



In this issue

In this edition we have done some figures to show that the desalination plant won't stop us from having to tap into the Shoalhaven River and we argue, yet again, that we cannot have infinite growth in a finite world and wonder when any politician will grasp that fact.

BioBanking is a newish and contentious subject and we introduce you to it. There is some good news on the proposal to develop the San Hospital site, some encouraging signs that the Greens are waking up to population threats to the environment and some success stories to ponder on greenhouse gas emissions. There is our annual report and encouraging news from France on bottled water consumption.

We have some changes to our committee. Barry Tomkinson is now our president and will take up the role next year when he finishes roaming the world.

Having rediscovered the early minute books we can record that the first STEP meeting was 12 April 1978 when 19 people met at 18 Kingsford Avenue, Turramurra over environmental and traffic concerns about the proposed Canoon Road netball courts. In recent years we have assumed that the first annual general meeting was also in 1978 but it was on 14 June 1979. Looking through the records it is apparent that STEP very quickly widened its interests beyond the Canoon Road project to the environment generally. The amount of work done over the years is really quite staggering.

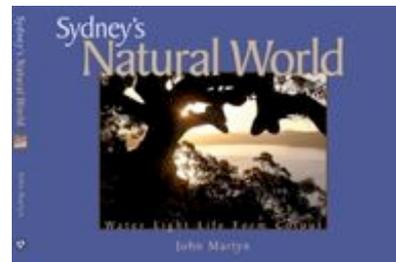
We do hope that all our readers have a great Christmas break and come in to the New Year with renewed resolution to do something for the environment. As Barack might say – Yes We Can!

A STEP Christmas special!



If you are attracted to the idea of giving a copy of **Sydney's Natural World** or the **Walking Maps of the Lane Cove or Middle Harbour Bushland** as Xmas presents this year we are offering a special for our members comprising the book and the three maps for \$75 (including packaging and postage) instead of the normal members' price of \$95. We don't really want to appear to be like a department store offering unbeatable sales all the time, it is just that the committee thought that members may appreciate the opportunity and that we may get more maps and books into the community – which really is the reason that we publish.

Sydney's Natural World is a wonderful celebration of Sydney's natural assets. The maps consist of three full colour, double-sided maps of Sydney's northern suburbs which feature bush tracks, cycleways and fire trails with connecting streets and access points. They are excellent references for all ages and suitable for all users, from the occasional suburban stroller to the dedicated bushwalker. There is an order form on page 7.



End of year barbecue

We were rained out last year but hope for better luck this time. Our usual Christmas get-together will be held from 4.30 on Sunday 7 December in the park behind Leuna Ave at the end of the Broadway at Wahroonga. Harry and Neroli Lock will again supply the barbecue and hot water but BYO food and everything else. This has always been a good opportunity to meet other STEP members so we hope to see a lot of you there. If the weather looks threatening call Neroli on 9489 5794.

Tell the Planning Panel what you think

The draft Local Environment Plan for the Gordon, St Ives, Turramurra, Pymble, Lindfield and Roseville town centres is on display from 17 November at www.kmc.nsw.gov.au and at Council Chambers and the libraries. The Planning Panel is seeking comment. It is of course the means by which the State Government has taken control of planning away from Council and the LEP is the means by which the population of Ku-ring-gai will be increased by some 25%. It's no good complaining after the horse has bolted. Have a look and tell them what you think by Friday 19 December.

STEP Inc

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

Annual report for the year to October 2008

STEP has had another strong year. The issues that we thought important are in the newsletters and they are all on our web site. Here I shall give only a brief overview.

Committee

We continue to have an effective committee that meets monthly. The committee will be essentially the same after the AGM, as we have had no nominations other than from current committee members. Bruno Krockengberger has resigned after almost 20 years of service as newsletter editor for many years, treasurer for a time and as president from 1993 to 1997. More about Bruno in the next newsletter! Graham Jones, who came to us from TABS almost two years ago, has ensured that the merger with TABs went smoothly and has otherwise made a substantial contribution to the committee. He leaves us to take up other community work. I have now been president for almost three years and it is time for a change. Barry Tomkinson will take over the job from when he returns to Sydney early next year. He will bring renewed energy and a fresh set of ideas to confront the environmental problems we face.

