



Carbon and All That

I say the debate is over – we know the science, we see the threat, and the time for action is now. A Schwarznegger, 2005

In this issue there is much about global warming and its repercussions. Things are moving so fast that the newspapers are full of the subject and our politicians are, often quite comically, tripping over their recent press releases in an attempt to keep up as they are dragged along on a tsunami of public and scientific opinion.

The Pennant Hills Road Tunnel (page 2) is being argued about but the argument is still over which road rather than a consideration of transport solutions as peak-oil looms.

Murray Hogarth (page 3) spoke to a meeting convened by STEP in March. Murray is not a scientist – he is perhaps best described as a change agent and in future we are going to hear more and more from the likes of him as the emphasis changes from proving climate change to halting it. We review his book *The 3rd Degree*.

The article by **Ian Dunlop** (page 4) is a most intelligent blueprint for dealing with greenhouse emissions. Although Australians are profligate per capita users of energy and significant exporters of coal and gas, what we do won't matter a jot unless the majority of the world population joins in. Ian addresses the difficult issue of global equity and his proposal for linear convergence of per capita carbon emissions is a very important concept. There is great opportunity for our government to develop such a proposal and to work on the world stage to have it implemented.

Tony Haymet (page 6) informs us on the consequence of increasing CO₂ concentrations in the oceans. This is another frightening prospect. We might wonder what our governments are doing about that!

Careful readers of this newsletter will know that the environmental degradation caused by over-population is a constant topic. **Jennifer Katauskas** (page 7) shows us one way to improve people's lives through micro-credit – and that always seems to lead to lower birth rates. There's not much chance that our government likes that idea but you can participate!

May and June Walks

Sunday 20 May, 1.15 for 1.30 pm
Mitchell Park, Cattai National Park

Features: Cattai Creek, gallery rainforest, Forest Red Gums, Ironbarks, freshwater swamp.

Location: 12 km NE of Windsor, via Pitt Town, off Cattai Road, UBD 68–9. Alternative route via Old Northern Road, then Kenthurst or Cattai Road.

Cost: \$7 park entry fee unless you have an annual pass.

Meet: Grassy area near Cattai Creek, under tall trees, left fork (downhill) at end of access road.

Grade: Moderate; meandering forest track, moderate hill climb, may be wet underfoot.

Duration: About 3 hours.

Suggestion: It's a longish drive so consider making a day of it. In the morning visit Scheyville National Park (Cumberland Plain Woodland), Longneck Lagoon (bird life) or the main Cattai National Park next to the Hawkesbury River nearby (grey kangaroos, historic farmhouse).

Contact: John Martyn, 9449 7962, 0402 284 366, <johnmartyn@optusnet.com.au>.

Sunday 24 June, 10.45 for 11 am
Ku-ring-gai Chase National Park

Features: Aboriginal engravings, classic early 20th century road construction and stunning water views across Cowan Creek. Ridgetop forest, dominated by Angophoras and Black Sheoaks, contrast with foreshore mangroves on tidal mudflats.

Cost: Free.

Location: Meet at the park entrance at the end of Bobbin Head Road, St Ives Chase. Free parking is available outside the park gates.

Grade: Medium; mostly flat with some short rocky climbs along well-maintained track.

Duration: About 4 to 4.5 hours.

Contact: Tim Gastineau-Hills 9449 2094, 0419 251 586.

Bring: Good walking shoes, a picnic lunch, snack food, water and a hat. Binoculars and telephoto lenses recommended.

History Talk

Settling into Ku-ring-gai's Landscape

Tuesday 22 May, 8 pm
St Andrews Hall, Vernon Street, South Turramurra

At this time of over-development and enforced change it is very appropriate that Virginia Macleod and Pauline Curby, the authors of *Under the Canopy*, the recently published history of Ku-ring-gai, will talk to STEP. This talk will cover the growth of Ku-ring-gai as a suburb and the values underpinning its character, particularly its relationship with the bush, its gardens and homes.

This is an opportunity to hear first hand about the construction of this beautifully designed and presented book. Books will be available for sale and Virginia and Pauline will be available to sign copies.

As usual, light refreshments will be served!

STEP Inc

Community-based Environmental Conservation since 1978
PO Box 697, Turramurra, NSW 2074

Action on the Ground – the Short Street Project

Our Thornleigh members who came to us from TABS have for years been working on bush regeneration in the Upper Lane Cove Valley. Jacinta de Jong has provided us with the following update on progress. You can view the photos in colour in the electronic version of this newsletter on our website.

