

ADDRESSING AUSTRALIA'S HOUSING SHORTAGE THROUGH IMPROVED HOUSING UTILISATION

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ABSTRACT

Australia currently suffers from a well documented housing shortage, particularly in the area of affordable housing. The reasons for this shortage are equally well documented, with supply-side constraints being generally regarded as the root of the problem. Governments at all levels have made various attempts to relieve the acuity of the problem, which has become something of a policy debate football, with most responses focussed on the need to create more housing. However, the creation of additional new housing stock is highly costly and can involve considerable time lags, through various barriers to completion. New home construction can also be quite environmentally unsustainable, having a high carbon footprint. Therefore, it is proposed that another, although partial, solution may lie in addressing the demand side for housing, via the utilisation of existing housing stock. This paper explores the current level of utilisation of Australia's existing housing stock and identifies significant underutilisation by international standards. Using detached housing in the Sydney metropolitan area as a proxy, examination of 2006 Census data has shown that there is substantial underutilisation of existing housing stock. The need to explore policy initiatives that can encourage a higher utilisation of existing housing stock is highlighted, including removing the existing barriers to housing substitution for retirees. A central conclusion of this research is that if a significantly higher housing stock utilisation could be achieved the potential time and capital savings, and importantly, carbon footprint reduction, could be very significant by comparison to the construction of new dwellings.

Keywords: housing affordability, housing demand, housing supply, sustainable housing.

INTRODUCTION

Australia's shortage of housing is a well documented phenomenon. In the recent report of the Senate inquiry into Australia's housing market, the growing housing shortage was identified as one the greatest challenges facing our country in the next decade (Senate 2008).

The majority of commentators view the housing shortage as essentially a "supply-side" issue and believe solutions must target housing supply. This paper examines the demand side, in particular, the little addressed issue of housing utilisation. The paper identifies the potential for a partial but meaningful contribution from improving housing utilisation to Australia's housing shortage. Improved housing utilisation could also have significant environmental benefits.

AUSTRALIA'S HOUSING SHORTAGE

The gravity of the senate's above referenced conclusion about the housing shortage is given weight by the Australian Bureau of Statistics' forecast that Australia's population of some 22 million could reach 35.5 million by 2056 (Australian Bureau of Statistics 2008).

It appears that the country's progress towards a much larger population base will be underwritten by the current federal government. In a recent speech given by Prime Minister Kevin Rudd to the Business Council of Australia, he enunciated his belief in a "Big Australia". While that implies continuation of the historically large immigration intake of recent years, it is matched by a preparedness to tackle the concomitant issues of infrastructure and urban planning – read housing – head on (Rudd 2009).

While that bodes well for the longer term, there is estimated to be a current underlying annual demand for dwelling stock of over 170,000 nationwide and a dwelling stock deficit of approximately 130,000, that has been growing steadily since 2006 (BIS Shrapnel 2009).

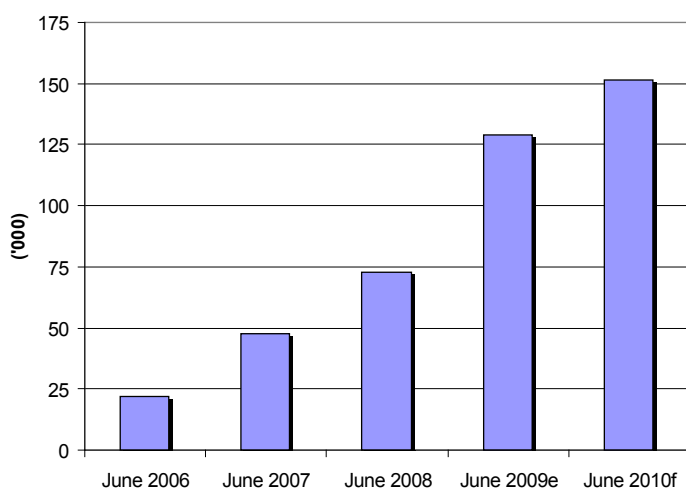


Figure 1: Australian dwelling stock deficiency (BIS Shrapnel 2009)

The situation is particularly acute in the major coastal cities, with Sydney currently standing out with a dwelling stock deficit of nearly one and a half times the city's annual underlying demand and almost half of the national dwelling stock deficiency.

State/Territory	Stock Deficit at June 2009f	
	Number	% Annual Underlying Demand
NSW	63,979	133.8
VIC	26,662	60.5
QLD	22,161	55.1
SA	693	6.3
WA	10,389	47.6
Tas	1,005	36.5
NT	2,377	121.9
ACT	1,641	64.0

Table 1: Dwelling stock deficits as at June 2009f (BIS Shrapnel 2009)

Australia's housing shortage is being primarily fuelled by its current high levels of population growth. Australia has been experiencing one of the greatest periods of population growth since the Second World War (Australian Bureau of Statistics 2008). Higher fertility rates are being augmented by immigration numbers that are at approximately 180,000 per annum.

