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## In this issue

This issue of STEP Matters is our biggest ever. It covers all of the normal STEP issues and concerns but also has a special report which focuses particularly on matters affecting our climate (see pages 10 – 16.) The climate change report has articles by John Burke, Deborah Burt and others. STEP believes that the issues raised in this section are fundamentally important to the future well being of all who share this planet and its resources. We wonder if our members and readers share similar concerns? Elsewhere we take a critical look at the Hornsby Council Housing Strategy, released for public comment last month. Why it is that public sector leadership groups consistently fail to plan for anything beyond the immediate short term? The impacts of such short term planning generally come home to roost on local communities; see the article by Glenys and Tony O'Leary of Normanhurst. We continue our recent focus on the state of environmental education, with an optimistic article by

Syd Smith who notes recent improvements in this critical area. Continuing the optimistic trend, Ralph Pridmore shares with us news of an invasion of wildlife into Turramurra. Ain't it wonderful? Indeed it is. The behaviour of the Channel billed Cuckoo has been closely observed by Dariel Larkins over an extended period, and she shares her observations with us. Our weather patterns are a point of continuing concern to most Australians. John Martyn points the finger at the Indian Ocean Dipole as playing a major role in causing droughts over south-east Australia. The Black Saturday fires were a tragedy that shook all of us and continue to give rise to strong emotions and opinions. We pass on some cool headed observations of the fires from Macquarie University's John McAneney. Finally we look at the potential for environmentally induced food shortages and the potential they carry for global instability.

*Barry Tomkinson*

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## STEP Walks and Talks

### Walk - 24 May 2009 - Duffys Forest

John Martyn will lead a walk through the Duffys Forest Plant Community on 24 May. The Forest is an endangered ecological community (EEC) confined to ridge tops on the northern fringes of the Sydney metropolitan area. For full details see page 2.

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### Talk by Tony Capon – 23 June 2009

8.00 pm – St Andrews Church Hall, Cnr Chisholm and Vernon streets, Turramurra.

#### **Topic: "Cities as Healthy Human Habitat"**

Tony Capon is a local North Shore resident who is Professor at the National Centre for Epidemiology and Population Health, Australian National University in Canberra.

Tony is a public health physician with expertise in environmental health and infectious diseases. He was director of public health with Sydney West Area Health Service during 1991-2006. He is a frequent consultant to industry and government and is currently Chairman of the Board of the Nature and Society Forum and serves on the Board of the International Society for Urban Health.

Tony's research interests are in the fields of sustainability and population health, understanding of urban environments and health and diseases of modern civilisation.



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## STEP Inc

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

## Dr John Martyn to lead May Walk – Duffys Forest – 24 May 2009

The Duffys Forest Plant Community is an endangered ecological community (EEC) confined to ridgetops on the northern fringes of the metropolitan area. It is a variable, woodland community not unlike those found on sandstone ridgetops in the Turrumurra-Fox Valley area, and is dominated by eucalypts. Critical among these is brown stringybark. Others include scribbly gum, red bloodwood, smooth-barked angophora and silvertop ash. Shrubs are little different to those of sandstone ridge tops in our own area, except for *Grevillea caleyi*, a beautiful shrub of the more iron-rich, lateritic parts of the community's range. Duffys Forest is (naturally) the type area for the community. Some bushland designated as "Duffys Forest" in our local area differs from that of the EEC listing and if you are

interested (or as confused as we are) we can discuss when we are out there.

**Focus of walk;** devoted to plants and plant communities, and their links to geology and landscape (though if we see a wallaby or a goanna we won't ignore it).

**Grade;** a two to three hour easy walk of about 5 km, **Meet** at the end of Bulara St at 1.30 (accessible via Booralie Rd & Euralba Rd, UBD pp 115 & 135).

**Bring** a copy of Robinson, or Gary Leonard's *Eucalypts of the Sydney Region* if you have one.

**Please contact** John Martyn on 9449 7962; 0425 830 260; johnmartyn@optusnet.com.au. Booking is not required but would appreciate to know numbers and who to expect.



**Above:** Waking trail Duffys Forest. **Right:** *Grevillea caleyi*, a key shrub species of the Duffys Forest plant community

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## Hornsby Shire Housing Strategy

*Barry Tomkinson questions whether the draft Hornsby Strategy has any real long term thinking behind it, or is it simply one more step in an oxymoronic process that assumes limitless growth in a finite world?*

In March Hornsby Council released its Housing Strategy, jointly funded by the Council and the Department of Planning. The driver of the Housing Strategy is the State Government's forecast that over the next two decades the population of Sydney will increase by over 1 million people.

This rate of growth means that Sydney will need to find over 640,000 new dwellings, of which over 11,000 will have to be located in Hornsby Shire. (Ku-ring-gai has had even higher targets imposed on it). In summary, the Hornsby Strategy identifies 25 precincts which are proposed to be re-zoned to permit higher density multi-unit housing. These precincts were chosen due to their location close to existing transport nodes and commercial centres. They consist predominantly of 5 story apartment buildings with some 3 storey flats and 8-10 story apartments. Full details are available online at [www.hornsby.nsw.gov.au](http://www.hornsby.nsw.gov.au) ("On Exhibition – Town Planning"). The precincts are expected to provide for a maximum of an additional 3126 dwellings.

STEP Inc has examined the proposed strategy in detail and will be making a formal submission to the Council.

STEP's view will not surprise our members and regular newsletter readers, some of whom will be directly affected by these new plans (see accompanying article on "Death of a Village" by Glenys and Tony O'Leary). STEP believes that while the Council has been quite professional in the planning methodology used for the Strategy itself, it has lost sight of the bigger picture in the process.

Strategy after all is about planning for foreseeable future events but Council has not done this. For instance it is silent as to the impacts of future economic growth, underlying population assumptions and the impacts of climate change. To not do so is a dereliction of duty. Council has neither stated what its own long term planning vision is for Hornsby, nor how this draft Strategy Plan will help the Hornsby community achieve that vision. For example, what does it see as being Hornsby's ultimate people carrying capacity if it is still to remain the "bushland shire"? Does it see the Waitara high density model as being the inevitable outcome for most of Hornsby? If not, what is it doing about it **now** before short-term pressures once again swamp sensible longer-term planning?

Further, where are the models that indicate that the infrastructure (roads, schools, transport, hospitals etc) will support this level of new growth? Hornsby hospital is already struggling to cope with the existing population, while both public and private transport is under pressure even under current loads. Pennant Hills road in particular is a concern; it is already at full capacity. How will it cope with the additional traffic that will be induced by the many new commercial and housing developments, which

the draft Strategy proposes? What plans (if any) did our Council agree in this regard with the Department of Planning during the strategy review process? Where are they?

It is not good enough for Council to say that it had to do the Housing Strategy simply because the State Government forced it to do so. It must take into account the wider long-term issues and implications to which such a process gives rise.

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## Death of a Village?

*Glenys and Tony O'Leary are Normanhurst residents affected by the proposed Hornsby Housing Strategy. Here they describe the impact this will have on their lives.*

A village is defined by one dictionary as "a small group of dwellings in a rural area, usually ranking in size between a hamlet and a town". Whilst Normanhurst village has perhaps moved on somewhat from this purist definition, many of the residents cherish the leafy suburb environment that it provides.