Accounts

Jim Wells continues doing a great job as our treasurer and our auditors have signed off the annual accounts. STEP is in a healthy financial position.

Secretarial Work

Helen Wortham continues as our secretary and handles a multitude of jobs around membership records, contact with members, event organisation and much more. In many ways she is the glue that holds the STEP organisation together so effectively.

Grants

This year we awarded \$2,250 grants to Turramurra Primary School and to Turramurra High to support environmental projects they are undertaking. It has become very difficult, however, to attract good applications for such projects and in future we shall widen our horizons beyond schools. We continue to support the Young Scientist awards.

Bushwalks and Talks

We organised five walks and four talks in 2008. These continue to be well attended and the programme will be continued throughout 2009.

Newsletters

We continue to publish five newsletters a year. These go out in the mail and onto our web site. We get some positive feedback but otherwise can only trust that they are read and appreciated. In addition to our members the newsletters go to a substantial free list of councillors, politicians, other groups and government departments.

Membership

We continue to have over 400 members and there is a pretty constant turnover. The offer of discounts for three-year memberships has been taken up by many members and greatly eases our administrative work.

Issues

The year's issues are in the newsletters. While we report on events and some administrative matters we see the newsletters as our means of keeping a little ahead of the conventional wisdom. We don't want to rehash what you

can read in the newspapers. Thus we have continued to rail against the disgraceful lack of real planning for Sydney and for Australia, against the concept that a finite earth can allow our economy to grow infinitely, and against the pathetic populations policies of our political parties and environmental groups. We also write on technical issues including the difficulties in defining vegetation communities, the mismanagement of water borne nutrient problems in bushland and the interaction of weeds and climate change. We also take a close interest in projects such as the UTS Campus at Lindfield and the Adventist site at Wahroonga that threaten our environment and that arise out of bad planning laws.

Blue Gum High Forest

One piece of good news was the successful end to the campaign to acquire the last block of land containing BGHF at Gordon. Congratulations to STEP members Nancy Pallin, Neroli Lock and the others who worked so hard on that campaign. STEP contributed \$5,000.

Publications

We regard publishing as being very important and are very lucky to have John Martyn on our committee who works tirelessly on maps and books. *Sydney's Natural World* has sold well and our walking maps of Middle Harbour and Lane Cove bushland also continue to sell well. While our primary aim is to engender appreciation of the bushland we have also been able to reinforce our finances from these endeavours. John is now completely revising the *Field Guide to the Bushland of the Upper Lane Cove Valley*. This is another huge undertaking.

The Year Ahead

The current global financial mess is already being used as an excuse for countries such as Italy, and for many firms here and overseas to attempt to avoid their environmental responsibilities. The big challenge will be to stiffen the spines of our lawmakers so that they address the environmental crises as well as the financial ones. In the end, the environmental crisis will be far more serious for our economy than the current recession and we run the risk of passing the point of no return.

Finally

I can't think of a better conclusion than I used here last year! So, thanks again to our loyal members. There is strength in numbers and those who support us by being members are essential to the viability of STEP. We look forward to continuing to work for a better world in the year ahead.

John Burke
October 2008

Carbon emission reduction success stories

Paul Burke

The remaining months of 2008 will be important ones in terms of climate change policy in Australia. The Federal Government is busily working on its White Paper, which is due in December. The White Paper will quantify Australia's medium-term targets for greenhouse gas emissions and detail the framework for the proposed national emissions trading scheme (marketed as the 'Carbon Pollution Reduction Scheme', although it will also cover emissions of methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons).

The emissions trading scheme, like a tax on carbon, will serve to 'internalise' the cost of carbon emissions in consumption and investment decisions. Prices of goods and services that have a high carbon content will increase. This new price signal will act as an incentive for consumers and investors to substitute toward low-emission goods, services, and sectors.

Despite facing the prospect of being the most severely affected by global warming of all developed countries, Australia has been an international laggard in doing anything about the problem. Australia will be among the last of developed countries to introduce a price on carbon emissions – two decades behind the global first-movers. (Finland and the Netherlands introduced carbon taxes in 1990. Norway, Sweden and Denmark also introduced taxes on carbon emissions during the very early 1990s.)

