280 gigawatts in 2008, up from 240 GW in 2007. More renewable energy than conventional power capacity was added in both the European Union and US for the first time ever. At least 73 countries have renewable energy policy targets, up from 66 at the end of 2007.

In response to the financial crisis, several governments have directed economic stimulus funding towards the new green jobs the renewable energy sector can provide, including the US package that will invest \$150 billion over ten years in renewable energy. In 2008, renewable energy resisted the credit crunch more successfully than many other sectors for much of the year and new investment reached \$120 billion, up

16% over 2007. However, by the end of the year, the impact of the crisis was beginning to show.

The Renewables Global Status Report 2009 Update is posted at <[www.ren21.net/globalstatusreport](http://www.ren21.net/globalstatusreport)>.

Meanwhile, the Worldwatch Institute reports that global wind power capacity grew by 29% in 2008 with the US surpassing Germany to become the world's leading generator. Global wind capacity rose by over 27 gigawatts (MW) to reach 121 gigawatts. Wind now provides 1.5% of the world's energy demand, up from 0.1% in 1997. US wind capacity increased by 50% to 25 GW, 21% of world capacity. More information: <[www.worldwatch.org/node/6103](http://www.worldwatch.org/node/6103)>.

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## Responsible soy?

On May 28, an international 'Round Table' agreed on criteria for 'responsible' soy. The criteria are very weak and do not offer an effective solution for the grave impacts of soy production. Even worse, they legitimise genetically engineered (GE) soy which is designed to be produced with large (and increasing) amounts of agrichemicals. This is at the cost of people and the environment. Directly and through organisations like development NGO Solidaridad, the Dutch government provides financial support for the Round Table. WWF is also a strong supporter of the Round Table, while still claiming to be opposed to genetically engineered crops. More information: <[www.toxicsoy.org](http://www.toxicsoy.org)>.

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## Traditional Owner delays Lake Cowal mine expansion

The NSW Supreme Court of Appeal on July 1 reserved its decision on Barrick Australia's proposed expansion of the controversial Lake Cowal gold mine. A decision

is expected sometime before the end of the year. In the meantime the expansion cannot go ahead. Barrick wants to significantly expand and intensify its mining operations at Lake Cowal, almost doubling the size of the mine and extending its operational life by 11 years.

Wiradjuri Traditional Owner Neville Chappy Williams said: "We are fighting on the cultural side and the environmental side and we have taken the fight on for all people. Hopefully this further delay to the expansion will mean the mine will close for ever. You can't eat gold and you can't drink cyanide. We must remember water is more precious than gold. Water is life."

More information: <<http://savelakecowal.org>>

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## World arms trade grows by 20% in five years

THE world arms trade has expanded by more than 20% in the past five years, with the Middle East and Asian countries accounting for most of the increase, according to figures from the Stockholm International Peace Research Institute (SIPRI). The US was by far the largest arms supplier, accounting for 31% of global weapons exports over the past five years, with more than a third going to the Middle East. The five biggest suppliers of conventional arms were the US, Russia, Germany, France and Britain.

Top 10 military spenders 2008 (US\$ billion):

1. United States — 607
2. China — 84.9
3. France — 65.7
4. United Kingdom — 65.3
5. Russia — 58.6
6. Germany — 46.8
7. Japan — 46.3
8. Italy — 40.6
9. Saudi Arabia — 38.2
10. India — 30.0

More information: <[www.sipri.org](http://www.sipri.org)>.





# FOE AUSTRALIA NEWS

*Friends of the Earth Australia is a federation of independent local groups. You can join FoE by contacting your local group. For further details on FoEA, see: <[www.foe.org.au](http://www.foe.org.au)>. There is a monthly email newsletter which includes details on our campaigns here and around the world. You can subscribe via the FoEA website.*

## UN climate change talks

The next, and crucial, stage in climate change negotiations will happen in December 2009. The overall goal for the COP15 United Nations Climate Change Conference hosted by Denmark is to establish an ambitious global climate agreement for the period from 2012 when the first commitment period under the Kyoto Protocol expires.

The world needs a new global agreement on climate change. FoE believes that this agreement should recognise that rich countries have done the most damage to our climate and they should therefore take action first. Accordingly, we believe that the agreement should:

- \* Commit wealthy industrialised countries (listed in "Annex I") to at least 40% cuts in emissions domestically by 2020 against 1990 levels, by using green energy, sustainable transport and farming, and cutting energy demand.
- \* Cuts must not be achieved by buying carbon credits from developing countries or by buying forest in developing countries to 'offset' ongoing emissions in the industrialised world.
- \* Rich countries must provide additional money for developing countries to grow in a clean way, and to cope with the floods, droughts and famines caused by climate change. The agreement should ensure this money is distributed fairly and

transparently.

FoE International will have a large presence at the COP. You can follow our work via: <[www.foei.org/en/blog](http://www.foei.org/en/blog)> or <[www.demandclimatejustice.org](http://www.demandclimatejustice.org)>.

## Federal government's emission trading scheme

In June, FoE joined other leading national and state environment groups to make it clear we do not support the federal government's Carbon Pollution Reduction Scheme (CPRS) in its current form.

We have long been concerned that the level of greenhouse gases in the atmosphere are already above safe levels, and the CPRS will not effectively reduce carbon pollution. The announcement of an 'unconditional' reduction target of only 5% was the final straw, where it became apparent that the federal government is not prepared to establish emissions reductions

targets commensurate with the threats posed by climate change.

Working with the state based conservation councils, Greenpeace and the Wilderness Society, we put together a collection of complementary measures that could be enacted in the next two years and would set Australia up to meet the vital target of halving our greenhouse pollution over the coming decade while generating thousands of new jobs.

This 'Plan B' can be found at: <[www.foe.org.au/climate-justice](http://www.foe.org.au/climate-justice)>.

## Coal protest at NSW Labor headquarters

Around 50 people attended a climate protest at the NSW ALP headquarters in Sydney on June 23, angry at the NSW government's budget decision to expand coal power in the state. One of the protesters was arrested (but later



Protesters at the NSW ALP Office. [www.risingtide.org.au](http://www.risingtide.org.au)

released without charge) after around half of the group entered the offices of the ALP and refused to leave.

The Eraring Power Station, on Lake Macquarie south of Newcastle, is the equal largest power station in Australia, and emits around 12 million tonnes of carbon dioxide annually. In the mid-June NSW state budget, the government allocated more than \$200 million to expanding the power station. The protest was called on short notice by climate activist groups Rising Tide Newcastle and Friends of the Earth Sydney.

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### **Pipeline threatens endangered species and our struggling rivers**

In June, FoE released a report on the ecological impacts of the controversial north-south pipeline planned for Victoria. The report, *Out of sight, out of mind? An assessment of the ecological impacts of the North South pipeline*, outlines the environmental costs associated with the current construction of the pipeline and the potential impact it will have on the Goulburn River following the completion of the project.

The pipe is currently being built. It is intended to be able to transport 75 gigalitres of water each year from the Goulburn River system to be used in Melbourne's water supplies. This water will be made available from intended savings created through the Foodbowl Modernisation Project.

However, the Goulburn River is already under extreme stress and was found, by the Murray-Darling Basin Commission's Sustainable Rivers Audit in 2008, to have the poorest health of any of the 23 rivers in the Murray-Darling Basin. Given the dire condition of the river, it

should get the 'first drink' from any water savings to ensure its survival. Melbourne has other options to meet its water needs.

The report can be found at: <[www.foe.org.au/resources/research-papers/water](http://www.foe.org.au/resources/research-papers/water)>

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### **Nano silver: extreme germ killer presents a growing threat to public health**

FoE has released a report which details the growing threat to public health posed by extreme germ killer nano silver, and exposing the huge number of consumer applications in which it is found.

Silver has long been known as a potent antibacterial agent. However its use has exploded in recent years, not only in medical applications, but in a huge number of consumer products, including children's toys, babies' bottles, cosmetics, textiles, cleaning agents, chopping boards, refrigerators and dishwashers, available in Australian shops.

Much of the silver used is in the form of nano silver, a tiny and especially potent form. Early studies suggest that not only could nano silver pose serious new health and environmental risks, its reckless widespread use could promote antibacterial resistance, undermining its efficacy in a medical context.

The report can be found at <<http://nano.foe.org.au/node/332>>

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### **A green New Deal for Victoria?**

Australia, in common, with the rest of the global economy, is facing a 'triple crunch' of recession, accelerating climate change, and growing energy costs and insecurity. These overlapping phenomena threaten to

develop into a 'perfect storm', the like of which has not been seen since the Great Depression.

A way forward that is finding support in both Europe and the United States is the idea of a transformational policy program aimed at tackling growing unemployment and declining demand on the scale of Franklin D Roosevelt's New Deal of the 1930s. This approach involves policies and novel funding mechanisms to substantially reduce the use of fossil fuels while also driving the creation of new 'green collar' jobs. This in turn will help us tackle climate change and cope with the energy shortages likely to be caused by peak oil in coming years.

FoE has released a paper called *A Green New Deal for Victoria?*, which is an attempt to articulate how we think Victoria can and should respond in an integrated way to the coming crisis our community will face.

It can be found at: <<http://greennewdeal.wordpress.com>>

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### **Wild Law**

Australia's first conference on Earth Jurisprudence will be held in Adelaide on October 16-18. Friends of the Earth Adelaide, in partnership with the Conservation Council of South Australia and the University of Adelaide, Faculty of Professions, Research Unit for the Study of Society, Law and Religion (RUSCLR) will be hosting Australia's first conference on Earth Jurisprudence. This conference is modeled and run in consultation with the UK Environmental Law Association (UKELA).

Earth Jurisprudence calls for a radical shift to our legal system, from a human-only orientation to an Earth centred approach. You can find details on the conference at: <[www.adelaide.foe.org.au](http://www.adelaide.foe.org.au)>.



# FOE INTERNATIONAL NEWS

*Friends of the Earth International is a federation of autonomous organisations from all over the world. Our members, in 77 countries, campaign on the most urgent environmental and social issues, while working towards sustainable societies. <www.foei.org>*



## Shell forced to settle out of court

After legal battles lasting nearly 14 years, oil giant Royal Dutch Shell has been forced to pay a \$15.5 million out-of-court settlement. Plaintiffs from the Ogoni region of the Niger Delta have successfully held Shell accountable for complicity in human rights atrocities committed against the Ogoni people in the 1990s, including the execution of writer and activist Ken Saro-Wiwa.

The pay out was made just as the Wiwa vs Shell case was about to proceed to trial, one of the few cases dealing with human rights abuses by multinationals to have proceeded this far under the US Alien Tort Statute. The settlement includes a \$5 million trust to benefit local communities in Ogoni.

Despite this victory, justice will not be served in Ogoni and throughout the Delta until the gas flares are put out,

the spills cleaned up, and the military stops protecting the oil companies and starts serving the people. The next phase of the struggle continues with another case with an Ogoni plaintiff pending in the New York District Court, and a further legal action in The Hague, Netherlands, where Royal Dutch Shell is headquartered. The company faces a legal action there for repeated oil spills, brought by residents of the Niger Delta, with support from FoE Netherlands and FoE Nigeria.

More information: <www.shellguilty.com>, <www.foei.org>, <www.youtube.com/watch?v=mp5n2MA\_JPM>.

## Demand climate justice in Copenhagen

FoE groups from all over the world are coming together to build what will become our largest ever petition on climate change ahead of the UN climate change summit in Copenhagen this December. The petition will be delivered to politicians and leaders in countries all over the world.

<www.foe.co.uk/climatetalks/petition.html>

## Green jobs

At least 70,000 jobs could be created across England and Wales if councils reduced greenhouse emissions by insulating homes and businesses and fitting green energy to buildings, according to independent research released by FoE.

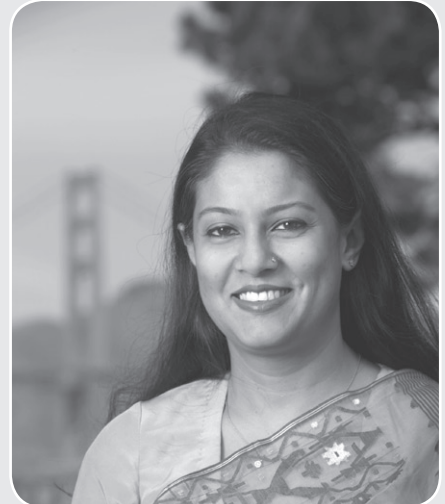
More information: <www.foe.co.uk>.

## World Water Forum protests

FoE campaigners and other water activists protested at the corporate-oriented World Water Forum (WWF) in Istanbul and organised an alternative 'People's Water Forum'.

In response to the WWF, the UN General Assembly's President issued a statement calling for a more legitimate global water forum that is backed by the UN, which the WWF is not.

More information: <http://peopleswaterforum.org>.



Syeda Rizwana Hasan

## Syeda Rizwana Hasan wins prestigious environmental prize

Syeda Rizwana Hasan, chief executive of FoE Bangladesh / BELA, has been awarded the Goldman Environmental Prize 2009 for the Asia region. She has been recognised for her work campaigning against the country's environmentally devastating ship-breaking industry in particular. FoE Bangladesh is also celebrating the High Court's recent decision to place much tighter controls on ship-breaking yards.

More information: <www.goldmanprize.org/2009/asia>, <www.belabangla.org>.

## Real World Radio

FoE's multilingual web radio station broadcasts the voices of the affected people we work with and the campaigners fighting on their behalf.

<www.radiomundoreal.fm>



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### **Andean indigenous groups visit European capitals**

Two indigenous delegations from the Andean region visited several European capital cities to denounce abuses by transnational companies and the impacts of free trade agreements being negotiated between their countries and the EU. FoE International co-organised events in Amsterdam in April. The indigenous delegation included representatives from CONACAMI (Peru), CONAMAQ (Bolivia) and ONIC (Colombia).

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### **Germany: government bans Europe's only GM crop**

Germany has banned Monsanto's GM maize MON810 as allowed under EU law (known as the 'safeguard clause'). Germany joins Hungary, Greece, Austria, Luxembourg, France, Poland and Italy who all effectively have bans in place. The German decision is based on new scientific research which shows that the crop damages ladybirds, butterflies and daphnia magna (water organisms). This is a huge success for FoE Germany / BUND and other organisations which have worked hard for this outcome for many years.

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### **Sierra Leone: seeking funds to buy bicycles**

FoE Sierra Leone has been participating in an innovative on-line fundraising project, and is hoping to raise US\$9000 to purchase a container of bicycles for use in their sustainable development campaign.

To find out more about the project, visit <[www.givemeaning.com/proposal/bfsl](http://www.givemeaning.com/proposal/bfsl)>.

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### **Guatemala: community consultation on open-pit metal mining**

On April 28, 5000 people from the municipality of San Rafael La Independencia in Huehuetenango participated in a community consultation regarding open-pit metal mining. Their response was a resounding 'no' to mining.

The consultation took place days after tensions in Huehuetenango had led to several arrests and the government calling a state of emergency. Social movements, including FoE Guatemala / Ceiba pushed back and they were able to get the state of emergency lifted and the detainees freed.

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### **FoE Middle East: winning more awards**

FoE Middle East has won the prestigious Skoll Award for Social Entrepreneurship, which acknowledges and supports those who see opportunities where others see problems and crises. FoEME was recognised for their ability to "turn an area of conflict – water – into a platform for on-the-ground cooperation, to promote problem solving through people-to-people contact and for advancing regional development and creating necessary conditions for lasting peace."

More information: <[www.skollfoundation.org](http://www.skollfoundation.org)>.

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### **Nigeria: alarm at plans to distribute GMO seeds to farmers**

FoE Nigeria / ERA has condemned plans by the federal government to distribute genetically modified crops to Nigerian farmers, saying the decision is at the insistence of biotech firms that want to dictate Nigeria's food needs for profit motives only. "Distributing GMO seeds to Nigerian farmers is the culmination of a systematic attempt to allow profit-driven biotech companies to dictate what we grow, how we grow it and what we eat," said FoE Nigeria's Executive Director, Nnimmo Bassey.

More information: <[www.vanguardngr.com/content/view/32391/46](http://www.vanguardngr.com/content/view/32391/46)>.

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### **Spain: nationwide action against GMOs**

FoE Spain and other Spanish civil society organisations coordinated a hugely successful action against genetically modified organisms with

more than 100 acts and protests across the country. Eight thousand people also took part in a national demonstration in Zaragoza, the capital city of the GM maize-growing region.

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### **USA: Monsanto CEO voted country's biggest 'biofool'**

Monsanto CEO Hugh Grant has been named the US's biggest 'biofool' after online voting in an April Fools Day competition sponsored by FoE and the Rainforest Action Network.

More information: <[www.foe.org/monsanto-ceo-voted-country-s-biggest-biofool](http://www.foe.org/monsanto-ceo-voted-country-s-biggest-biofool)>

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### **Carbon markets and subprime carbon made simple!**

Check out this (English-language) video of FoE US's Michelle Chan, explaining how lessons from the current financial crisis apply to carbon markets. In particular, she raises concerns about 'subprime carbon' – risky carbon credits based on uncompleted offset projects (projects designed to sequester or reduce greenhouse gases).

