

NCOSS + Shelter Social Sustainability

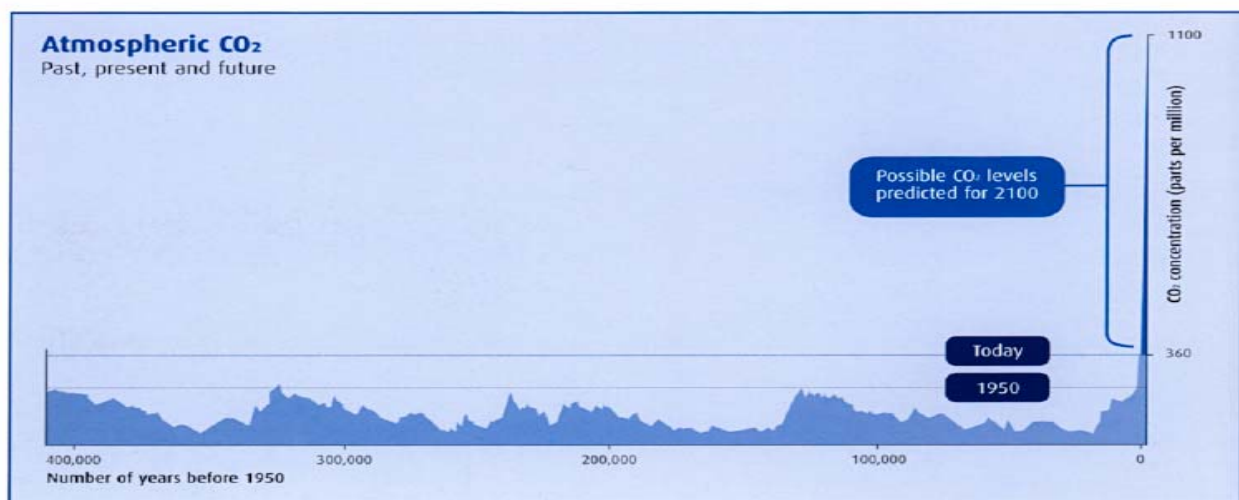
How to live affordably

Michael Mobbs

All of us on Earth are living in an incomplete experiment that is about 60 years old. In the last 60 years the amount of carbon dioxide in our atmosphere has gone about a quarter higher than has been recorded there for the last 400,000 years. During the last four ice ages on Earth, which have taken place over the last 400,000 years, the levels of carbon dioxide have fluctuated within consistent levels. Carbon dioxide goes up and down in the atmosphere according to whether we are in or out of an ice age. In just 60 years we have made the carbon dioxide in our atmosphere go higher than the highest recorded level because of the way we use water and energy, and how we build and live in our cities. By the end of this century, the amount of carbon dioxide will be about 6 to 8 times higher than has ever been recorded in our atmosphere. No one knows what this amount of carbon dioxide will do to the Earth's weather. But we don't need too much knowledge to foresee very different weather conditions, natural disasters and scarcity of natural resources.

The reasons carbon dioxide is getting so high is the way we develop, and the way we live.

Let's talk about Australia. You don't pour a glass of water here without burning energy and putting more carbon dioxide in our planet's atmosphere. Multiply the impact of this simple example to all the ways we live – to how we take showers, use washing machines, water gardens, etc. Our tapwater burns energy because government-owned businesses use polluting and inefficient systems to provide it. Government water and energy businesses are hugely inefficient systems, and they pour carbon dioxide into the atmosphere.



If we do not change the way we build Australian cities and live in them we will run out of water and become dependent on even more costly and ultimately unaffordable water and energy systems. Already, the cost of housing and land development is rising faster than the rate of inflation. The cost of energy and water is increasing; costs will rise faster than the inflation rate, as more inefficient solutions are chosen by government businesses.

My purpose here is to show some solutions. I have worked on four sustainable projects that demonstrate better business results, and lower environment impacts. The projects are: a renovation, a block of units, a subdivision and a new project home. They show:

- Mainstream (project) houses that are >20% cheaper to build than comparable (project) unsustainable houses
- Water, sewage and road infrastructure which is >20% cheaper to build and maintain than typical (unsustainable) infrastructure;
- The inefficient building costs and the pollution from land and housing development comes primarily from the government monopoly water, energy and road businesses, and secondly, from the inefficient design and manufacturing processes of the project home businesses.

The projects show we can sustain our energy and water if the private sector replaces government businesses as the main provider of water, energy and road infrastructure.