An important part of the work that the former Thornleigh Area Bushland Society undertook is bush regeneration. Since 2003, members have been working with Hornsby Shire Council, National Parks and Wildlife Service and the Scouts to restore the area of bushland at the end of Short Street, Thornleigh, which forms the main north-western entry point to the Lane Cove National Park. With the assistance of an Environmental Trust Grant to employ professional land engineers, and enthusiastic community members, the site was cleared of exotic overgrowth and revegetated with indigenous species and the degraded creek lines rechannelled. Since then the site has been maintained by a small but very active group of volunteers. The evolution of the site is shown below.

In mid-2003, as shown in the photo on the left, the site was a tangle of lantana, privet, kikuyu and dumped metal and glass. The middle photo shows the area after land clearance, watercourse restoration and tree planting. The final photo shows the natives becoming established.



The outstanding achievement of the Short Street Bushcare Group was recognised by Hornsby Shire Council at the end of last year when the group received the runners-up award for their work. Congratulations!

The group meets on the third Sunday of each month from 8 to 11 am. New volunteers are always welcome. Contact Don Davidson on 9980 1113 for information.

There are many bushcare groups around the suburbs and it's easy to find one to join – the work is very rewarding.

The Pennant Hills Road Tunnel

In 2002 the RTA commissioned, on behalf of the Australian Government, a study to identify a route for the National Highway from the Western Sydney Orbital (the M2/M7) to the F3 to relieve pressure on Pennant Hills Road (PHR). After considering various alternatives the recommendation was for an 8 km tunnel under PHR and this was accepted and endorsed by the Australian Government.

STEP made a submission at that time because there were still vested interests lobbying for a surface route through the Lane Cove Valley and because the whole business of transport planning impacts on our present and future environment. You can read STEP's submission on our website, but basically we recommended that nothing should happen until there was an integrated transport plan for NSW. By this we meant that there should be an end to the continuous patching up of an ailing public transport and freight transport system, that factors such as population growth and impending peak oil should be assessed and a strategy developed to take us through the next 100 years.

Alas! What we got was a predictable missing link patch-up with zero attention given to the most efficient way to move people and freight. In the meantime PHR has become even more the domain of heavy trucks transport and some of the locals are complaining. In particular the Pennant Hills District Civic Trust has been campaigning against the tunnel and in favour of a new superhighway from the F3 north of the Hawkesbury joining the M7 at Dean Park.

Their complaints seem to be about pollution from tunnel venting stacks and about their view that a tunnel will not alleviate congestion on PHR. Following the Melbourne tunnel accident they have added safety to their concerns.

On filtration they have a point. The NSW Government has refused to install filtration on any of the other tunnels including the new Lane Cove Tunnel. Evidently the technology exists but is very energy intensive. It is also true, especially if there is another toll, that many trucks and cars will avoid the tunnel and continue to use PHR.

It is, however, wishful thinking to hope that putting a new road in the west will alleviate congestion on PHR. It would certainly get rid of the tunnel stacks by moving the pollution elsewhere but much of the traffic doesn't want to go to the M7 but rather to Sydney's ports or industrial and commercial areas and it won't always be the first choice to detour via Dean Park. In addition, any reduction in traffic on PHR that may occur would soon induce additional vehicles onto the road until congestion again restricted the volume of traffic.

The western route would traverse national parks and therefore be unacceptable. It would open up another section of Sydney for development without any review of just what sort of a city we want to become. The demographic feedback effect would see more farming and bushland lost to mindless development. At a time when peak oil is either with us or not far away, when we don't know what the cost of fuel will be in 50 years time, when we don't have a plan for the future of Sydney it would be madness to build an expensive superhighway through national parks.

If we must have a link then the tunnel is a flawed but best option.

Book Review: The 3rd Degree

Murray Hogarth is a newspaper and TV journalist turned business advisor. He works for Ecos Corporation Pty Ltd and advises firms on how to deal with social and environmental issues. Murray recently spoke at a public meeting organised by STEP.

His book's title refers to the catastrophe that will occur should the world experience 3 degrees of warming that scientists tell us that, on current trends, will occur within 100 years. This is not a scientific treatise; it is about how society might respond to the challenges of global warming. His key proposals are that we should:

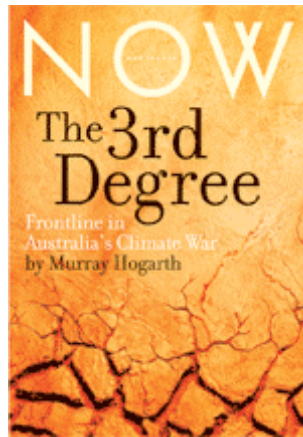
- reinvent our politics free of the old left-right ideologies;
- be environmental activists in business;
- put quality of life above wealth;
- be relaxed about making money from the environment; and
- take our values shopping.