In our case, Glenys moved here in 1989 to move away from the City to a more pleasant, less cluttered environment suitable for families. In 2002 when Glenys and I married we thought long and hard about moving elsewhere to a new home for us but decided to stay and renovate and extend the house for a number of reasons. These reasons included the village atmosphere, the neighbours, many of whom had been in the area for 20 or 30 years, the abundance of flora and fauna and the fact that we felt that we belonged. Factors that may be hard to objectively quantify at a town planner's desk but factors that are very valid nevertheless.

Hornsby council, in charge of our so called "Bushland Shire", is considering building 5 story apartment blocks in this narrow strip of land, trapped between Pennant Hills Road and the railway line, called Normanhurst. The logic behind the town planners' suggestion is that we are close to a railway station.

There are many practicalities that do not appear to have been considered including the ability of the roads to cope with the extra traffic, the fact that the only ways out of the area are via the small road in the village centre, the railway bridge or the queues of traffic which will use the road

outside Normanhurst primary school. With the lack of a decision on the F3/M2 link which may involve a tunnel under the exact same area and how this might affect the environment and the traffic, this town planning suggestion could be argued at best to be premature and at worst to be negligent.

However, there are further considerations. When choosing to locate in Normanhurst we accepted that we would forgo the advantages of the fast train service to the City that we might have in Hornsby or even Waitara. We accepted that we could not just walk to the shops in Hornsby when we wanted to. We accepted we would not have the cultural and other advantages of living in the City. However, this was, in our view, a reasonable trade-off for the living environment that we have in Normanhurst. We chose the leafy village option with all its positives and perhaps a few practical negatives. We are now being told that we might lose our positives but are welcome to keep our few negatives.

Whilst some might say that our views smack of a "not in our backyard" mentality, we chose our backyard for a number of reasons. Surely those reasons are still valid and therefore we have a right to fight for the living environment chosen by those who live in our community. There are many who choose the convenience of living in more high density environments closer to city and town centres. Perhaps it should be considered how these environments might accommodate more of the growing NSW population rather than changing the "other" environment that some of us have chosen and taken to our hearts.

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### STEP committee

Barry Tomkinson – President  
Helen Wortham – Secretary  
Jim Wells – Treasurer  
John Burke – Vice President

John Martyn  
Tim Gastineau-Hills  
Michelle Leishman  
Andrew Little

## Channel billed Cuckoo behaviour

*STEP member Darrel Larkins records her observations of Channel billed Cuckoo behaviour in her garden over a period of 15 years*

STEP Inc newsletter No 58 August 1992, included a report of a 6 am visit to my garden in October 1991 by two Channel billed Cuckoos, noisy migrants from New Guinea or parts of Indonesia. In late September or early October, these birds often announce their arrival by calling during the night in more dulcet tones. The cuckoos' arrival in Sydney in spring usually coincides with the breeding season of the Pied Currawong although the Black backed Magpie is also known as the cuckoo's host in the Sydney district.

The target of the cuckoos' 1991 visit was a Pied Currawong nest high in a Red Mahogany and containing a young brood. The cuckoos perched at the top of the mahogany. There was riot of neighbouring birds arriving to drive off the cuckoos. The cuckoos descended branch by branch until one bird stood in the currawongs nest and with head down and a vigorous action ejected a nestling. It was not possible to see if a channel-bill's egg was deposited, but the nest was abandoned by the currawongs who did not rebuild. I found two nestlings on the ground under the nest, each stabbed in the eye. The first nestling was evidently ejected before I arrived at the scene. Both were collected and registered as specimens at the Australian Museum.

In early August 2003, Pied Currawongs began nest-building high in a Blackbutt just behind the house. On returning from a bird atlassing trip to western NSW on 4<sup>th</sup> September, I found the nest had fallen in strong winds. The currawongs were collecting the fallen pieces and rebuilding in another Blackbutt in the front garden. Incubation began and in due course a pair of channel-bills arrived, perched high in the tree, descending branch by branch to the nest. The currawongs had taken off, protesting. One cuckoo stood on the nest, picked out an egg and swallowed it. This was repeated by the second cuckoo. First cuckoo then picked out the third egg which it held in its bill as the two marauders flew off together.

These observations add to our knowledge of channel-billed cuckoo behaviour at pied currawong nests.

With the closure of the hosts' breeding season, channel-billed cuckoo calls decline. The cuckoo usually departs from Sydney in March, although I have local records for 4<sup>th</sup> May and 11<sup>th</sup> May, 2007. These birds may have been passage migrants from south of Sydney. Spotting late departures is a matter of luck without the calls, unless you are alerted by the local bird population harassing the migrants in flight.

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## Wildlife taking over the streets

*Despite higher population densities, STEP member Ralph Pridmore celebrates some good news for everyone in our Northern Sydney community.*

This is just a note to comment on the increasingly visible wildlife around south and central Turramurra lately. It's presumably a result of the council's fox-baiting program, which seems to be still maintaining its good effect. I have not seen a fox here for about a year, whereas there used to be a moth-eaten old fox trot across my garden nearly every morning. By wildlife I don't just mean the normal flying and squawking varieties but previously absent animals such as swamp wallabies and brush turkeys, apparently breeding wildly and rampaging over our streets and gardens, to the horror of the non-green furrow-browed citizenry.

The most obvious fauna are the Brush Turkeys. They stride purposefully around as if they own the place (who do they think they are? Native-born Aussies or something?) and are breeding rapidly; well, from only one local turkey a year ago I now have three. The two large immatures, presumably siblings, interrupt their scratching around in my street to look up at me as if to say, "What is he doing here?" They show no fear as I walk past only two metres away. The mature turkey stalks our gardens and flies onto my neighbour's tin roof to scratch about in the gutters for good tucker. Another

built its big rambling nest on the ground in December, near Geoff and Margaret Morgan's home, pinching much of their leaf-and-twig mulch from the garden; they tell me the nestlings have already emerged and gone off fearlessly into the wide world as brush turkeys (and humans) do. At least one however has been eaten, evidenced by its derelict feathers. (Besides Frogmouths and Mopokes, there is a Powerful Owl in the area of Twin Creeks Reserve, with its whoohoo heard almost every night. I have occasionally heard its partner calling back, from far away. Incidentally, in the evening twilight before launching its terrible aerial forays to snack on the local small-fry prey, the powerful owl seems to practice its choral talents, grumbling and squawking for some minutes before managing to utter a respectably clear whoohoo!) (I add a second parenthesis: the prey of powerful owls and tawny frogmouths is really not so "small fry", and even for frogmouths, prey surprisingly includes ring tail possums: fact: working in my study one night, overlooking the lamp lit verandah, a crash alerted me to the arrival of a frogmouth which had knocked a ringtail possum off the verandah rail without killing it; it then scampered to cover, while the frogmouth settled on the rail, folding its wings,

nonplussed. To reach the possum, it had acrobatically flown a near horizontal path under a canvas awning only 30 centimetres above the verandah rail.) (A third parenthesis on the owl subject: in the recent hot weather, about 40 C, I saw the local frogmouth, who has nested and reared young here, perched or rather squeezed into a horizontal crevice in the cliff face through the day, to enjoy the coolness of the rock.).