Global greenhouse gas emissions are projected to continue to climb rapidly without a strong public policy response, fuelled largely by fast-paced economic and population growth in developing countries. Professor Ross Garnaut has referred to this business-as-usual situation as one of "awful arithmetic". But we have heard very little about whether any countries have experienced successes in reducing carbon emissions. If they have, there may be lessons to learn.

Using data on carbon emissions from fuel combustion (which do not include emissions from agriculture, land use change and other sources), a list of emissions reduction successes among Organisation for Economic Co-operation and Development (OECD) countries over the period 1970-2005 is provided in the Table below. 10 of the 30 OECD countries achieved emissions reductions over this period, led by Sweden, Luxembourg, the Czech Republic and Denmark.

OECD emissions reduction success stories

Country	% Change in CO ₂ emissions from fuel combustion, 1970-2005	Year of peak emissions
Sweden	-43%	1970
Luxembourg	-32%	1969
Czech Republic*	-22%	1987
Denmark	-20%	1996
Germany	-17%	1979
United Kingdom	-15%	1973
France	-7%	1973
Belgium	-7%	1973
Hungary	-4%	1978
Slovak Republic*	-2%	1980
Australia	+166%	-

Source: International Energy Agency. *: % Change is for period 1971-2005

Emissions reduction successes have been achieved primarily through the adoption of low-carbon energy systems. Nuclear power has been the most important of these energy systems. (Sweden, the Czech Republic, Germany, the UK, France, Belgium, Hungary and the Slovak Republic have all substituted toward nuclear power in recent decades.)

The adoption of other low-carbon energy technologies has also been important. Denmark reduced carbon emissions from fuel combustion by 20% over the period 1970-2005. A large reason for this was the development of wind power, which now accounts for 20% of electricity generation in Denmark. Denmark is now the world leader in wind energy technology.

Improvements in energy efficiency have also played large roles in explaining energy reduction success stories, as has structural change toward lower-emission sectors (for example, financial services). Historical events such as the oil price rises of the 1970s and the transition from communist economic systems (Czech Republic, East Germany, Hungary, Slovak Republic) also played roles in explaining emissions reductions. Slower population growth in European countries (as compared to Australia) has also aided in taking the accelerator off emission levels.

Australia has a long way to go to catch up with the European emissions reductions leaders. Substitution toward low-carbon energy technologies, and away from high-polluting coal-fired electricity generation, is an essential part of the task. Blessed by renewable resources (sun, wind, geothermal, wave), a highly educated workforce, and close ties with booming Asia, Australia has great potential to become a global leader in low-carbon technology solutions. An economy-wide price on carbon is needed, however, to get Australia's green economy kicking and to have any chance of achieving significant emissions reductions. For that, all eyes are on Canberra.

Paul Burke is completing his PhD in Economics at the Australian National University.

The Greens start to see the light

On June 23 Bob Brown asked this question in the Senate.

- (1) What is the Government's strategy to deal with population growth: (a) in Australia; and (b) worldwide.
- (2) Is there no limit to the carrying capacity of (a) Australia; and (b) the Earth; and if there is, in each case, what is it.
- (3) (a) What resources has the Government committed to meeting the pressures of increased population in Australia; and (b) what is the expected outcome.

Whereas previously the Greens would not touch this sort of environmental issue there have been some hopeful signs recently. A Greens senator was even spotted at a population conference! Of course the answer from the Government was nonsense and didn't even try to answer the question but that's not the point. The point is that perhaps the Greens are beginning to see the point that population and the environment are inextricably linked. They may even be facing up to the notion that infinite growth is impossible in a finite world. Fantastic!

Sydney does have plenty of water – doesn't it?

An article in The Australian of October 23 reported the following:

“NSW Premier Nathan Rees has revealed just how close the state came to running out of water in February.

In a speech to the opening of the 9th World Congress of Metropolis in Sydney, Mr Rees said NSW had faced a dire water shortage crisis in February, the severity of which was not conveyed to the public.

Mr Rees, who was water minister until September 5, says he was gagged by then-premier Morris Iemma, but admitted for the first time today that water reserves had been in danger of drying up.

‘We transferred roughly half of our water supply each day up from Shoalhaven in the south,’ he said. ‘If we hadn’t been transporting water from that river and we hadn’t had water restrictions in place, our water supply would have been down to seven per cent ... that essentially means people are drinking mud.’