Murray sees a future where wasting energy and water will become as unacceptable as drink driving, smoking indoors or forgetting the sunscreen!

His main thesis is that our aim must be to harness the enormous energy and creativity within the business community. In that scenario the role of government would be to set the rules and create the legal framework within which such a harnessing is possible. It's not very hard to make such a case – our governments are shedding operations like the Commonwealth Bank, Qantas and Telstra and have shown little competence in complex trading activities.

He is very hard on the Australian Government's current line that the choice is between wealth or the environment and argues that we can have both. He sees people like John Howard as being unredeemably fixed in the past and sees salvation in the likes of Malcolm Turnbull and Peter Garrett.

Murray touches on the phenomenon whereby green groups feel a sense of loss and disappointment when their cause is won and is taken over by the mainstream. Somewhat, one supposes, like the professional soldier who has been dumped back in the community when the war is over! He claims that this leads green groups to dig in and claim that they have the only solution to the problem and therefore try to continue to own it.



STEP has seen many changes over the years and many battles won – we have, however, always been able to note the victories and move on. We like to be at the cutting edge of environmental imperatives rather than being mired in the past! He quotes Charles Darwin *'It is not the strongest of the species that survive nor the most intelligent, but the ones most responsive to change'*. That's a good line and raises the spectre as to how the old warhorses of the left and the right are going to cope with it all!

He makes the point that *'Neither capitalism nor socialism nor outright communism nor totalitarianism nor any of the shades in between ever showed any respect for the environment'*. Too true but he left out religion, that other great movement which deserves a seat at the despoilers' table. Taming the wilderness is still the catchcry in many churches.

One disappointing aspect is his neglect of population as an issue. He mentions it early in the book and then drops the subject. It is surely possible to accept that allowing the world to go from 6 to 9 billion over the next 50 years or so will not improve the outlook for greenhouse gas production. Surely it is necessary to address this issue and identify just what Australia should be doing about it both internally and on the world stage.

Murray also fails to come to grips with the effect that the aspirational billions throughout the world will have on greenhouse gas production as they approach our level of consumption.

Despite these complaints, this book is a useful contribution to the global warming discussion. It is easy to read and will give most people some new concepts to consider as we enter a period of great change within our society.

The 3rd Degree: Frontline in Australia's Climate War, Pluto Press Australia 2007

Turning off the Lights

The on-line newsletter Crikey.com had a cynical but entertaining view of the hour without lights that probably is valid enough. Many in the environment movement who detest WWF (STEP doesn't yet) will be cheering Crikey.

“Similarly WWF's Earth Hour stunt, whipping up a little mass hysteria in Sydney to turn off some lights for an hour on Saturday night, has been a massive PR success. Too bad it was a con as far as reducing CO₂ emissions goes. Contrary to the media claims, no CO₂ was saved, no lump of coal received a stay of incineration. Indeed, it's not hard to argue that more CO₂ was produced by the circus as thousands of Sydneysiders drove to the harbour to watch, well, not much. And then there were all those burning candles and kero lamps ...

The *SMH* led the gushes:

In the city centre alone energy consumption fell 10.2% between 7.30 and 8.30 pm, saving 24.86 tonnes of CO₂ from being released into the air. Central Sydney's mighty effort is the equivalent of taking 48,613 cars off the road for one hour.

Er, no. It didn't happen. Saturday night's electricity comes from base load generators – the big coal-fired stations. They are not turned on and off at the flick of a light switch.

Normal Saturday night NSW power consumption runs at 8,500 megawatts. There was a dip of 150 megawatts per hour between 7.30 and 8.30 pm on Saturday night. That's vastly more than the 23,613 kilowatts the *SMH* is wetting itself about – but it's still just a 1.7% variation in electricity consumption.

Which means the turbines kept turning, the coal kept burning and the CO₂ kept being released. But never let facts get in the way of a good story. Lighting is one of the least of electricity's major worries. The cool rooms kept operating on Saturday night, the electric trains kept running, the aluminium smelters kept smelting and so on.

And it's just as well they did. If there really had been a sizeable instant downturn in electricity consumption, say 500 megawatts, it would have been the equivalent of one of the base load stations running into trouble or a smelter falling over – and that could well have triggered cascading blackouts through the electricity system.