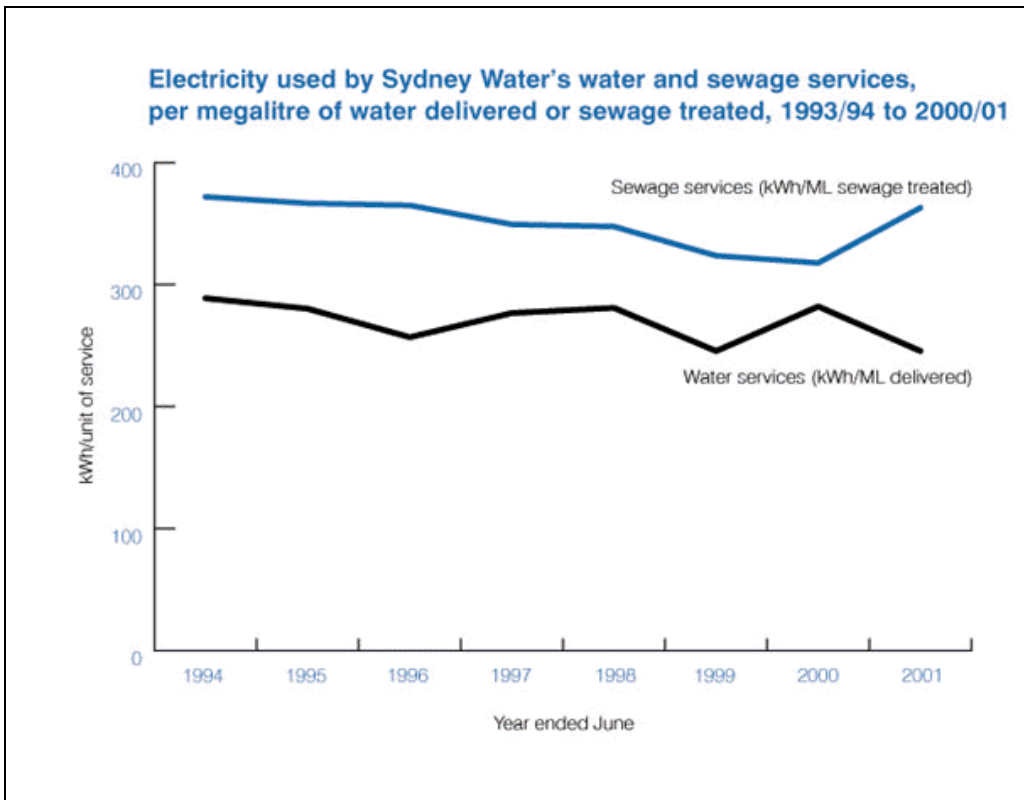
For this to happen, we need regulations giving developers and householders more power to provide their own water and energy needs, instead of being involuntary “customers” of government businesses. We need governments to allow competition to their businesses.

I must emphasize on the importance of sustainable energy and water supply. The high amount of energy used by Sydney Water to supply Sydney’s water is an alarming source of carbon dioxide which significantly pollutes Earth’s atmosphere. Here’s some facts about this typical Australian government water business:

- Sydney Water pumps water and sewage along its 20,000 kms of mains pipes using electricity.
- On top of that, there's as much piping within each of Sydney's 1.2 million house lots.
- Each day Sydney people consume over 1,300 megalitres of water, requiring 400,000kWh of electricity, producing over 350 tonnes of greenhouse gas emissions. Annually, this amounts to approximately 130,000 tonnes.

This pollution can be cut if, instead of the rain tank being the second most important source of drinking water, it is made the most important, with government business supplied water becoming of secondary importance ie as top up water when the tanks run low. If all households in Sydney harvested rainwater:

- the figure of 130,000 tonnes of greenhouse gas emissions would drop below 10,000 tonnes a 90 per cent reduction.
- Mains water demand (and thus stormwater run-off) would drop similarly by over 90 per cent.



Sydney Water, Electricity used by Sydney Water's water and sewerage services, per megalitre of water delivered or sewerage treated, 1993/94 – 2000/01

QuickTime™ and a
Photo - JPEG decompressor
are needed to see this picture.

Each month, Australia's 675 local councils approve over 13,000 new houses, and the way they will use water for the next 30 years + of their building life. As the average Australian house uses 350,000 litres a year, those approvals open the taps for an additional 45 million litres of water to be used in the houses each year. That's over 1300 Olympic swimming pool sized slabs of water. Or 2.6 kilometers of end to end pools being taken out of our rivers and groundwater. About as much water falls on our roofs and is wasted as stormwater into gutters and waterways.

