

# CSIRO

## SUSTAINABILITY NETWORK

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### WORLD ENVIRONMENT DAY - 5 June 2003

Members  
CSIRO Sustainability Network

#### Feature "thought" :

**"To believe that what has not occurred in history will not occur at all, is to argue disbelief in the dignity of man."**

Mahatma Gandhi <sup>1</sup>

Dear Networkers:

### SUSTAINABILITY NETWORK UPDATE – No 27E

The two short features in this Update, while both directed at building a more sustainable society, could almost come, as they say from 'Mars and Venus'. Their contrast, in itself, reinforces the complexity of the sustainability debate – and how the issues will need to be thought about and tackled at many different levels, scales, and degrees of social comfort. Our first feature describes the 'TravelSmart' program, which tackles automobile dependence by encouraging small, practical changes in the behaviour of individuals – i.e., immediate, incremental change within the 'world as we know it'. In contrast, our second feature on 'cosmic accounting' seeks to radically change the 'world as we know it, taking on a raft of sustainability issues concurrently by addressing the basic economic context of society.

#### The *TravelSmart* Household Program – reducing car trips

*In Western Australia, the Government has put in place targets to halt the trend of increasing car use by managing travel demand to achieve increases in cycling, walking and public transport use. The goal is to reduce the share of trips by car as driver from 63% to 46% by 2029 (a relative reduction of 26%), whilst still allowing for a 50% increase in total mobility as a result of increasing population. The innovative TravelSmart Household Program, a partnership*



*between the State Government, private bus operators and Local Government, has already demonstrated success in some suburbs by reducing the share of car driver trips from 60% to 52% (a relative change of 14%) – half the 2029 target. This remarkable traffic reduction has been sustained for more than two years after the intervention, and translates into significant reductions in pollution and improvements in public health. The socio-economic benefits have exceeded the costs by a ratio of up to 40 to 1, and the program has also generated revenues and potential savings to the Government sufficient to recover the cost of the program in less*

<sup>1</sup> As cited by Malcolm Greenstuart in his book *Cosmic Accounting* (see feature in this Newsletter).

than 3 years. The TravelSmart approach is now being applied in other Australian cities and also internationally. In the following feature, Colin Ashton-Graham, WA Department for Planning & Infrastructure – [Colin.Ashton-Graham@dpi.wa.gov.au](mailto:Colin.Ashton-Graham@dpi.wa.gov.au), tells us how it works.

There are many reasons for reducing car dependence in Australian cities – among them pollution, greenhouse, traffic congestion, infrastructure costs, public health, and oil dependence. But the car has become so much a part of almost everything we do, that reducing dependence can seem like a pipe dream. On closer examination patterns of car use in cities are such that opportunities are available to change to walking, cycling and public transport. All that seems to be missing is the motivation and awareness of individuals to make small changes in their travel choices. This is precisely where *TravelSmart* programs are targeted.

### Finding the potential to reduce car trips



The TravelSmart approach is built upon (1) observation of current travel patterns, (2) investigation into available travel options, and (3) analysis of public responses to these options. Information is initially gathered through ‘in-depth’ surveys involving analysis of real travel diaries. In Perth these initial surveys found that around eight out of ten trips are made by car (as the driver or a passenger) – a very high level of reliance on the car. The surveys also showed that around 10% of car trips are below 1km in length, 30% below 3km, and 50% below 5km. Car trips are tested against the issues and constraints that prevent people from walking or cycling to ascertain which car trips might potentially be replaced by environmentally friendly modes. Trips are also tested against the availability of public transport services. The types of constraints that people face include: inability to walk the distance, a need to carry heavy

loads, not owning a bicycle, or a lack of adequate, integrated public transport services to complete a chain of trips for the day. Where good alternatives to the car are available, some people simply have a preference for the car, while others demonstrate a lack of awareness of the alternatives (especially a lack of awareness of good public transport options).

This purely theoretical analysis suggested that, across a range of Perth suburbs, around half of all car trips could easily be changed to an alternative mode, but misperceptions or lack of information made it difficult for people to make the change. The implications were that providing practical information to people should produce significant reductions in car use. While initial surveys of the above type are an effective method of identifying options and selecting project areas, they are not in themselves a remedial intervention. Changing the behaviour of individuals needs the active provision of relevant, local information and measures to motivate people to trial the alternatives.

### ‘Mentoring’ change with tailored marketing to individuals

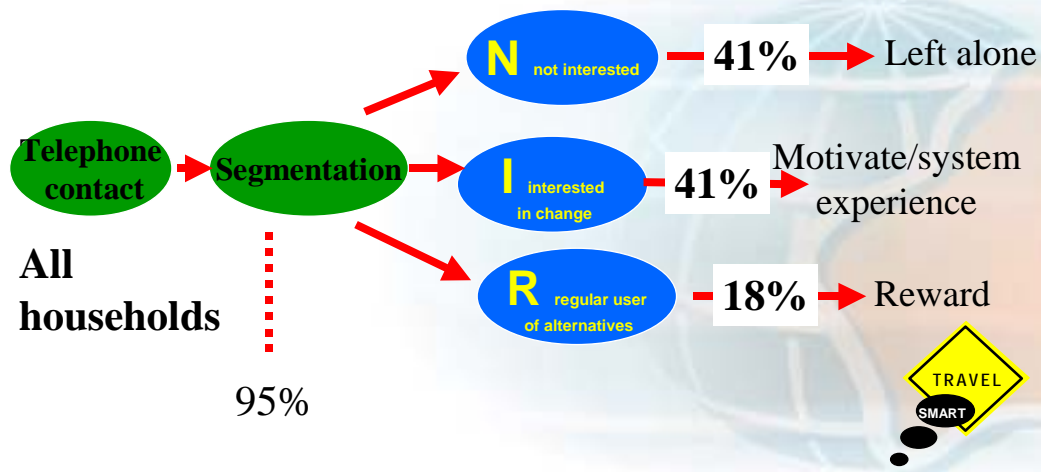
*Individualised Marketing* is the intervention service that has been used in Perth. This technique (Fig. 1 – next page) uses mail and telephone contact to open a ‘dialogue’ with households to discuss their travel needs, find out how they currently travel, and offer them the *TravelSmart* information service. From this initial dialogue households are segmented into groups that are not interested (N) in the program, regular users of walking, cycling or public transport (R), and those currently car-reliant who are interested (I) in information on the alternatives. A small reward is provided to regular users (our best customers!) and information services



are offered to those interested in exploring travel options. A 'service sheet' is sent out so that households can select only the information that they need. Delivery of the information is done personally and by hand in a reusable shopping bag. The information available includes a local map of facilities, such as bus and bicycle routes, pocket bus timetables, leaflets on maintaining a bicycle, and motivations for walking. Throughout the process motivation is provided for the households to try the travel alternatives and 'further services' are offered, such as a meeting with local bus operator staff to discuss concerns about using public transport, or a bicycle safety check. The impact of providing people with the information they need is monitored through a separate process of random travel diary surveys.



**Fig 1 - The TravelSmart method**



### The development of TravelSmart in WA

The *TravelSmart Household* approach was pioneered in Perth by the State Government and has gone through a pilot stage, a large-scale demonstration project, monitoring of the sustainability of outcomes, and finally a large-scale intervention program across a range of socio-geographic areas.

In 1997, a pilot program was run involving around 400 households in the City of South Perth, and evaluated using travel surveys and a separate control group for comparison. The outcome of the pilot was a 10% reduction in car driver trips with corresponding increases in the alternatives. The car reduction is reported as an average for the local population including the interested (I) group, regular users (R) and those not interested (N). This population group was tracked for almost 3 years without any reversion to previous levels of car use.