No, it's not as simple matter, but don't tell the public that. Throw them a novelty item and let them think they're 'saving the planet'.”

Climate Change Management

By Ian Dunlop

Ian Dunlop, who lives in Ku-ring-gai, was formerly a senior international oil, gas and coal industry executive. He chaired the Australian Coal Association in 1987–88, chaired the Australian Greenhouse Office Experts Group on Emissions Trading from 1998–2000 and was CEO of the Australian Institute of Company Directors from 1997–2001.

Recent reports on climate change have confirmed what has been intuitively and practically evident for many years, namely:

- carbon emission from human activity is leading to increased atmospheric carbon concentrations; this is very likely to be causing major climate change, particularly temperature increases, which will become dangerous and potentially catastrophic if carbon concentrations are allowed to continue rising;
- the evidence is sufficiently clear that urgent precautionary measures should be taken to reduce human carbon emissions if dangerous consequences are to be avoided; and
- the cost of doing nothing far outweighs the cost of action to mitigate and adapt to climate change.

Having crossed the threshold, from denial to accepting that climate change is a serious issue, which the government now claims to have done, sensible policy becomes mandatory. Time is of the essence, for the longer it takes to implement solutions, the harder they become, particularly given growing evidence of non-linear climatic responses to increasing atmospheric CO₂ concentrations.

Current piecemeal initiatives are totally inadequate. Emissions trading is now, reluctantly, under discussion, but it is only one component of the comprehensive policy required. So what constitutes sensible climate change policy? It would look something like this.

Set Targets to Avoid Dangerous Climate Change

There must be rapid implementation of measures to stabilise atmospheric carbon concentrations by reducing emissions substantially. This requires clear, binding, deliverable targets to be agreed globally and nationally, best achieved by committing to a modified **Kyoto Protocol** in the immediate future.

The primary target should be to **stabilise** global atmospheric carbon concentrations at no greater than 450 ppm CO₂e, which is considered the maximum acceptable level to avoid dangerous climate change.

This would be achieved by **contracting** annual global carbon emissions from 8 gigatonnes carbon today to 3.5 gigatonnes carbon by 2050, a reduction of 55%.

The contraction task must be allocated equitably between nations. The developed world, having created the bulk of the problem, has a moral obligation to take the lead, but the developing world, in its own interests, must rapidly join in seeking solutions. This poses the fundamental question of global equity.

It is morally indefensible and unrealistic to expect that the developed world can continue to emit at current levels, with the developing world absorbing the bulk of the climatic impact and being asked to constrain its own growth. The simplest, most equitable and practical solution is for each nation to agree to **converge linearly** from today's unequal per capita emissions to **equal per capita emissions globally** by a date to be negotiated, say 2040.

This means Australian emissions would have to reduce by 50% by 2025 and 90% by 2050. This would be administered via a national carbon reduction budget, comprising year-by-year emission reduction targets, which inter alia provide certainty for long-term investment decision-making, for example for power generation, resource development, urban planning, transport etc.

The national carbon reduction budget could be achieved in various ways. Market-based instruments are preferable and emissions trading is arguably the most efficient, provided it is properly designed and administered. However the schemes so far discussed at state and national level are not sufficiently comprehensive for the task we now face. The simplest, most practical variant, which overcomes their flaws, is a system of **tradeable energy quotas** (TEQs).

TEQs are an electronic system for rationing energy, which includes every energy-user and energy-provider in a national economy in the task of reducing CO₂ released into the atmosphere from fossil-fuel energy. A common purpose is created as everyone has an incentive to reduce emissions and to encourage others to

do likewise. Thus the process becomes a positive, collective experience for the community to restructure and rebuild the economy on sustainable principles.

Directional Incentives

Directional incentives are essential to speed the transition to a low-carbon economy and to capitalise on new business opportunities. For example:

- increase mandatory renewable energy target to 30%;
- congestion taxing on vehicles in capital cities;
- investment in high quality, efficient public transport, cycling;
- stop further major expansion of freeway systems to constrain expanding vehicle use;
- eliminate subsidies encouraging carbon emissions;
- emphasis on energy efficiency and resource conservation;
- mandate world best practice vehicle emission standards;
- emphasis on high-speed broadband access Australia-wide to speed de-materialisation and reduce travel burden;
- total rethink of the consumer society and related business models (e.g. transport, aviation, infrastructure, urban and rural environments, financial services, supply chains, marketing, recycling) in-line with sustainability principles;
- redesign and simplification of the market economy, corporate and investment regulation, governance and reward systems to deliver long-term sustainability; and
- policy consistency across government.