Council Greenhouse Pollution – Sewage and Water

	Noosa	Brisbane	Logan (est)
Population	41,171	898,480	170,000
Total Greenhouse Gas Emissions	17,996	363,732	71,567
Greenhouse Gases from Water and Sewage Pumping	10,041 (55.79% of all council greenhouse gas emissions)	179,700 (49.40% of all council greenhouse gas emissions)	37,731 (52.72% of all council greenhouse gas emissions)
Electricity Bill for Pumping of water and sewage	\$ 564,731	\$ 10,000,000 (approx)	\$ 2,111,963
Total Electricity Bill	\$ 1,420,000	\$ 20,000,000	\$ 4,823,759

Only where water has run out is rain tank water being given top priority. For example, Beaudesert Council requires each new house to have a 30,000 litre rain tank, and it supplies top up water from its mains pipes when the tanks run dry. Several Qld and SA towns have lived this way for decades.

In summary, we have rising demand for water and energy, more and more expensive government business solutions for meeting the demand, and higher and higher water and energy bills – and more and more pollution of Earth's atmosphere.

What the key players say about affordable cities

Land and Housing development industry:

- it says government should borrow to provide and pay for the high and increasingly expensive (higher than the rate of inflation) cost of water, energy and road infrastructure.
- it's the most inefficient sector of the Australian economy – it's hostile to new technology,

competition and innovation. In Sydney's North West sector a typical project home builder, for example, builds a new house for \$167,000 and government utilities cost \$63,000, or about a third the cost of the house, and the land costs more.

Government:

- It provides the infrastructure and makes rules to prevent competition;
- It says development industry should give up "super" profits from land and housing and share the profits from newly developed land by contributing more to the cost of infrastructure (provided by the government).

Householders:

- are powerless – they want to provide their own infrastructure but by the time they buy a new block of land or house or unit it's too late (see ABS data, below, on rain tanks);
- are not protected by the pricing regulator of government monopolies, the Independent Pricing and Regulatory Tribunal. The Tribunal has failed to create markets that reduce water or energy demand or to achieve efficient, competitive markets;
- can't overcome government rules as key decisions to build new government infrastructure are made before they buy and they have no common "voice" to be an effective player.

Thus, there's a three sided housing and development game, and really only two players playing it, the State and the development sector, with consumers "locked" into taking whatever's being offered in an inefficient market that is highly polluting.

Four sustainable projects:

They show:

- A saving of over \$10,000/lot on utilities costs
- Unsustainable (govt) infrastructure costs in Sydney's NW sector = \$63,250 ie > one third cost of a house / Living costs > \$3000 (aircon is always in these houses)
- Sustainable (private) infrastructure costs \$21,5000 / Living <\$500
- The barriers to efficient land & housing development are mainly government rules which protect the market position of government water and energy and roads monopolies

Project 1 - New house -

An efficiently designed & built 2-bedroom house with study has:

- A building cost of \$90,000 (first go ie prototype)
- A utilities cost of \$11,000 for energy, water and sewage (on site systems)
- Electricity & water bills of <\$300/annum for 2 people Costs include the sustainable energy, water and recycled water systems

Project 2 - Retrofit

- 1996 building costs – first time, innovation = \$ 48,000
- 2004 costs = < \$20,000

Living costs before and after:

- 1996 = \$2000 water, energy
- 2004 = \$300 water, energy

Project 3 - Residential Unit Project

- 32 two bedroom residential unit complex
- Approval from Qld EPA & local council
- Project aimed at investor & tourist market
- 28 units sold off plan at prices x 3 that previously achieved
- All water harvested on-site, all sewage reused on site
- No headworks charges
- No water or sewage rates
- On-site costs roughly equal headworks charges

Project 4 – sustainable subdivision

Water (including sewage) and energy cost of < \$20,000 a lot

Project Home Costs for Sydney Subdivision, 2004 - Typical, unsustainable, NW Sector

Build cost of three bedroom house	Terrace house \$165,000 + GST Stand alone \$192,000 + GST
Size of house	Terrace house 150 SQM Stand alone 175 SQM
Size of lot	Terrace house 375 to 480 SQM Stand alone 480 to 700 SQM
Infrastructure costs	\$63,250 ie > one third cost of a house / Living > \$3000 (aircon)
Sustainable Infr costs	\$21,5000 / <\$500