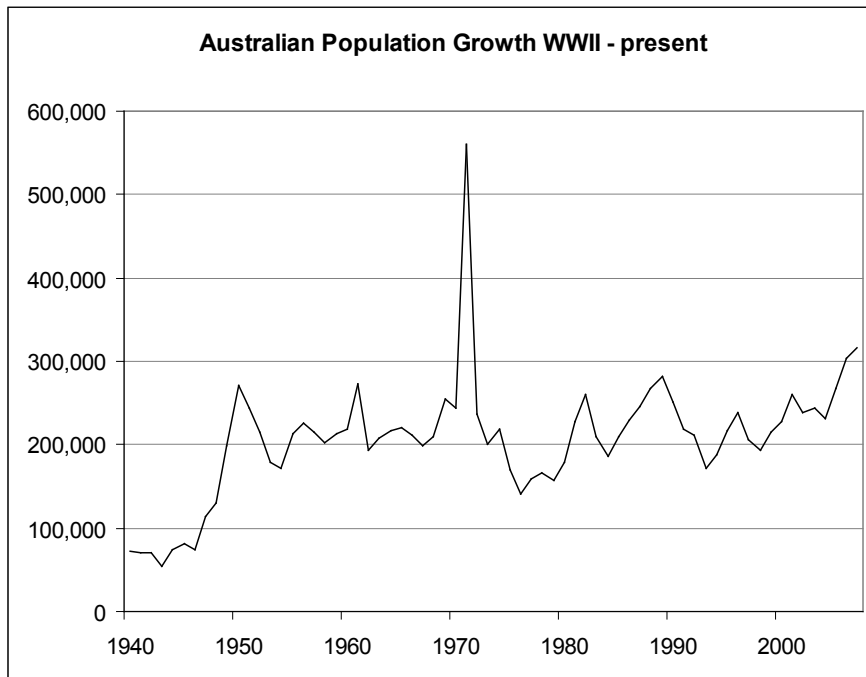


Figure 2: Australian population growth, WWII to present (ABS 2008)

The problem of population growth and more significantly housing that growth is not unique to Australia. Countries such as China are facing the problem on a scale that is almost incomprehensible for Australians.

Between 1979 and 1997 nearly 15 billion square metres of urban and rural housing was built in China as the usable floor space per capita increased from 3.5 square metres to 12.3 square metres. Further, China's objectives for the period from 2000 to 2010 have been stated to involve the construction of over 300 million square metres of housing annually with 85% of this being apartments (Mei-sheng 1999). Put in context, that is equivalent to building a city the size of Brisbane every year!

In Australia, our housing problem operates at two levels. The first arm is simply the formation of sufficient housing stock to accommodate the growing demand. The second arm however, is the knock on effect that a housing shortage has on house prices, viz-a-viz, housing affordability. Both these concerns are problems that are almost exclusively the domain of the major seaboard cities, not surprisingly, because those cities and Sydney in particular, bear the greatest burden of our rapidly expanding population, the key driver of housing demand.

That said, while ever Australia continues to experience population growth at the current rate, given our current housing deficit and current rate of housing production there will be a growing housing shortage accompanied by repeated calls for greater production of housing to “fix the problem”.

In our major cities, the vast majority of new housing stock is produced in greenfield urban fringe environments, known colloquially as “urban sprawl”. However, such housing production is increasingly seen as neither practical nor sustainable. There are long lead times for approvals and servicing of new subdivisions. The infrastructure servicing costs and supporting social infrastructure such as schools, hospitals and roads require substantial capital commitments that appear increasingly beyond the capacity of our financially stretched state and municipal governments.

Resource and finance issues aside, there is increasing recognition that new housing construction has a significant environmental impact leading to questions about its sustainability, particularly housing built in the form of “urban sprawl”.

At a time when governments and communities the world over are facing up to the challenge of global warming and issues of sustainable development, perhaps it is time to ask are there other ways that our demand for additional housing can be satisfied?

This paper explores alternative thinking to the “one size fits all” approach of new housing production, by posing the question, could housing demand be in part satisfied by higher utilisation of our existing housing stock ?

LITERATURE REVIEW

A review of literature in the area reveals that limited attention has been given to housing utilisation issues. Considerable attention has been given to matters surrounding housing affordability, in particular low-cost housing. Beer (2006), identified the failing of planning policies as a mechanism to encourage and deliver large scale improvements in the supply of affordable housing. The challenge of achieving Environmentally Sustainable Development has added to pressure to deliver housing affordability improvements through the supply side.

Milligan (2006) found that the long standing over-arching policy approach of private sector reliance for housing stock delivery, has exacerbated availability problems for low income households.

Metropolitan planning strategies of various state governments have sought to redress the competing demands of ESD and demand for housing/affordable housing. This was identified by Gleeson et al 2004, in a comprehensive review of these strategies.

For example, the Melbourne 2030 Metropolitan Plan, sought to contain urban sprawl and promote higher densities by implementing a containment ring that provided a boundary for urban development.