Fossil Fuel Exports

Coal exports are a substantial source of carbon leakage from the global carbon emission reduction effort unless the recipient country is part of the global reduction program. There may well be justification for higher quality Australian coal, for example, to be used for power generation in preference to poorer quality coal in other countries. However, without carbon being fully priced, there will be substantial distortion of the future energy market if carbon-intensive projects become locked into the energy mix before global negotiations are completed.

The Australian coal industry has belatedly acknowledged that clean coal technology and carbon sequestration is essential if coal combustion is to continue. However, despite the industry having been on

notice for more than 15 years, the R&D investment devoted to this task is miniscule compared with the challenge ahead. Further, whilst carbon sequestration may work in specific circumstances, it is by no means clear that it will be generally applicable or that timely solutions will be available.

Accordingly, no further fossil-fuel export projects should be approved until either all exported carbon can be securely sequestered on a long-term basis, or it is accounted for in the importing country by global carbon reduction agreements. This will ensure that investment decisions are not distorted, and spur technological and diplomatic innovation.

Domestic Carbon-intensive Investment Projects

No further domestic carbon-intensive investment projects should be approved until the market structure outlined above is in place, with full carbon pricing. This would apply, for example, to any new coal-fired power generation, water desalination plants, industrial plant etc. Given Australia's dependence on existing coal-fired power generation and its associated high emissions, all existing power plants should be phased out by 2020 unless retro-fitted with clean coal technology and carbon sequestration to acceptable standards.

Airlines and International Sea Freight

At present airlines are not included in emissions trading systems. Airlines account for around 3% of global emissions, although this may be an underestimate as some types of emission may be particularly damaging, the total impact perhaps being two to four times as great. Airline emissions are growing rapidly, spurred by cheap air travel and increasing wealth, and will become a much more significant component of overall emissions. Accordingly aviation must be included in the global and national emission reduction programs. International sea freight similarly is not included in current emission trading schemes and must be incorporated.

International Emissions Trading

International emissions trading will be essential to achieve the optimal, least cost emission reduction strategies. This should be provided for by nation-to-nation emissions trading under the auspices of the modified Kyoto Protocol. It would allow nations with quotas in excess of their needs, as determined under **contraction and**

convergence, to sell to those requiring additional quota, in the process easing global inequity by transferring wealth from the developed to the developing world. Technology transfer from the developed to the developing world, to achieve low-carbon outcomes, must also be part of the process.

Summary

The transition to a low-carbon economy will fundamentally alter the lifestyle of the entire community. It will only be achieved successfully if there is a whole-hearted commitment to achieving these objectives. To build this commitment will require extensive community awareness programs. Rather than continually being presented as problem, it must be seen as a unique opportunity to set humanity on a new course, built on sustainable principles.

Conventional economic growth is a large part of the problem. We must move to a new paradigm of a sustainable economy. This requires large structural change, but whilst some industries decline, greater opportunities open up. It is essential to take a proactive, forward-looking view and seize these sustainable opportunities, rather than reactively defend an unsustainable status quo. The former represent the future of Australia, whereas the latter guarantees our decline and immeasurable community hardship.

Above all, visionary, principled, long-term leadership is need in government, the community and business. Action is required in the next 6 to 12 months, not in the 3 to 5 years favoured in political debate.

There remains the possibility that the science is wrong and that climate change currently being experienced is primarily due to natural causes rather than being human-induced. The mounting evidence suggests that the probability of this being so is low, and declining. Nonetheless, in committing to the policy proposed, this scenario should be kept in mind.

Prudent risk assessment, weighing the risks and their probabilities in the light of today's knowledge, suggest that it clearly makes sense to proceed with these proposals, as the potential impact of dangerous climate change may be catastrophic, while the costs of carbon emission reduction are manageable. To continue with business-as-usual implies an irreversible increase in global

atmospheric carbon concentrations, which would be foolhardy in the light of the evidence available. But the risk assessment must be kept under review as the scientific evidence evolves.

More detail on Ian Dunlop's policy proposals, covering both climate change and peak oil, can be found in his submission to the Prime Minister's Task Group on Emissions Trading at www.dpmc.gov.au/emissionstrading/submissions/29_sub_emissionstrading.pdf.

Controlling Carbon

There are two ways in which society can attempt to control carbon; by a carbon tax or by carbon trading. The former attempts to do so by controlling price while the latter does so by controlling the quantity. In both cases the cost of the price of goods will rise in proportion to their carbon intensity.