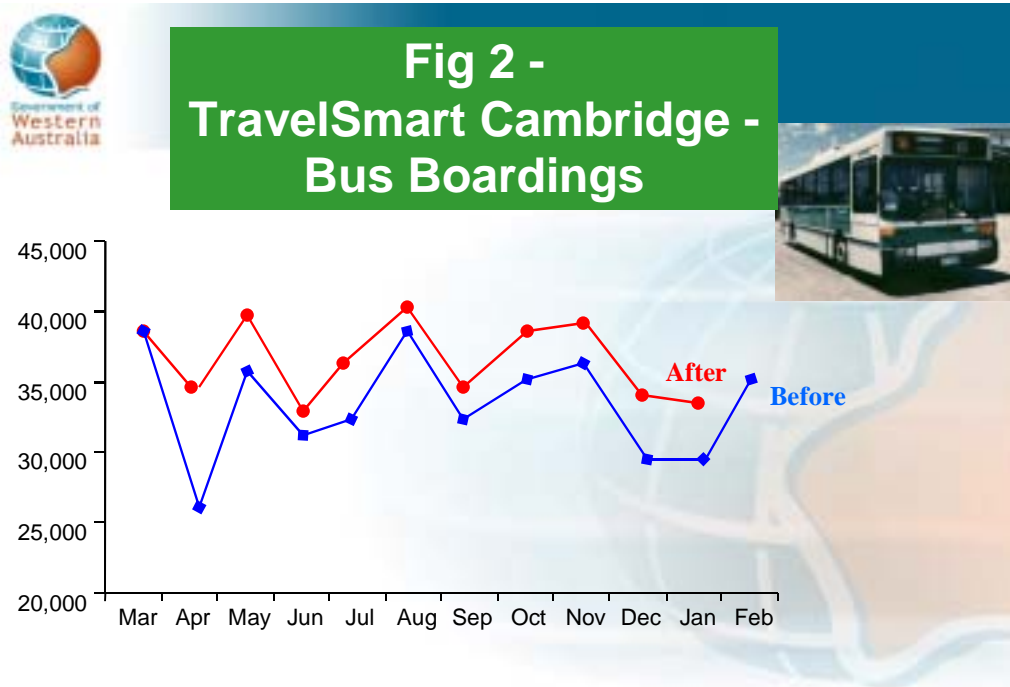
In 2000, the program was offered on a large scale to all 35,000 residents of the City of South Perth, the result being a 14% reduction in car trips, which again has been sustained in follow-up surveys to date. During this time, similar pilot programs were run in Queensland, UK, and Germany, all producing car trip reductions of 6 to 10%.

A second large-scale application was delivered in Perth for 24,000 people in the Town of Cambridge area. This project has achieved a car-trip reduction of 7% despite having less accessible trip attractors than in South Perth. Current projects in the suburb of Marangaroo (7,000 persons), City of Subiaco (15,000 persons), City of Fremantle (17,000 persons) and Western parts of Melville (19,000 persons) will provide the first robust indicators of the transferability of the program to different urban designs.

### Results and indicators

Given that the South Perth project evolved as an experimental approach, it is accepted that the design of the monitoring surveys was not perfect. Current projects are designed to use a panel survey (tracking individuals rather than taking two random samples) to increase the statistical power of the results, particularly for measuring changes in use of minor modes such as cycling.

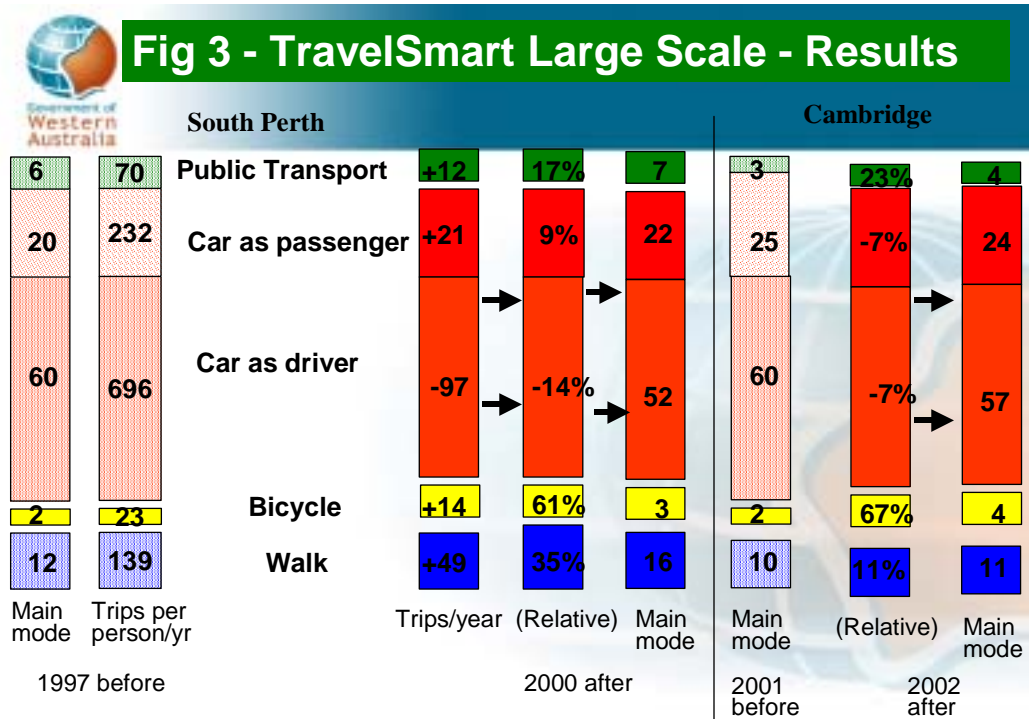
For increased confidence in the results, a number of other indicators are worth mentioning. The most important source of additional information is bus ticketing data, which gives a complete record of bus use. In South Perth, bus ticket sales increased by 20% while in Cambridge the increase was around 10% (Fig. 2). The response of communities to the program also indicates that the impact is real. In the large-scale projects to date, around 90% of the population have taken the time to talk to *TravelSmart* advisors, and more than 60% of these indicated an interest in the program or that they were regular users of the travel alternatives. Finally, the travel survey results for the South Perth project were subject to a detailed data audit and alternative analysis (regression analysis) confirming that *TravelSmart* has achieved significant reductions in car trips.



**Increase of 11% (April to January)**

The survey results for South Perth and Cambridge (Fig. 3 – next page) can be expressed as changes in mode share (the proportion of all trips by each form of transport) and by the number of trips per person per year. The latter presentation of the result allows the reader to appreciate the magnitude of changes from an individual perspective. The average South Perth resident reduced his/her car trips by 97 per year. That is they did two trips (just one errand) differently

each week. The reality is that households participating (interested and regular users) changed four trips per week while those not interested changed none. These small changes at the level of the individual add up to a reduction of 3 million car trips per annum for the South Perth area, and more than 1 million trips for the Town of Cambridge. In a historical context, the South Perth program reduced local car use to below the levels measured in a survey 14 years previously. Detailed analysis of the changes in South Perth found that the reduction in time spent driving was similar to the reduction in car trips. This translates into an estimated 14% reduction in car km and proportionate reduction in greenhouse gas emissions and pollutants.



The measured increases in walking and cycling amount to an average 4 minutes of additional exercise per person per day, again signifying something like a 7-minute-per-day increase for active participants in the program. It is possible that such increases could deliver the greater part of the WA Premier's Physical Activity Task Force target to increase by 5% the proportion of the population who are sufficiently physically active to maintain their health.

**Evaluation of outcomes**

The measures of car trip reduction and physical activity increases can be fed into a number of evaluations of the *TravelSmart* program. A cost of \$1.3 million to remove much of fourteen years of traffic growth from a community of 35,000 people appears to be a good investment, especially when compared to the costs of managing the impacts of traffic through road provision and traffic calming treatments. A more formal analysis of all the socio-economic costs and benefits of the proposed *TravelSmart* 10-year program has been conducted, with the conclusion that the benefits outweigh the costs by a ratio of up to 40 to 1. The major benefits are reductions in car running costs, and pollution reductions. The Benefit:Cost Ratio falls if increased public transport



services are required to meet new demand, but in South Perth and Cambridge the increases were accommodated within spare capacity on existing services.

Many of the socio-economic benefits are directly related to government costs and revenues. In Perth, Government retains a share of increased public transport fares and will achieve direct cost savings in the provision of local road grants. The government will also reduce health care costs as a result of increased physical activity and reduced pollution exposure. On a financial basis, the government can recover the full cost of *TravelSmart* in less than 3 years.

After its initial successes, the *TravelSmart* Household program now needs to be replicated widely to produce changes significant for local, national and global environments. In Perth, projects are planned to bring the program to 12% of the metropolitan population by 2005 and 50% of the population by 2010. Benefits are estimated to be a 1.5 Mega-tonne reduction in CO<sub>2</sub> equivalent during the first Kyoto period (2008 to 2012). In addition, *TravelSmart* (using the *Individualised Marketing* approach) is already being replicated nationally in Queensland, South Australia and Victoria, as well as internationally in the UK, USA, France, Sweden, and Germany. So far, the pilot projects are each producing between 6 and 10% car driver trip reductions and the large-scale projects are producing 7 to 14% reductions.