	Typical (Unsustainable) Development, Sydney (\$Cost/Lot) 2004	Sustainable Development (\$Costs/Lot)
Build cost of three bedroom house	Terrace house \$165,000+GST Stand alone \$192,000+GST	<\$120,000
Size of house	Terrace house 150 SQM Stand alone 175 SQM	120SQM 140SQM
Size of lot	Terrace house 375 to 480 SQM Stand alone 480 to 700 SQM	<200SQM
Section 94	\$ 15,000 per lot	\$Nil
Road works	\$ 10,000 per lot	\$3000
Stormwater	\$ 4,000 per lot	\$500
Water (Sort of Grey water)	\$9,250 per lot	\$2000
Sewage	\$ 7,700 per lot	\$7000
Parks	\$ 4,250 per lot	\$1000
Energy	\$ 3,750 per lot	\$3000
Professional fees	\$ 5,400 per lot	\$5000
State Authority fees	\$ 3,400 per lot	\$Nil
TOTAL Inf. Costs	\$ 63,250 + GST	\$21500

Barriers to affordable housing

Barriers to sustainable subdivisions and housing include:

- Unsustainable council and government water businesses monopolise water services and energy infrastructure;
- Government monopolies use their rule-making powers over development to prevent competition from sustainable infrastructure by the private sector. That is, they act both as game keepers and poachers;
- Inefficient design, pricing and construction practices inhibit sustainable housing;

- The National Competition Policy has not been implemented by the Commonwealth which neglects its power to deny bonus payments to the States who maintain their anti-competitive water and sewage businesses and their monopoly powers despite the Policy;
- Governments have a financial disincentive to open their government owned corporations to competition because they earn substantial dividend and tax income from them;
- Developers who seek to provide sustainable community benefits which are not identified in council plans (called “Section 94 Plans”) find that their initiatives are rejected;
- Inefficient regulation of sustainable design.

Inefficient building and development sector

The way housing and subdivisions (traditional, unsustainable) are built is breathtakingly inefficient. All the trades come to the job at least three times usually many more. There is simply no justification for a plumber, electrician, concreter, etc coming to the site more than twice. Blokes in utes coming and going to building sites consume huge amounts of petrol and cause significant pollution and congestion. The transport (and traffic and air pollution impacts) impacts of the development industry are financially and environmentally unsustainable.

Inefficient regulation of sustainable design

There are over four energy rating programs around Australia, each of which costs over \$3000 to buy and train one person, not counting the additional costs of buying updates and training. So if your business operates in Qld, NSW and other states (as mine does) I may have to buy over four programmes to do the same job to comply with different state rules and prejudices (NATHERS, BERS, FIRST RATE).

The innovation by NSW Planning in introducing BASIX, a free, web based, sustainable assessment program that any developer or house owner may use is, in my opinion, the single most positive advance in NSW development controls over the last 20 years. Unlike the energy rating programs, BASIX can one day give a true analysis of energy usage as well as water, sewage and other issues, and will enable a land and housing developer to obtain certainty and simplicity from the approvals process.

At the same time, however, BASIX is a huge strategic tragedy. It cements the power of government water and energy businesses because it gives new housing Nil points for using rainwater for drinking, cooking, washing, showers, baths and hot water. It gives new housing Nil points for using sewage for toilet flushing and clothes washing.

In the US, 60m people have on site sewage, and 37% of all new housing has on site sewage. In Australia this market barely exists, mainly due to government rules preventing competition.

IPRT has failed to produce affordable housing. - in the late '90s Auckland reduced per capita water demand by over 30% in three months by virtually abolishing fixed charges and giving customers powers over their water bills yet IPRT hasn't touched fixed charges, and has never mentioned the Auckland success story.

ABS Data on rain tanks:

The Australian Bureau of Statistics reported in 2001 that water sourced from the rainwater tank constituted the second most important source of drinking water for Australian households, with over one in ten dependent on it (11%). (4602.0 Environmental Issues: People's Views and Practices 22/11/2001)

South Australians were the largest users of rainwater tank water for their primary drinking water (33%), three times the national average. About 14% of Queenslanders and Tasmanians also used rainwater as their main source of drinking water. The Bureau also reports the following findings:

- ❑ Over nine in ten Australian households received their domestic water supply from mains or town water (94% in 2001). The next most important sources of water were rainwater tanks and bottled water (both 16%).
- ❑ The proportion of households consuming bottled water has increased significantly since 1994 (1994, 3%; 1998, 12%; 2001, 16%).
- ❑ Over eight in ten households with rainwater tanks considered that the water supply from their rainwater tanks was sufficient for their needs (83%). Cost was the most important justification provided for not installing a rainwater tank (38%).
- ❑ Over one in four Australians were dissatisfied with the quality of tap water for drinking (27%). Half the Australian population nominated taste as the most serious problem affecting mains tap water (52%), followed by chlorine (32%).
- ❑ Over one in five Australian households used water filters for their drinking water.
- ❑ About one in four Australians (26%) complained that they had experienced problems with the supply of mains water in the 12 months prior to the survey. In March 2001 the most common problem quoted was inadequate or low pressure (11%).
- ❑ More than half of Australian households did not adopt any steps to conserve water at home (56%). For those that did, turning off or repairing dripping taps to conserve water was the most common practice reported (20%), followed by having full loads when washing (16%).
- ❑ About 64% of households reported using dual flush toilets in 2001. This is a significant increase on previous years (39% in 1992 and 55% in 1998). The use of reduced flow shower heads has also increased, from 32% in 1998 to 35% in 2001.
- ❑ Nearly nine in ten households that maintained a garden depended on mains water as the primary source (89%). About 58% of households with a garden reported that they conserved water in the garden.
- ❑ Nearly 69% of Australian households with gardens used mulch and around 58% reported planting native trees or shrubs.
- ❑ South Australia maintained the highest prevalence of rainwater tanks (52%). About 33% of South Australians used rainwater tanks for their main source of drinking water, which was three times the national average.

Of those households that did not have a rainwater tank, 25% had considered installing one, or some 1,850,000 households (there are some 7,400,000 Australian households).

In the US, the EPA estimates chlorine in mains water causes 2% of cancers (as chlorine decays it

breaks down to four hydrocarbons called trihalomethanes, one of which causes cancer) but in Australia there's no government concern about this and no research into it that I know of.

Other Facts:

- Global water consumption rose sixfold between 1900 and 1995, more than double the rate of population growth.
- In 1950, globally there were 5,270 large dams. Today, there are more than 36,500.
- The number of waterways altered for navigation has grown from fewer than 9,000 in 1900 globally to almost 500,000 today, with a consequent decline in their viability as habitat.

Source: The World Resources Institute 1998, World Resources 1998-99: A Guide to the Global Environment, Oxford University Press.

- 40% of urban water use across Australian is on gardens.
- There has been a 9% drop in water usage across urban Australia as a whole in the last 5 years. A contributing factor is the metering of individual households and charging per unit of water used.
- On average 92% of rainfall is re-evaporated, 7% reaches the sea and 1% recharges aquifers.
- About 30-45% of water is lost in the distribution systems to urban users.

Source: Australia. Commonwealth Scientific & Industrial Research Organisation (CSIRO). (June 1999). DIMA Workshop series, Water Overview-2 December 1999, Workshop Review [Online]. Available: <http://www.dwe.csiro.au/futures/ecumene/DIMAwshopReps.htm> [18 May 2000].

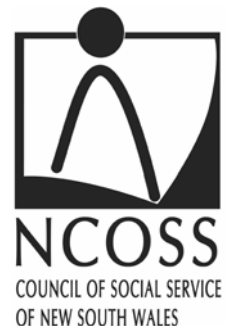
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Social Sustainability and
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Conference Program



Monday 1 November

Time	Session	Speakers
8.45am	Registration	Registration Desk:
9.15am	<i>Hunter/Phillip Rooms</i> Welcome	Chair: Chris Dodds – President NCOSS
9.20am	Welcome to the Land	Allen Madden , Cultural Education Officer, Metropolitan Local Aboriginal Land Council.
9.30am	Opening Address	The Hon. Diane Beamer MP Member for Mulgoa, Minister for Juvenile Justice, Minister for Western Sydney and Minister Assisting the Minister for Infrastructure and Planning
9.45am	Keynote: Where is the Metropolitan Strategy up to?	Professor Ed Blakely , School of Architecture Design Science and Planning, University of Sydney
10.30am	Morning Tea – <i>Hunter and Phillip Rooms</i>	
11.00am	HOUSING	<p>Facilitator: Mary Perkins, Executive Officer Shelter NSW</p> <p>Keynote: Associate Professor Judy Yates, Faculty of Economics and Business, University of Sydney</p> <p>Panel:</p> <ul style="list-style-type: none"> • Marcus Spiller, National President, Planning Institute of Australia • Digby Hughes, People with Disability Australia • Judy Stubbs, Social Justice and Social Change Research Centre, UWS

