

Sustainable Development and Housing Affordability

Sadasivam Karuppannan and Alpana Sivam
Institute of Sustainable Systems and Technologies
University of South Australia, Australia
Sadasivam.Karuppanna@unisa.edu.au
Alpana.Sivam@unisa.edu.au

Abstract

Affordable housing and sustainable urban development are major challenges across the world including Australia. Generally there is a conflict between the approach of sustainable development and affordable housing. Sustainable development means compact city and often compact development is more expensive than the low-density residential development. In Australia sustainable housing has generally been constructed for the high end of the market. Affordable housing means small housing units, use of low cost material, in small blocks built on cheap land at the periphery of the city. Basic aspects of sustainable residential design such as increasing density, mixed use and proximity to public transport are being increasingly adopted in Australian cities. However, the sustainability of affordable housing remains questionable.

The aim of the paper is to improve our understanding of current practices of sustainable residential development and housing affordability and discuss whether the approach of sustainable development aligns with affordable housing objectives.

Keywords: Housing, affordable housing, sustainability, housing design.

1. Introduction

Both affordable housing and sustainable development are major challenge across the world including Australia. Beer (2007) argues that housing affordability has once again emerged on the policy agenda of Australian governments. House prices have risen in response to booming demand and constraints on the supply of dwellings. Shortage of housing dwelling is especially due to a shortage of land in the capital cities. Many low-income households and young people are unable to gain access to homeownership and are not able to afford private rental housing (Beer et al., 2007). Due to shortage of land supply in cities of Australia, the government agenda has moved towards densification and urban containment.

There are real tensions in planning strategies of Australia's metropolitan cities between desire to provide affordable housing, on the one hand, and desire to achieve sustainable development on the other. It is generally seen in Australia that sustainable housing development is unaffordable for the low income households and young people. Sustainable development means compact city and often these developments are more expensive than the normal residential development. However, some studies have demonstrated that Australian housing markets are significantly unaffordable by international standards with urban consolidation (Wendell, 2005).

In Australia sustainable housing has generally been constructed for the high end of the market, for example, Lochiel Park in Adelaide, South Australia. Affordable housing means a small unit, use of low cost material, small block and cheap land at the periphery of the city.

Basic aspects of sustainable residential design such as increasing density, mixed use and proximity to public transport are being adopted increasingly in Australian cities. However, generally the high density apartments near city or in inner suburbs or along the coastal areas cater for the housing needs of upper end of the society but unaffordable for the majority of the population. Hence, generally there is a conflict between the approach of sustainability development and affordable housing. However, making affordable housing as sustainable development remains questionable and problematic.

The aim of the paper is to improve our understanding of current practices of sustainable residential development and housing affordability and discuss whether the approach of sustainable development aligns with affordable housing objectives. The study is based on review of relevant literature. Paper is divided into three parts. First part of the paper gives overview of sustainability and sustainable housing and second part talks about affordable housing. Third part of the paper elaborates on whether sustainable development approach aligns with the affordable housing objectives.

2. Sustainability and sustainable housing

There are many definitions of sustainability but well known and well accepted definition is the one proposed by the World Commission on Environment and Development in their 1987 study commonly known as Brundtland commission report (WCED, 1987, p. 8).

Sustainable development means meeting 'the needs of the present without compromising with the ability of future generations to meet their own need'.

Whereas Newman defines sustainability as:

Sustainability is defined as a global process that also tries to help create an enduring future where environmental and social factors are considered simultaneously with economic factors (Newman, 2002, p. 1).

He also defines what sustainability will mean for housing:

- 1. Ensuring there is a 'roof overhead' for the housing disadvantaged,*
- 2. Ensuring housing is more eco-efficient, and*
- 3. Ensuring housing is well located or is part of a project to improve locational amenity.*

(Newman, 2002, p. 1)

However, Choguill (2007) argues that even though the definition used by WCED looks very simple, it is very complex to apply in real life problems. Choguill argues that 'the term sustainability has become one of the most overused and all-too-frequently misused terms in the development literature' (Choguill, 2007, p. 144). He argues that we talk loosely about sustainable cities, sustainable housing and many other sustainable activities. Jepson (Jepson, 2007) says that sustainable development has become firmly established in the community development and planning literature. However, when it comes to practicing sustainable development it remains largely outside the main stream. Choguill argues that initially the concept of sustainable development was related to macroeconomic development and more recently it has been applied in human development by implication housing.