In contrast, the New South Wales government's recently released City of Cities strategy seeks to promote more environmentally sustainable development through strategies that promote greater densification around transportation nodes and cities within cities around business centres, with a focus on employment generation.

Arman (2009) touched on the issue of our existing housing stock in their paper on sustainability. They identify that although Australia's annual rate of housing production is approximately 150,000 units, the vast majority of Australia's future housing supply has already been created, namely an estimated 7.5 million housing units. Interestingly, the somewhat logical progression to how we utilise that stock is not made, particularly given his paper's context is sustainability.

AN ALTERNATIVE APPROACH

The challenges of meeting the rapidly growing housing shortage and the need to get ahead of the housing demand curve dictate that serious consideration needs to be given to alternative means of augmenting the supply of housing.

Based on the literature review, an area that appears to have escaped attention thus far, is the utilisation of our existing housing stock. Measures of supply of available ready for occupation housing focus on empty housing units available for rent. The "vacancy rate" is the widely accepted measure, as produced by the Real Estate Institute of Australia. As can be seen from the table below, for the past few

years the vacancy rate has been hovering at low levels for most major Australian cities, particularly for Sydney and Melbourne.

Capital City	June 2009 Vacancy Rate (%)	June 2008 Vacancy Rate (%)
Sydney	1.3	1.1
Melbourne	1.4	1.0
Brisbane	3.0	2.2
Adelaide	1.4	1.5
Perth	3.5	1.5
Hobart	2.1	2.4
Darwin	0.8	0.3
Canberra	2.5	2.0

Table 2: Vacancy Rates (All Rented Dwellings) as at June 2009 and June 2008 (REI)

However, the problem with vacancy rate as a measure is that it only records housing units that are available for rent as vacant. In other words, it makes no distinction between a 3 bedroom home occupied by 5 people as one with a sole occupant. Therefore, little regard is had to the utilisation of housing stock in assessing available supply.

It is posited that maybe we need to consider the efficiency of how our existing housing stock is utilised. Could improving the utilisation of our existing housing stock potentially make a meaningful contribution to redressing the housing supply shortage?

To explore this concept, I have decided to focus on the greater Sydney metropolitan region. It stands to reason that if there is something in the concept, then it would be in Sydney, Australia's largest city. Sydney has a population estimated at 4.2 million (Australian Bureau of Statistics 2006) and a stock of housing of approximately 1.5 million housing units. Sydney also is the city that absorbs the greatest proportion of demand for housing with approximately one third of foreign immigrants settling in its greater region.(BIS Shrapnel 2009)

Fortunately, to explore the concept, the Australian Bureau of Statistics produces a very useful dataset on house occupation levels as part of its five yearly annual population census.

To develop a picture of housing utilisation in the greater Sydney metropolitan area, data for each local government area (LGA) was analysed. The analysis focussed on detached housing, given its greater proportion of overall housing stock, approximately 62% as at 2006 (Australian Bureau of Statistics 2006), and therefore potential to yield a meaningful result. Within the detached housing segment, the analysis was based on accommodations of 3 or more bedrooms, again with the intention to identify potentially meaningful levels of under utilisation. The numbers of dwellings, persons per dwelling and bedrooms per dwelling were utilised to determine how effectively, or efficiently, the existing housing stock was being used.

Based on these data filters, the analysis at a LGA is detailed at Appendix 1. Aggregating the data produced some very interesting results. As summarised in the table 1 below, the data shows that there is a significantly high level of underutilisation. In raw terms, almost 400,000 bedrooms were unoccupied as at 30 June, 2006.

Of particular interest was the sub-class of dwelling with lone person and 3 or more bedrooms which is compiled below for the 37 LGAs examined. These data show that in this subset of Sydney dwellings alone there is over 67,000 under utilised homes and 150,000 bedrooms not being utilised (for accommodation). Appendix 1 shows this data on an individual LGA basis.

	Lone person	2 person
Number of dwellings	67,679	169,859
Number of bedrooms	219,676	571,081
Number of empty bedrooms	151,997	231,363
Persons per dwelling	1.0	2.0
Bedrooms per person	3.2	1.7

Table 3: Dwelling utilisation for free-standing houses, lone person and 2-person households, with 3+ bedrooms (ABS 2006)

If the analysis widened to include all 2 person households (either couple or group) and again consider those dwellings with 3 or more bedrooms we find an

additional 170,000 under utilised dwellings with over 230,000 unutilised bedrooms. This implies that there are almost 2 spare bedrooms per person in this subset of 237,000 Sydney households. More importantly, this means that over 25% of Sydney's estimated supply of 906,000 detached houses (Australian Bureau of Statistics 2006) is substantially under-utilised.

Clearly, if just a portion of these 237,000 homes could be made available for higher density occupation, then this would make a meaningful impact on the NSW housing supply deficit (recall that the housing deficit for NSW is approximately 70,000 dwellings). We would expect a similar potential exists in the other major cities/states.