Water dragons nowadays seem to be more numerous or at least more outgoing, less secretive (perhaps they've been watching Uncle Phil on TV). The local area, near a small creek in Twin Creeks Reserve, is patrolled by several water dragons, males (supposedly a redder shade) and females of varying size, but unlike the brush turkeys these do show fear initially. But if they get used to you or a particular spot of garden, they can get overly familiar, sitting on the sunny path (one can just hear them muttering under their breath, "Bugger off, you big two-legged oaf") while you have to walk round to avoid stepping on them. Presumably they are following the old natural rule of "First here, owns here". Some folk are feeding them in their garden (not recommended). I've often seen these eastern water dragons down the end of Kissing Point Road and elsewhere in Bradley Reserve. They have a strange, should I say miraculous, Christ-like habit of apparently walking or running on water. I've observed this with others (e.g., John Martyn of STEP committee). Jumping out from the bank of a narrow creek, say one or two metres wide, they scabble across the water's surface, their legs and long fingers madly running, to achieve the other bank without ever sinking into the water.

Last month, I and a neighbour separately saw a wallaby (possibly the same one) in my garden and in Twin Creeks Reserve. From its dark colour, probably a Swamp Wallaby. It was very cautious, perhaps on an exploratory rather than feeding task. It did not try eating my lawn grass but quickly crossed the exposed space to gain cover, and then continued on its way. Swamp wallabies were last reported here 25 years ago, to my knowledge. Great to see!

Yesterday (the catalyst for writing this note), I saw a grey Heron or large Egret walking, very erect, unhurriedly across Beryl Street! Yes, across a suburban street, nowhere near open water or bush. It was possibly on a patrol of local fish ponds (if it likes goldfish/carp!). I looked away a moment and then back but it had completely disappeared, presumably standing still amongst the garden bushes.

Recently my cousin, an overseas visitor from UK, reported seeing a Motor Lizard in Bradley Reserve. That's what she said: a motor lizard. Heavens above! What is this? A motorised lizard? A clockwork lizard, a wind-up job? Or perhaps a cyborg? (Be very very afraid, you greenie haters!) But no, I think she meant a "monitor lizard", properly a Lace Monitor.

Strange to report, some months ago I had eight (yes 8) male King Parrots (scarlet red heads and breasts) on my verandah rail or a nearby branch, at the one time. Any seed I put out was commandeered by the senior male, who chased away the lesser males even though he did not need or eat the seed. A bit like our corporate high fliers: "I don't need it but you're not bloody getting it." The females did not even attempt to approach the rail. Does anyone know if king parrots normally group in such numbers? Must have been over a dozen birds, male and female.

I might add that Bandicoots are back in Twin Creeks Reserve after at least 25 years absence. The negative side might be that ticks also return.

Last year, I surprised a very large Yellow Python on my lawn, yellow and green (the python that is; my lawn of course is brown) and at least 5 or 6 metres long (i.e., more than two or three times my arm span). It was carefully approaching what looked like another, rather thinner, green python: actually my green garden hose (turned off at the time), whose red-coloured spray head was propped on a low stone wall. Seeing me, the yellow python streaked up the rocky hillside and over boulders in huge side-winding snaking coils, and was gone in five or six seconds. I'd never seen it before; in the 25 years I've lived here. Perhaps the sight of a potential mate, or a potential challenger, lured it into the open.

The Morgans (see above) tell me that Ringtail Possums and Brush Tail Possums are increasing in numbers by travelling the recently installed overhead roads of Optus cables, safe from the risks of electrocution from walking the electrical wires. On this possum-like subject, I mention that Sugar Gliders are common in and about Twin Creeks reserve, evident from their small twittering call. Occasionally I see one (light-coloured shape) glide from high on one tree to another some distance away, then scamper up the tree as if gravity-free, to again glide from a high point.

A little further away, in the North Turrumurra area, I have thrice seen Lyre Birds in Ku-ring-gai Chase near Apple Tree bay over the past two years. Their presence is also evident in the early morning from their scratching/turnovers in leaf litter on bush paths.

All this stuff about native wildlife is terrible news for the non-green citizenry. It's getting so a decent body can't walk or drive down the road without being threatened by wild beasties roaming the 'hood like badass gangsters'. I'm getting worried the car population may be threatened with extinction and may need government protection. Owners/drivers of cars, hoons, and petrol heads are often unfamiliar with wild animals, and may be frightened by such strange-looking animals cruising the streets. Only last month I saw an enormous brush turkey, some 2 metres long, rushing at a tradesman's ute in Roland Street. Or was it only crossing the road flat out, neck and tail

outstretched? In any case the ute fled, the driver hunched over his steering wheel and throwing horrified glances behind. Yes, Turrumurra is degenerating into a wild uncivilised area, roamed by

ungovernable beasts haunting the days and nights.  
Ain't it wonderful?

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## Perhaps a new era for environmental education

Article by Syd Smith, Consultant in the fields of Environmental Education /Education for Sustainability

Rosemary Pye's article in the recent STEP newsletter gave a very interesting and accurate account of the background to the teaching of Environmental Education in NSW schools and highlighted her assertion that getting it on to teachers' priorities has been a constant struggle. Teachers have been bombarded with a plethora of curriculum requirements for over 30 years and their ability to cope with them all is a near impossibility. One of the reasons for this, particularly in the secondary school, is the current Government's framework of dividing the curriculum into strict key learning areas. While we insist on maintaining this model it is easy to keep the curriculum in silos and to add rather than delete content areas and student learning outcomes. Environmental Education, or what some of us now call Education for Sustainability, is a cross curriculum study which emphasises integration, practical experiences, working with the community, solving problems collaboratively and setting up partnerships. In other words it puts some pressure on the old traditional view of what a school should be like and what its role should be in the Twenty-First Century. Curriculum usually reflects the society in which we live. It is influenced by politics, our economic priorities, our belief systems, our technology and a host of other factors. The early days of nature studies, fieldwork and natural science in schools as described by Rosemary were relatively successful because of the influence of people like Thistle Harris, Allen Strom, David Stead, Vincent Seventy and a group of pioneers who established the Sydney Bushwalkers Society, the Naturalist Society of NSW and the Wildlife Preservation Society. Young student teachers under Thistle Harris for example were taken to wilderness areas in the weekends and developed a love of nature that transferred to hundreds of schools and classrooms across the state. At the same time a fieldwork education centre was established by Harris at Wurrimbirra near Bargo. All these developments were reflected in the work of the Gould League of NSW (of which Rosemary was a past president at one time), the Junior Tree Wardens and a strong support from the NSW Dept of Education in establishing 23 environmental education centres across the state. Of course times were much simpler then, the curriculum less crowded and change at a much slower pace than today.