The concepts of sustainability started from the human settlement and from there it has gone further to address issues of housing and neighbourhood development. Sustainable housing means 'housing which contributes to community building, to social justice and to economic viability at a local level (Morgan and Talbot, 2001, p. 321). Morgan and Talbot argue that sustainability should be the main principle to design housing and one of the important dimensions of the housing quality. Development of sustainable housing refers to not only the development of building but also layout of the housing areas. Quality of dwelling life is not 'therefore, simply concerned with having a roof over one's head and a sufficient amount of living space, but also with social and psychological satisfaction. Sustainable physical design can contribute to quality of life' (Hasic, 2001, p. 329). Hasic says that social and behavioural elements of housing design are the key to the success of the residential development. To address the sustainable issues of urban development at a different level from neighbourhood to a regional level a new paradigm emerged as "New Urbanism" in 1980s. The New Urbanism is nothing but revisiting the traditional development and modifying it to suit the contemporary perspective. Based on new urbanism principles Hasic developed the SUM model. The principles he adopted are:

Centre of the neighbourhood should have public space with activities like commercial and local civic activities,

1. Neighbourhood should consist of range of household types and mixed land use,
2. The importance of the car should be in perspective, and
3. Design should respond to the surrounding built form and spaces and local tradition and culture (Katz, 1994 quoted in Hasic, 2001).

Kunstler (1996) argues that these principles can be called by various names such as neo-traditional planning (NTP), traditional development plan (TNP), and transit oriented development (TOD). Therefore, to develop sustainable housing, housing initiatives must be socially acceptable, economically viable, environmentally friendly and technical feasible (Choguill, 1999). Choguill argues that government policy needs to develop directing to achieve these desirable aims. Choguill (2007) argues that to achieve sustainability in the housing sector, there is need to consider three objectives. The first to this is basis for household improvement, second is empowerment of poor people and third is psychologically giving feeling of self-worth for lower segment of urban society (Choguill, 2007).

Currently, housing affordability is seen as how to make housing economically viable while other important issues of sustainability are largely ignored. However, in recent times government focus from only to economics is slowly changing towards accommodating social and environmental issues of sustainability.

3. Affordable housing

Unfortunately, like sustainability, housing affordability is also overused and misused. Hulchanski (1995, p.1) argues that in recent years "housing affordability" has become a commonly used term for summarising the nature of the housing difficulty in many nations. He identifies six elements of measuring housing expenditure to an income ratio to measure housing affordability. These six elements are developed based on North American usages. Six elements are: "(1) description of household expenditures, (2) analysis of trends, (3) administration of public housing by defining eligibility criteria and subsidy levels, (4) definition of housing need for public policy purposes, (5) prediction of the ability of a household to pay the rent or the mortgage, and (6) as part of the selection criteria in the

decision to rent or provide a mortgage. Each of the six uses is assessed based on the extent to which it is a valid and reliable measure of what it purports to measure” (Hulchanski, 1995, p. 1). He says use of the word ‘housing affordability’ is misleading, and we should not use it because household consumption patterns and the means by which household meets their needs are very diverse. Paris (2007) argues that it is easy to grasp the concept of affordability but might be hard to pin down in practice, because of changing circumstances of families and individuals. Again measurement of affordability varies from place to place and countries to countries but the most accepted measurement of affordability is the ratio between household income and housing cost (Hulchanski, 1995). It is widely accepted that household should not spend more than 30% of their household income on housing.

The issue of housing affordability is multi-dimensional. Numerous studies have identified many factors associated with housing affordability like, interest rates, income levels, construction cost, land supply, and housing prices. Problems are many and they are all interwoven. One of the biggest problems low income households face today is finding affordable and appropriate housing. Affordable housing is that it is affordable to lower or middle income households. It includes owner-occupied housing as well as rental housing owned by government, nonprofits organisations, corporations or individuals (Disney, 2007). Disney defines affordable housing as:

“affordable housing which reflects both public usage and appropriate policy goals is housing which is reasonably adequate in standard and location for a lower- or middle-income household; and does not cost so much that such a household is unlikely to be able to meet other basic living costs on a sustainable basis”(Disney, 2007, p. 1).