To see the video and download the report "Subprime Carbon? Re-thinking the World's Largest New Derivatives Market", visit <[www.foe.org/subprimecarbon](http://www.foe.org/subprimecarbon)>.

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### **2009 FoEI photo competition celebrates diversity**

This year's photo competition celebrated diversity in more ways than one. The competition's categories, Biodiversity Lost and Biodiversity Preserved, were more than matched by the diversity of the entries! More than 1200 photos were received from 79 countries. To see the photos, visit <[www.foei.org/en/getinvolved/photo/winners2009](http://www.foei.org/en/getinvolved/photo/winners2009)>. who has been promoting the interests of her future employer, a banking lobbying group, while still an active member of the Parliament.

More information is posted at <[www.corporateeurope.org](http://www.corporateeurope.org)>.



# Support Friends of the Earth

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We are part of the Australian voice of the largest grassroots environment network in the world, with groups in 72 countries. Whether you decide to get a campaign up & running, volunteer at the fabulous food coop or bookshop, or provide crucial dollars as an Active Friends monthly supporter, it is people like you who keep Friends of the Earth strong. If you are short on time, but big on commitment, take a few minutes to fill in this form.

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Mobile: \_\_\_\_\_

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I'd like to make a **monthly donation** of:  \$20  \$30  \$50  other \$ \_\_\_\_\_ (\$10 min)

The donation will be by (please fillout appropriate card details below):

- Direct Debit** from my bank account (the least admin fees!)
- Credit card**

A Service Agreement will be sent to you upon receipt of this form. If you would also like to become a member, tick here:  an additional \$20 per year will go towards membership, this is not tax-deductible.

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One Year

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\$30 **Low Income**

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(Given name)

(Family name)

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# Biochar – another dangerous technofix

Rye Senjen



In recent months Malcolm Turnbull, Tim Flannery and James Lovelock have promoted a new solution to climate chaos: biochar (essentially industrial charcoal). One that not only promises to create jobs, but also to solve all our current crises (food, energy, water). Sounds too good to be true – and it is.

Terra preta (Portugese for “dark earth”) is a common case study used by proponents of industrial charcoal, and refers to the very dark, fertile soil found in some areas of the Amazon Basin. How exactly Terra preta was created is unknown, but appears to involve the incorporation of wood charcoal, diverse organic matter and manure or compost. There is however little evidence that Terra preta can simply be recreated by applying industrial charcoal to large tracts of land. Without any deeper understanding of how Terra preta is formed, companies, scientists and lobby groups are today calling for large-scale carbon funding and public subsidies for what is essentially a by-product of bio-oil and syngas production.

## How does industrial charcoal production work?

Industrial charcoal (biochar) is produced as a waste product of biomass combustion (pyrolysis). All manner of plant material (also called feedstock) can be used, including wood chips, tree bark, crop residues, organic waste, sugar cane,

animal manure, sewage and paper sludge. Some companies (e.g. the Australian company CrucibleCarbon) are also proposing to incorporate up to 50% coal waste in the feedstock and are promoting this as a way of “rehabilitating and upgrading marginal land, especially degraded coal mining land”.

The research gaps relating to the use and production of industrial charcoal are enormous and worrying. Will the addition of biochar enhance nutrient use (as claimed) or will it be detrimental? What will happen to the soils water holding capacity (the jury is out) and effects on soil stability? Other poorly understood aspects of biochar include erosion, transport through the environment, and its ultimate fate in the environment.

Current research on the benefit of adding industrial charcoal products to improve crop productivity are mixed. The majority of the published scientific studies are small scale (e.g. a pot on a lab bench) and short term. Applying results gleaned from the laboratory bench to large tracts of land, and drawing the conclusion that biochar will solve all of our problems, can only be described as unscientific and wishful thinking.

The only “biochar” field study published in a peer-reviewed journal in 2007 found that charcoal additions to soil made

synthetic nitrogen fertilizers perform more effectively. However yields were still considerably lower than for plants grown solely with chicken manure. Using charcoal alone resulted in zero plant growth after two harvests.

Alarmingly, there is little knowledge about how to incorporate biochar into the soil in a way which prevents it from eroding, and it may even aggravate soil depletion. It may take 50-100 years for interactions between soil microbes and charcoal to create soils resembling Terra preta.

The use of so-called forest residues as feedstock for biochar is also being promoted. However the removal of forest residues including dead wood is known to have many adverse impacts, including lower carbon storage, biodiversity losses as well as permanently damaging forest soils and diminishing or destroying the possibility of forest regeneration. Removal of forest residues will further degrade forests and erode their ability to support life.

### **Climate change mitigation**

One of the key selling points of biochar is its purported ability to sequester carbon and hence assist in climate change mitigation. Biochar proponents claim that up to 50% of the original carbon in the biomass can be permanently sequestered in soils while at the same time increasing agricultural productivity and reducing nitrous oxide and methane emissions.

But the reality may be quite different. A study of black carbon remains from slash-and-burn agriculture in Western Kenya revealed that 72% of the carbon was lost in the first 20-30 years. Evidence is emerging that due to soil microbes metabolising carbon, it is in fact being emitted back into the atmosphere rather than being sequestered.

Biochar may play a dangerous role in encouraging the outsourcing of emissions reductions and possibly facilitating an overall increase in greenhouse gas emissions. Its inclusion in the international climate regime through carbon offsetting and trading mechanisms will allow companies to continue burning coal and other fossil fuels while purchasing carbon credits through such schemes as the Clean Development Mechanism.

Current trends indicate it will be bioenergy companies who will gain from biochar production, including through the additional income from fertiliser sales associated with

biochar use. Carbon trading will be another 'gain', an idea heavily promoted by biochar lobbyists.

The area of land needed to achieve climate change mitigation through biochar would be staggering: at least 500 million hectares of dedicated bioenergy plantations. By comparison, the entire land mass of India is 329 million hectares. Much of the land proposed for use is so-called wasteland, marginal or idle land. These areas are often community lands that have been used for many generations by pastoralists, small-scale farmers, women excluded from land-titles and indigenous peoples. These are not 'waste' lands, but lands vital to the survival of billions of people.

Real solutions to climate change can be found in a rapid reduction of the consumption/production growth cycle, de-industrialisation and decommodification, and food, water and energy sovereignty based on truly sustainable renewable energy production. We need to learn from small farmers, indigenous peoples and other rural communities who have developed many different strategies for soil conservation and improving soil fertility. Shifting away from industrial monocultures, and learning from these strategies, are essential in the transition towards sustainable, just societies and for addressing climate change.

Biochar is part of a series of false solutions to climate change. It is based on large-scale industrial plantations and will lead to the acquisition of large tracts of land, furthering the erosion of indigenous peoples' and community rights while not adequately addressing the climate crisis. The claims of biochar lobbyists of its soil and climate benefits are largely unproven. Biochar development is a distraction from developing real and sustainable renewables and encourages expansion of business-as-usual for polluting industries, while unlikely to fulfill its promoters' claims of being a major profit source for small farmers and landowners.

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A biochar briefing paper is posted at <[www.foe.org.au](http://www.foe.org.au)>. See also <[www.biofuelwatch.org.uk](http://www.biofuelwatch.org.uk)>.



# Geoengineering: Reshaping the Earth?

Alan Roberts

Many projects have now been suggested that would change fundamental properties of the earth as a planet, the aim being to stop global warming. The idea behind one such project – yearly injections of sulphur into the stratosphere – is explained below as an example of such attempts at ‘geoengineering’.

It is a common reaction to ridicule such ideas as being ‘a fantasy’, or too expensive, or quite impracticable – perhaps all three – and with little chance of ever going ahead. But such verdicts are not correct. This article describes circumstances that are quite possible – some might even say, likely – in which such a scheme will be proposed, and with the political and financial power to back it up.

Think first of the greenhouse gases emitted from world production systems, and the efforts to have governments agree to control and reduce them. There is no shortage of world leaders who have now proclaimed how urgent it is to check the ravages of climate change. The mainstream media duly report them, along with the summit talks this concern leads to – from Kyoto in 1997 to Copenhagen this year.

If nations disagree over the appropriate time schedule for the steps needed to reach proposed targets, the media will usually pay some attention to this. One nation will accept a certain step towards emission control by, say, 2020; another is unwilling to implement it before 2050. What is less reported is that these targets themselves, laying down an ‘acceptable’ global temperature rise and thus an ‘acceptable’ level for greenhouse gases in the atmosphere, are now woefully inadequate. They are based on older ideas that have been discredited and outdated by more recent scientific findings.

The facts of the matter are well described, and convincingly referenced, in *Climate Code Red*, by David Spratt and Philip Sutton. This book’s account of the most recent – and alarming – scientific findings makes it clear that, unsurprisingly enough, most countries are putting business-as-usual ahead of preserving the only planet at present open for business. With the policies announced by the Rudd government, Australia fits well into this disastrous pattern.

People in most countries are well in advance of their

leaders here, and their growing awareness strengthens the campaigns trying to force governments into action that is adequate rather than cosmetic.

Perhaps these campaigns will succeed; or perhaps not. It is the latter event, in which the leaders continue to fail us and business-almost-as-usual remains the touchstone of policy, that is the case considered here. As the earth warms further, with sea levels rising and some local climatic variations becoming acute, it will become impossible to ignore the dire results. The response by governments may well be to pose the question of geoengineering.

What it means to geoengineer is best appreciated by looking

*‘It is easy to see how a politician could prefer an alternative that didn’t seem to bristle with all these unpopular measures. Solve all the problems through geoengineering – just One Big Hit, and moreover one fully in tune with society’s reliance on the power of science and technology to assure a better future.’*

at the project most commonly offered and studied in most detail: sulphur injection. It goes like this: Deposit a few million tonnes of sulphur in suitable form (that is, in small particles) into the stratosphere, by using artillery guns, for example, or towing it up in balloons. It will eventually fall down to earth, so that the injection must be repeated each year. Choose the amount of sulphur so that the particles reflect just enough of the sun’s rays, about 4%, to counteract the warming effect of the greenhouse gases due to human industrial activity.

Preliminary studies indicate that the costs are not prohibitive, and that ‘natural’ injections of sulphur (from volcano eruptions) have indeed resulted in a cooler earth, sometimes for a year or more. It is apparent that with a scheme like this, or similar projects, we would be actually altering the nature of the earth as a planet.

Consider a future moment when the effects of global



warming are rousing widespread concern and have thus become a political issue that must be dealt with. This moment is likely to arrive much more quickly than most of us realise, as Climate Code Red makes clear. An early symptom could be the presence of tens of millions of environmental refugees, already displaced or threatened by rising sea levels.

Consider the advantages of this 'geoengineering' path, from the viewpoint of a political decision-maker: Any common-sense policy adequate to the situation, one that controls and reduces the dumping of greenhouse gases into the atmosphere, would have to go much further than the present cosmetic measures. It would involve a wholesale interference with the electorate's way of life. We need think only of the impact of carbon pricing on motorists and the consumers in general, or of immigration changes and the disappearance of cheap air travel.

It is easy to see how a politician could prefer an alternative that didn't seem to bristle with all these unpopular measures. Solve all the problems through geoengineering – just One Big Hit, and moreover one fully in tune with society's reliance on the power of science and technology to assure a better future.

From many indications, we can see the background for such a decision already shaping up. As a sample of some of the significant developments just in 2008:

\* The American Enterprise Institute, a very influential right-wing think tank, scheduled a series of conferences on geoengineering; the first was held in June.

\* Britain's Royal Society saw geoengineering as important enough to deserve an entire issue of its *Philosophical Abstracts*.

\* As the year ended, *The Independent* newspaper in Britain polled 80 'international specialists in climate science', and published the result under the headline, "Climate scientists: it's time for 'Plan B'" – Plan B being a 'backup plan' to do geoengineering. It was endorsed by 60% of those with an opinion.

\* Geoengineering projects got increasing mention in the mainstream media – in Australia, for instance, the *Australian Financial Review* devoted the whole of one of its broadsheet pages to the topic.

The overwhelming opinion of climatologists is that reducing greenhouse-gas emissions is by far the better way to go. But they despair of adequate international agreements to achieve this. Nevertheless, until quite recently the bulk of them were reluctant to publish material on geoengineering projects. This was because they shared a quite reasonable

fear: the more a Big Hit 'solution' became common knowledge, the harder it would be to see adequate emission controls implemented.

This informal 'silence' was decisively broken a few years ago, when the highly respected Nobel Prize winner Paul Crutzen wrote an editorial (August 2006) on the sulphur project. He was clear, however, that "Reductions in CO<sub>2</sub> and other greenhouse gas emissions are clearly the main priorities", and listed some of the unsolved research questions that needed study before the project was launched.

Climatologists generally present such projects as advisable only to gain time for proper emission controls to be agreed on. And they follow Crutzen in emphasising the need for extensive research beforehand.

They do not appear, however, to recognise the sort of circumstances sketched above, in which the decision would be made. When an issue enters the sphere of politics, it is political considerations that decide what happens to it, not the advice of experts. The saying is attributed to Winston Churchill, that 'scientists should be on tap but not on top', and this is the view generally held by politicians.

There are thorny questions involved, like: Should we decide to launch the engineering gamble? If so, which project should be chosen? Are there unresolved questions about possible unwanted effects that need research before going ahead?

It will not be Paul Crutzen or indeed any climatologist who resolves such issues, but rather the political leaders who hold the responsibility and the power. This needs emphasis, because experts often prescribe the care and precautions necessary in terms that make it sound as though the decision will be theirs. They will of course offer the best advice available, but whether it is accepted is a different matter. Political considerations tend to swamp all others.

A project like the sulphur injection would be massive, but still within the capacity of a single large nation or group of nations. It is obviously desirable, however, that any such project should be handled by an international body, and not launched by one national grouping with its own special interests to protect. But securing international agreement would face much greater problems than even the squabbles over emission controls. For example: what should be the final global temperature aimed at? Russia, contemplating the resources locked up in sub-Arctic Siberia, could well favor a higher temperature than, say, the USA. And special national interests include, of course, military ones.

All this overlooks perhaps the most important aspect of all: that we cannot be sure of what effects the sulphur project would produce – including ones separate from the cooling effect aimed at and quite unexpected. The same uncertainty surrounds any attempt to reshape the planet fundamentally. Our knowledge of the factors determining earth's climate has enormous gaps, as testified by the 'surprises' this highly complex system has given us even in recent years. This is why some people say we should replace the term 'geoengineering' by the more honest 'geo-gambling'.

If the moment of decision as sketched above seems a future scenario which is at least plausible, one thing is reasonably clear: we should do our utmost to ensure that it remains hypothetical, that it never comes about. And this means doing our utmost to obtain emission controls that have a real chance of averting such a moment of possible disaster.

*Dr Alan Roberts is a retired physics lecturer. His research work is on problems of theoretical ecology.*

## Asking the hard questions about geoengineering

*Rye Senjen*

As alarm about the climate crisis grows, it's important to make sure that the cures we propose are not worse than the disease – and that they do not exacerbate other critical crises we face, including the food crisis, the water crisis and the threat of extinction of many species.

The injection of sulphate particles into the stratosphere to block sunlight and reduce global temperatures is one of the most talked about climate manipulation proposals, and so it is worthwhile to look at some of the issues it raises. Here is a quick overview of some of the challenges:

**1. Uncertainty and human error.** Complex climate modeling is difficult, natural systems are complex, and humans make mistakes. The best climate science in the world is still being consistently questioned and revised. We don't know if – or how quickly – scientists and geoengineers could shut down a malfunctioning geoengineering system if things go wrong.

**2. Commercial and/or geopolitical control of technology.** Geoengineering could enable renegade research groups, companies or governments to carry out their own projects, without consulting anyone, and without even alerting the rest of the world. Geoengineers could be motivated by sectional or private interests, with little or no accountability to the rest of us.

**3. Military use.** There is a long history of using weather modification for military purposes. Could techniques developed to manipulate global climate be always limited to peaceful uses?

**4. Disruption of rain and precipitation cycles.** Proponents argue that sulphate injection mimics a natural process – that

of large volcanic eruptions. But eruptions have also been associated with regional-scale disruption to hydrological and precipitation cycles, in some cases resulting in continent-wide droughts over several years.

**5. Increased acid rain and ocean acidification.** Sulphate particles also have a relatively short life in the upper atmosphere, and when they fall to earth or into the sea could cause acid rain. Failing to reduce carbon dioxide emissions will result in ongoing ocean acidification as the ocean absorbs excess carbon dioxide from the air.

**6. Ozone depletion.** Aerosol particles in the stratosphere serve as surfaces for chemical reactions that destroy ozone.

**7. Undermining emissions mitigation measures.** Perhaps the strongest argument against climate manipulation is that the prospect of a 'techno-fix' around the corner could undermine calls for an immediate and substantial cut to emissions.