### A New Scene for Environmental Education

In 1994 the NSW Dept of Education and Training undertook a detailed evaluation of the teaching of Environmental Education in government schools. With David Tribe as the executive officer he and an appointed researcher found that Environmental

Education was taught conscientiously by only those who were really committed to it. The *Environmental Education Curriculum Statement* of 1989 was an excellent document and had considered all the necessary developments to bring the study into the modern world but since it was a mere advisory document it was easy for schools to ignore and to leave them to target only those policies that had to be done. This is not denying of course that some schools were doing marvellous things, developing recycling programs, planting trees, working on cleaner waterways, undertaking water quality programs with Sydney Water, restoring bushland areas, undertaking Learnscapes, setting up compost areas and providing habitats for native animals. The issue remained however how could we ensure that Environmental Education was made mandatory in the school curriculum? It was ironic that teaching about the future health and well being of the planet, and even the survival of life on Earth, could be avoided in a State curriculum.

### An Environmental Education for Schools

In 2001 a new document was issued personally to every teacher in the State but in a number of cases some schools never passed it on to their staff. The *Environmental Education Policy for Schools* had more credibility because, as its name implied, it was a policy which meant schools had to do something about it. While some schools still prefer to ignore it, the policy has begun to show excellent results. Every state school in NSW is now required to implement a School Environmental Management Plan (a SEMP) and Catholic Education has issued its own document of a similar ilk known as *On Holy Ground*. The Plan is arranged into 3 interrelated sections: Curriculum, School Grounds and Resources. For those schools that have not seen it they can still find on the Department's website: <http://www.curriculumsupport.education.nsw.gov.au/policies/envired/assets/pdf/eepolicy.pdf>. At the same time there is a support document to help teachers implement the policy: *Implementing the Environmental Education Policy in Your School*. Again this is mentioned on the website and at the time was issued as a CD to all schools along with a set of units showing how Environmental Education could be integrated into each of the Key Learning Areas. The greatest and most exciting outcome from the policy however has been the launch of the Sustainable Schools Program. Over 700 schools across the state now have an active plan involving the communities and local governments, working on local projects and taking a leading role in educating each other on how we can work more sustainably. A sustainable Schools website is now available under the Curriculum

Support section of the DET website demonstrating the range and variety of programs in NSW schools. Over the years schools like Crestwood High, Cheltenham Girls, Narrabeen North Primary and Gordon West Primary have all made inroads into making their educational activities more relevant to the society in which they live and taking active steps to do something about the environmental problems we face. Schools are installing rainwater tanks and photovoltaic cells on their roofs. Water runoff is being collected and diverted, native plants are now more favoured in school gardens and over 10 regions of the state are working with energy authorities, schools and councils on climate change projects. The one involving schools on the Northern Beaches, Pittwater Council, Taronga Zoo and the Field of Mars Environmental Education Centre is one close to our area.

**The Beginning of Sustainable Schools**

The story does not stop there, however. The Sustainable Schools Program has now gone national and with the support of the Department of Environment, Water, Heritage and the Arts (DEWHA) the program operates as AuSSI (Australian Sustainable Schools Initiative). The fact that DEWHA has taken an active part in supporting Environmental Education nationally illustrates a curious trend in the history of Environmental Education. Throughout the western world the main support for Environmental Education has come from organisations and government departments outside the education portfolio.

Education departments have welcomed the support of course, particularly when it was attached to some form of funding but there are now much closer and cooperative partnerships between government

departments in NSW especially after the establishment of the NSW Council for Environmental Education whose membership includes the major government players and a representative of the non-government sector (NGOs). Many members of the Australian Association for Environmental Education are now working on the Federal Department of Education, Employment and Work Relations to work more closely with its counterpart, DEWHA. There is now much more to be optimistic about when it comes to Environmental Education and Education for Sustainability. External developments such as the influence of the Stern Report and the work of Al Gore are placing greater pressure on schools to ensure environmental issues are taught and that taking action for them is a mandatory inclusion in the school curriculum. The work of pioneers like Harris, Stead and Strom still live on but the new century brings new challenges and while the study of nature certainly remains vital, the environmental landscape has now moved into many new but interrelated areas requiring urgent educational attention.

<b>Membership</b> (only complete if '08' is shown on the address label overleaf)		Unit price	Quantity	Cost
Single	1 year	\$16		
	3 years — saving of \$8	\$40		
Family	1 year	\$20		
	3 years — saving of \$12	\$48		
Life		\$200		
<b>Sydney's Natural World</b> — NEW PUBLICATION (cost to non-members is \$60)		\$50		
<b>A Field Guide to the Bushland of the Upper Lane Cove Valley</b>		\$30		
<b>Maps of Walking Tracks</b> (cost to non-members is \$20)				
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<b>Donation</b> (donations of \$2 or more are tax deductible)				
<b>Total cost</b> including packaging and postage				



## The Indian Ocean Dipole: south-east Australia's big droughts explained

*STEP Committee member John Martyn looks at new research into what really causes our droughts*

We have always been led to believe that a La Niña event in the Pacific Ocean is favourable for good rains in eastern Australia. It seemed to work that way in 07/08; so why not this year also, when we have had a consistently positive La Niña pattern. Well, some places got far more rain than they bargained for of course; but they were mostly up north. Southern NSW and Victoria have been as parched as they have ever been; so what else is going on?

### Discovery of the IOD

In 2009 a ground-breaking research paper was published in the journal *Geophysical Research Letters* by Dr Caroline Ummenhofer of the Climate Change Research Centre of the University of NSW, and her co-authors. They had discovered that when the waters of the Timor Sea were unusually warm, and those of the central Indian Ocean cooler than average, moist winds swept north-eastwards towards the eastern part of the Indonesian archipelago, then curved back southeast wards to be funnelled across central Australia and into our corner of the continent. There they met southern cold fronts moving eastwards, and brewed low pressure systems that brought heavy rain, especially to inland areas. This situation is the negative form of what is now called the Indian Ocean Dipole (IOD). On the other hand, when the IOD is in positive mode, the waters of the Timor Sea are cooler than average and those of the Indian Ocean, warmer. The rain-bearing, moist, south-eastward flow is suppressed, bringing drought to the south-east part of the continent; in recent times with terrible consequences! So in the summer just past, a (positive) La Niña brought torrential rain to the monsoon belt while a positive IOD dried out and burned up the south.

### Our local weather

There are features to this pattern that we can recognise if we follow the weather on TV news or internet. Those that can recall the extremely wet years of the late 80s to early 90s might remember that it had often rained in Alice Springs two to three days prior to good rains in Sydney. Those who are familiar with the moving satellite loop images on the Bureau (BOM) website, and TV weather forecasts, might from time to time notice a long stream of cloud stretching south-east across the continent from somewhere up around the Pilbara or Kimberley. This is called a north-west cloud band and consists of moist, tropical air in mid levels of the atmosphere. It can bring good rain, especially if it meets a cold front and low pressure system moving from the west.

The satellite image below, from late April 2007, shows a classic north-west cloud band streaming from the south-west Timor Sea, meeting and amalgamating with a low pressure system and cold front over south-eastern Australia. This brought widespread rain to southern NSW, and a night of steady rain to Sydney, though the influence of such a cloud band is weakened by the time it reaches the east coast unless its moisture also interacts with a strong onshore flow from the Tasman Sea, or a cool airstream from the south leading to the formation of the storm system known as an east coast low.