12.30pm	Lunch: <i>Chapman Room or John Macarthur Rooms</i>	
1.30pm	<p><i>Hunter/Phillip Rooms</i></p> <p><i>DEBATE:</i> <i>Who should pay for a Socially Sustainable Sydney?</i></p>	<p>Chair: Professor Julian Disney</p> <p>Panel:</p> <ul style="list-style-type: none"> • Jennifer Westacott, Director General, Department of Infrastructure, Planning and Natural Resources. • Glen Searle University of Technology Sydney • Ken Morrison, Chief Executive, Property Council of Australia • Alex Gooding, Executive Director WSROC Ltd. Sydney
3.00pm	Afternoon Tea- <i>Hunter/Phillip Rooms</i>	
3.30pm	<p>EMPLOYMENT</p>	<p>Facilitator: Gary Moore, Director NCOSS</p> <p>Keynote: Professor Bill Mitchell, Director, Centre of Full Employment and Equity, University of Newcastle</p> <p>Panel:</p> <ul style="list-style-type: none"> • Alison Peters, Executive Officer, NSW Labor Council • Steve Lawrence, Chief Executive, Work Ventures • Dr Evan Jones, Director, Metropolitan Planning, Department of Infrastructure, Planning and Natural Resources.
4.45pm	<p>HEALTH – Cities fit to Live In!</p>	<p>Keynote: Dr Tony Capon, Medical Officer of Health, Western Sydney Area Health</p>

COCKTAIL FUNCTION- Parramatta Town Hall
Hosted by the Mayor Cr Julie Finn,
Guest Speaker Ms Randa Kattan
Executive Director
Australian Arabic Communities Council

Tuesday 2 November

Time	Session	Speakers
8.45am	Registration	Registration Desk:
9.00am	<i>Hunter/Phillip Rooms</i> Opening Address	Facilitator: Michelle Burrell, ShelterNSW Board Member/ NCOSS Deputy Director. The Hon Carl Scully MP, Minister for Roads, and Minister for Housing
9.15am	UTILITIES, BUILDING AND AFFORDABILITY	Keynote: David Nemptzow, Director General, Department of Energy, Utilities and Sustainability Panel: <ul style="list-style-type: none"> • Michael Mobbs, Principal, Sustainable Projects • Jane Castle, Resource Conservation Campaigner, Total Environment Centre • Jim Wellsmore, Utility Consumers Advocacy Program
10.30am	Morning Tea – Hunter/Phillip Rooms	

CONCURRENT SESSIONS

11.00am	<p><i>Hunter/Phillip Rooms</i></p> <p>TRANSPORT</p>	<p>Facilitator: Dinesh Wadiwell, Senior Policy Officer, NCOSS</p> <p>Panel:</p> <ul style="list-style-type: none"> • Michelle Zeibots, Transport Planner, Institute of Sustainable Futures • John Whelan, Director, Community Transport NSW Ministry of Transport • Joan Gennery, Transport Development Worker, Western Sydney Community Forum
11.00am	<p><i>Macquarie Room</i></p> <p>HUMAN SERVICES</p>	<p>Facilitator Gary Moore NCOSS Director</p> <p>Panel:</p> <ul style="list-style-type: none"> • Sonja Stewart Executive Director Communities DoCS (TBC) • Sue Coleman, Executive Manager, City Outcomes, Fairfield City Council • Helen Backhouse, Executive Office, Illawarra Forum
12.30pm	<p align="center">Lunch: <i>Chapman Room or John Macarthur Rooms</i></p>	
1.30pm	<p><i>Hunter/Phillip Rooms</i></p> <p>COMMUNITY REGENERATION</p>	<p>Facilitator: Mary Perkins, Executive Officer, ShelterNSW</p> <p>Keynote: Professor Bill Randolph, Head, UNSW/UWS AHURI Research Centre, Faculty of Built Environment, University of NSW</p> <p>Panel:</p> <ul style="list-style-type: none"> • John Skennar, Regional Coordinator- Public Places, WSROC Ltd • Sandy Quealy, Mt Druitt Priority Regional Communities • Kylie Frazer, Social Planner, Wyong Council

3.00pm

DRINKS AND MELBOURNE CUP (CASH BAR)
Hunter/Phillip Rooms