**8. Undermining support for safer, decentralised efforts to reduce atmospheric carbon dioxide.** Soil scientists have suggested that increasing soil carbon content and restoring degraded soils could make a huge contribution to reducing atmospheric carbon dioxide. Others suggest that by reforesting cleared land that is not being used for agriculture, cloud cover would be increased and solar radiation reduced naturally.

For more information, contact FoE Australia's nanotechnology campaign, <<http://nano.foe.org.au>>, Georgia Miller <[georgia.miller@foe.org.au](mailto:georgia.miller@foe.org.au)>, 0437 979402 or Rye Senjen <[rye.senjen@foe.org.au](mailto:rye.senjen@foe.org.au)>.

See also the articles and debate in The Bulletin of the Atomic Scientists, <[www.thebulletin.org/web-edition/roundtables/archive](http://www.thebulletin.org/web-edition/roundtables/archive)>

# Agrofuels: The wrong proposal or the wrong system?

Ricardo Navarro

Fuels of agricultural origin such as ethanol or vegetable oil have received considerable attention as a means to confront the peak oil problem. In a situation of continuous increasing global oil demand, although somewhat distorted temporarily by the recent financial crisis, oil is reaching a position of maximum supply, demanding the development of alternatives such as agrofuels. Friends of the Earth International and other social and environmental groups around the world have been quick to point out the problems with relying on agrofuels to satisfy a large scale demand of liquid fuels, mostly for transportation.

The large scale of agrofuels production has generated a large demand for land, a resource that is not in abundance. It was evident that this demand would conflict, at the economic level, with other land uses such as food production, forest conservation and even settlements for peasants and indigenous populations. This land use conflict is also generated because the conversion of electromagnetic radiation coming from the sun into chemical energy in a plant tissue is done at a very low efficiency. This means that a lot of land is required to produce energy of vegetable origin and therefore it would be smarter to use this energy for better ends than running a car.

Soon after the massive agrofuel production started, food prices soared, generating severe social problems for medium and low income groups worldwide. They suddenly found themselves with insufficient funds to provide enough food for their families. A leaked World Bank document acknowledged that the use of land for agrofuels was responsible for a 75% increase in the price of food. Local and national regulations providing some sort of “food safety net” were of little use because the ‘free market’ actually facilitates the transfer of food commodities across national borders in search of better returns.

A similar situation has occurred with native and secondary tropical forests with their abundant biodiversity, when suddenly they were in a position of having to compete on economic grounds with more short term profitable oil plantations. As a result, large forest destruction processes have taken place. Within this framework of using the land to maximise economic profits, human settlements in the middle of a potential agrofuel plantation became an obstacle that had to be removed. Violations of human rights have subsequently been on the rise.

To avoid conflicts between food production and large scale agrofuel plantations, some people have proposed that agricultural fuels be produced on idle lands or by

using vegetable matter that is not suitable for human consumption such as organic wastes or cellulosic material. These ideas have several problems. First, a piece of land that might look idle from an economic standpoint because it is not generating material wealth, is certainly not idle from an ecologic standpoint. Living species are always at work interacting among themselves and with the rest of nature, as part of the cycle of life.

*A leaked World Bank document acknowledged that the use of land for agrofuels was responsible for a 75% increase in the price of food.*

Second, any resource such as energy that is extracted from a living process and transported somewhere else must be replaced if the living process is not to be affected. Third, in a world economic system where profit making is the main driving force that determines the use of resources, the development of large scale agrofuel production with non-edible materials will generate a large demand for land to produce the vegetable matter. This creates the conditions for a large corporate land grab and a massive displacement of local populations.

The idea behind a considerable fraction of research carried out in biotechnologies is to find an economically viable way to substitute biological carbon for fossil carbon in industrial processes. This is the same as saying that the fossil carbon economy will be replaced by a biological carbon or sugar economy, with the claim that this new economy will be non-polluting since it is going to work within a carbon recycling framework. The problem of this biological carbon economy is that it will first require a massive corporate take over of lands, strengthening an economic system whereby human beings will be reduced further in importance compared to economic profits.

Some people might argue that producing energy through ethanol fermentation or with oil seeds to satisfy transportation needs is not fundamentally different than using firewood to satisfy cooking needs, which is probably true. But what might then be concluded is that with the agrofuel programs we are not necessarily facing a wrong technology or a wrong technological process per sé, but rather we are facing a technological process to satisfy the wrong needs or, put it in more general terms, we are using



technology to keep running the wrong political economic system. Before discussing how to supply the energy demand of the world motorised fleet, we should discuss if that transportation system is rational. Any properly conducted environmental, social or even economic assessment of the world transportation system, with numerous local exceptions of course, will show that it is highly non-sustainable and therefore should be changed in a radical way.

At the base of all these programs, whether it is agrofuels production, nuclear energy, geoengineering, nano technologies or synthetic biology, there is an intention to find novel ways to provide more time and space to an economic system that is by its own nature suicidal. The world economic system puts profits ahead of people and the environment and, as climate change shows, the huge amount of material wealth generated by our civilisation has been acquired by changing the planetary conditions that make our life possible. Therefore, to keep our own species in harmonious co-existence with the rest of nature, we certainly have to change the present orgy of production, trade and consumption in a general framework of social violence, for a civilisation where life is valued for what it is and not for what the market says.

Ricardo Navarro is a member of CESTA (Friends of the Earth El Salvador) and works with the FoE International agrofuels campaign.

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# Agrofuels: North Australia on the Horizon

*Daisy Barham*



Savanna landscape of Central Cape York. Source: *Glenn Walker*

As the implications of global climate change and peak oil become clear, many are looking towards agriculture to fuel our future. Promoted as a climate-friendly solution by their advocates, agrofuels (a.k.a. biofuels) are increasingly recognised as a false solution to climate change. Defined as liquid biofuels derived from large-scale agricultural products, agrofuels are substitutes for petrol and mineral diesel. However they are criticised for enhancing the problem they are proposed to mitigate – climate change. Increased greenhouse emissions, poverty and hunger, deforestation and land degradation, water pollution, and human rights abuses have followed the expansion of agrofuel developments around the world. Northern Australia may become the industry's next playground.

Northern Australia is a haven for unique plants and animals endemic to this magnificent part of the continent. Stretching 2500 kilometres from Cairns to Broome, this vast environment hosts the world's largest, most intact tropical savanna.

Aboriginal and Torres Strait Islander populations have thrived with the land for over 50,000 years, overcoming the many effects of colonisation to maintain traditional ways of life in keeping with ecological processes. However, significant social disadvantages exist in many Indigenous communities throughout the region.

Since the 1950s there has been a growing realisation that standard land use practices, particularly grazing and monoculture cropping, are highly unsustainable. The impacts of these practices have been most evident in Australia's traditional food bowl in the south-east, characterised by parched landscapes bereft of wildlife, and an increasingly lifeless Murray-Darling river system.

With continuing problems of land degradation, alongside greater water scarcity in the south, eager eyes have cast their gaze to northern Australia in hope of greener pastures and a constant water supply.

But northern Australia is already littered with failed agricultural schemes. For example the Humpty Doo Rice Project established in 1956 in the Northern Territory to supply rice to the growing populations of Asia failed spectacularly. Within four years, rivers were dammed and land degraded, and the project ceased.

The contentious Ord River Irrigation Scheme initiated in the 1960s, and still in operation today, is another example. Degradation of local environments, cultures, and wildlife have accompanied this ill-conceived agricultural venture. Unfortunately some lessons appear hard to learn, with the federal and Western Australian governments recently announcing plans to expand the scheme.

### **Second generation agrofuels**

Creating fuel from food products is regarded by many, including the CSIRO, as poor environmental, economic and social policy. In response, both government and industry are seeking technological solutions to maintain and enhance the production of agrofuels. Using so-called second generation technologies, where non-food products are transformed into fuel, new plant materials are being used and trialled for production. Crops such as jatropha, mustard seed, pongamia pinnata and switchgrass have been promoted as having production potential for northern Australia.

Additional technologies using genetic modification and synthetic biology are also being energetically researched and trialled to create plants and enzymes with increased production potential.

Northern Australia's large land mass and areas of high seasonal water flows make it a primary target for agrofuel plantation development. The environmental implications of such developments may be devastating. The Invasive Species Council, supported by Science magazine, notes that the very characteristics which make many second generation agrofuel crops ideal biofuels also condemn them to have high weed potential. Hardiness, pest and disease resistance, high reproducibility, and limited water demands are features of both invasive weeds and proposed agrofuel crops.

The Neem tree, a native of Burma and India, has been touted as an agrofuel feedstock and is illustrative of the devastation caused by invasive species in the north. Spread by birds and along waterways, Neem is establishing itself as a destructive and costly menace throughout northern Australia. Plantations of agrofuel feedstocks with considerable weed potential should not be developed in the fragile northern environments.

### **North Australian agrofuel projects**

A recently proposed agrofuel development was the establishment of a 2000 square kilometre plantation in the Kimberley region of Western Australia producing one billion litres of fuel each year (just over 5% of Australia's total fuel consumption). Had this project been developed, the environmental costs, in terms of habitat loss in particular, are potentially phenomenal. And whilst the development is no longer expected to occur, it serves as a reminder of the vulnerability of our precious environments to ill-conceived agricultural exploitation.

The Lockhart River region in Queensland's Cape York is also a site of proposed agrofuel plantation development. The plantation will cultivate *Pongamia Pinnata*, a tree growing to 25m that has been used in India as a traditional medicine for thousands of years. Proposed on 16,000 hectares of native woodlands and grasslands close to the pristine Lockhart River, the proposal would require the bulldozing of Aboriginal lands and the destruction of wildlife habitat. Legitimised as a job creation venture, it is unlikely the plantation will deliver many jobs for Aboriginal communities. In reality the plantation would further destroy the economic foundation from which alternative developments may arise. Other proposals to establish agrofuel plantations in northern Australia are fraught with similar concerns.

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More information:

\* Friends of the Earth Europe, Greenpeace et al., 2009, 'The Real Impact of Growing Biofuel: Calculating indirect land-use change', <[www.foeeurope.org/agrofuels/index.html](http://www.foeeurope.org/agrofuels/index.html)>

\* T. Low and C. Booth, 2007, 'The Weedy Truth about Biofuels', <[www.invasives.org.au/biofuels.html](http://www.invasives.org.au/biofuels.html)>

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# Nuclear Weapons and 'Fourth Generation' Nuclear Power

*Jim Green*

'Integral fast reactors' and other 'fourth generation' nuclear power concepts have been gaining attention, in part because of comments by US climate scientist James Hansen. While not a card-carrying convert, Hansen argues for more research: "We need hard-headed evaluation of how to get rid of long-lived nuclear waste and minimize dangers of proliferation and nuclear accidents. Fourth generation nuclear power seems to have the potential to solve the waste problem and minimize the others."

Others are less circumspect, with one advocate of integral fast reactors promoting them as the "holy grail" in the fight against global warming. There are two main problems with these arguments. Firstly, nuclear power could at most make a modest contribution to climate change abatement, mainly because it is used almost exclusively for electricity generation which accounts for about one-quarter of global greenhouse emissions. Doubling global nuclear power output (at the expense of coal) would reduce greenhouse emissions by about 5%. Building six nuclear power reactors in Australia (at the expense of coal) would reduce Australia's emissions by just 4%.

The second major problem with the nuclear 'solution' to climate change is that all nuclear power concepts (including 'fourth generation' concepts) fail to address the single greatest problem with nuclear power – its repeatedly-demonstrated connection to the proliferation of Weapons of Mass Destruction (WMD). Not just any old WMDs but nuclear weapons – the most destructive, indiscriminate and immoral of all weapons.

## **Integral fast reactors**

Integral fast reactors (IFRs) are reactors proposed to be fuelled with a metallic alloy of uranium and plutonium, with liquid sodium as the coolant. 'Fast' because they would use unmoderated neutrons as with other plutonium-fuelled fast neutron reactors (e.g. breeders). 'Integral' because they would operate in conjunction with on-site 'pyroprocessing' to separate plutonium and other long-lived radioisotopes and to re-irradiate (both as an additional energy source and to convert long-lived waste products into shorter-lived, less problematic wastes).

IFRs would breed their own fuel (plutonium-239) from uranium-238 contained in abundant stockpiles of depleted uranium. Thus there would be less global demand for

uranium mining with its attendant problems, and less demand for uranium enrichment plants which can be used to produce low-enriched uranium for power reactors or highly enriched uranium for weapons. Drawing down depleted uranium stockpiles would be welcome because of the public health and environmental problems they pose and because one of the few alternative uses for depleted uranium – hardening munitions – is objectionable.

Pyroprocessing technology would be used – it would not separate pure plutonium suitable for direct use in nuclear weapons, but would keep the plutonium mixed with other long-lived radioisotopes such that it would be very difficult or impossible to use directly in nuclear weapons. Recycling plutonium generates energy and gets rid of the plutonium with its attendant proliferation risks. These advantages could potentially be achieved with conventional reprocessing and plutonium use in MOX (uranium/plutonium oxide) reactors or fast neutron reactors. IFR offers one further potential advantage – transmutation of long-lived waste radioisotopes to convert them into shorter-lived waste products.

In short, IFRs could produce lots of greenhouse-friendly energy and while they're at it they can 'eat' nuclear waste and convert fissile materials, which might otherwise find their way into nuclear weapons, into useful energy. Too good to be true? Sadly, yes. Nuclear engineer Dave Lochbaum from the Union of Concerned Scientists writes: "The IFR looks good on paper. So good, in fact, that we should leave it on paper. For it only gets ugly in moving from blueprint to backyard."

Complete IFR systems don't exist. Fast neutron reactors exist but experience is limited and they have had a troubled history. The pyroprocessing and waste transmutation technologies intended to operate as part of IFR systems are some distance from being mature. But even if the technologies were fully developed and successfully integrated, IFRs would still fail a crucial test – they can too easily be used to produce fissile materials for nuclear weapons.

## **IFRs and nuclear weapons**

George Stanford, who worked on an IFR R&D program in the US, notes that proliferators "could do [with IFRs] what they could do with any other reactor – operate it on a special cycle to produce good quality weapons material."

As with conventional reactors, IFRs can be used to produce weapon grade plutonium in the fuel (using a shorter-than-usual irradiation time) or by irradiating a uranium or depleted uranium 'blanket' or targets. Conventional PUREX reprocessing can be used to separate the plutonium. Another option is to separate reactor grade plutonium from IFR fuel and to use that in weapons instead of weapon grade plutonium.

The debate isn't helped by the muddle-headed inaccuracies of some IFR advocates, including some who should know better. For example, Prof. Barry Brook from Adelaide University says: "IFRs cannot produce weapons-grade plutonium. The integral fast reactor is a systems design with a sodium-cooled reactor with metal fuels and pyroprocessing on-site. To produce weapons-grade plutonium you would have to build an IFR+HSHVHSORF (highly specialised, highly visible, heavily shielded off-site reprocessing facility). You would also need to run your IFR on a short cycle." Or to paraphrase: IFRs can't produce weapon grade plutonium, IFRs can produce weapon grade plutonium. Go figure.

Presumably Brook's point is that IFR-produced plutonium cannot be separated on-site from irradiated materials (fuel/blanket/targets); it would need to be separated from irradiated materials at a separate reprocessing plant. If so, it is a banal point which also applies to conventional reactors, and it remains the case that IFRs can certainly produce weapon grade plutonium.

Brooks' HSHVHSORFs are conventional PUREX plants – technology which is well within the reach of most or all nation states. Existing reprocessing plants would suffice for low-burn-up IFR-irradiated materials while more elaborate shielding might be required to safely process materials irradiated for a longer period. IFR advocate Tom Blees notes that: "IFRs are certainly not the panacea that removes all threat of proliferation, and extracting plutonium from it would require the same sort of techniques as extracting it from spent fuel from light water reactors."

IFR advocates propose using them to draw down global stockpiles of fissile material, whether derived from nuclear research, power or WMD programs. However, IFRs have no need for outside sources of fissile material beyond their initial fuel load. Whether they are used to irradiate outside sources of fissile material to any significant extent would depend on a confluence of commercial, political and

military interests. History shows that non-proliferation objectives receive low priority. Conventional reprocessing with the use of separated plutonium as fuel (in breeders or MOX reactors) has the same potential to draw down fissile material stockpiles, but has increased rather than decreased proliferation risks. Very little plutonium has been used as reactor fuel in breeders or MOX reactors. But the separation of plutonium from spent fuel continues and stockpiles of separated 'civil' plutonium – which can be used directly in weapons – are increasing by about five tonnes annually and amount to over 270 tonnes, enough for 27,000 nuclear weapons.

IFR advocates demonstrate little or no understanding of the realpolitik imposed by the commercial, political and military interests responsible for, amongst other things, unnecessarily creating this problem of 270+ tonnes of separated civil plutonium and failing to take the simplest steps to address the problem – namely, suspending reprocessing or reducing the rate of reprocessing such that plutonium stockpiles are drawn down rather than continually increasing.