The *TravelSmart* Household program will need to be provided as part of a package of transport measures. It is not a “silver bullet” but it is cost-effective and popular – it really does inspire people to “get on your bike” (or bus or hike)!

#### **Links to further information**

Further information on the *TravelSmart* results and analysis presented here can be found on the Government of Western Australia *TravelSmart* website - [www.dpi.wa.gov.au/travelsmart/](http://www.dpi.wa.gov.au/travelsmart/)

#### **The major reports are:**

South Perth Large Scale Evaluation report:

[www.dpi.wa.gov.au/travelsmart/marketing.html](http://www.dpi.wa.gov.au/travelsmart/marketing.html)

Reports on the Potential for change, the Financial outcomes and the Technical details can be found as links from: [www.dpi.wa.gov.au/travelsmart/techpub.html](http://www.dpi.wa.gov.au/travelsmart/techpub.html)

#### **Other information on reducing automobile dependence**

*TravelSmart* (Qld) – [www.transport.qld.gov.au/travelsmart](http://www.transport.qld.gov.au/travelsmart)

*TravelSmart* (SA) - [www.transport.sa.gov.au/environment/travelsmartsa/index.asp](http://www.transport.sa.gov.au/environment/travelsmartsa/index.asp)

*Smogbusters* – [www.smogbusters.infoxchange.net.au](http://www.smogbusters.infoxchange.net.au) and [www.qccqld.org.au/smogbusters/index.htm](http://www.qccqld.org.au/smogbusters/index.htm)

*Rideabout* - [www.rideabout.com.au](http://www.rideabout.com.au) Australian ride-sharing service

*Green Transport Plans* (UK) – [www.local-transport.dft.gov.uk/travelplans/](http://www.local-transport.dft.gov.uk/travelplans/) Resources to help employers reduce automobile dependence of employees. [Thanks to Katina Heard of CSIRO for this alert.]

#### **AND – a wealth of related news and information from the Sustainable Transport Coalition (WA):**

“The evidence is out: cycling is good for the health” by Miles Dracup:

[http://stcwa.org.au/journal/30April2003/1051517566\\_2577.html](http://stcwa.org.au/journal/30April2003/1051517566_2577.html) (and source report, the UK Cycling and Health briefing paper at: [http://agbu.une.edu.au/~drobinso/UKCycling\\_health.pdf](http://agbu.une.edu.au/~drobinso/UKCycling_health.pdf) ).

“Small rail tracks can fit into crowded cities!” by Keith Jones:

[http://stcwa.org.au/journal/30April2003/1051583545\\_17912.html](http://stcwa.org.au/journal/30April2003/1051583545_17912.html)

“End-of-trip facilities are an important determinant of the attractiveness of cycling as a transport mode” by Miles Dracup: [http://stcwa.org.au/journal/14May2003/1052899097\\_12575.html](http://stcwa.org.au/journal/14May2003/1052899097_12575.html)

“Cuban Bike Revolution” by Christian Huot:

[http://stcwa.org.au/journal/28May2003/1053767518\\_7010.html](http://stcwa.org.au/journal/28May2003/1053767518_7010.html)

## Cosmic Accounting – new economics for a sustainable future

**Malcolm Greenstuart B. Eng. Elec.** has a big mission – to catalyse the obsolescence of money as we know it and bring on the dawn of a new world economic system that delivers harmony, sustainability and abundance. Inspired by the innovative thinking of the late Buckminster Fuller, Malcolm aims to change our system of transactions from one based on money (with only arbitrarily assigned value) to one based on energy (with absolute value throughout our planetary environment and the cosmos). In essence, Malcolm suggests that the amount of solar energy we can capture could provide, freely and fairly, the basic “currency” for human transactions, just as the incoming energy captured by green plants provides the currency for transactions in the remainder of the earth’s ecosystems. His concept is developed further in his book, “Cosmic Accounting”.<sup>2</sup>

Any individual who takes on a big mission, especially one that flies in the face of much we take for granted, risks misunderstanding. Malcolm himself recognises this in saying that the concept of ‘cosmic accounting’ “will be difficult for cynical people to hear.” Among such confronting concepts, however, are the seeds of tomorrow’s innovations. I think I can hear Buckminster Fuller cheering in the wings. I challenge you to genuinely think about the cosmic accounting concept and its possibilities in the broadest sense. You can contact Malcolm for discussion at: [malcolm173@ozemail.com.au](mailto:malcolm173@ozemail.com.au)

### Why we need a new economic context

Something is missing in our efforts to address world problems. People can see problems in our environment and society, and want to do something about them. They expend much effort trying to create different outcomes – social harmony, material abundance, equitable wealth, and environmental sustainability. Little or no effort, however, is put into the *context* that is shaping the outcomes.

This point deserves to be stressed – and stressed again. Like a jelly mould shaping jelly, *the context* has a huge bearing on the outcomes we see. If we want new and different outcomes, it is ineffective trying to develop them by working only on the *content* (the jelly mixture), without also working on the *context* (the jelly mould) that powerfully shapes them.

*"Malcolm Greenstuart, has recently published a book, "Cosmic Accounting". The concepts are exciting, also quite revolutionary. We bought 5 copies in order to lend them around and to get the idea circulating. ... the cost is \$25, or [if the new economic system were operating the cost would be] 5 kWh (kilowatt-hours). The ideas are wonderful and surprising."*

Mrs. Pamela Hannon, Phillip Island

I argue that our *economic system* is the context that shapes many outcomes of human society – because what does and does not make money in this system has so much influence on what we do, where we invest our energy and resources, and the policies our governments adopt.

Two other factors that also have bearing upon society’s outcomes are human aspirations and ingenuity. Ingenuity has allowed us to essentially solve many of the issues of content (ingredients in the jelly mixture). For example, we have developed excellent wind turbines, organic agriculture,

<sup>2</sup> Malcolm Greenstuart’s book “Cosmic Accounting” is currently going into a second edition to be available later in the year. However, limited numbers of the first edition are still available from the author at \$20 each. To purchase a copy of the first edition, mail your money/order/cheque to: ‘Cosmic Accounting’ 7 Leonore Ave, Kensington Gardens, Adelaide, SA 5068. Make sure to include a return address. To order a copy of the new edition, Contact Malcolm at: [malcolm173@ozemail.com.au](mailto:malcolm173@ozemail.com.au)

electronics and communications, automated-mass-manufacturing, to name just a few of the positive technologies that can help make the world work. Thanks to developments in many fields, it is now *technically* possible to produce ease and abundance for all on this planet, while at the same time living sustainably. But clearly something is missing for we are not materialising what is now, newly, socially and technically possible.

A system of 'Cosmic Accounting' (CA) would provide the missing piece of the puzzle. The term comes from acknowledging the way the cosmos ("the universe as an ordered whole") actually 'accounts' – in terms of material (matter) and energy flows.

The central concept of CA is an entirely new economic system – a different economic operating context for society, with a wholly new way of valuing and accounting, and a very different way of 'making money' – of obtaining an income. There is no more 'earning a living' – which makes a huge difference. This new context will allow the unfolding of different human actions and investment of energy and resources in different ways, allowing all the promising elements of cleverly developed 'content' to blossom, thrive, and deliver those great outcomes to everyone – equitably! This new economic context will 'take the lid off' all the great social, environmental and technical developments that have been simmering along without fully realising their potential.

CA is both humane and scientific – not just 'pie-in-the-sky'. It is tied to physical reality, and closely linked to globally harvested and transmitted solar/renewable energy. Furthermore, there is a practical and peaceful pathway toward this new system.

As an economic system, CA importantly encompasses both co-operation and competition. In CA however, the embracing, *integrating* element of *co-operation* is *primary*. That CA is principally co-operative (integrative) is how it can be sustainable. From basic physical principles, it *must* be that integration is primary to dis-integration (differentiation), otherwise the result is degradation. Competition is inherently dis-integrative and divisive – a point that needs to be stressed. (Consider 'divide and conquer', us or them, winners and losers.) This is not to say that competition is bad; it is simply dis-integrative.