Well known and well practiced measurement of affordable housing is that housing cost should be less than 30% of household income of the occupants in the bottom 40% of household incomes (Disney, 2007). Therefore, in this broad definition affordable housing means any housing costing less than 30% of household income of the bottom 40% of the community.

Numerous research on affordable housing has been undertaken by many researchers across the world (Berry, 2006; Burke et al., 2007; Wendell, 2005; Yates and Gabriel, 2006; Yates et al., 2008; Yates et al., 2007; Lloyd-Sherlock, 2000; Whitehead, 2006). These studies are generally addressing one of the housing affordability issues such as fiscal implication, housing finance, problems of housing affordability, which has an affordability problem, policy, planning etc. However, there is not much research on integrated approach to address issues of housing affordability. Again there is literature on housing affordability and housing sustainability but not integrated approach of housing affordability and sustainability. This paper is the initial thoughts of a proposed research in Australia, where the researcher will use integrated approach and will like to investigate the relationship between housing sustainability and housing affordability through case studies. Integrated approach will include design issues and triple-bottom-line approach.

House prices throughout Australia have risen dramatically over the past two decades and have contributed to a general decline in housing affordability, especially for first home buyers and low income households. Burns argues that despite the global crisis, housing in Australia remains overpriced among the OECD counties (Complex issues in home affordability 2008, quoted in Burns, 2008). Burns argues that in 1987 ratio of house price to household income

was approximately four and by 2003 the ratio had risen to nine. Put simply there are not enough wage rise to meet the rising costs of housing. Australian households now require 38% of their household income to cover mortgage repayments.

According to Local Government Planning and Housing Ministers in South Australia affordable housing means: “*Housing appropriate for the needs of a low and moderate-income household and priced so that low and moderate incomes are able to meet other essential basic living costs*”.

Generally affordable housing includes specific criteria such as housing costs should be less than 30% of household income and the occupants being in the bottom 40% of household incomes (Disney, 2007).

Governments annually update affordability indicators and provide indicative purchase and rental prices for low and moderate income households as outlined in the table 1 below. These prices are based on the 30% income rule (Government of South Australia, 2009).

Table 1. Housing affordability indicators

Affordability indicators	Metropolitan and Outer Adelaide	Rest of the State
Low income (80% of annual median income)	\$42,194	\$35,794
Indicative house purchase price	\$142,000	\$120,000
Indicative weekly rental	\$243	\$207
Moderate Income (120% of annual median income)	\$63,291	\$53,691
Indicative house purchase price	\$213,000	\$181,000
Indicative weekly rental	\$365	\$310

Source: (Government of South Australia, 2009).

The next section will investigate the relationship between sustainability and affordable housing.

4. Sustainability and affordable housing

Housing means a roof over the head where as sustainability and housing is more than a roof over head (Newman, 2002, p. 1). Affordable housing also limits the cost of housing because households should not pay more than 30% of their household income. If households spend more than 30% of the household income on housing it implies they are in housing stress. Therefore, it is a real challenge for both facilitator and provider to provide affordable housing, which is also sustainable. As we know sustainability does not only mean economically viable, but also socially and environmentally sustainable. Therefore, there is a need to trade off between various sustainable elements to achieve sustainable housing that is affordable. Unfortunately currently the sustainability of housing is very much related to economics and to some extent environment. Therefore, sustainable housing must be economically viable, socially acceptable, technically feasible and environmentally compatible. However, to improve the quality of life social sustainability will play a vital role. It is not always true that sustainability could be achieved by providing expensive housing.

Social sustainability could be achieved by functional design by respecting the local context and culture. For example, in the two housing layouts in figure 1 below one is high quality row housing and the other is cluster housing. In cluster housing households have common public place which provides opportunities to interact with other households whereas the row house does not have the opportunity to interact with other households.



Figure 1. Examples of housing layout.

Source: Picture on left

<http://www.eikongraphia.com/images/ThePalmJumeirahVillasMarch2007CopyrightNakheelS.jpg> ; Picture on right by Gaston.

To achieve sustainability in the housing sector, there is a need to devise policy for involvement of community, construction of housing, building standards, provision of infrastructure responsibilities, housing finance and provision of land (Choguill, 2007; Sivam et al., 2002). To some extent, these policies might help to achieve affordable housing. Sustainable housing could be achieved by addressing eco-efficiency, location and design criteria. Eco-efficient housing will be compatible to environment, and the location might be economically feasible and design criteria might create a community, which will be socially acceptable and viable.

