

The Exploration of Attitudinal Issues and Decision-Making of Key Stakeholders in Sustainable Housing Development

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Abstract

Sustainable housing is a paradigm that invokes a strong interest among many Australians. With much research already conducted in relation to sustainable design and innovative technologies in the building industry, it is believed that a need exists to examine the gaps between the increasing number of exemplar projects for smart and sustainable development in the residential sector and the continuing market dominance of project homes typically designed and built in the non-sustainable way.

Over the past decade, many intelligent, green and eco homes have emerged as exemplars. To a large degree, they concentrate mainly on technical solutions, typically dealing with energy efficiency, water usage, and choice of building materials. Most were developed on an ad hoc basis following passive design principles and strategies. While these technical aspects are important and will continue to be explored, the economic and social aspects of sustainable housing, and in particular the integrated considerations by housing developers and home buyers as customers, need to be properly addressed in order to bridge the gaps.

This paper will focus on the attitudinal patterns and decision flows of both the developer and home buyer from a management point of view. Engaging these major stakeholders will help identify key drivers and define an acceptable balance between factors that influence the adoption of sustainable housing. This is particularly required when much work is needed to raise the levels of sustainability knowledge in the community, and home buyers' long-term interests are not represented effectively in the decision-making of housing development. The paper refers to the preliminary findings of ongoing research that aims to engage key stakeholders in the housing industry, in a process that identifies how smart and sustainable housing can be better promoted and eventually adopted as standard practice in the Australian housing industry.

Keywords

Sustainable housing, stakeholders, attitudes, integration, social issues

Introduction

Sustainable development is a concept that was brought to our attention in 1987 with the development of The Brundtland Report by the World Commission on Environment and Development (Blair et al. 2003). Since this time sustainability has become a topical issue in Australia, with its principles having strong relevance throughout each of the sectors in the building industry, in particular the housing sector (Sibley 2003). Key

stakeholders in the housing sector, including developers and home buyers, are now beginning to realise the importance of sustainability as a result of continuing media exposure, pilot research on sustainable design and innovative technologies, and the availability of a number of tools for measuring building performances (Building Commission 2003). Consequently, it is believed that sustainability will become a priority in many of building regulations within each of the states and territories in Australia in the very near future.

Despite the current trends of increased awareness, it should be recognised that these earlier efforts towards sustainable development have, more often than not, focussed on the technical solutions (Sibley 2003). As a result, there is an imbalance between the probes for technological based solutions and research on social issues and economical justifications (Buys et al. 2004). According to Lovin (2004), one area of particular importance is the decision-making and attitudes of key stakeholders of sustainable development. Among all stakeholders in the housing sector, attitudes and decision patterns of developers and home buyers, are particularly relevant, because of their positions in the supply chain.

The purpose of this paper is not to provide an in-depth and comprehensive assessment of the social issues that will affect the move towards sustainable housing. Rather, it introduces the developmental steps and discusses the preliminary results of an ongoing research project that aims to discover how the current trends in the housing industry, in terms of decision-making patterns and general attitudes towards the adoption of sustainability principles in housing, can be penetrated, and what strategies could potentially be embraced and put into practice so that smart and sustainable housing can be adopted as standard practice in the Australian housing industry. As many current decisions such as the choice of subdivision, the types of house design, and infrastructure support are made by developers with little joint exploration of issues or sharing of information with their customers, this research will explore ways of better engagement of the community in the housing sector.

The recent boom in the development of exemplar sustainable housing projects

The recent boom in the development of exemplar projects of sustainable housing has resulted in the industry being scattered with demonstration homes incorporating one or more sustainability principles. For instance, the Subiaco Sustainable Demonstration Home, was developed with the hope to become a benchmark in ecologically sensitive housing, showcasing a mix of architectural features and innovative technologies (Subiaco 2004). The Healthy Home, built on the Gold Coast, focuses on water supply and reuse, life cycle energy assessment, architectural design and prototype home design (EPA 2003). Other examples include the Research House in Rockhampton, which was developed as a research centre, aiming to trial, validate and apply sustainable design, contemporary technologies and building products and practices (DOH 2003), the Ecohome based in outer western Melbourne (RMIT 2003), and the BuildSmart Sustainable House initiated by Holmesglen Institute of TAFE (HIT 2003).