The trouble with a tax is that it is impossible to know what level of tax is required to produce the desired reductions in carbon and so the government must continually adjust the rate – something that no one likes.

In setting up a trading scheme the government can go straight to the desired quantity of carbon to be eliminated and issue permits that reflect that. Firms can then sell off their allotment as their emissions reduce to firms that find they need more. A trading scheme will allow market forces to work and provide incentives for firms to reduce emissions.

It seems obvious that a trading scheme is the best option.

2HHH Community Radio

It seems that few of us know about 2HHH which transmits on FM 100.1. This community station operates from a studio in Edgeworth David Avenue and targets Hornsby and Ku-ring-gai council areas. However its signal begins to fade out at around Pymble.

On Saturday mornings from 8 to 10 am Mark Wallace, editor of the *Hornsby Advocate*, runs a news show called Wally's Weekend Breakfast. He interviews a wide variety of people on local matters and it's usually well worth listening to.

Overloaded Oceans

By Tony Haymet, Director, Scripps Institution of Oceanography, University of California

Ocean acidification is a real and potentially devastating consequence of climate change that demands immediate attention. An excess of fossil fuel-derived CO₂ is causing profound changes in ocean chemistry. These changes are some of the most pressing problems presented by the burning of fossil fuels, but they get little attention. A small but growing number of scientists are turning their thoughts to the oceans and their findings demand that we take action.

The science is simple. The CO₂ generated by human activities is released into the atmosphere. Some remains there, the rest is taken up by land vegetation or makes it way into the oceans. Although life in the oceans does take up CO₂, its role in the uptake of this additional CO₂ is, as yet, small. As the amount of CO₂ taken up by the ocean increases, it causes an increase in ocean acidity, and the ocean's natural ability to counter this acidity increase is being compromised.

We have already experienced an increase in ocean acidity of nearly 30% compared to pre-industrial times and a doubling has been predicted by 2100. Increasing the amount of CO₂ in the oceans causes an increase in hydrogen carbonate ions, HCO₃⁻, but a decrease in carbonate CO₃²⁻ which organisms need to make calcium carbonate shells and other structures. The predicted acidity increase will have unknown consequences for marine life and ecosystems such as coral reefs, tiny marine organisms called pteropods, and fish larvae to name but three. Each of these organisms plays a fundamental role in local ecosystems and the food web, therefore amplifying the effects of their forced changes.

Take for example the pteropod, a free-swimming snail that lives near the surface of the ocean. It is a key food source for a number of fish and marine mammals. As ocean acidity rises, pteropods experience a double threat. Not only does the water corrode their shells, it may inhibit their ability to build shells in the first place, leaving them without an adequate protective layer. The effects of their decreasing numbers will ripple through the food web and could eventually impact humans as the fish we eat becomes scarcer because of the decrease in their food supply.

Coral reefs are also in danger due to the corrosive nature of increasing ocean acidity. Representing the most diverse marine ecosystem, coral reefs are crucial to the health and perpetuation of marine biodiversity. Yet these vital aquatic resources are under siege by a number of environmental stressors including temperature increases, local pollution, coastal erosion, over-fishing, and, of course, ocean acidification.

Ocean acidification decreases the calcification rate for corals and other organisms as the carbonate ion concentration is reduced. This is a chronic issue that could eventually lead to the demise of many calcifying marine species, including all coral reefs, even Australia's Great Barrier Reef, the world's largest biological structure. What effect these changes in ocean chemistry will have are still to be seen, but impacts on entire ecosystems and thus to economically vital fisheries are certainly possible.

Atmospheric CO₂ has already been linked with water issues in California. The state was recently approached by an environmental group attempting to use the federal Clean Water Act to regulate atmospheric CO₂, claiming the gas does harm to the cycle of life in the ocean. Making clear the effect CO₂ has on the ocean, requests like this help draw attention to the air-sea-land interconnectivity of the Earth. The record from the distant past gives added cause for concern. For a period more than 55 million years ago, ocean acidity was much higher than today, and shell-forming organisms, and those coming after them in the food chain, vanished.

Yet the rate of change occurring 55 million years ago is certain to have been much slower than the rate today. It is believed that the speed at which we are altering the current acidity of the ocean has not been seen before, and therefore we may not be able to anticipate the changes based on historical data.