Eco-efficiency in design and construction of housing is widely accepted across the world by wealthy households (Newman, 2002). However, the question arises whether it would be possible to make this as a compulsory requirement of building code for all houses irrespective of income. Extra cost might be a trade off by reducing the house size or by reducing from two garages to one garage and go for considerable reduction in ongoing cost of energy, water and travel. Therefore, there is a need to involve community in all stages concerned with planning, design, construction and maintenance of housing projects. Governments can encourage people to form community organisations and get involved in housing development process and take part design and carry out housing project (Choguill, 2007). As housing is mostly developed by private sector, government can take responsibility on behalf of people to insure that quality housing is produced. In Australia involving community organisation is not the current practice.

Location is important to achieve the economic sustainability. If high and medium density housing is provided near transport node and transit corridor, it will allow and facilitate use of public transport rather than private car. Hence this will reduce the transport and infrastructure cost.

Design plays a very important role in providing sustainable and affordable housing. Design can reduce the house cost, infrastructure cost, reduce ecological footprint and could increase social sustainability and quality of life. Design of housing development covers both design of house and design of residential area. In house construction one has to see where a house will be self-built or by the private sector. Whether building material will be available at affordable price and whether government will give provide subsidies to enable housing affordable for low income households and first home buyers. Will government provide some financial support to low income households if they go for eco-efficient house? Governments need to ensure affordable and adequate supply of land in the housing market. Government also need to free up some of their own surplus land holding (Choguill, 2007).

In planning context it is assumed that housing design, form of the development should be eco-efficient means less resource consuming and less waste producing and yet provides better quality of life and quality of place. Design needs to take care of solar orientation and wind direction. To make socially sustainable place, design has to provide the environment where walking and participating in community activities are encouraged. While designing the housing complex critical housing needs to be considered so that people can be part of the community and can belong to 'place'. Design needs to be all age friendly and should have diverse housing and mixed land use.

To achieve affordable housing, there is need to reduce the cost of house by providing housing near public transport, infrastructure and community facilities with due regard to climate and solar orientation. This will make house to be cool in summer and warm in winter and will reduce use of energy for thermal comfort. Proper use of solar orientation will increase the use of solar energy instead of electricity and gas. Design should provide quality public open space and public real that should attract people of age groups to participate in community activities. All this will reduce the maintenance cost of housing and allow good social interaction within the community.

To achieve sustainable housing, there is a need to provide community facilities, compact design, pedestrian friendly design, eco-efficient houses etc. Indeed there are many elements that are common in both sustainable and affordable housing. Therefore, it is possible to make affordable housing sustainable by involving community in the design process and by providing government subsidies to achieve eco-efficient housing.

5. Conclusion

Many objectives of affordable housing closely align with objectives of sustainability such as location close to public transport and social and community facilities, compact design, consideration of a climate and solar orientation. Having said that, there are also some objectives that are quite opposite to each other such as eco-efficient house is expensive, and it is difficult to achieve affordability without financial support from government. Even though housing sustainability is as important as housing affordability, it is necessary to give priority to affordability of low income households. Therefore to make housing sustainable for everyone sustainability criteria should vary from one housing type to other. Affordable housing and social sustainability could easily be achieved by providing better design and public realm but environmental and economically sustainability might be difficult to achieve due to high cost of sustainable housing. Choguill (2007) argues that 50 years of housing policy development has not solved the problem of affordability and every year inadequate

housing in developing world is increasing. Therefore, it is hard to believe that just because we label something 'sustainable' it will improve affordability (Choguill, 2007).

Even though we tend to think of affordable housing as a distinct and identifiable sector, in fact, it is little more than one sector of the overall housing development. Although we can treat these two issues in isolation they are invariably interrelated and we are unlikely to achieve success in one without succeeding in other. In the same way some of the principles of sustainability are aligned with affordable housing objectives and housing as a whole sector. Therefore, it is quite unlikely to achieve success in affordable housing without succeeding in housing as whole incorporating issues of sustainability. However, the scale of the sustainability for social, economic and environment will vary based on the housing affordability of households from place to place. It is unlikely that without using design criteria such as the new urbanism concept and development of housing policy including sustainability agenda, it would be easy to achieve sustainable affordable housing.