At present we are happy to run blindly with an economic system that is principally competitive (only secondarily co-operative), and hence principally disintegrative and degenerative. We have been able to get away with it for so long because Earth had so much accumulated natural wealth, such as forests, that we could exploit. But from first principles, it is technically impossible to run with this principally competitive economic system and hope to achieve comprehensive sustainability! For sustainability – and for the realisation of primary abundance and harmony – it is simply essential that humanity moves to a different, integrative system.

This might seem daunting, but it is actually good news – it will be far easier to adopt a new economic system than try to make the world work sustainably within the current constraining economic circumstances. The right new economic operating context for human society will indeed allow us to achieve sustainability, harmony and abundance on this planet.

### **To make the world work, we have to work on the big picture**

The current approach to solving the world's big problems is to work on the smaller issues, solving each 'bit-by-bit', and then, in theory, building upwards by comprehensively putting these solutions together to achieve a world that works for everybody and everything. This approach has been tried for ages and clearly is not working.

Rather than trying to solve parts of the problem – such as forest destruction, excessive greenhouse gas emissions, poverty, job stability, and employment – it will be far more effective to tackle the question – “How could we make everything work?”

Cosmic Accounting is just such an effort to comprehensively tackle all the problems coordinately.

The positive ‘fallout’ of switching to Cosmic Accounting and Cosmic Costing will be positive improvements in just about every concern that currently confronts humanity! Yes – this is a huge claim – but this is the kind of difference that can be made with a change of operating context. With this one clear, concerted approach, the hugely complex task of solving the world’s problems can be addressed most effectively, and in a streamlined manner.

### **The elements of *Cosmic Accounting***

Cosmic Accounting comprises three central elements:

1. The unit of exchange becomes energy. Or, in other words, the currency of exchange (‘money’) becomes a unit of electrical energy – kilowatt-hours or kWh.
2. Everyone receives an *equitable* income of *free* money (kWh) every day – i.e., daily, everyone is equitably credited with a free boost of real energy. This energy comes from the Sun and is in the form of electrical energy as currency for spending. You could say that everyone is boosted with an equitable amount of Spending-Power every day. This energy is collected from mass-scale, solar/renewable energy collectors. The electricity is accounted by computer, and distributed via the electricity grid. People don’t work for this daily ‘money’ – i.e., they don’t ‘earn a living’ (though they can still be productively busy and earn praise, appreciation and satisfaction for work and efforts).
3. The cost/price of goods and services becomes the amount of energy determined to make the good or perform the service (including the energy cost of recycling a good after its useful life-span). In purchasing a good or service, that cost is deducted from the individual’s energy credit balance. Everyone has a finite amount of energy they can spend on goods and services in a day – a great incentive for everyone to be efficient and make informed choices.

An enveloping factor of this whole concept is co-operation. For example, it requires cooperation to build and maintain the renewable energy collectors, and then to evenly and fairly distribute the power to individuals across society. It also requires cooperation for society to agree that the cost/price of a good or service *is* the (physical) energy used to make the good or perform the service .

My intention here is to highlight that, relatively speaking, the CA concept is actually the easy way to tackle great multitudes of problems – yes, really! Transforming the world to make it work well does not have to be the daunting raft of different problems that it seems. As outlined above, CA offers a focussed, peaceful, and relatively easy pathway forward to sustainability.

Though it is possible, as we have seen, to quickly explain the core elements of the CA system, there are, of course, a number of associated circumstantial issues and provisos. For example, the possibility of CA exists only at a particular time. As little as thirty to forty years ago, technology would not have been advanced enough to support this idea.

Personally I have been considering this idea for twenty years. I have been ‘kicking the tyres’, looking at it from different angles, viewing the world through this new perspective, and seeing how the idea stands up. After twenty years, I am satisfied that CA does stand up and therefore I

am opening the idea up and presenting it to fellow carers about sustainability for consideration, discussion, and adoption.

### **Confronting the status quo**

There are a number of confronting aspects to the CA economic system. While there is not the space here to deal with the various arguments surrounding them, two in particular deserve mention – the capacity of society to co-operate, and the fact that everyone receives a free income without the need to ‘earn a living’. While these may be particularly confronting issues, consider what the CA working arrangement could deliver.

It would free everybody up to ‘work’ on the things that they are most concerned with. Wouldn’t you like that? And what are we concerned with; our family, our health and fitness, caring for people, our environment, new knowledge, production of goods, growing food, recreation, etc. Healthy people, people who are not suffering from resignation and cynicism, are passionate about many things – and healthy ‘normal’ people like to be productive and to contribute.

*Every child has an enormous drive to demonstrate competence. If humans are not required to earn a living to be provided survival needs, many are going to want very much to be productive, but not at those tasks they did not choose to do but were forced to accept in order to earn money. Instead, humans will spontaneously take upon themselves those tasks that world society really needs to have done.*

*Buckminster Fuller Cosmogrophy (1992) p. 252*

‘Can you hear?’ Enfolded in the Cosmic Accounting concept is the solution to bringing on a world that is sustainable, a world that works.

### **Bringing the system in**

Previously I referred to a ‘focussed and relatively easy approach’ to bringing the system in. Simply said, this approach is to build large-scale renewable energy collectors and start giving energy away equitably to people via the power grid. The energy collectors will be built with donated money. This is the first point for applying cooperation and a spirit of generosity (don’t we all want these things in our world?) – and the first sign of actually doing something differently. Initially, people can spend the early free income of power in their own homes, running refrigerators, washing machines, and other household appliances. Energy use can be metered and monitored using the newly emerging domestic ‘smart meters’ that ‘talk’ to a central coordinating computer. This beginning will be enough to highlight the idea, get the ball rolling – and to catalyse expansion.

### **Do it in Australia**

Australia is probably best placed in the world to introduce Cosmic Accounting. For starters, we are rich in renewable energy potential. We have a wealthy and already generally cohesive society – with the potential to give freely to the building of large-scale (and hence technically efficient) renewable energy collectors. We already have an interconnected national electricity grid and, as an integrated island nation, we would not have to worry up-front about complicated physical border issues with other nations. In addition, Australians care about the environment, and are generally not afraid of ‘the new’. Australia could act as a leading light to the world in bringing on sustainability.

### **Conclusion**

Cosmic Accounting is much more than ‘just an idea’ to be kicked around. It actually tells the truth about the physical cost of goods and services. By accounting this way, humanity can place itself in *reality* regarding the physical environment. Another reality is the abundance of

renewable energy available to be collected. If there is abundance of a renewable resource, the natural thing to do is to give it freely and equitably. Cosmic Accounting suggests nothing more than that.

Relevant to the point about co-operation versus competition, and hence integration versus dis-integration, is the issue of where best to invest our efforts so as to make a difference. Clearly, working to bring in a new economic system is the best place to invest time and effort to bring on sustainability. Anything else will only be 'playing on the shore' of the problem and opportunity.

Consider this: The jaundiced view we have of humanity (sometimes very justifiably) is actually an outflow, a symptom of the condition that humanity has become stuck in, trying to operate in the current economic system. Now consider the following:

*The lack of 'spirituality' and community in our Western world is (at least partially) a symptom, not a cause... It is a symptom of the structure of the world's economic system. The interface of humans with the planet's resources (including services), and their ability to access these resources, is what the economic system is about. People need to obtain resources to live their lives. The 'shape' of the current industrial economic system, however, forces or 'throws' people a certain way so that they can obtain money. People bend and shape themselves and their activities to fit within the rules of the economic system they are born into, in order to 'win' in this system, gain money, and hence obtain the physical resources and services they need. This shaping to fit the system, however, often forces distortion upon human societies, tipping them too far from spirituality and community, and too much toward materiality and individuality (self-interest).*

So many things are done in society that don't actually need to be done. They are done, however, simply because they are a way to make money in our current strange economic system. Apart from generosity and cooperation, I believe Cosmic Accounting would also bring much greater efficiency to the world.

After reading this, I hope you will be prepared to get behind the Cosmic Accounting idea – or at least be motivated to find out more about it. People who are interested and already 'getting' the idea can find a more detailed pathway proposal for how to bring in Cosmic Accounting at: <http://www.thefreedomfactory.org/cosmicaccounting/> Alternatively, you can contact me at: [malcolm173@ozemail.com.au](mailto:malcolm173@ozemail.com.au) Remember, once you understand this concept is impossible to ignore the issue! I urge you to dwell on it – turn it over in your mind and think of the possibility. The Cosmic Accounting system is a confronting system. Are you enthusiastic about everyone having what you have or can-have?