He said the state was now on the right track in developing a water desalination plant at Kurnell in Sydney’s south.

The total cost of the desalination project is estimated at \$1.9 billion. It will be capable of providing 250 million litres of drinking water per day from the summer of 2009-2010. ‘If we don’t develop a water supply that is independent of rain ... you can’t guarantee the economy,’ he said.

‘A desalination plant enables us to tap into the world’s biggest dam - the ocean.’”

Of course attentive readers of the STEP newsletter would realise that we broke this news in the November 2006 edition where we analysed the inflows and outflows and determined that, back then, the Sydney dams would have been down to 20% capacity without Tallowa dam on the Shoalhaven. Sydney Water then stopped issuing the Tallowa figures but obviously the position continued to deteriorate to produce the 7% figure the Premier quoted. So the desalination plant will fix everything? It really will, won't it?

Well let's do some sums. Sydney uses about 10,000 megalitres per week. The desalination plant will produce 250 megalitres per day or 1,750 per week. But the plant can be expanded to 500 megalitres per day or 3,500 per week. It's worth reproducing the table from the November 2006 newsletter (the first four columns on the next page) and adding information to it to see just what would happen with weather conditions similar to those of 2006.

This little exercise tells us that the demand might well grow by 2,500 megalitres per week over the next 21 years and that the desalination plant, at maximum capacity, will provide 3,500. This means that, given the conditions prevailing in late 2006, we shall still have to pump up to 6,700 megalitres per week from Tallowa dam on the Shoalhaven River. At a population growth rate of 1% p.a. another million people will be added by 2047 and another 2,500 megalitres of demand per week created. And so on.

So the desalination plant is a palliative. The initial installed capacity of 1,750 megalitres per week will not remove our reliance on the Shoalhaven. Even the upgrade to the maximum output will not change our reliance on the Shoalhaven and population growth will soon demand another desalination plant. The Premier's

statement quoted above, *“If we don't develop a water supply that is independent of rain ... you can't guarantee the economy,”* is wrong. The desalination plant, at full capacity, will supply about a third of our water needs at present and a smaller percentage as the city grows. We shall still be very dependant on rain or alternative sources.

Alternatives to desalination

A media release from ANU economists Grafton and Ward in July this year (see <http://news.anu.edu.au/?p=492>) put a different slant on the issue. They say that the huge expense of the desalination plant could have been delayed for many years. The release says, in part,

“Deciding to build the plant when water storages were at 57 per cent capacity in July 2007 generates an expected welfare loss to Sydneysiders of about \$750 million. Add on to this cost the commitment to use the plant at full capacity for the first two years at today’s storage levels of 66 per cent and the costs increase by another \$200 million.

“Adding insult to injury, Sydneysiders still face mandatory water restrictions and most water consumers will be paying 25 per cent more in volumetric charges for their water by 2010 to pay for a plant that they didn’t need in the first place – that adds another \$250 million or so per year in costs. Add it all up and we have a billion dollar bungle,” he said.

Instead of building a desalination plant, Grafton and Ward argue for scarcity pricing so that when water storages are low households pay more for water and when storages are high they pay less.

“At current water storages the pricing will translate into a volumetric water price of \$1.30/kL which is lower than the Tier 1 price that most people in Sydney currently pay for water.

“The benefit of scarcity pricing is that the decision to build a desalination plant can be postponed until it’s absolutely necessary. In Sydney, the desalination plant could have been postponed until water storages were about 21 per cent of full capacity. Postponing the investment in desalination generates very big interest savings because of the huge capital costs of the Sydney plant and associated infrastructure of almost \$2 billion.”

The economists have a point except that continuing use of huge amounts from the Shoalhaven is implied in their proposal and they have not addressed the environmental effect of that. But so much of our water is wasted that scarcity pricing may well have a startling effect!

Postscript. The day after this article was written an article appeared in the Sydney Morning Herald (*Here's mud in your eye: water plant saves the Shoalhaven*, SMH, November 7) confirming that water has continued to be pumped from the Tallowa and confirming that that was doing enormous environmental damage. This pumping is now to stop because of the desalination plant coming on line in a year's time. That would be a great outcome except that we know that there will still be a water shortage over time and that we shall need more desalination plants or have to pump again from Tallowa.