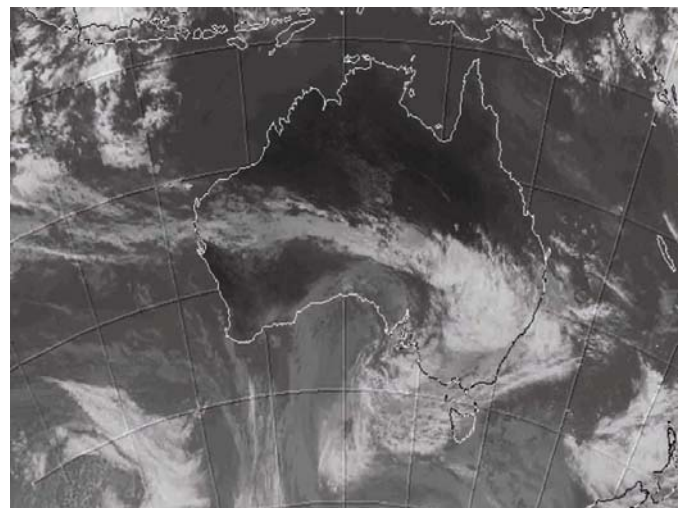
As well as the past and current drought, another striking manifestation of a cooler Timor Sea and a positive IOD is that, despite several tropical cyclones off the northern WA coast this season, they were all small and only one briefly nudged the severe category.

### Global warming and the IOD

Dr Ummenhofer and her co-workers do not discuss the impact of global warming at great length, except to point out that with rising average temperatures a strongly positive IOD event will be amplified. After the terrible summer in Victoria nobody can doubt that conclusion.

### Further reading

Caroline Ummenhofer's original paper (downloadable in full)  
[http://web.maths.unsw.edu.au/~ccumm/Ummenhofer.etal\\_2009\\_SEA.pdf](http://web.maths.unsw.edu.au/~ccumm/Ummenhofer.etal_2009_SEA.pdf)  
UNSW Climate Change Research Centre  
<http://www.ccrcc.unsw.edu.au/news/newsindex.html>





## The Reality of Fire in Australia

Many members of the Australian community have found it difficult to come to terms with the tragedy of the Black Saturday Wildfires in Victoria. Blame has been quickly attributed by some, even before the Royal Commission has looked into the facts. Red neck columnists have suggested the answer lies in lynching "greenies". Many "greenies" have blamed climate change and many would-be politicians have intimated that sinister commercial interests have altered the Australian Building Code to lower building standards in fire prone areas.

In this emotionally charged environment it is pleasing to read a sensible article on the subject by John McAneney of Macquarie University. It appears in the Division of Environmental and Life Sciences quarterly newsletter "*Risk Frontiers*" ([www.riskfrontiers.com/newsletter\\_images/Vol8\\_Issue2\\_for\\_web.pdf](http://www.riskfrontiers.com/newsletter_images/Vol8_Issue2_for_web.pdf)). McAneney makes a number of key points:

### **1. Black Saturday was not a particularly extraordinary occurrence.**

Major fires are a feature of Australian life. Catastrophic fires such as Black Saturday are rarer but still regular events. In fact, there have been at least seven occasions over the last century in which more than 500 homes have been destroyed by such fires. "These losses all occurred in extreme fires which, as we saw only too clearly on Black Saturday, can overwhelm even the most professional of fire services, irrespective of resources. In these situations, man is not in control. Rather nature is out of control. And the best the fire services can do is pray that the weather will change for the better," writes McAneney.

### **2. Climate change is not to blame.**

McAneney writes: "Despite the obvious influence that climate change may have on some of the environmental pre-conditions for bushfire, our analyses show little change in the probability of property destruction by bushfire over the last century. That being the case, it is hard to believe that climate change will do what all of the other significant sociological and technological changes and improvements in our understanding of fire behaviour that have occurred since the early 1900s have so far collectively failed to do, that is, to materially change these loss statistics. The fact is that Australia has a bushfire problem now. Forget 2050 and beyond, we must tackle the immediate problem".

### **3. People are often under prepared and complacent.**

The 'prepare, stay and defend or go early' policy has been openly criticised following Black

Saturday, despite the fact that it seems supported by evidence from previous fires. McAneney points out that its effective implementation is difficult and needs to be questioned. "The policy is aimed at avoiding last minute evacuations, situations in which many lives have been lost in the past. It is already clear that on Black Saturday many died in vehicles... Staying in a home, however, is not a risk free solution. It demands significant preparation and a determined commitment to actively defend the dwelling. A few plastic buckets will not do the trick".

McAneney blames complacency for many people not properly preparing for fire situations. Most people do not believe that it is ever likely to happen to them and statistically they are partly correct. "...the average annual chance of a random home being destroyed by a bushfire on the urban-bushland interface (100 m from large areas of bushlands) to be of the order of 1 in 6,500, a factor 6.5 times lower than the probability of an ordinary house fire and half as likely as the owner dying in a road accident."

### **4. Some fires may be simply too large to control**

The MacArthur Forest Fire Danger Index is used to measure the ease of fire suppression. On Black Saturday the combination of high temperatures, high winds and low humidity combined to produce an Index result right off the scale. Under these extraordinary conditions, asks McAneney, "are homes really defensible? And if mass evacuation is not a realistic option, then should people be allowed to live so close to the bush, or if they do, have they any right to expect fire fighters to risk their lives to help?"

McAneney goes on to warn: "More severe bushfire scenarios are possible. Particularly worrying is Melbourne's extended tree laden urban bushland interface. Risk Frontiers databases also show that some 110,000 Victorian addresses lie within 200 m of large areas of bushlands. The comparable figure for New South Wales is three times greater!" He believes that without strong political leadership and new regulations setting a minimum distance between trees and houses, there is a potential for even worse bushfire outcomes than we experienced on Black Saturday.

*STEP is curious to learn the views of its members and readers on this very sensitive topic. Why not drop us a line via our Secretary (email:[secretary@step.org.au](mailto:secretary@step.org.au)) and let us know your thoughts?*

## STEP Special Report – “Climate Change: the case for action”

STEP believes that climate change is the most important issue facing both Australia and the planet as a whole. Climate change sceptics notwithstanding, most of the reputable science tells us that the worst case scenarios on climate change are already being realised. At the Copenhagen conference last month, attended by more than 2,500 researchers and economists, it was stressed that previous climate reports had underestimated the scale of the risks and the speed at which the planet is warming.

As Danish Prime Minister Anders Fogh Rasmussen said “Business as usual is dead – green growth is the answer to both our climate and economic problems”. The UK Government Chief Scientist has recently warned that growing world population will cause a “perfect storm” of food, water and energy shortages over the next decades, creating a crisis with dire consequences.

However, we can do something about it. To stop a climate catastrophe we must first believe that we can all make a difference. There is still a belief that climate change is someone else’s problem, that the whole issue is being blown up out of proportion by climate scientists with a vested interest in keeping themselves in cushy research jobs, or is being touted with the zeal of the “next religion” by naïve greenie groups.