Getting behind Cosmic Accounting could involve donating money to a renewable energy generator project near you – one that plans to give the power away. The closest one is a proposed development in (sunny) Whyalla, SA, where a project (the Cosmic Accounting Portal Project) is being initiated to build a single-dish solar parabolic reflector with donated money. The aim is for the project to act as a first step toward the mass production of solar thermal dishes in Whyalla. The single-dish project costs only \$30,000 and already more than \$2,000 has been donated. (One hundred percent of donated funds go straight to the project.) Think about it – if just half of the membership of this Network were willing to donate \$100 toward this project, that would be sufficient to fund this initial step. And each donation would be a focussed act of cooperation and generosity directed toward a new economic system.



**The sun is essentially the only practical source of useable new energy in the solar system – providing a daily “income” for humans and the biosphere. Fossil fuels are stored useable solar energy from the past – our capital assets. Somehow, before it is too late, we need to learn to live within our income – and to do so without further impoverishing the vital life-support systems of the biosphere.**

## **Migrants doing more for the third world than governments**

Recent articles in the UK Observer (20/4/03) and RADAR (May 03) at [www.sustainability.com](http://www.sustainability.com) have highlighted that, for the first time ever, migrant workers are collectively sending more private funds to developing countries than the combined total of government aid, private bank lending and World Bank/IMF assistance. The total value of remittances was estimated as \$80 billion last year, compared to just \$16 billion from governments and bank lending, which have crashed in the past two years. Foreign direct investment (FDI) to developing countries, worth \$143 billion, is still well above the value of private remittances, but has also fallen recently. Furthermore, three-quarters of this FDI (\$109 billion) goes to just ten countries. India and Mexico are the biggest recipients of worker remittances – worth \$10 billion each. This interesting trend reinforces how migration can work as a force for equalising wealth as well as the distribution of population. [See also the latest UN International Migration Report at: <http://www.un.org/esa/population/publications/ittmig2002/ittmigrep2002.htm>]

## **Other Information Resources**

### **ENERGY EFFICIENCY – Book**

#### **Cool Appliances: Policy Strategies for Energy-Efficient Homes**

In IEA Member countries, electrical appliances are the fastest growing energy users after automobiles. Cost-effective technology exists that could improve their energy efficiency by more than one-third in ten years, and slash greenhouse gas emissions (in IEA Member countries alone) by the equivalent of 322

million tonnes of CO<sub>2</sub> per year by 2010. This book assesses the potential energy savings and carbon reductions to be achieved through technical improvements to appliances. It analyses the policy options available to stimulate greater manufacture and use of more efficient appliances, suggests ways to strengthen existing appliance-efficiency programmes, and demonstrates how international collaboration can enhance those programmes. Published April 2003 by OECD; ISBN 9264196617; OECD Code 612003061P1. Available from the OECD Online Bookshop at: [www.oecd.org](http://www.oecd.org)

### **RESTORATION ECOLOGY – Book**

#### **Handbook of Ecological Restoration**

<http://academic.cambridge.edu.au/result.asp?isbn=0521791294>

The Handbook of Ecological Restoration, **edited by Martin R. Perrow and Anthony J. Davy**, comprises two volumes, Principles of Restoration and Restoration in Practice, providing a comprehensive account of the science of restoration ecology. Restoration in Practice provides details of state-of-the-art restoration practice in a range of biomes within terrestrial and aquatic (marine, coastal and freshwater) ecosystems. It will be of interest to anyone concerned with the restoration, rehabilitation, enhancement or creation of habitats, anywhere in the world. Policy and legislative issues on all continents are also outlined and discussed. [Published Sept 2002 by Cambridge University Press; ISBN 0521791294]

### **BIODIVERSITY & SOCIAL ISSUES – Book**

#### **Biodiversity, Sustainability and Human Communities**

<http://academic.cambridge.edu.au/result.asp?isbn=0521813654>

The rate at which the planet is losing its biodiversity, the implications of this loss, and possible remedies are the subject of much debate. This book, **edited by Tim O’Riordan and Susanne Stoll-Kleeman**, advocates the preservation of biodiversity through a mix of strict protection, inclusive involvement of people inside and adjacent to reserves, and by combining livelihoods and social well-being in all future biodiversity management. Case studies from regions around the world are examined and discussed, and the contributors include political scientists, economists and ecologists. [Published Sept 2002 by Cambridge University Press; ISBN 0521813654. *Thanks to Carol Murray for the alert.*]

### **PUBLIC PARTICIPATION IN SCIENCE – Book**

#### **Public Participation in Sustainability Science**

<http://academic.cambridge.edu.au/result.asp?isbn=0521818184>

The participation of citizens and other stakeholders is increasingly important for policy making on the environment and sustainable development. This book, edited by a team of international experts, examines methods for facilitating public participation at local and global levels. The book argues that policy makers must take account of a complex network of social and natural interactions, and that there can be no ‘grand plan’ which ignores this complexity. The authors suggest consultation procedures which integrate technical scientific modelling with democratic decision-making processes. [Published April 2003 by Cambridge University Press; ISBN 0521818184. *Thanks to Carol Murray for the alert.*]

### **CLIMATE-CHANGE ECOLOGY – Book**

#### **Ecological Climatology: Concepts and Applications**

<http://academic.cambridge.edu.au/result.asp?isbn=0521800323>

Climate change and land-use are typically seen as independent environmental research problems. The causes of climate change are the venue of atmospheric scientists who describe climate change in light of various forcings: greenhouse gases, volcanic eruptions, and oceanic circulation. Land-use is the venue of ecologists, who are concerned with how, for example, deforestation affects biodiversity and biogeochemical cycles. This book **by Gordon B. Bonan** integrates these two lines of study to present the idea that how people use land and alter the natural vegetation cover is also a significant feedback within the climate system. [Published June 2002 by Cambridge University Press; ISBN 0521800323.]

### **FOREST MANAGEMENT – Book**

**Changing Landscapes** [www.earthscan.co.uk/asp/bookdetails.asp?key=3949](http://www.earthscan.co.uk/asp/bookdetails.asp?key=3949)

*Changing Landscapes* by **Duncan Poore** reviews the evolution of policies for the sustainable use of tropical forests through a history of the International Tropical Timber Organization (ITTO). Beginning with an introduction to the ecological, historical and socio-economic trends that have influenced contemporary global forest management regimes, it goes on to explore the complex political forces that have shaped the trade in tropical timber and its regulation. This lively, forthright, rigorous and insightful institutional history will interest policy-makers, researchers and practitioners alike. [Published May 2003 by Earthscan Environmental Books; ISBN 1853839914]



### **THREE BOOKS LINKING HUMAN HEALTH WITH SUSTAINABILITY** **Environmental Change, Climate and Health**

<http://academic.cambridge.edu.au/result.asp?isbn=0521782368>

Planning for protection of human health from the potential impacts of global environmental changes, such as climate change, requires a greatly improved understanding of the disease-inducing mechanisms involved, possible synergetic effects, and the vulnerability of populations. An important aspect is the development of theoretical and conceptual methods for assessment of health impacts of global environmental changes. This book, by **Pim Martens and Anthony J. McMichael**, addresses concepts and methods needed to analyse and understand this complex issue. [Published August 2002 by Cambridge University Press; ISBN 0521782368]

### **Air Pollution and Health in Rapidly Developing Countries**

[www.earthscan.co.uk/asp/bookdetails.asp?key=3927](http://www.earthscan.co.uk/asp/bookdetails.asp?key=3927)

In developing countries the price of rapid growth is all too often noxious airborne pollution, which annually contributes to a disturbing number of avoidable deaths. In recent decades, however, there has been considerable progress in the epidemiology of air pollution, significant changes in international air pollution guidelines, and the emergence of more systematic approaches to air pollution control. While many of these advances have originated in affluent countries, there have been major developments in other parts of the world. In this book, **edited by Frank Murray and Gordon McGranahan**, authors in both science and policy have synthesized the recent developments in air pollution and health and their relevance for public health in developing countries. The authors review studies from a wide range of Asian, African and Latin American countries and contrast the findings with those from Europe and North America. They also describe various tools and systems for air pollution management and emphasize approaches that can be used when data are scarce. [Published April 2003 by Earthscan; ISBN 185383985X1]

### **Poverty and Health (DAC Guidelines & Reference Series)**

Health is higher on the international agenda than ever before. Concern for the health of poor people is a central development issue. In addition to the intrinsic value of health for individuals, investment in health is an important and previously underestimated means of economic development; substantially improved health outcomes are a prerequisite if developing countries are to break out of the cycle of poverty. This DAC Reference extends the analysis and recommendations of the *DAC Guidelines on Poverty Reduction* by setting out the essential components of a pro-poor health approach. [Published April 2003 by OECD & WHO; available from the OECD Online Bookshop at: [www.oecd.org](http://www.oecd.org) OECD Code 432003051P1; ISBN 9264100180.]