The proposed use of IFRs to irradiate fissile materials produced elsewhere faces the familiar problem that countries with the greatest interest in WMD production will be the least likely to forfeit fissile material stockpiles and vice versa. Whatever benefits arise from the potential consumption of outside sources of fissile material must be weighed against the problem that IFRs could themselves be used to produce fissile material for weapons. WMD proliferators won't use IFRs to draw down stockpiles of their own fissile material let alone anyone else's – they are more likely to use them to produce plutonium for nuclear weapons.

Some IFR proponents propose initially deploying IFR technology in nuclear weapons states and weapons-capable states, but every other proposal for selective deployment of dual-use nuclear technology has been rejected by countries that would be excluded.

### **Safeguards**

Some IFR advocates downplay the proliferation risks by arguing that fissile material is more easily produced in research reactors. But producing fissile material for weapons in IFRs would not be difficult. Extracting irradiated material from an IFR may be challenging though not from those IFRs which have been designed to produce the initial fuel load for other IFRs (and are thus designed to facilitate the

insertion and extraction of uranium targets).

The main challenge would be to circumvent safeguards. Proponents of IFR acknowledge the need for a rigorous safeguards system to detect and deter the use of IFRs to produce fissile material for weapons. And they generally accept that the existing safeguards system is inadequate – so much so that the former Director General of the International Atomic Energy Agency, Dr. Mohamed El Baradei, has noted that the IAEA's basic rights of inspection are “fairly limited”, that the safeguards system suffers from “vulnerabilities” and “clearly needs reinforcement”, that efforts to improve the system have been “half-hearted”, and that the safeguards system operates on a “shoestring budget ... comparable to that of a local police department”.

Blees argues for a radically strengthened safeguards system including the establishment of an international strike force on full standby to attend promptly to any detected attempts to misuse IFRs or to divert nuclear materials. But there's no evidence of IFR advocates getting off their backsides to engage in the laborious work of trying to bring about improvements in safeguards. Evidently they do not accept the argument that proponents of dual-use technology have a responsibility to engage in that laborious work. Nor do they see strengthened safeguards as a prerequisite for the widespread deployment of IFRs. Yet, when pressed, IFR advocates point to safeguards which exist only in their imaginations: we needn't worry about IFRs and WMD proliferation, for example, because Blees' international strike force will take care of that. Such arguments are circular and disingenuous.

IFR advocates imagine that a strong commitment to nuclear non-proliferation will shape the development and deployment of IFR technology, but in practice it could easily fall prey to the interests responsible for turning attractive theories into the fiasco of ever-growing stockpiles of separated civil plutonium. Under the Bush administration, proposals for advanced, 'proliferation-resistant' reprocessing under the Global Nuclear Energy Partnership gave way to a plan to expand conventional reprocessing while working on R&D into advanced reprocessing. A similar fate could easily befall proposals to run fast neutron reactors in conjunction with 'proliferation-resistant' reprocessing.

IFR proponents want to avoid the risks associated with widespread transportation of nuclear and fissile materials by co-locating a pyroprocessing facility with every IFR reactor plant – but nuclear utilities might prefer the cost savings

associated with centralised processing.

As another example of the potential for attractive theories to turn into problematic outcomes, the fissile material required for the initial IFR fuel loading would ideally come from civil and military stockpiles or from other IFRs – but that fissile material requirement could be used to justify the ongoing operation of enrichment and PUREX reprocessing plants and to justify the construction of new ones.

In his book 'Prescription for the Planet', Blees argues that: “Privatized nuclear power should be outlawed worldwide, with complete international control of not only the entire fuel cycle but also the engineering, construction, and operation of all nuclear power plants. Only in this way will safety and proliferation issues be satisfactorily dealt with. Anything short of that opens up a Pandora's box of inevitable problems.” He goes further, arguing for a “nonprofit global energy consortium” to control nuclear power: “The shadowy threat of nuclear proliferation and terrorism virtually requires us to either internationalize or ban nuclear power.”

But there's little or no discussion among IFR advocates about how to bring about these fundamental changes, nor any sense that proponents of IFRs and other dual-use technology ought to be part of that struggle, and these fundamental changes are not seen as a prerequisite for the deployment of IFRs.

It would be silly to oppose IFRs (and possibly other reactor types) in a hypothetical world where rigorous safeguards ensured that they would not be used to produce fissile material for weapons, where no expense was spared to minimise the short- and long-term environmental and public health hazards, where genuinely independent regulators provided strict oversight, and where the corrupting effects of the profit motive and nationalism had been eliminated. In other words, it would be silly to oppose nuclear power if all the rational reasons for that opposition were satisfactorily addressed. But that tells us nothing about the real world.

#### **Other 'fourth generation' reactor types**

IFRs and other plutonium-based nuclear power concepts fail the WMD proliferation test, i.e. they can too easily be used to produce fissile material for nuclear weapons. Conventional reactors also fail the test because they produce plutonium and because they legitimise the operation of enrichment plants and reprocessing plants.

The use of thorium as a nuclear fuel doesn't solve the WMD



proliferation problem. Irradiation of thorium (indirectly) produces uranium-233, a fissile material which can be used in nuclear weapons. The US has successfully tested weapons using uranium-233 (and France may have too). India's thorium program must have a WMD component – as evidenced by India's refusal to allow IAEA safeguards to apply to its thorium program. Thorium fuelled reactors could also be used to irradiate uranium to produce weapon grade plutonium. The possible use of highly enriched uranium (HEU) or plutonium to initiate a thorium-232/uranium-233 reaction, or proposed systems using thorium in conjunction with HEU or plutonium as fuel, present further risks of diversion of HEU or plutonium for weapons production as well as providing a rationale for the ongoing operation of dual-use enrichment and reprocessing plants.

Some proponents of nuclear fusion power falsely claim that it would pose no risk of contributing to weapons proliferation. In fact, there are several risks including the use of tritium as a fusion power fuel which raises the risk of its diversion for use in boosted nuclear weapons, or, more importantly, the use of fusion reactors to irradiate uranium to produce plutonium or to irradiate thorium-232 to produce uranium-233.

Fusion power has yet to generate a single Watt of useful electricity but it has already contributed to proliferation problems. According to Khidhir Hamza, a senior nuclear scientist involved in Iraq's weapons program in the 1980s: "Iraq took full advantage of the IAEA's recommendation in the mid 1980s to start a plasma physics program for "peaceful" fusion research. We thought that buying a plasma focus device ... would provide an excellent cover for buying and learning about fast electronics technology, which could be used to trigger atomic bombs."

All existing and proposed nuclear power concepts pose WMD proliferation risks. History gives us some indication of the scale of the problem. Over 20 countries have used their 'peaceful' nuclear facilities for some level of weapons research and five countries developed nuclear weapons under cover of a civil program.

Former US Vice President Al Gore has summed up the problem of heavy reliance on nuclear power for climate change abatement: "For eight years in the White House, every weapons-proliferation problem we dealt with was connected to a civilian reactor program. And if we ever got to the point where we wanted to use nuclear reactors to back out a lot of coal ... then we'd have to put them in so

many places we'd run that proliferation risk right off the reasonability scale."

### **Make-believe nuclear reactors**

In addition to dishonest or ill-informed claims that 'fourth generation' nuclear power will satisfactorily address WMD proliferation concerns, its proponents also claim that it will be safe, cheap, simple, flexible etc.

Amory Lovins from the Rocky Mountain Institute has summarised the differences between real and make-believe nuclear reactors:

*"An academic reactor or reactor plant almost always has the following basic characteristics: (1) It is simple. (2) It is small. (3) It is cheap. (4) It is light. (5) It can be built very quickly. (6) It is very flexible in purpose. (7) Very little development will be required. It will use off the shelf components. (8) The reactor is in the study phase. It is not being built now.*

*"On the other hand a practical reactor can be distinguished by the following characteristics: (1) It is being built now. (2) It is behind schedule. (3) It requires an immense amount of development on apparently trivial items. (4) It is very expensive. (5) It takes a long time to build because of its engineering development problems. (6) It is large. (7) It is heavy. (8) It is complicated.*

*"Every new type of reactor in history has been costlier, slower, and harder than projected. ...*

*"In short, the notion that different or smaller reactors plus wholly new fuel cycles (and, usually, new competitive conditions and political systems) could overcome nuclear energy's inherent problems is not just decades too late, but fundamentally a fantasy. Fantasies are all right, but people should pay for their own. Investors in and advocates of small-reactor innovations will be disappointed. But in due course, the aging advocates of the half-century-old reactor concepts that never made it to market will retire and die, their credulous young devotees will relearn painful lessons lately forgotten, and the whole nuclear business will complete its slow death of an incurable attack of market forces."*

More information on IFRs and 'fourth generation' nuclear reactors is posted at <[www.foe.org.au/anti-nuclear/issues/nfc](http://www.foe.org.au/anti-nuclear/issues/nfc)> and <[www.energyscience.org.au](http://www.energyscience.org.au)>. A debate on IFRs is posted at <<http://skirsch.com/politics/globalwarming/ifrUCSresponse.pdf>>. Amory Lovins' article, 'New nuclear reactors, same old story', is posted at <[www.rmi.org/sitepages/pid601.php](http://www.rmi.org/sitepages/pid601.php)>.

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## Radioactive Exposure Tour 2009 – A Reflection

Ania Anderst

As a student living in Perth, I found myself remarkably lucky to have made it out to the South Australian desert for 10 days in May on the Friends of the Earth Radioactive Exposure Tour. The ‘radtour’ is a unique experience allowing people interested in learning about the nuclear industry to go out on country to see uranium mines and to meet people directly affected by the nuclear industry past and present.

Tackling the nuclear industry can be an overwhelming experience, mostly because there is no end to the amount of information on the issue; from uranium mining, nuclear reactors, waste issues, to nuclear proliferation – it’s easy to get lost in the information. There’s also the added factor of the multi-million dollar mining companies we’re fighting, not to mention the governments siding with them.

The big picture can be rather scary, but actually stepping out onto uranium mines, onto country, and making connections with people who have been directly affected by these mining operations makes it easier to understand. It’s no longer some abstract mine in some landscape you can’t imagine, affecting some people you’ve never met before; these are real people with the real deal on their doorstep.

That abstract image of a mine in the back of your head becomes the physical site of the ugly and protruding Olympic Dam uranium/copper mine, or the hundreds of

white pipes sticking out of the ground at Beverley uranium mine where they practice in-situ leach uranium mining. Those people become real when you hear the stories of Arabunna Elder Uncle Kevin Buzzacott, Maralinga veteran Avon Hudson and Adnyamathanha custodian Jillian Marsh. Their personal stories, dating decades back, make the issues more human, more accessible.

There’s no better way than to see it yourself – and not only tour the mines and ask the workers questions, but then to juxtapose that intense, sometimes hostile experience with the peaceful time shared around the campfire with people who share your passions and willingness to fight the machine.

When BHP Billiton took us on a tour of Olympic Dam – which takes 35 million litres of water daily from the Great Artesian Basin for free – it was hard to believe some of the things they had to say. According to the BHP employee giving the tour, the mine had less of an environmental impact than pastoralism would have, and the nuclear industry was alleviating people from poverty by providing poor countries with power. It was difficult not to get hostile and emotional hearing that somewhat bent rationale for the existence of such an unsound industry. There was an answer to every one of our questions and the tour bus was filled with suffocating negative energy, lie after lie.





Photos: (left, this page) Kasey, Jim, Steve, Arabunna Elder Kevin Buzzacott holding Marlin, Nathan and Cat. Above: Alberrie Creek, west of Marree. All photos by Phoebe Barton.

For me, Heathgate Resources' Beverley mine was even harder to stomach because of the propaganda which included giant placards covering an entire wall concerning their ongoing relationship with Aboriginal communities in the area and showing pictures of Aboriginal kids smiling. When in fact, in May 2000, local Aboriginal communities were at the gates of Beverley protesting and were subsequently put in a shipment container and capsicum sprayed by the SA police. An 11-year-old local Adnyamathanha girl was capsicum sprayed.

BHP Billiton really seemed to believe what they were saying, they were proud of what they were doing. In comparison, the PR chump at Heathgate Resources was a blundering boy behind a company t-shirt. He didn't answer questions properly, referring mostly to reports he hadn't seemed to have read, and it felt like he had something to hide. When asked about the shipping container episode, he refused to comment.

Both companies claimed to have excellent relations with Aboriginal communities, but after listening to Jillian and Uncle Kevin talk, it seemed more like mining companies were deliberately creating an ongoing war of attrition amongst Aboriginal communities who are not consulted properly, and are instead split over whether to take a mining

company's money. If resources are needed in a remote community, people living there shouldn't have to have a uranium mine (or a waste dump for that matter) in order to have health care and infrastructure. These are basic human rights and Aboriginal communities shouldn't have to settle on corporate sponsorship and give up land rights for health and housing.

Coming face to face with these issues on country was confronting but the land itself allowed some peace of mind. Being out there, seeing the landscape and setting foot on red earth or on Lake Eyre, I had the strong sense that this country was alive. It surprised me how alive it was, with its gentle and soft sands, yet rough, hard, contrasts in colour.

Every night we camped somewhere different, and by the end it felt like we'd been all over the state of South Australia – Woomera, Roxby Downs, Lake Eyre, Copley for coffee and quandong pie (more than once thanks to a trailer tyre which caught on fire), Marree, a bit of a crazed dip into the hot springs at Coward Springs, the Blanche Cup and Bubbler Mound Springs with Uncle Kevin, the Beverley uranium mine, Arkaroola Wilderness Sanctuary, the ochre cliffs near Lyndhurst, Brachina Gorge, the surrounding Gammon Ranges, Port Pirie ...







Aside from the heavy nature of what we were doing, life on tour was a lot of fun. As a group of 40 people with a range of ages, levels of experience, and approaches to the issue, it was what some called a social experiment. It was particularly lovely having a few children on the tour to emphasise the importance of the issues. Each night a different group helped set up dinner and campfires, and slowly the swags would surround the fires and the stars would come out at full capacity. Music was around all the time, singing tunes on the bus, off the bus, while the bus was bogged, while tyres were flat, while the bus wouldn't start, while faffing ...

And while we were out in the desert it was interesting to see the newspapers filling with related stories; with BHP announcing its proposal to the federal government for a uranium mine at Yeelirrie in WA, followed by the nuclear bomb test in North Korea. While North Korea gets a slap on the wrists from the UN, BHP in WA gets a tidal wave of anti-nuclear groups on its ass. This spells out to me that it's better to stop them before the mines get going, because the safeguards against nuclear proliferation aren't safe,

and while they're not we shouldn't be touching uranium (amongst other reasons to leave it in the ground).

Seeing such amazing country, meeting so many beautiful people and seeing the mines for what they are was an inspiring experience, and thanks to this opportunity I feel a lot more equipped to do whatever I can to make sure uranium stays where it belongs – in the ground.

Photos: (large, left page) Blanche Cup Mound Spring, Arabunna land. *Photo by Ania Anderst.* Inset, (left to right) Kite Merri Kunzea has been on two radtours. *Photo by Phoebe Barton.* Kite on Lake Eyre. *Photo by Phoebe Barton.* Maralinga veteran Avon Hudson giving a guided tour of the Woomera missile park. *Photo by Kathy Whitta.* Kaso and chief financial officer Hudso. *Photo by Phoebe Barton.* This page: Gammon Ranges. *Photo by Phoebe Barton.*

More photos of the 2009 radtour are posted at <[www.foe.org.au/anti-nuclear/issues/oz/radtour](http://www.foe.org.au/anti-nuclear/issues/oz/radtour)>. If you'd like to register interest in coming on the April-May 2010 radtour, contact <[jim.green@foe.org.au](mailto:jim.green@foe.org.au)> 0417 318368.



# Uranium Mining and Human Rights – Indigenous Voices Speak out

*Natalie Wasley*

The Beyond Nuclear project based in Washington DC convened a series of speaking events in early 2009 for Indigenous people affected by nuclear projects. Featured speakers included Mitch, an Arrernte/Luritja woman from Central Australia; Sidi-Amar Taoua, a Tuareg nomad from Niger; and Manuel Pino, an Acoma Pueblo person from New Mexico who won the 2008 Nuclear Free Futures award. Dr Bruno Chareyron, director of CRIIRAD (Commission for Independent Research and Information on Radioactivity) also participated in the tour to present his research of uranium contamination in Niger.

The tour was timed to coincide with the Powershift Youth Climate Action Conference, which was attended by around 12,000 people from across the US. There was a strong focus on ‘carbon free, nuclear free’ campaigning, with the panel discussions on nuclear issues attracting over 500 people.

Over the three days of speaking tour events, which included a press conference, film screening of *Poison Wind* (directed by Jenny Pond), and lobbying on Capitol Hill, the Indigenous speakers shared many personal experiences and insights about the devastating effects of the nuclear industry on land, culture and communities.

Mitch, who has spent years fighting a radioactive dump proposed on her traditional land said:

“We have companies coming into Australia and we are told that uranium is clean and green and its renewable energy. We know that this is lies and this is a disgusting form of control over a population that is made to rely on the government for all their resources, their energy, their consumption.

“It is policies of genocide so that other people can have power.

“We are told that the next generation will have the education and the smarts to fix up our problems ... but I don’t think we have the moral rights as your elders to leave the mess for you to fix up.