Table from STEP newsletter, November 06				Columns showing the effect of the desalination plant and population growth			
Week ending	Water supplied to customers ML/week	The contribution from the Shoalhaven	Storage change each week	Add desalination plant at full capacity of 3,500ML per week	Weekly demand on the Shoalhaven at current population	Extra weekly demand with a 25% population growth by 2030	Weekly demand to be met from the Shoalhaven or another desal plant
9/11/06	9601	1305	-6630	3500	0	2500	305
2/11/06	10522	209	-12100	3500	0	2500	0
26/10/06	10266	2450	-10480	3500	0	2500	1450
19/10/06	10677	5600	-10520	3500	2100	2500	4600
12/10/06	10300	5200	-11410	3500	1700	2500	4200
5/10/06	10130	4100	-9150	3500	600	2500	3100
28/9/06	10358	2600	-8590	3500	0	2500	1600
21/9/06	9798	2800	+2250	3500	0	2500	1800
14/9/06	9001	4150	+32580	3500	650	2500	3150
7/9/06	9883	7700	-3950	3500	4200	2500	6700
31/8/06	9470	7700	-4950	3500	4200	2500	6700
24/8/06	9733	7700	-6230	3500	4200	2500	6700
17/8/06	9633	7300	-3360	3500	3800	2500	6300
10/8/06	9161	7000	+1170	3500	3500	2500	6000
3/8/06	9358	4900	-1090	3500	1400	2500	3900
Total	9,860 av	4,714 av	52,460				3,767 av

Notes

- The above illustrates the position if the demand for water and the amount pumped from the Shoalhaven each week was to be the same as between 3/8/06 and 9/11/06. Changes in rainfall, either way, or the availability of more or less water from the Shoalhaven would change the picture. With high rainfall there may be plenty of water but with a continuing of the trend to drier conditions the position may become much worse.
- The assumption has been made that water demand will vary linearly with population.
- All figures in the table are megalitres per week.
- Note that the fourth column shows that, even with the inflows from the Shoalhaven, the amount of water stored reduced over the period by 52,460 megaqlitres or over 5 week's demand in just 14 weeks.
- If there were to be periods of plentiful rainfall, the desalination plant could be used to top up our dams and thus provide a bigger buffer against drought.
- Population growth has been estimated at 1% p.a. from a current base of 4.4 million.

Bruno Krockenberger retires from the STEP committee

Bruno joined the committee at the AGM in September 1989. He had come to know STEP through the group PAVE (People against Valley Freeways) that was set up in response to the threat to the Lane Cove Valley from the proposed freeway. He became our key representative for the many freeway matters that we were involved in over the years.

Bruno became our treasurer in September 1991 and did that job for some years. He added the president's role to that in October 1993 until October 1997. In addition, Bruno edited the newsletter from 1994 until mid 2006. This was a Herculean effort as the newsletter involves a great range of subjects and unrelenting deadlines. It is the main face that we present to the world and is of great importance. Bruno knew that and never faltered.



After almost 20 years of continuous normal committee work in addition to all the roles mentioned means that we owe Bruno our heartfelt thanks. It also means that he well deserves a break. Despite that we expect to see him and Dorothy at STEP functions from time to time. We should also note Dorothy's wonderful work in supporting Bruno's STEP activities and in making the committee welcome in her home on so many, many occasions.

STEP committee

Barry Tomkinson – President
Helen Wortham – Secretary
Jim Wells – Treasurer
John Burke – Vice President
Tim Gastineau-Hills
Susie Gemmell
Michelle Leishman
Andrew Little
John Martyn

Council elections

We congratulate STEP member, Elaine Malicki who was elected mayor of Ku-ring-gai after keeping a strong grip on the Comenarra Ward in the September council elections. Being mayor seems to us to be a demanding and often thankless job. The councillors are often at loggerheads, the staff not always tractable and the public expects many different versions of perfection. Elaine is a strong advocate of good environmental outcomes. We wish her well.

BioBanking: friend or foe?