### **TWO JOURNALS OF HOLISTIC ECOLOGY**

***Ecoss* – The ecological magazine from CSIRO Publishing is broadening its mandate and getting together with *EcoFutures* magazine.**

[www.publish.csiro.au/ecos/](http://www.publish.csiro.au/ecos/) and [www.publish.csiro.au/ecos/index.cfm?act=special](http://www.publish.csiro.au/ecos/index.cfm?act=special)



***Ecoss*** provides easy-to-read information on leading-edge environmental research. ***EcoFutures*** highlights the 'whole of society' approach needed to combat environmental challenges. Recognising their synergies, *Ecoss* and *EcoFutures* are getting together to evolve a new periodical that will focus on the mix of scientific research, technological innovation, triple-bottom-line activity in business, conducive policy, and informed community participation,

that will be needed to attain a sustainable future. A special *EcoFutures* supplement in the latest issue of *Ecós* gives you a taste of things to come. It explores the latest thinking on critical issues facing our future, how we can use science to discover sustainable solutions, and how industry and governments are becoming sustainability change-agents. Two highlights are: a description of CSIRO's new large 'National Research Flagship' programs tackling major national challenges; and an interview with Greg Bourne, Regional President of BP Australasia. With the benefit of a broad 'radar screen' embodying the changing corporate agenda, he investigates whether companies really can be both sustainable and sustaining. The website allows you to subscribe to the quarterly *Ecós* print magazine or download specific articles.

### ***Pacific Ecologist* - A new quarterly journal focusing on vital issues of ecology, justice and sustainability**



*Pacific Ecologist* belongs to the global network of *Ecologist* magazines. It includes news, commentary and articles from experts, as well as book reviews. *Greenhouse Gas and Australia* is a major article in the winter issue, as well as *GAT's attack on water, health, education, & culture*; and *Effects of gold mining in Fiji*. It also features talks from a recent seminar of the Pacific Institute of Resource Management: "Resource Wars – from the Global economy to Iraq", including: *New Nuclear Threats*; *NZ Energy Crisis*; and a critique on the invasion of Iraq – *Winning the battle, losing the war*. Earlier issues have featured: *A brief history of climate change with an Australian perspective*; *Protecting Endangered Woodlands of Australia*; *Lake Cowal under mining threat*; *Empowering Pacific Island Communities*; *The coming decline of oil*; *Urban trends degrading Pacific Islands*; *The quest for sustainable societies*; *Kyoto and New Zealand - what happens now?*; *The politics of community sewage*; and *Resource Wars - from War Zones to Shopping Malls*. *Pacific Ecologist* is published in Wellington, New Zealand by the Pacific Institute of Resource Management. For more information on subscriptions (\$A50 pa) or contributions, contact: Kay Weir, Editor, *Pacific Ecologist*: [pirmeditor@paradise.net.nz](mailto:pirmeditor@paradise.net.nz) [Thanks to Carol Murray for the alert.]

### **Web Sites of Interest:**

#### **World Population Prospects – Recent statistics & projections from the UN**

[www.un.org/esa/population/unpop](http://www.un.org/esa/population/unpop) , [www.un.org/News/Press/docs/2003/pop850.doc.htm](http://www.un.org/News/Press/docs/2003/pop850.doc.htm)

The world's population is growing by 1.2%, mostly in India, China, Pakistan, Bangladesh, Nigeria, and the US. India's population increases more in a week than the EU in a year, and will reach 1.5 billion in 2050, thus overtaking China as the World's most populous country. In 2050, the seven Sub-Saharan African countries with the highest prevalence of HIV/AIDS will have populations 36% lower than would have been the case without the disease. Life expectancy in this region has fallen from 49 years in the 1980s to 47 years in 1995-2000. The World's median age will be 36.8 years in 2050. In high-income countries it will be 45.2 – and over 50 in Japan, the Czech Republic, Italy, Singapore and Spain. Despite growing world inequality, the high-income countries are only expected to receive an average of 2 million migrants per year, or 100 million migrants by 2050. Most will go to the US, Germany, Canada, the UK and Australia. [Summary from RADAR at: [www.sustainability.com](http://www.sustainability.com) ]

#### **Outcomes and documents from the National Landcare Conference**

[www.landcareconference.nt.gov.au](http://www.landcareconference.nt.gov.au)

The site allows you to check a number of papers, abstracts, issues and comments from the recent National Landcare Conference in Darwin, 28 April to 1 May. [Thanks to John Muir for the alert.]

#### **Outcomes and documents from the "Beyond Oil" Conference**

[http://www.stcwa.org.au/papers/data/beyond\\_oil.html](http://www.stcwa.org.au/papers/data/beyond_oil.html)

Watch this site as papers are posted from the recent conference in Perth (21/2/03). Several postings have already been made.

#### **More hope and more scepticism in the Hydrogen debate**

<http://www.eere.energy.gov/hydrogenandfuelcells/hydrogen/>

The US Department of Energy site – upbeat on the potential for hydrogen fuel cells – also has a nice animated explanation of how a fuel cell works.

[http://stcwa.org.au/news/1052977014\\_1948.html](http://stcwa.org.au/news/1052977014_1948.html)

For the Sustainable Transport Coalition (WA), Bruce Robinson presents the argument that widespread production of hydrogen from any source will greatly increase industrial energy consumption.

[http://www.motherjones.com/news/outfront/2003/19/ma\\_375\\_01.html](http://www.motherjones.com/news/outfront/2003/19/ma_375_01.html)

In the radical US Magazine *Mother Jones*, Barry C. Lynn writes of “Hydrogen’s Dirty Secret” and the apparent intent of the US Government to bring in the ‘hydrogen economy by, at least initially, generating hydrogen from fossil fuels.

**Conclusion?** – Still seems to be that if the hydrogen does not come from renewable resources (i.e., electrolysis of water using solar, wind, or tidal power, etc.), then it is just not worth doing, environmentally or economically.

### **The South Australian Urban Forest Biodiversity Program**

[www.urbanforest.on.net](http://www.urbanforest.on.net)

The South Australian Urban Forest Biodiversity Program (UFBP) aims to conserve the biodiversity of the greater Adelaide region. Grazing, agriculture, horticulture, residential development and industry have progressively all but replaced the unique flora and fauna of the Adelaide Plains to the point where less than 2% of the original habitat is left intact, and the hills region has also suffered. The UFBP will redress the loss of biodiversity through planning improvements, thereby enhancing environmental sustainability, amenity and quality of life. The site provides access to information and resources for planners, citizens and schools, and also links to related websites.

### **What if we woke up tomorrow in an oil-depleted world?**

[www.stcwa.org.au/journal/28May2003/1053767167\\_6929.html](http://www.stcwa.org.au/journal/28May2003/1053767167_6929.html)

Check out Andrew Barham’s “Nightmare: Life without fuel” – a 2017 scenario to get us thinking about oil dependence.

### **Responding to Climate Change – the Business viewpoint**

[www.greenhouse.gov.au/dialogue/index.html](http://www.greenhouse.gov.au/dialogue/index.html)

On 14 April, Business Dialogue Working Groups presented their reports to Government on how Australia should best respond to climate change. Five separate reports were submitted by the sectoral Working Groups: Energy & Resources, Energy-Intensive Manufacturing, Transport & Transport Infrastructure, Agriculture & Land Management, and a “Cross-Sectoral” report by the Chairs of the other Groups. The site gives access to all the above extensive reports. Geoff McAlpine of CSIRO suggests starting with the last report listed as providing something of an ‘overview.’ His ultra-brief summary of the Business suggestions is “mostly more of the same, equating to wanting programs that do no short-term harm to industry and don’t cost competitiveness”. Also check Minister Kemp’s public response in his media release at: [www.ea.gov.au/minister/env/2003/mr14apr03.html](http://www.ea.gov.au/minister/env/2003/mr14apr03.html)

### **Managing growth for more sustainable communities**

**The Growth Management Leadership Alliance (USA) – [www.gmla.org](http://www.gmla.org)**

GMLA’s members advocate growth management – “smart growth” – strategies that can create prosperous, environmentally sustainable and socially equitable communities, in urban, suburban and rural places. Especially when conducted as part of integrated planning at local, regional and state levels, these strategies can foster: compact, liveable and economically efficient development patterns; affordable housing; a balanced and diverse transportation network; ecological conservation, and protected farm, forest and other open lands and historic sites, as well as clean air and clean water. GMLA’s mission is to strengthen its members’ capacity to address critical policy, technical and organizational needs by providing access to cutting edge information and experience, a network of mutual learning and support. GMLA representatives have recently visited Australia to help support ‘smart-growth’ activities.