“We do not want the next generation to try and get water

out of rock, to get air out of sludge, to get food out of the bottom of the sea that is full of algae.”

Sidi-Amar Taoua explained the impact of the uranium mining industry on Tuareg people and their traditions: “The Tuareg remain one of the last people who live in the Saharan desert. Their way of life revolves around finding grazing for flocks of livestock in one of the planet’s hardest landscapes.

“Uranium continues to be a critical French national interest since the country produces more than 80 per cent of energy from power plants that are fuelled by Niger uranium. One French lightbulb in three is lit by uranium from Tuareg land.

“People have many kind of diseases. Many are worried about the spread of radioactive dust from the mining companies bulldozers and machines. People are forced to pick through the company garbage for scrap metal to build and furnish their houses. Meanwhile French mining executives and other expatriates live nearby in luxurious villas with land and swimming pools.

“Tuareg believe uranium mining and its attendant operations pose a critical threat for the environment and especially for the Tuareg existence. The Tuareg have inhabited this part of northern Niger since the nineteenth century. They understand that the world is changing but they are asking that their rights as indigenous people, their land and their way of life be respected.”

With the nuclear industry still insisting a ‘nuclear renaissance’ is around the corner, Manuel Pino from the Acoma Pueblo tribe pointed out: “ ... how can we put the cart before the horse and say that nuclear power is the answer when we can’t even dispose of the waste or clean up the existing legacy mines or mills that exist, in a majority of times, on indigenous peoples lands.”

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# NT nuclear waste dump campaign growing stronger

Natalie Wasley

*“Our land is our life. Once our great grandfathers walked this land. This waste dump will destroy our land and animals. We say no. No to the waste dump.” -- Christine Morton, Muckaty Traditional Owner.*

*“This land is not empty – people live right nearby. We hunt and collect bush tucker here and I am the custodian of a sacred site within the boundaries of the defence land. We don't want this poison here.” -- Steven McCormack, Traditional Owner living 4km from Mt Everard.*

July 15, 2009 will mark four years since the Howard government announced plans for a federal radioactive waste dump in the NT. Three Department of Defence sites – Mt Everard, Harts Range and Fishers Ridge – were originally named, with Muckaty later added to the short list after being contentiously nominated by the Northern Land Council.

The announcement was made with no consultation with Traditional Owners or the NT government. It was a decide-announce-defend approach, typical of the Howard government. Senior ALP politicians called legislation facilitating the dump, the Commonwealth Radioactive Waste Management Act, ‘sordid’, ‘draconian’ and ‘arrogant’. However, despite ALP election promises clearly stating that the party would repeal the Commonwealth Radioactive Waste Management Act, the Rudd government has continued to push forward with the plan. Resources Minister Martin Ferguson has not indicated any change in policy, despite ALP national policy on radioactive waste management calling for an ‘open,



Mt Everard Traditional Owner Steven McCormack and family. Photo by Steve Strike.

transparent process’ that ‘allows access to appeal mechanisms’. The current process is vastly different from ALP promises and platform, and far out of step with international standards of consultation.

The UK Committee on Radioactive Waste Management report from July 2006 recommends that “Community involvement in any proposals for the siting of long term radioactive waste facilities should be based on the principle of volunteerism, that is, an expressed willingness to participate”. The report acknowledges: “There is a growing recognition that it is not ethically acceptable for a society to impose a radioactive waste facility on an unwilling community”.

In contrast, affected people in the NT found out about the dump proposal through the media. Barry Utley, who runs Yeltu Park station, surrounding the Fishers Ridge site on all four sides, recalls: “... a friend rang us that night and said, ‘Did you happen to get the newspaper?’ It mentioned that Fishers

Ridge is to be one out of three sites chosen for a nuclear waste dump. The news turned our world upside down.”

Traditional Owners, the NT government, national environment and health groups have written time and time again to Martin Ferguson asking when the dump laws will be scrapped and the site nominations revoked. The answers received are literally cut and pasted from one reply to the next. The letters say the minister “will not take piecemeal steps or decisions on radioactive waste management,” which has involved taking no decisions and keeping a closed door on this issue for the past 18 months.

Marlene Bennett, a Traditional Owner from the Muckaty Land Trust, one of the targeted sites, summed it up giving evidence at a Senate Inquiry last year: “I would just like to question why Martin Ferguson is sitting on this issue like a hen trying to hatch an egg”.

While the letters from Ferguson state that “no decisions will be taken without



Audrey McCormack from Mt Everard, Barb Shaw and Dianne Stokes from Muckaty, at a Senate Inquiry hearing into the dump, Alice Springs, November 2008.

appropriate stakeholder consultation,” he was quoted on ABC on April 30 saying, “I’m not going to go around this country wasting taxpayers dollars having consultations about a potential site that has not been determined.” He said that there would be proper consultation after a recommendation for an ‘appropriate site’ had been made.

With ALP policy and promises decaying significantly faster than radioactive waste, its no wonder communities are worried that the NT sites will still be targeted. More and more people are starting to speak out and demand action. Traditional Owners and community members from the targeted sites continue to travel around the country, speaking at public meetings and to media, to raise the national profile of the dump campaign.

A letter signed by 58 Traditional Owners of the Muckaty Land Trust was recently sent to Ferguson. The letter reaffirmed opposition to the proposal: “We want you to know that Traditional Owners are waiting to show you that the country means something to them. That is why we want you to come along and to see because we don’t want that rubbish dump to be here in Muckaty area”.

There has been increasing support from trade unions, which is crucial to building pressure on the government in the lead up to the ALP National Conference at the end of July. On June 4, the Australian Council of Trade Unions (ACTU) Congress voted to support NT communities and workers fighting the proposed dump. The motion, which passed uncontested, demanded repeal of the CRWMA, a scrapping of all site nominations, called for a public inquiry into radioactive waste management and, crucially, vowed to support traditional owners and trade unionists refusing to cooperate with implementation of the current dump policy.

Groundwork for this ACTU resolution began in April, when Muckaty Traditional Owners Dianne Stokes, Mark Lane and Mark Chungaloo spoke at a public meeting in Wollongong, hosted by the Illawarra Aboriginal Land Council. At the meeting, veteran union activist Fred Moore

explained the breadth of support for Gurindji people during the Wave Hill station walk off in the late 1960’s, recalling how the Seaman’s Union had refused to load cattle from NT Stations in solidarity with the striking workers. The potential for similar action was raised by MUA Illawarra secretary Garry Keane, who proposed that workers refuse to unload radioactive waste returning to Australia if earmarked for any of the NT sites.

The secretive transport and export of radioactive materials through Wollongong and out of Port Kembla only weeks earlier was strongly condemned by the local community. Everyone spoke about building alliances with people in the NT to collectively oppose government support for the nuclear industry.

South Coast Labor Council Secretary Arthur Rorris said: “It disappoints me knowing, and I think its shameful, that the lands of the first Australians, the Traditional Owners, are treated in such a way that they are regarded as a waste dump ... What was shown with the Lucas Heights [radioactive transport] is that the people of this region still support the nuclear free policy, it is something that the union movement will not change ... it’s not going to change.”

Targeted communities in the Territory are calling on Prime Minister Kevin Rudd to immediately drop the waste dump plan and to remove Martin Ferguson from the radioactive waste portfolio. The campaign opposing the national radioactive waste dump proposed for South Australia was a six-year battle, but was won through community resilience and perseverance. People from targeted areas, living along potential transport routes and supporters nationally must maintain unwavering and vocal opposition to the NT dump plan to achieve the same result.

Natalie Wasley is a campaigner with the Arid Lands Environment Centre and the Beyond Nuclear Initiative. <natwasley@alec.org.au>, <www.beyondnuclearinitiative.wordpress.com>

# Nanotechnology risks a repeat of the asbestos tragedy

Georgia Miller

Asbestos was once considered a ‘miracle’ material and was used in everything from building materials, to ironing boards and toasters. Australia, alongside the United Kingdom, now has the world’s highest incidence of mesothelioma; thousands of Australians have lost their lives to asbestos-related disease.

The asbestos tragedy serves as a cautionary tale of the dangers of blind faith in ‘miracle’ materials and of ignoring early warning signs of harm. Now scientists warn that exposure to some forms of nanomaterials could cause asbestos-like disease.

But in response to the ACTU’s calls for a mandatory register and labelling of all commercially used nanomaterials, a spokeswoman for the Minister for Innovation, Industry, Science and Research, Kim Carr, has said that “while the Government is very concerned for the health and safety of workers, it will not be introducing new [nanotechnology] regulations”.

The greatest concern regards carbon nanotubes. Carbon nanotubes are a modern day ‘miracle’ material. Frequently described as “100 times stronger than steel and six times lighter”, carbon nanotubes are also incredibly good conductors of electricity.

Carbon nanotubes are used in growing numbers of electronics, reinforced plastics, specialty building materials and sports goods manufactured internationally. They are touted for future use in capacitors, pharmaceuticals, solar cells and defence applications.

But five years ago, scientists from the UK’s highly regarded Royal Society and Royal Academy of Engineering, and risk experts at the world’s second largest reinsurance company Swiss Re, warned that because carbon nanotubes share many physical properties with asbestos they may also present similar health risks.

Swiss Re put it bluntly: “... some nanotubes are similar in size and form to asbestos fibres. The supposition that the potential for harm could be similar would appear to be obvious”.

Since then, a series of animal studies has demonstrated that carbon nanotubes can cause lung inflammation, granuloma development, fibrosis, artery ‘plaque’ responsible for heart attacks, DNA damage and immune system dysfunction. Last year, two separate studies showed that some types of carbon nanotubes can cause mesothelioma.

*‘Scientists warn that exposure to some forms of nanomaterials could cause asbestos-like disease.’*

Associate Professor Paul Wright, nanotoxicologist and director of ‘Nanosafe Australia’ has told the ABC’s 7:30 Report that: “Any nanomaterial that behaves in a similar way to asbestos is a nanomaterial of concern, and that’s something that we should control and regulate... They [carbon nanotubes] should get their own labelling.”

In the midst of huge hype about the future economic potential of nanotechnology, the government’s rejection of the need for new nanotechnology safety measures is perhaps unsurprising. Yet failure to support precautionary regulation of the emerging nanotechnology industry could leave workers vulnerable to a new wave of serious occupational disease, and employers exposed to a new wave of litigation.

One of Australia’s top workplace safety lawyers, Michael Tooma, has warned that Australia’s experience with asbestos should serve as a warning to people seduced by the lustre of nanotechnology breakthroughs. He cautions that employers could face big future compensation payouts if they don’t protect workers from unsafe nano-exposure.

Friends of the Earth reiterates our call for urgent government regulation of nanotechnology to avoid a repeat of the asbestos tragedy.

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# Cosmetics and Nanotechnology

Georgia Miller



Beauty products don't have a fantastic record on health over the centuries – think mercury face powders in Ancient Egypt or lead and arsenic face creams popular in the Elizabethan court. Today there is a widespread expectation that regulators will keep high risk ingredients out of cosmetics. Unfortunately, nanotechnology, the 'science of the small' is introducing a new generation of high risk cosmetic ingredients whose health effects remain poorly understood and effectively unregulated.

The beauty industry is one of the most enthusiastic early adopters of nanotechnology. L'Oreal, sponsor of the L'Oreal Melbourne Fashion Festival in March and the world's largest cosmetics company, is also the top nanotechnology patent holder in the United States. Other big name brands like Revlon, Avon, Prestige, The Body Shop, Dr Brandt, Circuit, Zelens and

dozens of boutique lines also sell nanocosmetics.

When most people think of nanotechnology – if they think of nanotechnology at all – common images are futuristic tiny robots, performing advanced surgery or being deployed on the battle ground. But at a more prosaic level, the beauty industry is adding 'nanoparticles' to lipstick, foundation and anti-ageing products because at this extremely small scale familiar substances have novel optical and biological properties.

As larger particles titanium dioxide and zinc oxide are white and opaque – as in the old fashioned zinc sunscreen worn by surf life savers. But at the nanoscale, a hundred times smaller than a red blood cell, these same substances become transparent. This enables their use in moisturisers and foundations. Other nanoparticles such as aluminium

oxide give a 'soft focus' effect that disguises wrinkles. These are used in high-end concealer sticks, foundations and face powders. Carbon 'fullerene' nanoparticles are used in anti-ageing creams and moisturisers partly because these tiny nanoparticles penetrate skin so effectively.

The beauty industry's willingness to use novel nanoparticles in its products while their health effects remain so poorly understood has raised a few eyebrows among the less fashion-conscious scientific community. The increased capacity of nanoparticles to penetrate skin and gain access to our bodies' cells is a double-edged sword: it may be useful for medical purposes, but it could also result in far greater uptake of substances that have a negative health effect.

Recent research shows that nanoparticles of titanium dioxide, one of the most commonly used cosmetic ingredients, can move across the placenta of pregnant mice, resulting in brain damage and reduced sperm production in male offspring. An earlier mice study shows that carbon fullerenes also move across the placenta and damage developing embryos. Test-tube studies have shown that nanoparticles commonly used in cosmetics and sunscreens can damage DNA and cause serious cellular damage. Outside the lab, Blue Scope Steel has found that where workers wearing nano-sunscreens have left handprints on Colour Bond roofs, those sections of roof aged 100 times more rapidly than surrounding areas. What these findings mean for women of child-bearing age who wear nano-cosmetics daily, the millions of Australians who wear nano-sunscreens regularly, or the workers who manufacture nano beauty products, remains uncertain.

The cosmetics industry argues that risks for consumers are low, as there is no evidence that nanoparticles in

## Nanotechnology campaign update

cosmetics penetrate healthy, intact adult skin. The latter point is true for most nanoparticles, although it's also true that there is still little published skin penetration research; CSIRO and others are engaged in ongoing studies. However it is important to recognise that many nanoparticles are used in moisturisers and anti-ageing creams which contain penetration enhancers specifically designed to increase skin uptake of product ingredients. We also know that particles are much more likely to penetrate damaged skin, for example in the presence of pimples, eczema or sunburn.

Nano-cosmetics have so far escaped public scrutiny and debate. Unfortunately, they have also fallen through loopholes in government regulation. In 2004 the world's oldest scientific institution, the United Kingdom's Royal Society, recommended that given their risks, all products containing nano-ingredients should pass rigorous safety testing, and face mandatory labelling, before they can be sold. Global reinsurance agent Swiss Re recommended that "the precautionary principle should be applied whatever the difficulties". But although potentially hundreds of products are on sale in Australia right now, not a single nano-cosmetic has gone through safety assessment by regulators and companies are still not required to label nano-ingredients.

The emerging nanotechnology industry receives a great deal of government support and public funding, in Victoria and elsewhere. Given that the public faces very intimate daily exposure to nano-cosmetics and personal care products it doesn't seem unreasonable to demand rigour in their safety assessment and mandatory labelling to enable informed purchasing choices.

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The last few months has seen many exciting new developments on the nano front.

Friends of the Earth has released a new report on the growing use of nano silver in cosmetics, children's toys, food packaging, household appliances, clothing, electronics and other goods. The report reviewed evidence that widespread use of this potent antibacterial could pose new toxicity risks for humans and the environment, as well as promoting dangerous bacterial resistance to nano-silver (see article following).

Investors, nanotoxicologists and workplace safety experts in Australia and overseas have re-iterated calls for urgent action to protect workers from the asbestos-like risks posed by some types of nanomaterials. This was also the focus of a news story on the ABC's 7.30 Report, in which scientists warned that urgent action on nanotechnology is required to prevent a repeat of the asbestos tragedy.

The Australian Council of Trade Unions has escalated its campaign for precautionary management of workplace exposure to nanotechnology. The ACTU has called for mandatory registration and labelling of all manufactured nanomaterials used in Australian workplaces by the end of 2009. Currently workers (and the public) are not warned or informed as to whether they are handling nanomaterials. There are also no regulations in place to prescribe safe handling of them.

Choice (the magazine of the Australian Consumers' Association) has published articles that highlight nanotechnology's use in sunscreens and foods, and which call for new regulation and mandatory labelling of nano-products.

The NSW Government has given its support for mandatory labelling of nano-ingredients used in sunscreens, cosmetics and workplaces. It failed to back recommendations from last year's NSW Parliamentary Inquiry into Nanotechnology for mandatory labelling of nano-ingredients in foods.

Europe has passed new regulations to make nanomaterials in sunscreens and cosmetics face mandatory new safety testing, and mandatory labelling. The European Parliament has also voted for a de facto moratorium on nano-foods (this must now go to the Council of the European Union for further debate).

In coming months FoE's Nanotechnology Project plans to keep building public awareness of the new health, environmental and social challenges associated with nanotechnology, and political pressure for its precautionary management.

We are a tiny team and we need your help! If you would like to support our work or to get involved, we would love to hear from you.

Please contact Fiona Thiessen  
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Silver has long been known to be a potent antibacterial agent and toxic to fungi and algae, but in recent years the use of silver as a biocide has experienced a dramatic revival. Silver biocides are used in an ever-increasing range of products, including textiles, washing machines, dyes, paints, varnishes, polymers, medical applications, sinks and sanitary ceramics and various consumer applications such as disinfectants, cosmetics, cleaning agents and baby bottles.