STEP is of the view that the danger is both immediate and real and we will run a regular series of articles in this and future newsletters highlighting our concerns. We start with a powerful plea from STEP Vice President John Burke.

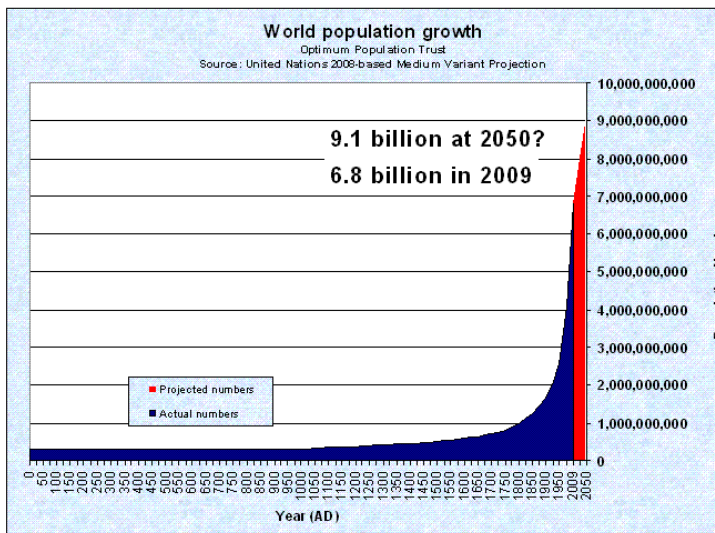
### Something is terribly wrong! *Article by STEP Vice President John Burke*

For almost 20 years this newsletter has been warning about the dangers inherent in the economic growth model that the whole world seems to be locked into. Twenty years ago global warming was not a mainstream issue and the world’s population was a little over 5 billion. It’s now 6.7 billion and rising fast as the graph shows. Sea levels are also rising and we are facing peak oil and peak water. The outlook is for physical dislocation of millions of people, disease and war – concurrent with wholesale extinctions of flora and fauna around the world.

Our politicians here in Australia are of course aware of all this and their reaction is to promote never-ending economic and population growth and thus exacerbate the problem. This is lunacy. Something is obviously very wrong.

The current recession has driven down the wealth of the whole nation, and people are worried about their immediate wellbeing. The talk everywhere is about how to restart the economy, about how to get economic growth going again. It’s all about restoring value to superannuation funds and winning the next election. There is enough food and fuel for the time being so our leaders choose not to do anything at all about the future. It’s hard to imagine a worse abrogation of their responsibilities to Australia and the world. Failure to recognise that infinite growth cannot happen in a finite world is a dereliction of duty. Their only defence might be that they are too stupid to recognise the problem.

Now no one would pretend that sorting out the next few centuries for the human race is going to be easy. That task, however, is made more difficult by current policies as each day passes. So what is the solution? Won’t we sink into economic depression and hardship if our population stabilises? Won’t our living standards fall if gross domestic product declines? We argue that, with some planning, it will be quite



possible to reduce Australia's population and eliminate our dependence on finite resources such as coal, while still increasing per capita wealth, by developing an eco-economy<sup>1</sup>. That's the challenge that our leaders from the Prime Minister down are avoiding. That avoidance is shameful.

Moving to a sustainable economy will bring the vested interests out in droves. We have just seen the power of the industry lobbyists in forcing Penny Wong, pathetically, to lower the national emissions targets. That's why we need governments with some vision and backbone. The sort of programme that should be instituted is:

- Set a schedule for utilising Australia's abundant solar, wind and thermal resources to replace fossil fuels internally. Set an example for the world and sell or give away the technology developed
- Shut down coal mining as the new technologies come into production. Of course the proposed emissions trading scheme, watered down though it is, by placing an increasing price on carbon emissions, will encourage the substitution of green power for coal and gas.
- Repudiate the population growth policies of the present and previous governments, reduce immigration, and educate the population in population objectives so that Australia heads back to a population of 20 million over the next 50 years.
- Identify industries such as the construction industry that will have to scale down as the population stabilises. Organise for industries such as that to scale down over some decades to prevent wholesale dislocation for firms and workers.
- Set an agenda for ensuring that the workforce is trained to adapt to the changes in the economy and plan for new green-collar industries to absorb available workers so that income per capita, but not consumption of finite resources, continues to increase.

The implementation of such policies will see:

- Australia becomes a world leader in making the world a safer and cleaner place.
- Some 500,000 fewer people per year consuming at Western rates through the cessation of population growth and the commencement of population reduction.
- The cessation of the destruction of our natural areas from urban bushland to the Kimberley, and the possibility that vast areas of marginal farming lands can be regenerated.

<sup>1</sup> See *STEP Matters* No 148, February 2009 *It's the Eco-Economy stupid!*

- The cessation of the degradation of our cities as is happening in Hornsby and Ku-ring-gai as more people are crammed in.

There are some hopeful signs that the influencers are taking up the cause. Perhaps they are reading the STEP newsletter! On 10 March, Crikey.com carried the following quote<sup>2</sup>:

*Columnist and author Thomas Friedman<sup>3</sup> is no soft-left fruitcake. This is what he wrote this week in the New York Times:*

*Let's today step out of the normal boundaries of analysis of our economic crisis and ask a radical question; What if the crisis of 2008 represents something much more fundamental than a deep recession? What if it's telling us that the whole growth model we created over the last 50 years is simply unsustainable economically and ecologically and that 2008 was when we hit the wall—when Mother Nature and the market both said: "No more."*

*We have created a system for growth that depended on our building more and more stores to sell more and more stuff made in more and more factories in China, powered by more and more coal that would cause more and more climate change but earn China more and more dollars to buy more and more US T-bills so America would have more and more money to build more and more stores and sell more and more stuff that would employ more and more Chinese ...*

*We can't do this anymore ...*

*Over a billion people today suffer from water scarcity; deforestation in the tropics destroys an area the size of Greece every year—more than 25 million acres; more than half of the world's fisheries are over-fished or fished at their limit.*

*Just as a few lonely economists warned us we were living beyond our financial means and overdrawing our financial assets, scientists are warning us that we're living beyond our ecological means and overdrawing our natural assets," argues Glenn Prickett, senior vice president at Conservation International. But, he cautioned, as environmentalists have pointed out: "Mother Nature doesn't do bailouts."*

*It's perhaps time we all took a broader view.*

Amen to that.

<sup>2</sup> Friedman is not the only eminent economist to support our long-held view. Jeffrey Sachs in his book *Common Wealth, Economics for a Crowded Planet*, Allen Lane, 2008, makes a similar argument.

<sup>3</sup> See <http://www.thomasfriedman.com>

## Let's not talk about population.....

...writes STEP member Deborah Burt. . STEP members who wish to become more involved in implementing some of the suggestions in her article can register their interest with our Secretary, Helen Wortham, at [secretary@step.org.au](mailto:secretary@step.org.au)

At a recent public meeting held in the Bennelong electorate, where Senator Penny Wong was invited to speak about the Carbon Pollution Reduction Scheme (CPRS), lots of pointed and relevant questions were asked which met with applause from the audience and calm responses from the Senator. But this all changed with the last question for the night ....a very polite, balanced one which raised the subject of sustainable population. Half the audience applauded and the rest exclaimed negatively. Senator Wong quickly turned the question into one about immigration and race and used her ethnicity as a foil to debunk the question. She then explained how improving water efficiency was a much better focus for a growing population.