We must not let the ambiguity of exact implications stop action on this problem. Ocean acidity, rather than temperature warming, may determine the upper limit of atmospheric CO₂ that Earth can safely tolerate. Even if emissions stopped today, we will still see an acidification effect in the oceans for a century or more due to the slow cycle of deep-ocean circulation and the long life of CO₂ in the atmosphere.

We cannot stop studying this problem just as we are beginning to appreciate its full magnitude. We must begin today to increase focus on this vital area of research. We call today for a Keeling Curve for the oceans. The Keeling Curve depicts the measurement of CO₂ in the atmosphere since 1957 and definitively links the observed rise to the increased burning of fossil fuels.

We also call for a determination of the biological consequences of increasing ocean acidity and its effects on the ocean food web. Such measurements would build on the WOCE/JGOFS surveys of the 1990s, and would provide a comprehensive measurement of ocean acidity throughout the oceans. As we celebrate the 50th anniversary of the groundbreaking Keeling Curve, now is the time to promote the same long-term measurement and response program for CO₂ in the oceans.

Howard's Way: This One's OK!

John Howard's proposal to assist countries in Asia to recover forests did not deserve the drubbing that it received in the media. His motives may be open to question but Australia is a net planter of trees with our forests reportedly growing at 70,000 hectares a year while Indonesia's are shrinking by 1.8 million hectare per annum. That Turnbull took the proposal to Washington and won American support can only be commended.

Only by addressing climate change as a world problem, and acting accordingly, can Australia maximise its contribution to solving the problem. If only some of our peak environmental organisations would get behind that type of action!

Membership and Email

Thanks to those who have renewed their membership since the last newsletter. Those few still outstanding would have recently received an invoice separate to the newsletter.

Further thanks to those who have sent us their email addresses. This will allow us to inform you of upcoming STEP activities. In addition, we are trialling an email feedback process whereby we can ask you your views on issues. The committee thinks and hopes that it is in tune with the members but it would be good to get some feedback from time to time.

So if you have not done so yet, please send your email details to secretary@.step.org.au.

Grameen Miracles

STEP member, Jennifer Katauskas, is very involved with the Grameen Bank and here brings us up to date.

The Grameen Bank and its founder Muhammad Yunus were the recipients of last year's Nobel Peace Prize, for their work in micro-credit; advancing very small loans to the poorest of the poor in developing countries to enable them to escape from bonded labour and the exploitation of middlemen. These loans have been given overwhelmingly to women because of their proven reliability in repayment.

Families with secure finances, particularly where women are given respect and some power, don't need to have large families to ensure they have descendants to care for them in old age. Millions of lives have been transformed, and one of the by-products of the increasing financial security of families has been a decrease in the birth rate; essential in the fight against environmental degradation.

The Grameen Foundation Australia (www.grameen.org.au) is an organisation of Australian supporters of the work of Grameen and has been involved in aid projects in The Philippines, East Timor, Vietnam and other countries, has worked with AusAid, and is currently negotiating to help establish a Grameen Foundation in Indonesia. It is also in the process of establishing an Australian website in connection with the American organisation Kiva (www.kiva.org) so that those interested can make small loans directly to those they would like to help. Kiva is providing the software free and PayPal is processing the loans free of charge.

To find out more check out the above websites.

Fixing the Climate Sceptics

We have all come up against the sort of perverse, smart Alec argument that is hard to instantly rebut unless one is very verbally dextrous.

Some common lines include *It's cold today in Wagga, there is no evidence, Antarctic sea ice is actually increasing, satellites show cooling, the medieval warm period was just as warm as today, many scientists don't believe it, we can't even predict the weather next week, the climate has always changed, water vapour accounts for all the greenhouse effect* – and so on!

Now, however, there is a website which will arm us with all the answers. Just go to <http://gristmill.grist.org/skeptics>. You may even have some unresolved issues yourself that are nagging away! This site will sort that out and allow you to go forward as a climate change warrior with a clear conscience.

Bye Bye Bulbs

Sometimes one must feel sorry for the politicians – damned if they do and damned if they don't. The latest example of this is the bagging that Malcolm Turnbull got after announcing that filament bulbs would be phased out. We are indebted to the 31 March 2007 edition of *New Scientist* for an explanation of what is going on.

It's worth reporting that in January the state of California introduced an act named the *How Many Legislators Does it Take to Change a Light Bulb Act* (if you don't believe that go to <http://democrats.assembly.ca.gov/members/a40/>). Filament bulbs, that are 5% efficient, will be banned there by 2012. Three weeks later Australia announced it would do the same and in March the UK Government followed. The European Commission is also considering legislation.