Admittedly not all unoccupied bedrooms are unutilised. Spare bedrooms are often used for a variety of other purposes, such as a study, storage, recreation etc. Moreover, bedrooms that are currently unused may be subject of planned future use, for example family expansion.

However, based on national census data, we know that over 65% of people in lone person households and couple family households (with no children) are over the age of 45. This suggests that for most of these households, their future accommodation needs are unlikely to change. In turn, this implies that the majority of the 237,000 homes identified as significantly underutilised in Sydney are unlikely to be more utilised by their current occupants in the future.

HOUSING UTILISATION – AN INTERNATIONAL BENCHMARK

Although housing utilisation appears low in the sample analysed above, it is useful to qualify that with some form of international benchmarking. The Canadian National Occupancy Standard (CNOS) is an internationally recognised measure of the efficiency of usage of residential property. The standard provides the following guidelines for the number of bedrooms as a function of the household composition:

There should be no more than two persons per room

Children less than 5 years of age of different sexes may reasonably share a bedroom

Children less than 18 years of age of the same sex may reasonably share a bedroom

Single household members ages 18 years and over should have a separate bedroom

Couples and parents should have a separate bedroom

A lone person may reasonable occupy a bed sitter

Based on this standard for optimal household room usage, it is clearly evident that the utilisation level filters adopted in the analysis above are well outside the optimal levels suggested by the CNOS.

In further support of the Sydney based analysis, recent data (Australian Bureau of Statistics 2007) on housing occupancy indicates that the vast majority of Australian households when considered using the CNOS have a surplus of rooms. Across all households, over 42% had 2 or more bedrooms spare and tellingly only 2.8% needed additional bedrooms.

To highlight this overcapacity, of the 7.92 million households in 2005-06, there was 2.04 million couple-only families (i.e. no dependent children). Of this subset of families, representing approximately 26% of all households, over 77% had 2 or more spare bedrooms. The figure shown below highlights the significant bias towards dwellings with unused bedrooms for couple only and lone occupant dwellings.

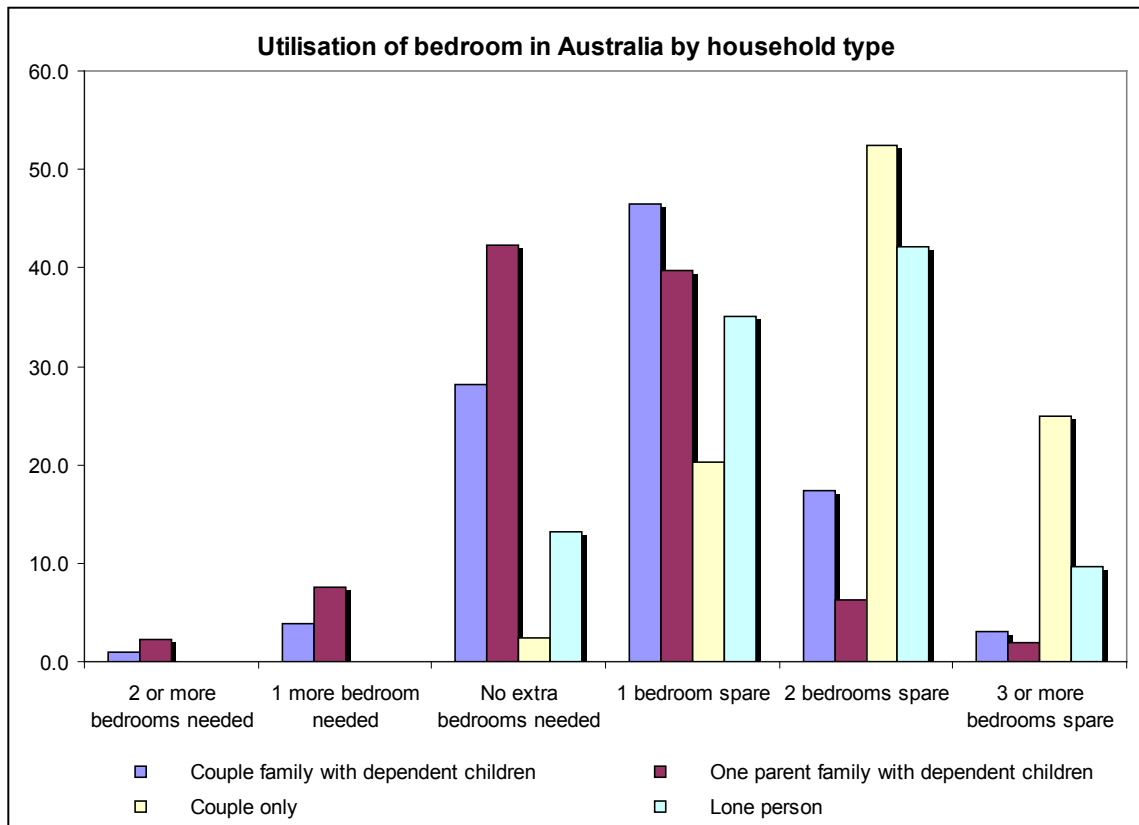


Figure 3: Utilisation of bedrooms in Australian households by household type (ABS 2007)

WHY IS HOUSING UTILISATION SO LOW?