Associate Professor Shelley Burgin spoke to STEP in October. BioBanking is a concept arising from our struggle to reduce environmental degradation. It arose in the USA in the 1970s and has spread world-wide. Legislation was introduced in NSW in 2006 and is implemented through Part 7A of the *Threatened Species Conservation Act 1995*, the *Threatened Species Conservation (Biodiversity Banking) Regulation* and *BioBanking Assessment Methodology* by the Department of Environment and Climate Change. The aim in NSW is to achieve no net loss of biodiversity associated with development. Thus if a particular development will result in biodiversity loss it may be permitted if this loss is permanently offset by conservation of previously unprotected land.

Shelley Burgin was less than enthusiastic about the prospects. In her paper, *BioBanking: an environmental scientist's view of the role of biodiversity banking offsets in conservation*, Springer Science+Business Media B.V. 2008, she says:

"The strengths of the legislation are that it aims to enhance threatened species conservation, and raise the profile of conservation of threatened species and habitats. Weaknesses include (1) the narrowness of the definition of biodiversity; (2) the concepts are based on a flawed logic and immature, imprecise and complex science which results in difficulties in determining biodiversity values; (3) likely problems with management and compliance; and (4) an overall lack of resources for implementation and long-term monitoring." She notes that the concept has been

enthusiastically embraced by industry, mining companies in particular that can avoid rehabilitating mining sites by buying some adjacent woodland to be conserved. Burgin says, *"The concept could work. At this stage, however, the commitment of governments in terms of training, implementing and monitoring over the long term has not been forthcoming. As a result, 'no net loss' remains a concept, and one can only hope that the science and management issues can be overcome."*

One good result locally has been the acquisition of one of the blocks of land on Rosedale Road, Gordon containing Blue Gum High Forest. This was able to be acquired because of loss of BGHF for a railway project.

Obviously the success of BioBanking will depend on how the legislation is administered. It is therefore wonderful that Simon Smith, Deputy Director General of the Department of Environment and Climate Change, has agreed to talk to STEP early next year on BioBanking. He has the responsibility of implementing the programme and the opportunity to overcome the possible unsatisfactory outcomes that Shelley Burgin has identified. We shall advise of the date for this talk in our first newsletter in 2009.

If you would like a copy of Shelley Burgin's paper email me at johnsburke@mac.com. To see more about the legislation and its implementation go to <http://www.environment.nsw.gov.au/biobanking/>

The Adventist Hospital site proposal

There has been little news from this project while the consultants are carrying out their preliminary design work. One thing that happened in the course of that design was that the environmental consultant referred the proposal to the Department of the Environment, Water, Heritage and the Arts under the Environment Protection and Biodiversity Conservation Act 1999. STEP made a submission, the content of which follows below. Blue Gum High Forest was not mentioned because the consultant had already identified it.

"In 3.3(i) the submission (i.e. that made by the consultant) states that 'There are no direct impacts on this national Park and indirect effects, if any, are likely to be negligible.' We point out that the vastly increased urban runoff from the proposed development will feed nutrients and other pollutants into the Lane Cove River thus creating a substantial impact. We further point out that, while ingress of gross pollutants may be controlled, the ingress of phosphorous and other nutrients will not be controlled by bio-retention swales and other such devices despite their current popularity.

Referring to 5.1 of the submission, we submit that the presence of STIF may well be a controlled action. The area has not been adequately assessed and such

assessment should be reliably carried out before the presence of STIF is considered as a controlled action.

In 3.3(h) the submission invites one to draw the inference that most of the bushland is weed infested. This is not the case.

The submission fails to mention that the bushland on the site is contiguous with bushland under other ownership.

In 3.1 (d) and (e) the submission justifies the loss of habitat on the site as immaterial because "--there are other large stands of habitat nearby." This is the invalid argument frequently used to justify alienation of small sections of bushland which, taken together, have a huge deleterious effect on the viability of that bushland and its ecology. The fact that threatened species use the site and that this project will remove habitat means that those species will be affected."

In a determination dated 5 November the Department has advised that *"The proposed action is a controlled action and that it will require assessment under the Act."* That's very good news.