There are some 4 billion bulbs in the US and a similar number in Europe. If we doubled that to approximate the whole world then shifting to compact fluorescent lamps (CFLs) that burn at 15% efficiency, would save over 600 million tonnes of CO₂ emissions per annum. That seems worthwhile!

It seems, however, that the introduction of CFLs is merely an intermediate step. CFLs are still only about 15% efficient in the twirly form that will be used in most applications – tubes are nearer to 30% efficient. The next step will be light emitting diodes (LEDs). These are currently about 30% efficient but there is optimism that that can be increased towards 70%.

Despite LEDs being used extensively in car headlights and the like they are not yet technically suitable for general lighting and far too expensive.

Changing light bulbs won't be such a common activity as these new technologies take over. An incandescent filament bulb may last 1,000 hours, a CFL may last 10,000 and a LED 50,000. While there may be a short-term ongoing need for filament bulbs for dimming and such applications there is no doubt that, after over 100 years of filament bulbs, the change is going to happen.

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The San Hospital Proposal

In the last newsletter we told you about the proposal submitted by the Johnson Property Group on behalf of the Adventist Church. The version we reported on had over 1,438 dwellings but that was the second submission – the first contained 2,000 or so!

We have now had a chance to have a closer look at the traffic implications. Those of you who drive on Fox Valley Road or the Comenarra Parkway will know how congested they can become at busy times. Traffic can bank up from Pennant Hills Road to Fox Valley Road and from the Parkway towards Lucinda Avenue. The intersections of Fox Valley Road and the Pacific Highway and the Parkway and Kissing Point Road often already have long waiting times. There is difficulty in access from Mount Pleasant Avenue.

The intersection of Pennant Hills Road and the Parkway is already exacerbated by the proximity of the Wood Street intersection and performs poorly, especially in the evening peak.

Both Fox Valley Road and Kissing Point Road have extended peak periods and 40 kph zones because of the schools near their intersections with the Parkway.

A preliminary analysis shows that the current proposal would dump some 900 cars per hour onto the roads in peak hour without considering the impact of the added high school. There would be two additional roads intersecting with the Parkway, one each side of Fox Valley Road, and additional roads intersecting with Fox Valley Road. All of these are close to the existing intersection and to the traffic lights at the main hospital entrance and would mandate more traffic lights.

One must assume that increased congestion could also delay ambulances carrying emergencies to and from the hospital. Why would you isolate a major hospital in a sea of grid locked traffic?

So what's going on? Both Ku-ring-gai and Hornsby Councils are very concerned but the property, although it abuts Hornsby at Mount Pleasant Avenue, is wholly within Ku-ring-gai. No formal development proposal has yet been submitted.

As we understand it the Minister would prefer Ku-ring-gai to deal with the application and that suits Ku-ring-gai. Council has had meetings with the developer and insists that the scale of the proposal be reduced. Council is now assessing the traffic, fire, bushland and other implications and hopes to negotiate an acceptable compromise. But acceptable to whom?

STEP has written to Council and to every councillor setting out our concerns and what we believe would be an acceptable outcome.

There would be a massive loss of bushland on both sides of Fox Valley Road. This would arise as much from the RFS buffer zone requirements than from actual building where there now is bush. A huge perimeter area would be turned into mown parkland with no understorey and a much-thinned canopy. The impact of the additional thousands of residents would add a huge pollution load to the headwaters of the Lane Cove River and degrade the remaining bushland. There would be significant loss of corridor habitat.

There is no question that the hospital should have a right to expand to meet the health needs of the community.

There is, however, much doubt as to whether it should be allowed to become a home unit and shopping centre developer on that site. We see developments of the hospital and allied activities such as nurses' quarters and training colleges as being part of the proper use of the site. But of course there will eventually be limits to even those activities.

All bushland on the site should be conserved and transferred into the Lane Cove National Park. The quid pro quo for that should be the hospital being given certainty as to its development options over the remainder of the site.

So far Minister Sartor and Council seem almost as concerned as us. We shall watch closely and keep you informed.

Good News and Bad

While wallaby sightings around northern sections of the North Shore have become common, there have been far fewer in the Lane Cove Valley. However the dead wallaby on the Comenarra Parkway on Friday 13 April demonstrated their presence. The fox baiting program is obviously working wonders: the next question is just how we are going to prevent road deaths from becoming a too regular event.

Barry O'Farrell

STEP is of course non-political but when one of our valued members becomes Leader of the Opposition we must wish him well. His UTS Lindfield Bill and his other environmental views give us hope that he will usher in a new era in conservative respect for the environment.



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