Before turning to what may be done to redress the low level of housing utilisation, evident from this analysis, it is instructive to understand why this phenomena exists. The data shows that it is not something that has occurred over night, rather it is more a secular trend.

It was reported by the ABS (Australian Bureau of Statistics 2007) that between 1995 and 2006 there was a 13% increase in the number of persons in a private dwelling and a 21% increase in the number of households. This corresponds to a decrease in the number of persons per dwelling from 2.69 to 2.51. This decrease has been attributed to a variety of social factors including: the increase in the occurrence of divorce and separation in families, people getting married later in life and families having fewer children (Senate 2008).

In addition to considering the demand pressures generated by a decreasing household size with increasing population, it was noted by the ABS that the

dwelling size has, during the same period, increased from 2.88 to 3.06 bedrooms per dwelling reflecting an ongoing accumulation of unused residential resource. It is in these unutilised rooms that present the potential for measures to relieve some of the housing deficiency and affordability pressures.

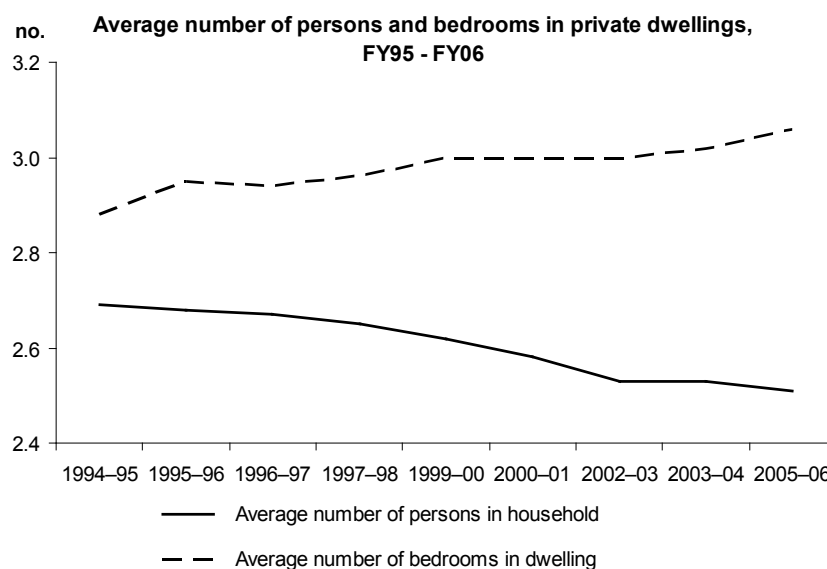


Figure 4: Average number of persons and bedrooms in private Australian dwellings, 1994-95 to 2005-06 (ABS 2008)

SUSTAINABILITY

The concept of meeting housing demand by achieving a higher level of housing utilisation could make a meaningful contribution to reducing our urban carbon footprint. In our major cities, the vast majority of new housing stock is produced in greenfield urban fringe environments, known colloquially as “urban sprawl”.

However, such housing production is increasingly seen as neither practical nor sustainable. There are long lead times for approvals and servicing of new subdivisions. The infrastructure servicing costs and supporting social infrastructure such as schools, hospitals and roads require substantial capital commitments that appear increasingly beyond the capacity of our financially stretched state and municipal governments. Meanwhile, greenfield development often leads to environmental destruction, via bushland clearing or reduction of farming land, which in turn can lead to a significant impact on biodiversity.

As Prof. P Troy, a witness in the recent Senate housing report, put it “the McMansion bomb is not just a bomb in relation to the financial issues; it is a bomb in terms of the environment because of the destruction it does to the biodiversity of large chunks of our cities – it is very, very inefficient environmentally”.

The environmental impact of constructing a new three bedroom brick veneer home in Australia has been conservatively estimated at approximately 50 tonnes of carbon equivalent, based on energy consumption of 5.9 GJ/m². To put this in perspective, the operational energy consumption for the same house has been estimated at around 0.8 GJ/m² per annum (Pullen 2000).

Clearly there are potentially large environmental benefits to building fewer dwellings by improving housing utilisation. However, the more efficient use of residential properties is not purely of benefit in terms of reducing the need to build more dwellings. It can also assist in moving the population towards a more environmentally sustainable footprint. The recent senate report into housing affordability stated that for housing to be truly affordable it must be more than affordable on the basis of purchase price and mortgage or rental payments alone. Indeed, it must also be affordable with respect to transportation and energy costs.

As reported by Garnaut (Garnaut 2008) the costs of running a home are expected to increase significantly as we move towards a lower carbon economy. These costs, such as heating and lighting, can be reduced to a certain extent by not only making houses have a smaller carbon footprint in an absolute sense, but also by reducing this footprint in a per capita sense. The latter can clearly be achieved by more efficient use of the existing stock. It is noted that approximately 30% of home greenhouse gas emissions come from lighting and heating which are a function of house size (Department of the Environment 2007).