### **Water Resources**

[www.oasis-water.net](http://www.oasis-water.net)

OASIS is a Resource Centre, a growing network of organisations, sponsored by the UK Department for International Development (DFID) and working in partnership with other donors, UN Agencies, developing country governments, NGO’s and other stakeholders to provide expertise in water-resources issues. OASIS provides a range of services to help create, use, and share knowledge with those involved in the

water resources sector. These services are focussed on helping to deliver Millennium Development Goals. OASIS offers services across all water-resources issues, from frontier research to operational advice and design, from policy formulation to capacity building, scientific research, engineering design and stakeholder surveys and training.

### Water for Asian Cities

[www.unwac.org/](http://www.unwac.org/)

The UN Water for Asian Cities Program has the vision – “Ensuring sustainable human settlements with access to safe water and sanitation”. Its objectives are to promote urban water demand management, integrated urban environmental sanitation, income generation for urban poor through community-based water and sanitation services, pro-poor urban water governance, and monitoring of progress towards Millennium Goal targets.

### More CSIRO Sites relevant to sustainability issues

CSIRO Minerals (Sustainable Development): [www.minerals.csiro.au/sd/Contents\\_SD.htm](http://www.minerals.csiro.au/sd/Contents_SD.htm)

CSIRO Atmospheric Research (Climate Change): [www.dar.csiro.au/ccrp/index.html](http://www.dar.csiro.au/ccrp/index.html)

## Call for Policy Inputs

The Federal Government has called for the public to contribute creative and innovative ideas for saving water. Submissions will be compiled and evaluated with a view to identifying and progressing the most promising concepts. **Submission are required by c.o.b. on 13 June.**

See: [www.affa.gov.au](http://www.affa.gov.au) “Water Savings Project” under “Hot Topics”, or:

[www.affa.gov.au/content/output.cfm?ObjectID=B15DA476-1922-4EA4-BCE34A74A9464F4E](http://www.affa.gov.au/content/output.cfm?ObjectID=B15DA476-1922-4EA4-BCE34A74A9464F4E)

## Bouquets

Congratulations to the *Sydney Morning Herald* - [www.smh.com.au](http://www.smh.com.au) - for their June 4 “**Eco**” pull-out supplement covering a whole range of practical green-living topics and ideas. If you haven’t bought the June 4 SMH, bad luck – “beg, borrow or steal” might be a bit strong, but it’s certainly worth a look. *[Thanks to Network Member Paul Down of Fairfax for alerting me in time to buy a copy!]*



**AND** – Thumbs up to the **Federal Government** for their recognition that although our rural landscapes, such as the Murray-Darling Basin, have critical sustainability challenges, it is our cities and their inhabitants that actually drive the problem. The new “**Sustainable Cities**” plan, initiated with an allocation of \$40 million in the recent budget, will help address the reduction of our urban ecological footprints – a small but positive step in a long journey! See Minister Kemp’s press release at:

[www.ea.gov.au/minister/env/2003/mr13may203.html](http://www.ea.gov.au/minister/env/2003/mr13may203.html)

## Events of Interest

### Free Public Lecture Series (Adelaide) – “Visions for Environmentally Sustainable Development”

Two series: **May-June** & **October-November**. Sponsored by Uni SA. Information: [www.unisa.edu.au/iee/Lectures.htm](http://www.unisa.edu.au/iee/Lectures.htm) or [moira.lawler@unisa.edu.au](mailto:moira.lawler@unisa.edu.au) **Topics:** Sustainability of Arid Lands & the Pastoral Industry. Sustainable Manufacturing Systems. Reclaiming the streets: How planning & urban design can encourage healthier & more sustainable cities. The greenhouse gas impacts of different transport policies aimed at urban freight and distribution.

### ISOS Online and Face-to-Face Conference – “In Search of Sustainability”

**Online: February – November 2003. Face to Face: Canberra, 14 November.**

An innovative and progressive Internet conference open to Australians from all walks of life, concluding with a plenary face-to-face conference. Jointly managed by Australia 21 Ltd, Nature and Society Forum Inc, & Sustainable Population Australia Inc, in association with The Australian Collaboration. Information: [www.isosconference.org.au](http://www.isosconference.org.au) **Themes:** February: **Water**. March: **Human health & wellbeing**. April: **Land use & natural ecosystems**. May: **Energy**. June: **Equity & Peace**. July: **Economic Systems**. August: **Climate**. September: **Labour force & work**. October: **Transportation & urban design**.

## Water Conferences listed by the International Water Association (IWA):

See: [www.iwahq.org.uk/template.cfm?name=events](http://www.iwahq.org.uk/template.cfm?name=events)