I've been thinking a lot lately about how to get the issue of sustainable population better discussed by the community. By better I mean – better informed, less emotional and avoiding the usual deviations into an immigration/racism debate. The approach I've taken is – what if this were a marketing problem? How would you design a campaign to get people and the media talking about the topic in the same way as they're talking about climate change? Not perfectly informed, but at least to a level where political parties pay attention and start to develop policy.

To market you need to understand your audience. To assist this understanding, three focus groups on sustainable population were conducted during March, 2009. They were attended by 25 professional men and women, middle-aged, living in the north and north-western suburbs of Sydney. The general themes that emerged were:

- We need skilled migrants. The economy has been booming and it would be unable to continue without skilled migrants.
- We do not produce enough people (birth rate issue) to resource the economy or provide for the increasing percentage of older people in our society, so we need more migrants.
- The current waves of migrants are not assimilating well. The Government is not doing enough to help them assimilate. There is concern about the level of violence within some ethnic groups and between groups.
- Migrants are taking jobs and university places from young Australians. We need to do more to ensure Australians can develop skills.
- We are crowded in the cities and along the coast and more should be done to encourage people to move inland.
- The inland is a massive space with lots of potential – why can't we convert desert into productive land like they do in Israel and Dubai. Why can't we take the water that falls in under populated areas and pipe it to where it's needed. (There is a sense that this is an organisational, technological issue.)
- Sustainable population means having enough food and water, a job for everyone, adequate infrastructure, enough services like health and education for everyone to maintain the current living standard.
- There was a reasonably high level of recognition that Australia has finite resources (especially water) and the environment is fragile and potentially at risk if it has to support large numbers of people. The Murray Darling River system was mentioned frequently.
- The topic of sustainable population is not generally discussed for a number of reasons – it's not politically correct to discuss immigration in negative terms (you'll be called a racist), people are too concerned about the short term (job security, paying off the mortgage, ensuring their children are well educated) and people are generally unaware of the data re actual numbers and their implications. "This is not a ten year issue – it's much further out". "We whinge about the consequences of population growth but don't talk about the causes".
- Birth rate is not a concern. It was not discussed as an issue either way, or as a potential lever in managing towards a target number.
- Half way during each discussion, the facilitator provided basic data about annual births versus deaths, the current rate of immigration and future population predictions. People expressed concern at the rate of growth once they had the facts but were divided between the views – a) therefore we need to cap population growth now and b) no, the issue is a long way out, and we need growth to support the economy.
- Politicians need to take the lead on this issue but they won't because population growth doesn't concern the general public.

Politicians are focused on what will win votes and there are votes for supporting immigration.

So most people link economic growth and prosperity to population growth. They believe the political and business messages that Australia needs a large population. Most people do not know Australia is on track to add another 3 million people by 2020 and when told are relatively unconcerned, believing it will be good for the economy.

Technology is seen as the solution to the food and water problems that may emerge with additional people. Focus group participants suggested cheap ways of converting salt water to fresh water would be found; and if farms in the south east failed, then agriculture would become successful in another part of the country – failing to appreciate the limited extent of Australia's arable land.

During group discussions it was difficult to keep people focused on the specific issue e.g. when asked "why don't we talk about this issue more often" the discussion quickly moved to other topics e.g. alternative energy and migrant assimilation problems.

#### *Barriers to change*

Here's a synopsis of the barriers for getting the "right" type of attention for sustainable population discussions

- Environmentalists are deeply divided on the issue. This means a significant lobbying group who could influence the media and politicians are debating each other.
- There is a strongly held belief that population growth is necessary to maintain economic growth. It's seen as a tool for nation building.
- Politicians are unwilling to support sustainable population as a policy position, even when they believe it's a problem – remember The Greens population policy?
- There is a strongly held belief that Australia is genuinely under-populated simply because it's so large.
- People don't easily pay attention to the topic. Focus group discussions demonstrated how difficult it was to maintain people's focus on the topic.

*Some important facts... which people don't listen to*

- Economic prosperity does not require population growth nor deliver it; in fact the long term economic outcome from population growth is negative. According to

the Productivity Commission an increase in population delivers a very small increase in per capita income. Its 2006 study (p153) found that while a 50 per cent increase in immigration would increase the overall size of the economy by 4.6 per cent, individual incomes would be increased by only 0.7 per cent

- Immigration does not ensure sufficient funding or resources to support an increasingly aged population, in fact two children per family is a more effective anti-ageing strategy (Betts 2008)
- Supporting sustainable population is neither racist nor anti-babies but a responsible position that maximises social justice for everyone in the community and, when positioned as a response to climate change, provides a role model to other countries. How pro-growth environmentalists, concerned about social justice issues, know the concluding words of the Aboriginal Deaths in Custody Watch Committee - "Ecologically our land is on its knees: with help it can survive and resuscitate itself, but with any major increase in population this land will die, and we will die with it." (O'Connor and Lines, p179)
- Australia has very limited arable land, most of it's under production already and our agriculture scientists don't believe it's possible to convert desert into arable land.

#### *Some useful marketing lessons*

Most campaigns for social change are information heavy and apart from the already convinced, don't capture people's attention. A campaign to raise awareness and change attitudes needs to be engaging, different and capable of evoking a strong conscious response.

- People listen to people like them. A message delivered by someone you know and like is better regarded than a message from a person of authority or expertise (= politicians and scientists)
- Framing the message can make a huge difference. In any debate values trump facts. Remember how successfully the anti-abortion campaign became the pro-life campaign? Unemployed people were reframed into dole bludgers. Invading the Middle East for "suspect" motivations became the war on terror.
- Hearts first, then minds. Understand people's beliefs – it's much easier to motivate someone about a topic they already

believe in than to convince them of something new

- Keep it simple.

*What did focus group participants believe/value?*

- A need for economic security backed up by a belief that population growth would assist this – “Australia hasn’t enough people”; “We can’t have a cap on population growth – we have massive space and resources that need people to take advantage of them”
- A concern for physical security that was linked to population policy – “If we had a (immigration) cap here, it wouldn’t stop Indonesians and Indians from coming here if they needed to”; “we can’t sit in splendid isolation from the rest of the world and do what we please”
- A high reliance on technology as the solution – “technology has solved problems in the past and will do so in the future”; “more people, more education, more chance of finding a solution”.
- Concern for the environment – expressed through concern for the Murray-Darling system, the impact its “death” would have on communities in the regions and the subsequent agricultural problems.

*Is there a way to frame sustainable population so people listen better?*

Economic security and environmental concerns could be combined to produce a “carrying capacity” frame. The current debate starts as a discussion about population and uses a variety of arguments to support the need for reducing/stabilising the population. The “carrying capacity” frame asks people to begin by thinking about the land’s capacity to produce food and

clean water, and perhaps, to ensure the current level of biodiversity. This frame should resonate with people’s concerns about economic and physical security would use technical expertise to provide data and taps into the general understanding that the Murray Darling system is in trouble. It delays the discussion about population per se and may provide a less emotional basis on which to have the discussion.