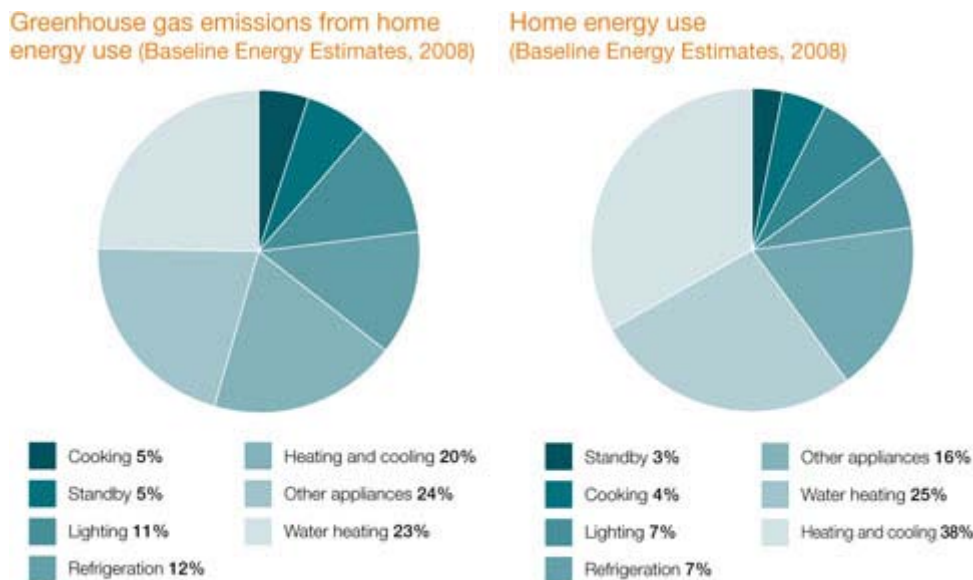


Figure 5: Greenhouse gas emission, and energy use profiles for Australian dwellings (Reproduced from Department of the Environment, Water, Heritage and the Arts 2007)

IMPROVING HOUSING UTILISATION AND OTHER AREAS FOR FURTHER RESEARCH

This paper has highlighted that there is significant housing underutilisation in Australia. With the aging of the population, the secular trend of declining housing utilisation is expected to get worse unless action is taken. In the greater Sydney region alone, at least 237,000 homes are underutilised, based on international standards, with 400,000 bedrooms unoccupied. Not all unoccupied bedrooms are unutilised or without a planned need. However, over 60% or 140,000 homes are occupied by single people or couples that are unlikely to have an increasing need for additional bedrooms, suggesting a potential that a smaller housing unit may be more suitable to their needs.

Therefore, if the occupants of the housing group identified in this study could be encouraged to substitute their housing for a smaller more efficient alternative, their house could be made available to meet suitable demand.

The challenge for further research is to identify the barriers to such housing substitution and then strategies to alleviate them. Such strategies may include providing economic incentives for people to “right-size” their housing accommodation. Given the highlighted potential energy saving from new house

construction, some of the benefit of the implied carbon reduction could accrue to the “right-sizing” home owner. The expected implementation of an ETS in Australia may open up interesting avenues for creating an economic framework to support such a scheme. For example, if a carbon tax were to be levied on the production of a new home, a carbon credit (or part thereof) may be created to reward bonafide housing substitution that frees up a larger housing unit.

That substitution is admittedly not something that is necessarily straightforward. Indeed, the Senate report (Senate 2008) highlighted that one of the key issues for housing supply in Australia is that the supply must match the needs of home buyers. It was noted that “there is often inadequate housing for those looking to downsize”. However, if the housing development sector could be encouraged to target development that facilitated the above outcome, more suitable development may follow. Planning legislation would need to be revisited to support this approach.

Another area for further research would be to widen and deepen the statistical analysis undertaken for this paper to develop an Australia wide picture of housing underutilisation. At the same time, a more detailed analysis of LGA’s could be undertaken to identify potential “hot spots” of high level underutilisation.

The Senate report also noted that another barrier to the transition of people between dwellings was the taxes and duties imposed on such transactions. Of particular concern was Stamp Duty which is inefficient and “discourages people from moving to more appropriate housing types as their circumstances change”. Perhaps stamp duty abatements or reductions could be introduced to encourage housing substitution. An expected by-product of such a move to increase the available supply of larger houses would be to improve their affordability, thereby addressing in part the second arm of Australia’s housing crisis.

CONCLUSION

This paper has highlighted that in Australia, and in particular in the greater Sydney metropolitan area, there is a significant underutilisation of the existing residential housing stock. The trend to smaller families in larger dwellings, in concert with the strongly increasing population is adding additional stress to the

current housing affordability crisis. It has been proposed that in addition to the development of additional new housing stock, that the existing stock may be more optimally used by the migration of people within the existing base to more appropriately sized dwellings.