- An Introduction to Complex Systems Science – Short Course introducing techniques and applications**  
Canberra, **10-12 June**. Course funded by CSIRO. Info & registration forms: [Paul.Walker@csiro.au](mailto:Paul.Walker@csiro.au)
- Australian Runoff Quality Symposium – Management of urban stormwater**  
Albury, **16-17 June**. [www.necma.vic.gov.au/conferences/conf\\_home.html](http://www.necma.vic.gov.au/conferences/conf_home.html)
- A Sustainable & Competitive Australia – Australian Industry Group 5<sup>th</sup> National Environment Conference**  
Melbourne, **17 June**. [www.aigroup.asn.au/PDFs/vic-Environment-Conf-Rego.pdf](http://www.aigroup.asn.au/PDFs/vic-Environment-Conf-Rego.pdf)
- Urban & Remnant Bushland: Toolkit for a sustainable future – Conference**  
Sydney, **19-20 June**. [www.nccnsw.org.au/bushland/calendar/20030619\\_abc2003pro.html](http://www.nccnsw.org.au/bushland/calendar/20030619_abc2003pro.html)
- Green Buildings – An Institute for International Research (IIR) Conference**  
Sydney, **23-25 June**. [www.iir.com.au/infrastructure](http://www.iir.com.au/infrastructure) or [info@iir.com.au](mailto:info@iir.com.au)
- 8<sup>th</sup> Annual National Water Conference 2003-04-23**  
Sydney, **24-26 June**. [www.terrapinn.com/2003/water\\_au](http://www.terrapinn.com/2003/water_au)
- Delivering Flexible Transport – Conference & Exhibition**  
Brisbane, **26-27 June**. [www.qcross.org.au/docs/dlt-brochure.pdf](http://www.qcross.org.au/docs/dlt-brochure.pdf)
- International Society for Industrial Ecology – 2<sup>nd</sup> International Conference**  
Ann Arbor, Michigan, USA, **29 June – 2 July**. <http://css.snre.umich.edu/isie2003/>
- Towards Sustainable Schools & Sites – A Sustainable Schools event**  
Adelaide, **7 July**. Enquiries to David Butler – [butler.david@saugov.sa.gov.au](mailto:butler.david@saugov.sa.gov.au) or (08) 8226 4312
- Local Government Environmental Flows Conference – Murray-Darling Association**  
Mildura, Vic, **9-10 July**. Info: (08) 8226 0582 or [lbroster@chariot.net.au](mailto:lbroster@chariot.net.au)
- Ninth International Conference on River Research – sponsored by the CRC for Freshwater Ecology**  
Albury, NSW, **6-11 July**. [www.conlog.com.au/NISORS/overview.html](http://www.conlog.com.au/NISORS/overview.html)
- Students of Sustainability – National Conference**  
Adelaide, **7-11 July**. <http://wiki.studentsofsustainability.org.au/SoS2003>
- Marine Environment & Pollution Law Seminar – Centre for Maritime Law, University of Queensland**  
Brisbane, **14-17 July**. [www.law.uq.edu.au/cml](http://www.law.uq.edu.au/cml) and check “Upcoming Events” in menu on right.
- Integrative Modelling of Biophysical, Social and Economic Systems for Resource Management Solutions – and Transport Modelling and simulation Congress - the MODSIM 2003 International Congress on Modelling and Simulation.**  
Townsville, Qld, **14-17 July**. <http://mssanz.cres.anu.edu.au/modsim2003.html>
- WATER: histories, cultures, ecologies – Interdisciplinary research symposium on the future of water**  
Perth (UWA), **14-18 July**. [www.ias.uwa.edu.au](http://www.ias.uwa.edu.au) (under activities & programs) or [ias@admin.uwa.edu.au](mailto:ias@admin.uwa.edu.au)
- Wastewater Treatment & Environmental Management – IWES Short Courses**  
Noosa, **14-18 July**. [www.iwes.com.au](http://www.iwes.com.au)
- Smart Energy Expo – by Hot Property**  
Adelaide, **18-20 July**. [www.adlex.com.au/HotProperty/hotproperty.html](http://www.adlex.com.au/HotProperty/hotproperty.html)
- Towards Zero Emissions: Strategies & Technologies for reducing industrial GHG emissions**  
Brisbane, **21-22 July**. [www.iir.com.au/resources](http://www.iir.com.au/resources) under “Upcoming Events” or [info@iir.com.au](mailto:info@iir.com.au)
- Environment, Planning & Law in the Coast Zone – Short Course**  
Sydney, **21-25 July**. [www.fbe.unsw.edu.au/news/enews/ProfDev/registration.pdf](http://www.fbe.unsw.edu.au/news/enews/ProfDev/registration.pdf)
- Rangelands in the New Millennium – VII International Rangelands Congress**  
Durban, South Africa, **26 July – 1 August**. [www.ru.ac.za/rqi/irc2003/IRC2003.htm](http://www.ru.ac.za/rqi/irc2003/IRC2003.htm) or [delegates@sbconferences.co.za](mailto:delegates@sbconferences.co.za) or
- Water Infrastructure (Stormwater, grey water, black water) – Who owns it? Who manages it? Who pays?**  
Melbourne, **28-30 July**. [www.iir.com.au/infrastructure](http://www.iir.com.au/infrastructure) or [info@iir.com.au](mailto:info@iir.com.au)
- 2<sup>nd</sup> Annual Renewable Energy Conference (with 14<sup>th</sup> Annual National Power & Gas Conference)**  
Sydney, **19-22 August**. [www.powergenerationworld.com](http://www.powergenerationworld.com) under “Events”
- Queensland Landcare & Catchment Management Conference & Awards**  
Gympie, **22-25 August**. Enquiries to Secretariat (07) 5482 4766, (07) 5482 4251, or (07) 5483 8866
- Praga 2003 – Landscape and Water – International Conference on Nature Conservation**  
Prague, Czechoslovakia, **25-29 August**. [www.landscape-water.cz](http://www.landscape-water.cz) or [info@landscape-water.cz](mailto:info@landscape-water.cz)
- Water Recycling Australia 2<sup>nd</sup> National Conference & Workshop**  
Brisbane, **1-2 & 3-4 September**. Conference 1-2 Sept; Workshop on ‘Quantitative Microbial Health Risk Assessment’ 3-4 Sept. Info: [awaq@powerup.com.au](mailto:awaq@powerup.com.au) or [brianw.davis@epa.qld.gov.au](mailto:brianw.davis@epa.qld.gov.au)
- Farming Systems in the Future – First National Farming Systems conference 2003**  
Toowoomba, Qld., **7-10 September**. [www.afsa.asn.au](http://www.afsa.asn.au) and [stewartc@usq.edu.au](mailto:stewartc@usq.edu.au)
- Waste & Recycle 2003 Conference – Sustainable Outcomes: Making it Happen**  
Perth, **9-12 September**. [www.keynotewa.com](http://www.keynotewa.com) or [enquiries@keynotewa.com](mailto:enquiries@keynotewa.com)
- 3<sup>rd</sup> International Meeting of the Global ‘States’ Network for Sustainability**

Perth, **17-19 September**. Preliminary expressions of interest to Prof Peter Newman, Dir. WA Sustainability Policy Unit – [pnewman@dpc.wa.gov.au](mailto:pnewman@dpc.wa.gov.au)

**3<sup>rd</sup> National Conference of Sustainable Campuses**  
 ANU Canberra, **24-26 September**. [www.anu.edu.au/acts2003](http://www.anu.edu.au/acts2003)

**Climate Change and Health – Symposium (29/9) and Short Course (29/9 – 2/10)**  
 Canberra, **29 September – 2 October**. [http://nceph.anu.edu.au/Envir\\_Collab/Climate\\_Change\\_course.htm](http://nceph.anu.edu.au/Envir_Collab/Climate_Change_course.htm)

**Organic Futures for Australia – OFA 2003 – 2<sup>nd</sup> National Organic Conference**  
 Adelaide, **2-3 October**. [www.ofa.org.au](http://www.ofa.org.au) or <http://conference.ofa.org.au>

**GIN2003: Innovating for Sustainability – 11<sup>th</sup> International Conference – The Greening of Industry Network**  
 San Francisco, **12-15 October**. [www.greeningofindustry.org/gin2003.htm](http://www.greeningofindustry.org/gin2003.htm)

**International Conference on Water-Saving Agriculture & Sustainable Use of Water & Land Resources**  
 Yangling, Shaanxi, P.R. China, **26-29 October**. Working language, English. Information from local Australian contact: [Lu.Zhang@csiro.au](mailto:Lu.Zhang@csiro.au)

**Emerging Transport Technologies – Future of the motor car – Greenfleet, World Solar Challenge & CSIRO**  
 Adelaide, **28-29 October**. [www.greenfleet.com.au/transport/sustainable.asp](http://www.greenfleet.com.au/transport/sustainable.asp)

**Coal – Contributing to Sustainable World Development – 12<sup>th</sup> International Conference on Coal Science**  
 Cairns, **2-6 November**. Hosted by Australian Institute of Energy, the International Energy Agency, and IEA Clean coal Centre. [www.aie.org.au/iccs](http://www.aie.org.au/iccs) or [iccs@aie.org.au](mailto:iccs@aie.org.au)

**Sustainability in a New World – International Solid Waste Association (ISWA) Congress 2003**  
 Melbourne, **9-13 November**. [www.iswa2003.net](http://www.iswa2003.net)

**Sharing Indigenous Wisdom – An international dialogue on sustainable development**  
 Wisconsin, USA, **6-10 June 2004** (was 8-12 June 2003). [www.sharingindigenouswisdom.org](http://www.sharingindigenouswisdom.org)

## And Finally – Notes and Reminders

**Our Web Site:** [www.bml.csiro.au/sustnet.htm](http://www.bml.csiro.au/sustnet.htm)

The site is maintained by Lyndon Hirst at CSIRO's Black Mountain Library – Suggestions welcome.

- **To find back issues of Sustainability Network newsletters directly, go to our web archive at:** [www.bml.csiro.au/SNnewsletters.htm](http://www.bml.csiro.au/SNnewsletters.htm)
- **Pass it on!** The Sustainability Network is intended to be inclusive rather than exclusive. If you know someone who might be interested in this newsletter, by all means forward it to them or give them our web address.
- **Want to make contact with scientists?** If you can see an application for the science featured in these newsletters and need to contact the scientists involved, let me know by email.
- **Want to see a particular area of sustainability science featured?** If there is a particular area of sustainability-related science that you would like to see featured as a “spot” in a future newsletter, send me an email or call me by phone to discuss it.
- **Give me your feedback.** I would be interested in your comments as to whether these newsletters are interesting, useful, and pitched at the right level for your particular purposes. Do you have suggestions? Thanks to all those who have already sent in comments and alerts.



**Milestone: Our Sustainability Network now has over 590 members.**

Sincerely,

*Elizabeth Heij*

Network Facilitator

**POSTSCRIPT** - Thanks to all of you who have sent in material for the Newsletter – on biodiversity in agricultural systems and other fascinating topics. If I seem slow dealing with it, it is because there is just one of me and around three dozen interesting articles on the go in parallel. We will get to see it all in due course, so don't give up! And thanks again for such a treasure trove of interesting food for thought.