Much of the silver used today is in the form of 'nanoparticles', a tiny and especially potent form of silver. Nanotechnology introduces additional risks – health effects remain poorly understood and effectively unregulated. There are preliminary indications that in nanoparticle form, the toxicity of ionic silver may be increased, or that the nanoparticles may exert their own toxicity. Widely available consumer products which contain nanosilver include food contact materials (such as cups, bowls and cutting boards), cosmetics and personal care products, children's toys and infant products and 'health' supplements.

There is clear evidence that silver, and in particular nanosilver, is toxic to aquatic and terrestrial organisms, a variety of mammalian cells in vitro, and may be detrimental to human health. While undoubtedly silver and nanosilver have useful medical applications (for instance as coatings for medical devices or as wound care for severe burns victims), their use needs to be strictly controlled and the dictum 'no data, no market' should always be followed.

The disposal of biocidal silver products into waste water raises a number of concerns as the resulting sewage sludge may be used on agricultural soils, disposed as solid waste in landfills or be incinerated. Biocidal silver may also disrupt the functioning of key soil microbial communities.

There is emerging evidence that the 'war on bacteria' may have gone too far, and that our preparedness to use 'extreme germ killers' such as silver in everyday items is becoming a threat to public health. Bacterial resistance to antibiotics is an ever-increasing problem globally.

Deadly bacteria such as Golden Staph (*Staphylococcus aureus*) developed resistance to penicillin shortly after its introduction. A similar fate may now be observed with silver. To date, there are 20 published reports of silver resistance in bacteria. As early as 1975 the first instance of a silver-resistant strain of *Salmonella typhimurium* in a hospital burns unit was described. Other clinical studies identified silver resistance to members of the Enterobacteriaceae and *P. aeruginosa* also from burn patients.

*'There is clear evidence that silver, and in particular nanosilver, is toxic to aquatic and terrestrial organisms, a variety of mammalian cells in vitro, and may be detrimental to human health.'*

Widespread use of antibacterials is promoted as beneficial to public safety. But our preoccupation with germ killing, and the widespread use of silver, may be introducing new toxicity risks for humans and to the environment. Worse, the indiscriminate use of potent antibacterial agents in dozens of consumer products appears to be triggering antibacterial resistance, compromising the efficacy of silver-based medical treatments.

One of the unanswered questions is, 'why has silver suddenly become so popular?' By extension, we must also ask 'why are we so afraid of bacteria and dirt?' Our current obsession with germs has parallels with a similar period of intense anxiety about disease-causing agents between 1900 and 1940. This 'new' fear of germs could reflect our anxieties about globalisation, the environment, suspicions of governmental authority, and distrust of expert knowledge.

From an economic point of view, with the demise of the photographic industry, silver producers were desperate to find new markets for silver. In many respects, the increasing use of nanosilver is a typical example of the technological treadmill of production, the



purpose of which is growth in the form of an increased corporate profitability at the expense of workers and the environment. As Kenneth Gould noted in a 2005 paper on 'nanotechnology and the treadmill of production', it "depends directly on technological innovation to replace human labour with capital and to increase the capacity for the transformation of natural resources into commodities." (<[www.allacademic.com/meta/p18495\\_index.html](http://www.allacademic.com/meta/p18495_index.html)>)

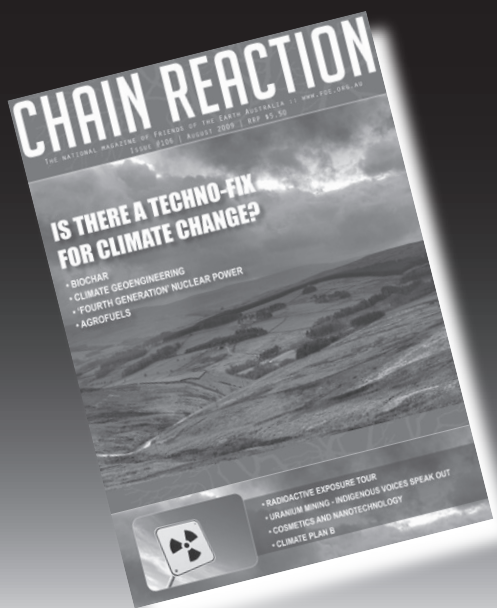
In doing so, this treadmill increases profits and environmental threats, while at the same time reducing the generation of social benefits (employment, wages, etc). It ensures a constant increase in social and environmental inequality, and one is tempted to call it a new form of slavery. A hallmark of the technological treadmill of production is that, despite claims to the contrary, the economic benefits of any form of nanotechnology will accrue to corporations as well as governments, while the economic costs will be born by the citizens and the environment.

An international study by 49 nanotoxicologists recently advised that "there is sufficient evidence to suggest that silver nanoparticles may be harmful to the environment and therefore the use of the precautionary principle should be considered". Friends of the Earth calls for an immediate moratorium on the commercial release of products that contain manufactured nanosilver until nanotechnology-specific regulation is introduced to protect the public, workers and the environment from their risks, and until the public is involved in decision making.

For more information, visit <[nano.foe.org.au/node/332](http://nano.foe.org.au/node/332)> and download the new FoE report, 'Nano and biocidal silver: extreme germ killers present a growing threat to public health'.

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# Climate Plan B

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*Friends of the Earth has joined with Greenpeace, the Wilderness Society and state-based conservation councils to oppose the government's proposed Carbon Pollution Reduction Scheme and to put forward an alternative program of action that could dramatically cut greenhouse gas emissions. The Plan B report is available on the FoE website <[www.foe.org.au/climate-justice](http://www.foe.org.au/climate-justice)>. Below is an abridged version of the joint statement that introduces the report.*

Amid increasingly dire scientific predictions, it is easy to feel disillusioned by Australia's response to the climate crisis. This is even more the case, as the fundamentally flawed Carbon Pollution Reduction Scheme (CPRS) has become the dominant focus for policy-makers and political debate alike. The CPRS, as the Federal Government's main policy response to climate change, ignores the science, perversely rewards big polluters and will result in Australia's greenhouse gas emissions continuing to rise. Given the stark evidence from around the globe of a rapidly warming climate, this is unacceptable.

The CPRS would lock in bad policy and if it were to be passed in its present form would constitute a failure of political leadership and a failure of our Government to act in Australia's national interest.

We, the undersigned organisations, representing a combined membership of over 400,000 Australians, call on the government to send the CPRS back to the drawing board.

In the meantime, the Government must immediately begin work on a 'Plan B', delivering policies and actions that have an immediate impact to reduce greenhouse pollution, build Australia's capacity for halving our emissions over the next decade and increase Australia's resilience to the increasingly harsh impacts of climate change.

An urgent alternative plan of action would always have been required, regardless of whether or not the CPRS is passed, given its inadequacies.

Fortunately, there are many positive, job-creating,

emissions-reducing solutions that Australian governments can implement right now. Action across the following five areas could achieve significant pollution reduction in the next few years, and allow Australia to make deep cuts in emissions over the next decade.

## **1. Prioritise saving energy**

Saving energy is one of the simplest, fastest and cheapest ways to reduce our greenhouse pollution. By using less energy where we don't need it, we could reduce our energy use in the manufacturing, commercial and residential sectors by 30% with technologies available today and an average payback of four years. And we can do it with the same level of comfort, service and productivity.

Greening our homes and workplaces is a smart measure in the face of rising electricity bills and hotter, drier climates. We save money on our electricity bills, which can then be used to buy cleaner, greener energy. That's a win-win solution.

## **2. Fast-track the switch to a renewable energy economy**

Australia has an abundance of renewable energy resources. By right, we should be leading the world in developing new renewable energy industries.

Unfortunately, until now, our governments have protected old polluting industries and stifled the growth of the new renewable energy economy. We must transition Australia away from coal-fired power with the next decade. Using the right policy levers, we can quickly ramp up our renewable energy production and put Australia on the fast-track to zero emissions power stations, creating tens of thousands of jobs in the process.

## **3. Drive the shift to low emissions vehicles and sustainable cities**

Following the recent lead of Barack Obama and the United States, Australia should introduce mandatory efficiency standards for all new cars we manufacture. This would not only save money at the petrol station but also reduce our oil imports and help us slash our greenhouse emissions.

A new electric vehicle market beckons for whichever countries seize the opportunity. Strong investment in our public transport will create jobs and make leaving the car at home a viable choice for all. We can design our cities for ease of travel and local living, taking the stress out of the daily commute and lessening our impact on the environment.

*'The CPRS, as the Federal Government's main policy response to climate change, ignores the science, perversely rewards big polluters and will result in Australia's greenhouse gas emissions continuing to rise.'*

#### **4. Protect our forests and woodlands as a carbon store and make agriculture a part of the solution**

Australia's forests, woodlands, wetlands and mangroves are established habitats for native species, precious natural heritage and a massive store of carbon. Protecting nature is a smart climate change solution – reducing emissions and building nature's resilience against climate change. New economic opportunities for rural and remote Australia can be through improved climate friendly farming practices, sequestration benefits provided by protecting, rather than logging and clearing forests and woodlands and through benefits to indigenous and non indigenous communities through reduced burning practices in the northern savannahs.

Our farmers need support to become a part of the solution as they grapple with climate impacts such as drought. Helping them to adopt more sustainable farming practices will not only reduce emissions, but also increase our productivity and the resilience of the Australian agricultural industry to climate impacts such as drought.

#### **5. Grow the green job economy**

Globally the economic powerhouses of the 21st century will be those countries that have seen the writing on the wall and have made the early transition to green jobs and low-emissions industries. Australia could be one of the early movers and reap the fruitful rewards. However, these jobs and industries won't emerge fast enough on their own. We need to identify and support them through deliberate policy measures and industry development packages.

We can implement a plan to create new jobs and industries, make existing jobs greener and develop the workforce training and skills these industries will need. Governments must also look after communities adversely affected by the transition away from emissions-intensive activities, making them as much a part of a prosperous, low-emission economy as possible.



photo: [www.risingtide.org.au](http://www.risingtide.org.au)

These are just some of the actions our governments can take right now to cut greenhouse pollution. We strongly urge Australian governments to enact these measures to deliver real emission reductions immediately, and prepare Australia for making deep cuts in greenhouse gas emissions over the coming decade.

With or without a CPRS, state and federal governments can achieve real win-win solutions. We can create green jobs in clean industries, revitalise Australia's economic landscape, increase our resilience to climate change impacts, save the community money on energy and fuel costs and dramatically reduce our greenhouse gas emissions.

It's time to stop listening to the harbingers of economic doom and gloom, who threaten economic disaster at the suggestion of any emissions reductions measure. It's time to dismiss these claims for what they are – the last gasps of the big polluters.

It's time to get on with the job of creating new green jobs and industries, ensuring that our generation and those that follow have the opportunity to lead clean, prosperous and peaceful lives.

It's time for Plan B.



# Westside Carbon Reduction Action Group

*Neesh Wray and Shaun Murray*

The idea of starting a Carbon Reduction Action Group (CRAG) came from our involvement with Friends of the Earth's Climate Justice Collective, and our association with David Spratt, the co-author of *Climate Code Red: The case for a sustainability emergency*. David also has a website ([carboneyquity.info](http://carboneyquity.info)) with information about the CRAGs movement (which originated in the UK) and links to the Australian groups.

We launched the Westside CRAG in March 2008 at a forum organised by the Inner West Greens. Since then we've held monthly meetings at our house in the Melbourne suburb of Yarraville with anywhere from 3-12 people attending. At each meeting we calculate someone's direct household emissions from electricity, gas, petrol and flights, their embodied emissions in red meat and dairy consumption; and discuss reduction strategies. We have also explored the carbon calculator from the Centre for Integrated Sustainability Analysis. It provides estimates of carbon-intensity embodied in various goods and services, on a per dollar basis.

Our framework for reducing carbon draws heavily on *Climate Code Red's* analysis of the latest climate science, and the corresponding implications for greenhouse gas emissions. In a nutshell, there is compelling evidence that significant climate tipping points have already been crossed, such as the dramatic loss of the Arctic ice sheet. Palaeoclimatic evidence also suggests that there is already enough carbon dioxide in the atmosphere to melt the Greenland ice sheet and raise global sea levels by seven metres.

Therefore, we recognise that we essentially have no carbon budget to spend or ration! Further carbon pollution simply adds to our already huge historic carbon debt in Australia. It also hastens and intensifies the impact on those least able to adapt to climate change, and who are also least responsible. Therefore, the Westside CRAG doesn't advocate a 'sustainable' carbon ration – instead we promote rapid reduction, with a view to moving to a post-carbon society. We recognise a common but differentiated responsibility to reduce emissions, and aim for a maximal response according to our capacity. In our household's case, we have reduced our direct emissions by 95% in the past two years. Other members have also made significant emissions reductions, with some signing "carbon-reduction commitments" for 2009.

For example, one CRAGer is targeting beef and dairy alternatives because they represent a large component of her emissions, whereas others are setting goals to use more sustainable transport solutions. Others are targeting heating, including insulation options, draught sealing and more.

We think it's important for people to become energy literate, for example, learning about our daily energy consumption and how it is measured – kilowatt hours (kWh) of electricity, and megajoules (MJ) of gas. In the process of measuring our household emissions we have discovered that the average Australian household uses approximately 17 kWh per day. At the time our household of two adults was using approximately 3.5 kWh per day, and is now down to 1.3 kWh. We managed this with the help of a 'Powermate' – a device to measure the energy consumption of appliances. We have also learnt more about hidden energy usage (such as stand-by power from unlikely sources), and tips to reduce gas and electricity consumption at CRAG meetings. We don't pretend to have all the answers, so the meetings are a great place to share the journey and become empowered to reduce your emissions.

We also think it's extremely important for people to understand the impact of flights. For example, a return flight from Melbourne to Los Angeles produces 6.9 tonnes of carbon dioxide. Like us, one CRAG household has decided to not fly anymore.

Further aims for 2009 include:

- \* Recruiting new members.
- \* Facilitating the development of new CRAGs.
- \* Investigating programs for renters to have their homes retrofitted.
- \* Giving public talks & workshops.
- \* Starting a CRAGs website.
- \* Campaigning against the proposed Carbon Pollution Reduction Scheme (CPRS) as it will impose a 'floor' below which we will not be able to reduce emissions. Any reductions made by households, will actually free up permits for others (e.g. heavy polluters), and in effect subsidise them by reducing their costs. We demand to be able to make a positive difference!

*For more info please contact Shaun and Neesh - <[crags@westnet.com.au](mailto:crags@westnet.com.au)> or phone (03) 9314 7713.*

# Climate Emergency and the War Analogy

Patrick Hodder

Climate change activists at the Climate Action Summit in Canberra in early 2009 declared the need for an emergency response to climate change. They say this is essential to achieve the major reductions in atmospheric concentrations of greenhouse gases required to avoid the worst impacts of climate change. One of the campaign objectives adopted by the Summit as part of this emergency response involves a target of 100% renewable energy by 2020. This will require a huge shift in energy technologies.

George Monbiot (2006), Lester Brown (2008), David Spratt and Philip Sutton (2008), and Ken Ward (2008) all point to the military mobilisation by the United States during the World War II as a useful example of an emergency response because it involved a massive and rapid shift in production.

There are flaws in the analogy between mobilising for a war and mobilising against human-induced climate change. In a war, the very survival of governments is directly and immediately threatened and they therefore have a vested interest in leading an emergency response. By contrast, climate change does not immediately threaten governments in the rich world and few of these governments appear to have any interest in leading an emergency response to climate change. Indeed, the Australian federal government and state governments in Victoria, New South Wales and Queensland, have a strong interest in maintaining business-as-usual such as helping promote and expand the coal industry and, as Mark Diesendorf (2009) argues, delaying the expansion of renewable energy. Governments with an interest in the current business paradigm have little incentive to fundamentally change the economy.

During World War II, automobile factories in the United States were retooled to produce jeeps, tanks, airplanes and guns, and many other factories switched from civilian to military production. Industrial production and employment increased hugely with the war effort. In both Lester Brown's Plan B 3.0 and in the Repower America campaign launched by Al Gore is the idea that automobile manufacturers could switch production to, for example, new hybrid vehicles or wind turbines. This emphasis on retaining and even creating new jobs by expanding green industries is broadly analogous to the industrial expansion in World War II. However, an emergency response involving a shift to 100% renewable energy would entail retiring a large number of existing fossil fuel energy assets long before their use-by

date. These stranded assets would represent a significant loss to capital, and in certain circumstances to government. This approach diverges radically from the staged scenarios put forward by Hugh Saddler, Mark Diesendorf and Richard Denniss in *A Clean Energy Future for Australia* (2004). It differs from World War II where powerful sections of capital such as automobile manufacturers did not suffer asset losses in the switch from civilian to military industrial output.