The appropriateness of dwelling to households needs has been highlighted as a key issue in terms of both satisfying the current deficit of residential property and for making homes truly affordable and sustainable.

It is proposed that in order to motivate households to move to more appropriate dwellings, changes must be made to the taxes and duties imposed upon these transactions which currently pose a significant barrier. Furthermore, systems of reward for households who make a more sustainable choice and developers who facilitate it may be worthy of consideration.

To facilitate the choice to “right size”, changes must also be made to the current planning regimes so that new stock is developed to truly meet people’s needs, and not to churn out larger numbers of bigger houses on the city fringes.

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Appendix 1

Dwelling utilisation for free-standing houses, lone person and 2 person households with 3+ bedrooms by local government area (ABS, 2006)

LGA	Lone person households			2 person households		
	Number of Dwellings	Number of Empty Rooms	Empty Rooms per person	Number of Dwellings	Number of Empty Rooms	Empty Rooms per person
Ashfield	551	1,227	2.2	1,291	1,627	1.3
Auburn	834	1,804	2.2	1,622	2,004	1.2
Bankstown	3,940	8,496	2.2	8,356	10,477	1.3
Baulkham Hills	3,215	7,954	2.5	11,008	17,938	1.6
Blacktown	7,831	17,219	2.2	17,392	22,448	1.3
Botany Bay	468	1,007	2.2	1,080	1,303	1.2
Burwood	65	141	2.2	1,176	1,539	1.3
Camden	1,336	3,122	2.3	3,938	5,964	1.5
Campbelltown	4,220	9,257	2.2	9,378	12,092	1.3
Canada Bay	1,163	2,540	2.2	2,700	3,374	1.2
Canterbury	1,977	4,267	2.2	4,540	5,512	1.2
Holroyd	2,109	4,591	2.2	4,783	5,945	1.2
Hornsby	3,412	7,947	2.3	9,862	14,640	1.5
Hunter's Hill	263	604	2.3	649	940	1.4
Hurstville	1,593	3,509	2.2	3,679	4,770	1.3
Kogarah	1,031	2,318	2.2	2,345	3,191	1.4
Ku-ring-gai	2,570	6,220	2.4	7,492	11,684	1.6
Lane Cove	500	1,143	2.3	1,322	1,871	1.4
Leichhardt	622	1,340	2.2	1,386	1,645	1.2
Liverpool	3,353	7,628	2.3	8,496	11,741	1.4
Manly	554	1,286	2.3	1,406	1,944	1.4
Marrickville	879	1,942	2.2	2,017	2,445	1.2
Mosman	347	834	2.4	1,031	1,547	1.5
North Sydney	367	830	2.3	845	1,116	1.3
Parramatta	3,033	6,567	2.2	6,661	8,421	1.3
Penrith	5,383	11,835	2.2	13,073	17,129	1.3
Pittwater	1,364	3,182	2.3	3,904	5,616	1.4
Randwick	1,406	3,137	2.2	3,340	4,457	1.3
Rockdale	1,529	3,324	2.2	3,443	4,257	1.2
Ryde	2,009	4,433	2.2	4,732	6,208	1.3
Strathfield	505	1,155	2.3	538	670	1.2
Sutherland Shire	4,291	9,744	2.3	12,956	17,948	1.4
Sydney	221	480	2.2	538	670	1.2
Warringah	2,621	6,042	2.3	7,844	11,139	1.4
Waverley	470	1,051	2.2	988	1,354	1.4
Willoughby	1,174	2,697	2.3	2,894	3,988	1.4
Woollahra	473	1,124	2.4	1,154	1,749	1.5



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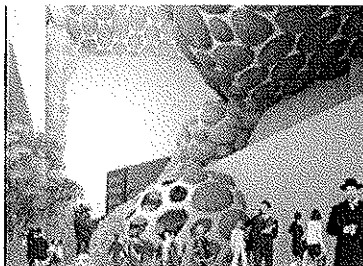
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ABOUT THE CONFERENCE

The focus of this year's conference is the management of construction. Rather than automatically associating the meaning of these two words to the area of expertise labelled as 'construction management', we intentionally set out to interpret their connection in the broadest possible way, to incorporate any discipline that improves our ability to manage the industrial structure, the planning and production process, the distribution process, or the output of building.

What should the sophisticated pairing of 'construction' and 'management' designate or include today — particularly from an intellectual perspective? Predetermined or new academic disciplines, specific training or work issues, micro or macro problems, cultural dispositions towards problem definition and problem solving?

Irrespective of the possible answers, can we presuppose curricular bases? If so, to what extent? Similarly, can we identify — normatively or historically — the kinds of research we should engage with, or the kinds of teachers/scholars who should be involved?

These questions are critical for tertiary educators in building programs across the entire Australasian region, but particularly in Australia, where the dynamics of the industry, combined with the ongoing restructuring of building courses and the faltering support for research in construction, raise issues with regard to the nature and use of the education on offer in the various areas, the market for it, and the role that educational providers should play in advancing or maintaining the state of knowledge.