Make a difference
Get a friend to join STEP

Infinite growth in a finite world? There must be a magic pudding

Recently Kristina Keneally, our new minister for what the NSW government euphemistically calls Planning, said on TV words to the effect that if Sydney stopped growing it would go into decline. Not a word about the decline that will occur should the government have its way and growth keeps rocketing along. We have tree preservation orders that allow council functionaries to terrorise people with real tree problems while millions of trees and the ecosystems around them are bulldozed for new suburbs like Cherrybrook. We have brave and sincere words coming out of the Department of Environment and Climate Change about BioBanking and national parks while plans are afoot for freeways that will carve up national parks. Urban consolidation driven by government mandate is responsible for the wholesale loss of tree cover in our suburbs. We have politicians encouraging us to have more children while undertaking a massive immigration programme. And nowhere is there a word on limits to growth from the elected. It seems such limits don't exist as far as they are concerned.

Norman Lindsay of course knew how it was done. He wrote about a walking, talking pudding that likes to be eaten and never runs out. Maybe this is how our politicians regard Australia's physical resources? In the real world, however, there is one ironclad rule; infinite growth cannot continue in a finite world. Maybe you have to be as smart as Professor Stephen Hawking to understand the consequences of exponential growth.

"In the last 200 years the population of our planet has grown exponentially, at a rate of 1.9% per year. If it continued at this rate, with the population doubling every 40 years, by 2600 we would all be standing literally shoulder to shoulder."

Prof Stephen Hawking - The Universe in a Nutshell (2001)



Maybe a magic pudding is the answer



Vive l'eau du robinet!

The French news magazine Le Point of 24 July 2008 reports on a move from bottled to tap water. This is a pleasant surprise as some French restaurants refuse to provide tap water at the table, one could be forgiven for thinking that the town water was poisoned.

The article says, "World champions in the consumption of bottled water, the French are starting to use the tap. In 2007 sales of *Christaline* fell 5.1%, *Evian* by 5.7% and *Vittel* by 8.5%." Le Point says that the decline in sales started during the heatwave of 2003 when stocks of bottled water ran out and the French were forced to drink tap water and noticed that it wasn't too bad. Today "67% drink tap water compared to 59% five years ago." It seems that the current economic crisis and environmental concerns about the wastefulness of bottles continue to fuel the change. Le Point says that tap water is between "one hundred and two hundred times less expensive" and that people are no longer believing the industry claims of better taste and quality from bottled water.

In Sydney bottled water got a boost from the giardia and cryptosporidium scares of ten years ago as well as from the apparent desire of the masses to copy film stars and other people who are famous for the wrong reasons. The following is a quote you can find at

<http://www.sciencefriday.com/blog/index.php?/archives/235-Bottled-Water-Waste.html>

"Bottled water may be a healthy and increasingly common alternative to soft drinks, but the plastic bottle turns out to have a hidden dark side: energy consumption, waste disposal, and other environmental concerns. As bottled water grows in popularity, these problems also proliferate.

- *Worldwide, bottled water consumption nearly doubled between 1997 and 2005, with U.S. residents tipping back the largest share-nearly 26 gallons per person in 2005.*
- *Bottled water costs as much as \$10 per gallon for bottled water compared to less than a penny per gallon for tap water.*
- *It takes three liters of water to produce a one-liter bottle of water.*
- *Worldwide, 2.7 million tons of plastic are used each year to make water bottles, but in the U.S., less than 20 percent of these bottles are recycled.*
- *The total estimated energy needed to make, transport, and dispose of one bottle of water is equivalent to filling the same bottle one-quarter full of oil.*
- *An estimated 40 percent of bottled water sold in the U.S. is just filtered tap water."*

Science Teachers Young Scientist Awards 2008

The Presentation Ceremony for this year's Young Scientist Competition was held at the University of Sydney, Parramatta.

Each year STEP Inc endows the STEP Environment Award for the best environmental entry. Sam Wightman, a Year 11 student at Mullumbimby High School, was the recipient of this year's award. His scientific investigation was entitled "Acidic rain water from acid sulphate soils". Sam also won two additional awards. He was one of the two best senior students chosen to represent NSW at the annual Intel International Science and Engineering Fair in the USA in 2009.

Jessica Dunn, from Bowral High School was awarded a Highly Commended Certificate for her environmental entry, "Do Willows affect the quality of water in rivers?"



Young Scientist is organised by the Science Teachers' Association of NSW. Students from Kindergarten to Year 12 choose an area of interest and conduct an original scientific investigation in a creative manner. We congratulate Sam on his wonderful achievement and wish him well on his visit to the USA in 2009.



If undelivered return to:
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