The emergency response to climate change differs in another important way from the war scenario. Many of the largest and most powerful transnational corporations are implacably opposed to even a gradual response to climate

*In a war, the very survival of governments is directly and immediately threatened and they therefore have a vested interest in leading an emergency response. By contrast, climate change does not immediately threaten governments in the rich world and few of these governments appear to have any interest in leading an emergency response to climate change.*

change, let alone an emergency response that could simply wipe out their assets. Fossil fuel interests have long inveigled themselves into the machinery of government. Governments in the developed world will therefore face major opposition to the concept of an emergency response based on an energy revolution and a rapid reduction in emissions and may have little interest in leading it. Therefore, the climate change activist movement will not only need to quickly build widespread public support for an emergency response that runs counter to the current desires of government, but it will also need to explain to the public why fossil fuel corporations are undeserving of compensation for stranded assets and future profits.

Despite the 100% renewable energy target by 2020 being adopted almost unanimously at the Climate Action Summit, there was disagreement over the timeframe. Although based on the Repower America campaign, the target adopted at the Summit is more ambitious. Firstly, Repower America

restricts its target to the production of electricity, and although it promotes plug-in hybrid cars for transport, no target is set for the scale and timing of their implementation. By contrast, the Summit adopted a 100% renewable energy target that presumably encompasses transport and aviation fuels. Secondly, the Repower America campaign does not set a renewable electricity target, but instead sets a 'clean' electricity target that allows for the continued use of nuclear power which currently supplies 17% of America's electricity. Under the Australian scenario, this percentage would need to be made up entirely by renewable electricity because the Summit ruled out nuclear power for Australia.

Proponents of an ambitious target argue that there is no time left to pursue gradual solutions and that only a crash program of total energy revolution can save civilisation from the approaching catastrophe. According to this line of argument, we have passed the point when staged solutions could solve the problem. Critics such as Diesendorf stated at the Summit that 100% renewable energy is technically feasible by 2040 or 2050, but not within the next decade, and that any organisation that endorses a 2020 target risks losing credibility. A 100% target also risks discouraging movement activists and supporters. If, for example, 25% renewable energy is achieved by 2020, many in the movement might regard this as an abject failure. Yet, over the following two decades a whole raft of existing and cost-effective new technologies could be deployed in increasingly rapid fashion.

Even if 100% renewable energy is technically possible by 2020, it may be politically impossible given the opposition of powerful vested interests and the inertia of government and bureaucracy. The issue is movement power versus the power of vested interests and government. Unfortunately, time is against the movement. History tells us that many social movements such as the civil rights movement and the feminist movement took decades and sometimes centuries to build enough power to make changes, and they were fighting against direct and immediate injustices such as slavery, racism, and the oppression of women. Moreover, although those movements have achieved major success, they still have not achieved equality in all areas. Many struggles are ongoing, and most social movements have had a mixture of setbacks and success over a long period of time.

There is a sense within the movement that if we do not achieve rapid emissions reductions soon, then this will be the end for civilisation. Declaring a climate emergency is a radical political response to this threat. Yet, despite the best efforts of the activist movement, emissions may not be reduced in time to prevent serious impacts from climate change. Furthermore, a government-led emergency response may be designed first and foremost to preserve the state structure. This raises questions about the most effective way for activists to engage the population. Alongside campaigns against new coal mines and power stations, the movement can build community resilience around resources such as food, water and energy. These actions engage and empower local communities now. Strengthening communities may also help when gains in civil liberties become threatened if governments resort to war or impose repressive restraints on civilian populations in response to an escalation in climate and energy-related crises.

Patrick Hodder is a PhD student researching tactics in the climate change struggle at the Bega Education Centre

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# Feed-in tariffs the best path to zero emissions energy

*Tim Hollo*

We cannot build a 100% renewable energy network with only wind, bioenergy and solar hot water. We will need the solar thermal, geothermal, wave and photovoltaic (PV) options – and these are still out of reach under the federal government’s Mandatory Renewable Energy Target (MRET) incentive scheme, which only supports the cheapest, most established renewable energy options.

Well-targeted feed-in tariffs would complement MRET, giving the next generation of technologies a leg-up, and ensuring that our renewable energy portfolio can be diversified to provide every possible sustainable energy option.

Most of those places around the globe where renewable energy production is now booming have a common feature: renewable energy ‘feed-in’ laws. Under these schemes, power utilities buy renewable energy that is produced by householders, farmers, and businesses at a premium price higher than the normal tariff.

In the last couple of years, feed-ins have come to Australia. But while overseas feed-ins pay a premium rate for the total energy generated by the subscriber (gross production), in Australia, state government schemes reward only when more power is generated than used (net production). And our states’ feed-in schemes apply only to solar PV.

Around the globe, feed-in schemes have been extremely effective at rapidly bringing down the price of a range of renewable energy technologies by boosting manufacture and driving market penetration. They provide a measure of certainty for small-to-medium scale investors in renewable energy, by guaranteeing market access for new technologies and delivering purchasing power at a fair tariff set by an independent authority, for a long period – say 15-20 years.

The level of support is based on the status of the particular technology, to help the technology leap over financing barriers and move from R&D into the market – then is scaled down over time as the technology matures.

Feed-in tariffs give new, ‘sunrise’ industries the chance to compete against an entrenched coal industry. And by diversifying and decentralising generation, feed-ins work to stabilise the electricity grid, reducing the strain at peak times by generating more energy close to where it is used, for example solar power generated locally offsets air conditioner use on a hot day, relieving the grid of this surge load.

## **Regressive?**

The only objection that is ever raised against feed-in tariffs is that they are economically regressive, since all electricity users pay slightly higher bills to cover the premium rate for renewable energy. To stop climate change, you need to replace coal generators with options that are currently more expensive. Whether you do this with an MRET, a feed-in, public infrastructure projects, emissions trading or any other mechanism, electricity production costs will rise for a time. In fact, there is strong evidence from around the world that of these, feed-in is one of the least regressive to the economy, because it costs less to achieve more.

With climate change being a major equity issue – caused mostly by the rich, but impacting first and worst on the poor – intelligent policies can reduce both the regressive impact of the transition, and the impact on equity. A scheme to retrofit the homes of low-income people with energy efficient appliances, insulation, etc., would permanently save those people far more money on bills than any price increase would add. Importantly, it will also reduce their greenhouse emissions.

Metering only on net production, as in Australian state feed-ins, is a problem not only because it fails to reward most household producers, but also because householders don’t have a clear idea of when they would be using electricity, relative to when their PV system would be producing it. This makes it very difficult for them to predict how much electricity they would export back to the grid, and to estimate the economic value of the PV system under the feed-in scheme, prior to buying it – a vital number banks need before lending money!

Limiting the scheme to PV is a nonsensical decision. It means that there are benefits to the cheapest renewables (through MRET) and to one of the most expensive (PV), but not to the bulk of renewable energy technologies that are sitting on the cusp of major breakthroughs. We need a mechanism to support solar thermal power, wave power and geothermal power. Large-scale feed-in would be a perfect way.

State feed-ins, including Victoria’s, also limit the scheme’s application to systems of no more than 2kW. In Germany, the scheme effectively encouraged larger-scale uptake, with entire factory and warehouse roofs solarised.

So in Victoria, not only do you not get rewarded under the feed-in law unless you generate large amounts of energy (because it is a net payment scheme), but you also don't get the benefits if you do generate large amounts! Premier Brumby's feed-in is a sham, good for a few press releases but benefiting almost nobody.

Christine Milne, meanwhile, has introduced a Private Member's Bill into the Senate to establish a national feed-in law which would pay a premium for all renewable energy generated, from all sources.

The Senate Inquiry she established into the Bill – dominated, of course, by the big old parties – agreed that the feed-in idea had great merit, but recommended that it be left with COAG, the Council of Australian

Governments, to deal with. Those who know about the black hole of COAG will realise that it is a recipe for a lowest-common-denominator result, and that is exactly what happened late last year, with COAG unsurprisingly giving existing state schemes a vote of confidence that they in no way deserve.

If you want to see a strong and swiftly growing renewable energy industry in Australia, please write to your local member and to your papers, supporting Christine Milne's feed-in bill, and her plan to retrofit homes for energy efficiency. Together, they will go a long way to putting Australia on track to a zero emissions future.

Tim Hollo is adviser to Australian Greens deputy leader and climate change spokesperson, Senator Christine Milne.

## The Victorian feed-in tariff is regressive

*Gavin Dufty*

The announcement by many state governments that they will introduce an electricity feed-in tariff (FiT) flags the introduction of a socially-regressive form of taxation and has the potential to detrimentally impact on the broader energy retail market.

The Victorian FiT scheme is regressive. Whereas the subsidy will benefit only the few who have both the financial resources to install solar photovoltaic (PV) panels and also own or are purchasing a home to install these units on, it is funded through increases in energy cost for all households.

This creates a cross subsidy with the costs borne by asset poor households (tenants comprise about 25% of Victorian householders) and those who don't have sufficient income or savings to cover the initial cost of purchase and installation of PVs (those on low incomes, including many pension card holders who comprise about 30% of Victorian households).

These groups will effectively subsidise households that are both asset rich (own/purchasing a home) and income rich (sufficient income to purchase the PV).

This cross subsidy would also perpetuate itself in future years as costs associated with carbon trading are introduced. This occurs because the increased costs associated with the

emissions scheme would not apply to beneficiaries of the FiT, as they will in effect have become carbon neutral partly through the subsidy that the rest of the community will have paid.

In addition, the design of the proposed FiT tariff will also effectively double charge those who are already purchasing green energy products. This double charging occurs as the increased energy costs to fund the FiT will also apply to those households that are already paying a premium and have purchased green energy products, such as energy derived from wind turbines, through their energy retailer. In effect the FiT double charges this group for green energy.

Not only is there an argument that there is double charging to this group, there is the potential that this may result in a reduction in take-up of green energy products and services. Fewer households may sign up to green products, believing that they are already purchasing some form of green product through the FiT levy.

Australians are facing a great challenge in addressing the issue of climate change. St Vincents believe that the financial and other burdens that arise from responses to climate change must be equitably shared.

Gavin Dufty is the manager of policy and research at the St Vincent de Paul Society, Victoria.

# Earth Jurisprudence

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*Peter Burdon*

In 2001 the United Nations Millennium Assessment undertook a four-year study, involving 1300 scientists from 71 countries on the health of the planet. Their final report was released in 2005 and found that every living system in the biosphere is in a state of decline and the rate of decline is increasing. It is further estimated that humans are responsible for the extinction of 50-55 thousand species each year, a rate unequalled since the last great extinction, some 65 million years ago. These systems and species provide the basis for all life and as we destroy nature we will unravel all life support systems on the planet.

In response there is a growing recognition that our current approach to environmental law is insufficient. As environmental lawyer Thomas Linzey notes, “according to every major environment statistic things are worse now than they were forty years ago” when the first environmental protection legislation was passed. The reasons why our current system of environmental law is failing are complex. One important aspect of the problem is anthropocentrism, defined by Albert Einstein as “an optical delusion of human consciousness” where we come to regard “humanity as the centre of existence”. Anthropocentrism also encompasses the view that human beings are separate to the planet and all living systems and the assumption that the universe exists to satisfy the needs and desires of human beings.

The division of the world into human beings and nature formed the basis of the modern idea of property law. Indeed, under Western law, nature is regarded as human property and by definition is a legal object that can be bought, sold, exploited and destroyed to satisfy human preferences. Nature receives its protection through the property rights of human beings, not because they have recognised value or legal rights.

Several problems flow from this framework. It may not be in a property owner’s economic interest to protect the environment; there might be disagreement over ownership, especially in regard to international waters; and the ecosystem may be unknown or of little recognised value. More fundamental than these practical problems, the status of nature as property creates a fundamental disconnection between humans and the environment and as David Suzuki notes this enables us to “act on nature, abstract from it, use it, take it apart; we can wreck it, because it is another, it is alien”.

Property is the mechanism through which nature becomes vulnerable to human exploitation and as Dr Paul Babie notes: “All resources are allocated or distributed among people according to the private property concept. The earth is dying, therefore, because humankind sees it as private property, capital, valuable only if exploited for economic gain. The domestic legal system of every society that invokes the private property concept uses it as a rationale and justification for an exploitative stance toward the earth’s natural resources.”

The perceptions that human beings are disconnected from the environment and that nature exists for human benefit are outdated and harmful ideas. The status of nature as property not only enables human beings to exploit the Earth, it provides a weak framework for environmental protection. Under this framework we are forced to adopt a regulatory approach to environment law. This means that once a company has ticked the appropriate boxes and so long as it stays within the prescribed legislative boundaries, its activity is acceptable.

In response, the great majority of work done by environmental lawyers and the most obvious form of protection offered to communities is to monitor corporate activity and check licence applications. In this sense, the only thing environmental law regulates, are environmentalists; it regulates the way environmentalists respond, and makes us predictable. Further, any resulting legal challenge is tax deductible for the corporation and in many instances money is set aside for this contingency.

This approach is further weakened when companies have ‘indenture acts’ that permit legal override of environmental laws. An example is the Roxby Downs Indenture Ratification Act 1982 (SA) that exists over BHP Billiton’s Olympic Dam lease and overrides the state’s Environmental Protection, Aboriginal Heritage, Natural Resource Management, Water Resources and Freedom of Information Acts.

In essence a regulatory framework for environmental protection is defensive in nature and is impeding our ability to protect the environment. On the other hand, ‘movements’ are driven by communities, unwilling to accept such a defensive role for themselves and move toward fixing the problems of governance that consistently shove them into that position in the first place. Indeed, people were once treated as property. In response, the abolitionists did not



ask for a 'slave protection agency' – they sought recognition of their rights in law. Securing rights means not fiddling around with regulating how that property can be used. It means changing the very framework of governance that defined those things as property in the first place.

It has been said that there is nothing as powerful as an idea whose time has come. In the past eight years there has been a groundswell of action in this area and communities have been driving rights for nature legislation into law. Some examples include Pennsylvania, US where five Municipalities (20,000 people) passed 'rights for nature' ordinances which say that nature has a right to exist and flourish and gives community standing to advocate the rights of nature. Further, in 2008 the constitution of Ecuador was amended to state that nature has the "right to exist, persist, maintain and regenerate its natural cycles, structure, functions and its processes in evolution." To ensure these rights the government is responsible for "precaution and restriction measures in all the activities that can lead to the extinction of species, the destruction of ecosystems or the permanent alteration of natural cycles."

Thomas Berry has coined the term 'Earth Jurisprudence' to describe this evolution in law. Earth Jurisprudence refers to legal philosophies developed by humans that are derived from and consistent with the laws of nature. The law of nature is termed the 'Great Jurisprudence' and it invites the human community to "take its lead from the universe and not from itself when establishing laws." By understanding and respecting these processes, Earth Jurisprudence supplies the general principles out of which practical laws can be extrapolated. Two important consequences of this are the contention that our law should evolve to reflect the inherent value of nature, and that human beings are deeply connected and dependent on nature. This shift has the potential to protect our environment and shift our perception of nature in a way that a regulatory approach cannot.

*Peter Burdon is currently completing his PhD in Law on the topic of Earth Jurisprudence. He works with the Friends of the Earth, Adelaide.*

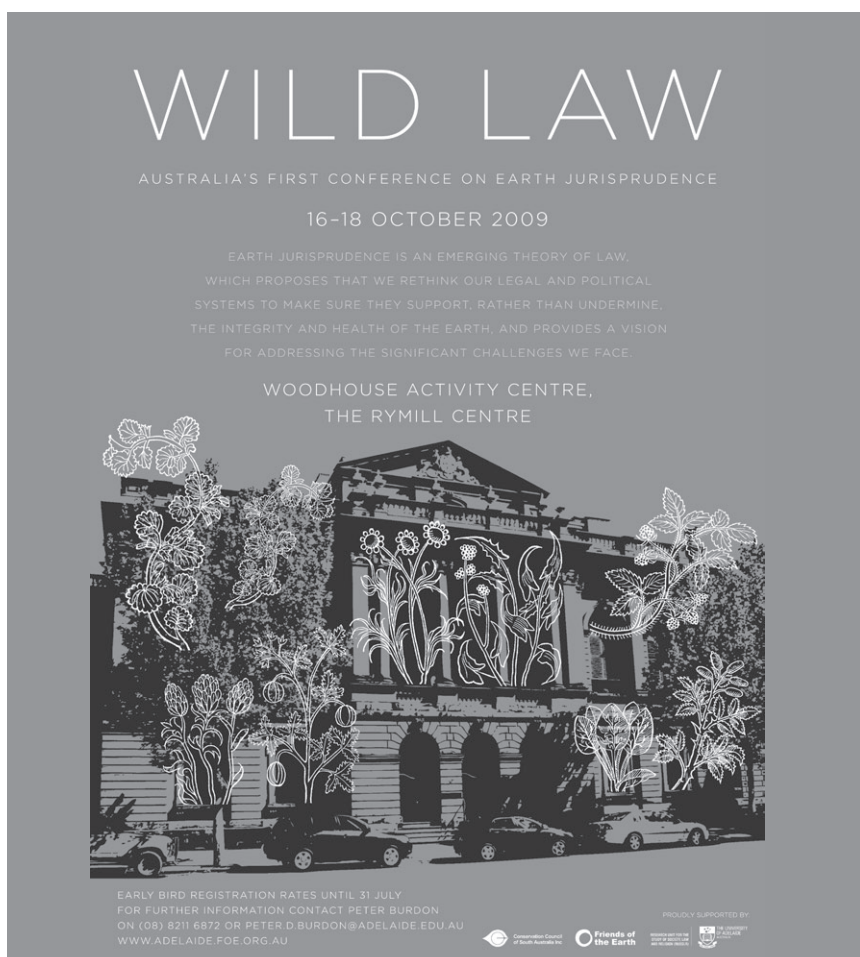
## Earth Jurisprudence conference in Adelaide in October

While Earth Jurisprudence is a major field of research and environmental law internationally, very little has been done in this field within Australia. In response, Australia's first conference on Earth Jurisprudence will be held from October 16-18, organised by Friends of the Earth Adelaide in partnership with the UK Environmental Law Foundation, the Conservation Council of South Australia and the Research Unit for the Study of Society, Law and Religion (RUSSLR) at Adelaide University's Faculty of Professions.