If the carrying capacity frame is adopted, a partner organisation from agriculture or food production should be found. They add legitimacy to the frame, and may be motivated to assist the sustainable population movement to engage the community so their special food production needs and issues are better understood.

### *Conclusions*

The above are some suggestions for improving the approach taken by sustainable population activists with the aim of equipping the community with information and ways of discussing a contentious issue. There’s a need to reframe the debate so that it’s not hijacked into something else...typically an immigration debate. Marketing concepts and tools can assist to develop better communication campaigns. The next steps could include more focus groups, developing a formal marketing strategy and exploring partnerships.

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## **Government Dithering on Climate Change**

*... we are all unsafe at current Rudd carbon reduction target levels, writes Barry Tomkinson.*

The current global economic meltdown notwithstanding, climate change is still the most important issue that humanity faces today. Scientists, economists and climate action groups recognise that strong and urgent action is needed to both reduce emissions and to facilitate a global agreement if we are to have some hope of returning our planet to a safe climate zone. “If humanity wishes to preserve a planet similar to that on which civilisation developed and to which life on Earth has adapted... then we need to reduce CO<sub>2</sub> from its current 385ppm” says Dr James Hansen, who heads the NASA Goddard Institute for Space Studies in New York City, a

part of the Goddard Space Flight Center in Greenbelt, Maryland, Earth Sciences Division.

Nicholas Stern, the well known economist commissioned by the British Government to analyse the impact of climate change in the 2006 Stern Review, last month warned again of potentially devastating consequences of failing to cut world carbon emissions. Stern said he feared that politicians had not grasped the seriousness of the crisis. “Do the politicians understand just how difficult it could be? Just how devastating four, five, six degrees centigrade would be? I think not yet. Looking back, the Stern Review



underestimated the risks and underestimated the damage from inaction."

More than 2,500 climate experts from 80 countries at an emergency summit in Copenhagen in March said there is now "no excuse" for failing to act on global warming. A failure to agree strong carbon reduction targets at political negotiations this year could bring "abrupt or irreversible" shifts in climate that "will be very difficult for contemporary societies to cope with". In a significant break from the scientific tradition not to comment directly on policy, the experts insisted politicians must stand up to "vested interests that increase emissions" and "build on a growing public desire for governments to act". They called for a "shift from ineffective governance and weak institutions to innovative leadership in government, the private sector and civil society".

The muted response from Canberra has been to continue with the Rudd Government's emissions trading scheme, which aims to cut emissions from 5% - 15% by 2020. This policy has found little or no support from key stakeholders and looks like it will fail to pass the Senate. As Crickey Canberra correspondent Bernard Keane wrote on 16 March 2009 "No-one outside the Government thinks it is anything but a dog of a scheme. The Opposition, Xenophon, Fielding and the Greens only differ on the reasons why they dislike it. The multiple inquiries into the scheme won't change anyone's mind. They all think it doesn't do much and does it very badly-- and they're right."

Even the Federal Government's own climate change adviser, Ross Garnaut, last week urged Senators to make significant changes to the scheme. Garnaut said that climate change policy amounted to gambling with the lives of future Australians and has strongly advocated lifting the cut in emissions by 2020 to 25%, provided the rest of the world took similar steps (This week the UK Government in fact announced a commitment to a 34% reduction in the UK's carbon emissions below 1990 levels by 2020. This equates to a 24% reduction on 2000 levels, compared to the Rudd Governments pathetic 5% target, or at most, 15% if the rest of the world comes to an agreement.).

One of the reasons most politicians are still sitting on their hands on climate change is that most of their constituents do not yet realise what it will soon mean to them. James Randerson writes about a recent Guardian survey of climate change which found that most experts believe we don't have a hope in hell of keeping planetary warming to below 2C – the threshold the EU defines as "dangerous". This is remarkable as it means that many of these climate scientists have actually been toning down their message lest the worst-case scenario becomes a self-fulfilling prophecy. Far from over-playing their hand to swell their research coffers, scientists have been toning down their message in an attempt to avoid public despair and inaction.

Just 7% of the 261 experts surveyed (200 of whom were researchers in climate science or related fields) said they thought governments would succeed in restricting global warming to 2C. Nearly two-fifths thought this target was impossible and 46% thought a 3 to 4C rise by the end of the century was most likely.

A 3 or 4C rise might not sound much but the climatic shifts accompanying it would be massive. At 3C one to four billion extra people would face water shortages and 150 to 550 million more people would be at risk of hunger. With an extra degree of warming on top of that, seven million to 300 million would be put at risk of coastal flooding due to sea level rise, reports Randerson.

Katherine Richardson, a climate scientist at the University of Copenhagen, who helped to organise the Copenhagen conference, said: "We have to act and we have to act now. We need politicians to realise what a risk it is they are taking on behalf of their own constituents, the world's societies and, even more importantly, future generations. All of the signals from the Earth system and the climate system show us we are on a path that will have enormous and unacceptable consequences."

Governments must provide the clear thinking and strong leadership needed in this crisis but Australian Climate Change Minister Penny Wong continues to flounder, at odds with nearly every significant stakeholder. STEP believes that there is a better way and we refer you to the article by John Burke on page 11.

## Food Shortages

*In the last edition of STEP Matters, we looked at the work of the Earth Policy Institute and their proposal for an "Eco-economy". In this issue we look at an article in the May issue of "Scientific American," in which Earth Policy President Lester Brown discusses how food shortages could be the weak link that brings down civilization.*

In this feature article, "Could Food Shortages Bring Down Civilization?" Brown reveals that the biggest threat to global political stability is the potential for food crises in poor countries to cause government collapse. Those crises are brought on by rising demand and ever worsening environmental degradation.

"In the twentieth century, dramatic rises in grain prices resulted from poor harvests. They were event driven and short-lived," Brown says. "In contrast, the recent escalation in world grain prices is trend-driven, making it unlikely to reverse the rise in food prices without a reversal in the trends themselves."

Demand side trends include the addition of more than 70 million people to the global population each year, 4 billion people moving up the food chain--consuming more grain-intensive meat, milk, and eggs--and the massive diversion of U.S. grain to fuel ethanol

distilleries. On the supply side, the trends include falling water tables, eroding soils, and rising temperatures. Higher temperatures lower grain yields. They also melt the glaciers in the Himalayas and on the Tibetan plateau whose ice melt sustains the major rivers and irrigation systems of China and India during the dry seasons. Without a massive intervention to reverse these three environmental trends, Brown argues, more and more states will fail, ultimately threatening civilization itself.

In the article, Brown discusses measures to reverse the trends. "Among other steps," he says, "it will take a massive restructuring of the world energy economy similar in scale and urgency to the wartime restructuring of the U.S. industrial economy in 1942."

Full article available at [www.sciam.com/article.cfm?id=civilization-food-shortages](http://www.sciam.com/article.cfm?id=civilization-food-shortages)

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