In light of the changes recently undergone in its overall structure, the Faculty of Architecture Building and Planning at the University of Melbourne is keen to provide a platform for AUBEA to reflect on such issues, by implicitly subjecting its own choices to criticism and debate vis-à-vis alternative strategies and/or agendas.

Contributions are therefore sought from individuals as well as institutions that, on the basis of the questions suggested above, can help map an inclusive territory for managing construction, define or reinforce its environmental connections and boundaries, or steer the travel in specific directions — essentially by clarifying their own intellectual and operative position against issues that are specifically deemed or relevance.

This can be done by describing epistemological stances, work carried out by the presenters, curricular choices, teaching strategies, problems to address, gaps to fill, areas to bridge, tools to develop, knowledge streams to pursue, research undertaken or to undertake, issues to consider, or constituencies to respond to, in every area covered by the programs of building schools.

As in the best tradition of AUBEA conferences, the range of possible topics is wide, with the small proviso that each paper should contribute to stimulate a 'reflective' and possibly organic discussion on the overarching theme.

Student stream

Since higher research degree students are the linchpin connecting academic present and future, a section of the AUBEA meeting will be devoted to the presentation of their work on related matters.

Research funding discussion

In light of the Federal Government's current Excellence in Research for Australia (ERA) initiative, another section of the meeting will be used to discuss the funded research environment in Australia, and the space this leaves to building-related studies.



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AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION

AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION (AUBEA),
35TH ANNUAL MEETING



SUBMISSION DETAILS

Abstracts

Abstracts will be used as expressions of interest and for conference structuring purposes. We would like to receive short, clear abstracts, not exceeding 300 words. They should include the name(s) and affiliation(s) of the author(s), title, and summary of content of the intended paper. Abstracts should be e-mailed to aubea2010@unimelb.edu.au.

Referees will review papers only.

Initial paper submissions

Submitted papers should not be longer than 3,000 words and be formatted in PDF, with a file size not to exceed 5mb. Name(s) and affiliation(s) of the author(s) should only appear in the first page, as shown in the paper template below. Papers should be sent to aubea2010@unimelb.edu.au with 'AUTHOR(S)SURNAME_aubea2010_initialpaper' in the Subject field. If the author is a student, the Subject field should read: 'Student_AUTHOR(S)SURNAME_aubea2010_initialpaper'.

» [Paper template](#) (Word, 55 kb)

Format guidelines for the paper are as follows:

Length: 2000 - 3000 words.

Paper size: A4, 1.5 lines spacing.

Margin: 2.5cm top/bottom and 3.5cm left/right.

Title: Times New Roman, upper case bold, 14 point, 24 pt before and 18 pt after.

Text: Times New Roman, 12 point, 6 pt before and 12 pt after.

Main Headings: Bold and all in capitals, 24 pt before and 12 pt after.

Sub-Headings: Bold and lower case, 12 pt before and 6 pt after.

No underlining.

Images, charts and tables should be titled, numbered, and embedded in the text.

Captions: Times New Roman, lower case, 10 point, 0 pt before 24 pt after.

Harvard referencing.

In principle, the structure of the paper should contain an abstract outlining purpose, scope, methods and conclusions, plus selected keywords. The text should be organized in separate sections consisting of introduction, main body, conclusions, and references.

All submissions will be double blind peer-reviewed.

Final paper submissions

All accepted papers must be submitted electronically in their final form as a Word document, to the same address and by 26 June. The Subject should be 'AUTHOR(S)SURNAME_aubea2010_finalpaper', or 'Student_AUTHOR(S)SURNAME_aubea2010_finalpaper'.

All final manuscripts will be included in the electronic conference proceedings subject to peer review acceptance.

CONFERENCE PROCEEDINGS

Conference proceedings will be available as part of the conference package. The technical committee will select the best papers and invite its authors to extend them into chapters for a book on education and research on the management of construction or articles for the *Australasian Journal of Construction Economics and Building*.

☞ Contact Us

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☞ ABP Website

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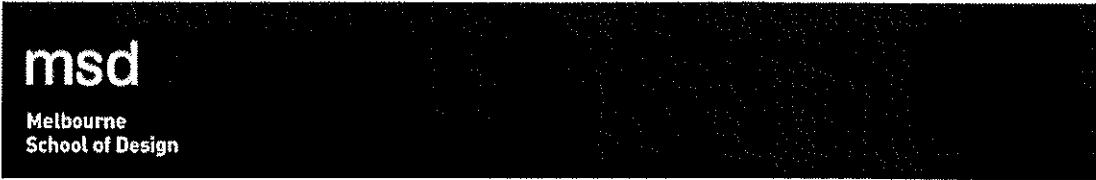
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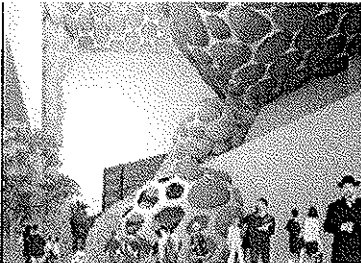
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