References

- Beer, A., Kearins, B. & Pieters, H. (2007) Housing Affordability and Planning in Australia: The Challenge of Policy Under Neo-liberalism, *Housing Studies*, Vol. 22 (1) pp. 11-24.
- Berry, M. (2006) *Housing affordability and the economy: A review of macroeconomic impacts and policy issues*, Australian Housing and Urban Research Institute.
- Burke, T., Pinnegar, S., Phibbs, P., Neske, C., Gabriel, M., Ralston, L. & Ruming, K. (2007) *Experiencing the housing affordability problem: blocked aspirations, trade-offs and financial hardships*, Australian Housing and Urban Research Institute.
- Burns, L. (2008) Housing Costs and Affordability in Australia, *RBA Economics Competition 2008*, Curtin University of Technology, Perth.
- Choguill, C. (1999) Sustainable human settlements: some second thoughts, IN Foo, A. F. & Yuen, B. (Eds.) *Sustainable cities in the 21st century*, Singapore: National University of Singapore, pp. 131-142.
- Choguill, C. L. (2007) The search for policies to support sustainable housing, *Habitat International*, Vol. 31 pp. 143-149.
- Disney, J. (2007) *Affordable housing in Australia: some key problems and priorities for action*, National Forum on Affordable Housing, Australian Housing and Urban Research Institute: Melbourne.
- Government of South Australia (2009) *Housing affordability*, Department of Families and Communities: Adelaide.
<<http://www.dfc.sa.gov.au/pub/tabId/438/itemId/312/moduleId/1658/What-is-affordable-housing.aspx>>.
- Hasic, T. (2001) A Sustainable Urban Matrix: Achieving Sustainable Urban Form in Residential Buildings, IN Williams, K., Burton, E. & Jenks, M. (Eds.) *Achieving Sustainable Urban Form*, New York: SPON Press, pp. 329-336.
- Hulchanski, D. J. (1995) The concept of housing affordability: six contemporary uses of the housing expenditure-to-income ratio, *Housing studies*, Vol. 10 (4) pp. 471-492.

- Jepson, E. J. (2007) Sustainability and the Childe thesis – What are the effects of local characteristics and conditions on sustainable development policy?, *Cities*, Vol. 26 (6) pp. 434-447.
- Kunstler, J. H. (1996) *Home from Nowhere: Remaking Our Everyday World for the 21st Century*, New York: Touchstone.
- Lloyd-Sherlock, P. (2000) Old Age and Poverty in Developing Countries: New Policy Challenges, *World Development*, Vol. 28 (12) pp. 2157-2168.
- Morgan, J. & Talbot, R. (2001) Sustainable Social Housing for No Extra Cost?, IN Williams, K., Burton, E. & Jenks, M. (Eds.) *Achieving Sustainable Urban Form*, London and New York: Spon Press, pp. 319-328.
- Newman, P. (2002). “*Sustainability and housing: More than a roof over head*”, Paper presented at the 2002 Barnett Oration, Melbourne, 31st October.
- Paris, C. (2007) International Perspectives on Planning and Affordable Housing, *Housing Studies*, Vol. 22 (1) pp. 1-9.
- Sivam, A., Evans, D., King, R. & Young, D. (2002) An approach to improved housing delivery in large cities of less developed countries, *Habitat International*, Vol. 25 pp. 99-113.
- WCED (World Commission on Environment and Development) (1987) *Our Common Future*, Oxford: Oxford University Press.
- Wendell, C. (2005) International Housing Affordability.
- Whitehead, C. M. E. (2006) Planning Policies and Affordable Housing: England as a Successful Case Study?, *Housing Studies*, Vol. 22 (1) pp. 25-44.
- Yates, J. & Gabriel, M. (2006) *National Research Venture 3: Housing Affordability for Lower Income Australians*, Australian Housing and Urban Research Institute.
- Yates, J., Kendig, H., Phillips, B., Milligan, V. & Tanton, R. (2008) *Sustaining fair shares: the Australian housing system and intergenerational sustainability*, Australian Housing and Urban Research Institute.
- Yates, J., Milligan, V., Berry, M., Burke, T., Gabriel, M., Phibbs, P., Pinnegar, S. & Randolph, B. (2007) *Housing affordability: a 21st century problem*, Australian Housing and Urban Research Institute.