### Speakers include:

Elizabeth Rivers, UK Environmental Law Association  
Dr Paul Babie, University of Adelaide, Law School  
Professor Rob Fowler, University of South Australia, Law School  
Dr Nicole Graham, University of Technology Sydney  
Dr Nicole Rogers, School of Law & Justice, Southern Cross University  
Rebecca Butler, Anindilyakwa Land Council NT  
Kevin Buzzacott, Arabunna Nation  
Jillian Marsh, Adnyamathanha Nation  
Mark Parnell, MLC Australian Greens  
Dr Greg Ogle, Australian Greens  
Samuel Alexander, Melbourne University, Law School  
Julia Pitts, Sustainable Solutions  
Sophie Green, Friends of the Earth  
Joel Catchlove, Friends of the Earth

For more information or to register, visit <[www.adelaide.foe.org.au](http://www.adelaide.foe.org.au)>.



The poster features the title 'WILD LAW' in large, white, sans-serif capital letters at the top. Below it, in smaller white text, is 'AUSTRALIA'S FIRST CONFERENCE ON EARTH JURISPRUDENCE' and '16-18 OCTOBER 2009'. A central paragraph reads: 'EARTH JURISPRUDENCE IS AN EMERGING THEORY OF LAW, WHICH PROPOSES THAT WE RETHINK OUR LEGAL AND POLITICAL SYSTEMS TO MAKE SURE THEY SUPPORT, RATHER THAN UNDERMINE, THE INTEGRITY AND HEALTH OF THE EARTH, AND PROVIDES A VISION FOR ADDRESSING THE SIGNIFICANT CHALLENGES WE FACE.' Below this, the venue is listed as 'WOODHOUSE ACTIVITY CENTRE, THE RYMILL CENTRE'. The main visual is a black and white photograph of a classical building with columns, overlaid with intricate white line art of various plants and trees. At the bottom, there is contact information: 'EARLY BIRD REGISTRATION RATES UNTIL 31 JULY FOR FURTHER INFORMATION CONTACT PETER BURDON ON (08) 8211 6872 OR PETER.D.BURDON@ADELAIDE.EDU.AU WWW.ADELAIDE.FOE.ORG.AU'. Logos for the Conservation Council of South Australia, Friends of the Earth, and other supporters are at the bottom right.

# Mukwano – Supporting Organic Farming Communities in Uganda

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*Kristen Lyons and Sam Neal*

Mukwano emerged from five years of travel between Australia and Uganda as part of our work with organic farming communities. Mukwano aims to support these communities in gaining access to health care services, including public health and medical services. Our first project is a health clinic in south-west Uganda; when completed, it will assist communities that now travel over 20 kms (mostly by foot) to access health and medical services. In 2008, we celebrated Mukwano by joining Friends of the Earth Australia as an affiliate member.

Our name ‘Mukwano’ means ‘a friend’ in Lugandan, one of the local dialects in Uganda where Mukwano’s first health care project has been established. The name reflects the emergence of our organisation from a friendship between a group of Australians and the organic farming community in Uganda.

Our connection with organic farming communities in Uganda started as part of an Australian Research Council research project to evaluate the impacts of globalising organic food chains for smallholder farmers in Africa. As the demand for organic produce has continued to expand, African organic farmers have become increasingly integrated in global commodity chains. This has provided some farmers with opportunities to access new markets, increase household incomes, as well as increasing crop production and crop diversity. These circumstances have brought increased food security and other livelihood benefits for some African farmers (Lyons and Burch, 2007).

However, the extension of export agriculture across Africa has also further tied farmers to vulnerable international markets and inequitable trade rules. Critics argue that any market-led approaches for the development of African agriculture – including organic market-led approaches – are short-sighted. Our research has examined these tensions, and the likely long-term outcomes for African organic farmers.

## **The future of farming in Africa**

Despite some of the limitations associated with the expansion of organics in Africa, a recent United Nations report identified organic farming as an environmentally and socially resilient farming system, and one that makes

a vital contribution towards ensuring global food security. Similarly, a recent report published by the International Assessment of Agricultural Science and Technology Development concluded that the way the world grows its food – including high tech and reductionist farming – would have to change radically if the poor and hungry are to be better served (IAASTD, 2008).

However, at the same time that recognition of organics as a tool for development in Africa continues to grow, high-tech and expensive approaches to agricultural development are also being wheeled out across the continent. A number of actors are now rallying support for the spread of genetically engineered crops, and over US\$262 million has been committed to this through the Alliance for a Green Revolution in Africa (AGRA).

Despite AGRA’s claims that green revolution technologies will be vital for building food security and resilience to climate change in Africa, the introduction of genetic engineering and other high-tech farming options is set to exacerbate the social, economic and environmental problems facing African communities – just as they did alongside the Green Revolution in India decades earlier (Mittal and Moore, 2009). In this context, on-going support to organic farming communities in Africa is vital.

## **Improving health services**

One of the significant issues facing organic farming communities that has emerged from our research relates to access to health care services. Most farmers (both organic and conventional) live in regional and remote locations and health services are a long distance away. With limited access to resources with which to travel, health care remains out of reach for many. It is in this context that the first Mukwano project was born.

Mukwano is working collaboratively with African organic farming communities to support the delivery of locally appropriate health care services. Our charter identifies the specific challenges for smallholder organic farmers, as well as the diverse and specific health care needs and priorities of women and men.

Mukwano’s current project is located in Katuulo, a remote





Members of the Katuulo community prepare the site for the water tank

rural community in the Kyazanga Sub County of Uganda, about 300 kms south west of Kampala. Here we are supporting the Katuulo Organic Pineapple Co-operative to build, staff and maintain a health care centre. Twenty-five organic farm families, members of the organic farming cooperative, as well as the surrounding community will access this health care centre. There are currently at least 1500 households in the Katuulo parish, including nearly 2000 children less than five years of age. This project is so important to the local community in Katuulo; many women still die during childbirth, and there are high rates of malaria and HIV amongst the local population.

Mukwano has been assisting the Katuulo Organic Pineapple Co-operative in a number of ways, including fundraising efforts to support the construction and maintenance of the health care centre, facilitation, as well as negotiation with export companies and government representatives. We

work closely with members of the Co-operative to ensure the centre will meet the health needs of the community, as well as supporting local community members to develop essential skills so they can be involved in many aspects of the centres' construction, operation and management. It is the aim of both Mukwano and the Katuulo Organic Pineapple Co-operative that the health care centre is locally owned and locally managed.

Construction of the building is now complete, including installation of a 10,000 litre water tank. A good wet season has filled the tank, and the harvested water currently provides safe drinking water to Co-op members. The Co-op and Mukwano are now finalising furnishings for the centre. On our most recent visit to Uganda in February 2009 we also met with health and government officials who have agreed to assist in supplying a fridge for the storage of vaccines and other medical supplies. A government health



officer also travelled with us to Katuulo to consult with the community and provide advice on appropriate services the clinic should aim to provide.

This year we have also provided funding for a tree planting project and as an outcome a number of shade and fruit trees now surround the clinic. During our visit earlier this year we also began discussions with community members regarding the establishment of a kitchen garden to provide fresh fruit and vegetables to clinic staff, patients and visitors. As part of our discussions around alternative livelihood strategies, community members also identified maize milling as a potential source of income that could then contribute to maintenance of the centre. With this in mind, one of our future fundraising activities will be directed towards the purchase of a milling machine.

We are also in the process of installing solar power at the clinic. Amfri Farms, a Ugandan owned organic export company, has agreed to finance the purchase and installation of solar power. We travelled to Katuulo earlier this year with an engineer to conduct a site visit, and installation is expected later this year. Providing sanitation to the clinic is one of the next fund raising goals, as well as the purchase of a microscope to enable on-site malaria testing and analysis.

Malaria represents one of the greatest health challenges. Uganda currently has one of the highest rates of malaria in the world, and malaria is the greatest health risk for pregnant women and children under five years of age. With this in mind, we are aiming to establish a malaria education program at Katuulo. We have been inspired by the success of SoftPower Health, whose malaria education program around Jinga has reduced the incidence of malaria by up to 80%. We visited SoftPower health earlier this year to learn more about this program, and intend to sponsor a Katuulo community member to attend training over the next 12 months.

The Katuulo health care centre is the first Mukwano project. In the long term we aim to work with other organic farming communities in Africa to establish locally owned and locally managed health care centres.

## Want to get involved?

Mukwano supports the Katuulo health care centre via a range of fundraising activities in Australia. To date we have held fundraising dinners, sold calendars, received some grant funding from Aliamos as well as personal donations. We would like to make a special thanks to one of Mukwano's special fundraisers, Rafi Lochert, who has worked tirelessly making beautiful 'softies' that she has sold across Melbourne. All monies raised go directly to the health care centre.

We welcome new supporters! Mukwano will be designing 2010 calendars, as well as organising fundraising dinners in Melbourne and Brisbane. Check out our website for details of these activities <[www.mukwano-australia.org](http://www.mukwano-australia.org)>. You may also like to make a donation via the FoE website <[www.foe.org.au/donate](http://www.foe.org.au/donate)>.

The Katuulo community have identified a number of fundraising priorities; a maize milling machine, a pit latrine, a microscope and mosquito nets. Perhaps your community group, family or friends would like to get involved in fundraising efforts for one of these priorities?

If you would like more information about Mukwano or the Katuulo project please visit our website, or contact Kristen Lyons at <[kristen.lyons@mukwano-australia.org](mailto:kristen.lyons@mukwano-australia.org)> or Sam Neal at <[samantha.neal@mukwano-australia.org](mailto:samantha.neal@mukwano-australia.org)>.

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## Woodchip Exports Stopped as Rudd Neglects Forests

Forest activists disrupted and shut down operations at major woodchip export facilities around the nation in May in the first major national direct action calling for the protection of forests as vital carbon stores.

Woodchipping facilities in Tasmania, Victoria and NSW, together with the Maitland Forestry office in NSW were all targeted on May 25 as part of the national action by conservationists outraged at the Rudd government's failure to address the role of native forests in addressing the climate crisis.

"One of the cheapest and most effective ways for the federal government to reduce emissions immediately is to halt the export woodchipping of Australia's native forests," said spokesperson Lauren Caulfield at the Midways export woodchip mill in Geelong, where two activists attached themselves to the major woodchip conveyor and closed operations at that section of the port before being cut free by police and charged with trespass.

"Research by the Australian National University reveals Australia can cut greenhouse emissions by 24% by ending the logging of our native forests," said Nils Wiebken, spokesperson for conservationists occupying the Forestry Office of the Department of Primary Industries in Maitland in NSW.

"If Penny Wong and the Rudd government are serious about addressing the climate crisis, then the protection of old-growth forests must be the basic part of climate change policy," said spokesperson Warrick Jordan at the Gunns

Triabunna woodchip mill in Tasmania, where activists disrupted operations for the second time this year, and three people were arrested.

Thirteen conservationists from a previous Triabunna protest in December 2008 face a court case by woodchipping giant Gunns Ltd, in the second major lawsuit by the company against environmentalists. Gunns remain a major target of the environment movement due to massive rates of logging and woodchipping old growth forest in Tasmania, and their plans to pursue the construction of their controversial new pulp mill despite the enormous contribution it will make to increasing the state's greenhouse emissions and worsening the climate crisis.

"Australia's native forests are rich natural carbon stores, but they are still logged at an alarming rate. More than 80% of what is logged around the nation is turned into woodchips, with rates upwards of 90% in New South Wales. Logging releases huge amounts of carbon dioxide back into the atmosphere", said Harriet Swift, spokesperson for activists at the SEFE woodchip export facility at Eden on the NSW south coast, where activists blocked the gate and turned away log trucks arriving at the export mill.

The May 25 action was the first nationally coordinated protest in a movement to see native forests protected as part of a climate solution. Actions are set to continue around the country.

For more information please email <forestsandclimate@gmail.com> or visit <www.foe.org.au>, <www.chipstop.org.au>, <www.stillwildstillthreatened.org>.

## Strzeleckis

I can't let Gavan McFadzean's letter about the Strzeleckis in the last issue of Chain Reaction go unanswered. In a joint Wilderness Society (TWS) / Victorian National Parks Association (VNPA) press release welcoming the secret deal negotiated by Minister Jennings and Hancock Victorian Plantations, Mr McFadzean said "We are pleased to see the Victorian Government moving to protect native forests in the Strzelecki Ranges."

In his latest response to comments by Anthony Amis from Friends of the Earth, Mr McFadzean made the statement that "the precious College Creek is under immediate threat from the chainsaws". But the destruction of College Creek is a direct result of his endorsement of the deal announced by the Government and the company. Under the previous agreement, which was part of the Government's platform prior to the last election, there was far greater protection – which of course is what the company wanted to water down once Minister Jennings was appointed. To give that 'deal' some level of credibility, the Minister's staff were desperate to find people willing to endorse it – and they found TWS and the VNPA.

The joint press release from VNPA and TWS was widely distributed by the company as proof of its environmental credentials. Interestingly VNPA has backed right away from its eager endorsement – but Gavan McFadzean still seems to think it's a good deal!

Phil Westwood  
Friends of Bass Valley Bush Inc

## Strzeleckis II

Gavan McFadzean's letter published in Chain Reaction #105 was nothing more than a smokescreen to hide his support of a deal that undermined more than a decade of Friends of Gippsland Bush's (FoGB) voluntary work. Rather than stating the obvious – that he messed up – Gavan accuses Friends of the Earth of causing all the problems. This is self-deception of the worst kind.

Neither he nor his organisation appear to be accountable for their unprofessional policy flip-flops. Why does TWS believe that it can run roughshod over regional community groups on issues they know nothing about? Why is TWS endorsing the agendas of multinationals? Why didn't they speak directly to us?

Gavan still refuses to acknowledge that by patting the government and Hancock on the back in the infamous TWS/VNPA press release, he was supporting the destruction of the key biodiversity areas in the Strzelecki Bioregion and in doing so undermining our community and contradicting his own organisation's statements concerning the Strzelecki Cores and Links.

In 2006, TWS and the Victorian Forest Alliance apparently did not endorse logging in the Cores and Links despite publishing Hancock supply volumes in "Choosing a Future for Victoria's Forests" and despite claiming that Hancock would miraculously be able to supply increasing volumes to Maryvale Pulp Mill.

In May 2008, TWS publicly congratulated plans to log the best of the reserve by praising the Hancock / State Government deal. This endorsement was fully utilised by Hancock and the State Government to undermine FOGB, FoE and the community's position. Supporting this deal saw TWS/VNPA endorsing destruction of sites of National Conservation Significance.

By December 2008 TWS agreed that the Strzelecki deal was "a disappointing result" (see Envirowatch, 'Tracking the Victorian Government's progress in delivering its environmental election promises'). Then in Chain Reaction in May 2009, Gavan calls the deal "a step forward". How can any plans to log sites of national and state conservation significance be regarded as a step forward? What nonsense!

Far from committing a strategic negotiating error, FoE is the only conservation group which has offered our group consistent support and on-ground assistance over the past decade. Where was Gavan when we were mapping the rainforest of the region, when we were negotiating with Government, undertaking legal challenges, undertaking extensive flora and fauna surveys and implementing Strzelecki coupe audits over the past thirteen years?

Please do not insult us by claiming that you will help to protect 'precious' College Creek after you supported a plan that is destroying this site of national conservation significance now. In exchange for our rainforest reserve Hancock and the government will supposedly reserve land, a great portion of which is weed infested drainage lines inside pine plantations, and patches of bush with little biodiversity value. The Strzelecki rainforest and fauna, including the only endemic koala population in Victoria and SA, will ultimately suffer the most.

We have since learnt that TWS supported the Strzelecki deal as a means of winning favour with the Government and being asked back to the negotiating table regarding East Gippsland. As the forests of East Gippsland fall will Gavan spare a thought for our wonderful forests? Of course not. Imagine what people would say if TWS supported a plan to wipe out nationally significant forest areas in East Gippsland. Why the double standard for the Strzeleckis?

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