These trends will continue as long as governments continue to intervene with the development and implementation of building codes and regulations such as the Sustainable Housing Code by the South East Queensland Regional Organisation of Councils (SEQROC 2004) and the Department of Housing's Smart Housing Design Objectives (DOH 2004a). A heightened environmental awareness amongst key stakeholders in the industry is also believed to be a key contributor to the recent boom in the development of

sustainable housing. For developers, this increased awareness can be attributed to government interventions, as listed above, as well as the release of reports such as Melbourne 2030: Planning for Sustainable Growth (State of Victoria 2002), Draft South East Queensland Regional Plan (Queensland Government 2004), and the planned implementation of a 5 star energy standard for residential buildings in Victoria (Building Commission 2003).

Delfin Lend Lease, developer of Springfield Lakes in Brisbane's southwest and Australia's largest developer of master-planned communities, has been showcasing examples of sustainable housing in its Housing Industry Association (HIA) GreenSmart Display Village (Springfield Lakes 2004b). Open to the public, these GreenSmart homes act as a demonstration and learning site for all aspects of sustainable residential development, showing how correct site orientation, insulation and other features can combine to provide a very liveable and energy efficient dwelling (Springfield Lakes 2004a; YBE 2004). Professional institutions in collaboration with government authorities also contribute to heightening the awareness of sustainable housing, by presenting the latest in environmentally sensitive and smart design in real-life housing applications.

With the increase in display villages that incorporate sustainability features in the houses, home buyers and occupants are also beginning to become more environmentally conscious (Hayes 2001). Statistics, as outlined in the table below, show significant increases in environmentally conscious behaviours (ABS 2004a). It is believed that this is primarily due to increased levels of media coverage on the benefits of environmentally friendly living along with surges in the market for eco-friendly products and practices.

Table 1. Overview of a selection of increases in environmentally conscious behaviour*

Percentage of households:	1994 (%)	2001 (%)	2004 (%)
With a water conservation device inside their dwelling	-	-	82
Utilising dual flush toilets	39	64	74
Using reduced flow shower heads	22	35	44
Recycling and/or reusing water	-	11	16

* Data obtained from Australian Bureau of Statistics (2004a)

From the information outlined above, one could be forgiven for thinking that all was rosy in terms of sustainable housing development. However, despite these trends, only 57 per cent of the 8.6 million Australians aged 18 and over stated that they had a level of concern about environmental problems. This figure is down significantly from 1992 statistics, when 75 per cent of Australian's stated they had environmental concerns (ABS 2004a). More is to be done to engage our societies, particularly in the area of behavioural and attitudinal issues towards sustainable development and smart housing.

Potential challenges and the key issues in sustainable housing

Although it is beneficial to demonstrate specific sustainability principles in practice, it should be noted that there are few examples that have adopted an integrated approach to sustainability (Yang et al. 2005). Sustainability is currently demonstrated on an ad hoc basis through some of pilot housing projects, much like those outlined above, which showcase a selection of sustainability features such as the conservation of water or the use of solar power in the home. Furthermore, little, if any information is available on post-occupancy testing of these pilot projects and use of the guidelines to educate home buyers and other key stakeholders in the industry on the benefits of adopting sustainable housing as standard practice.

Despite the advances that have been made over the years in the housing sector, it should be realised that there is a large degree of discrepancy between model homes and everyday volume sellers, when it comes to adopting sustainability principles. In fact, the majority of new homes (under the separate house dwelling classification) are being designed and constructed by project home builders who respond to motivators of cost and competitiveness in a traditional and often non-sustainable way (Sibley 2003). Glenn Murcutt, founding President of the Australian Architecture Association, passionately believes that there is a need to penetrate the current housing trends (ABC 2005). Despite a decrease in the number of stocks of usable land and drops in block size, houses themselves have increased in size, with separate houses continuing to be the most favoured form of housing (ABS 2004b). This not only impacts upon the environmental aesthetics and performance of the home, but the overall social wellbeing of the occupants (Sibley et al. 2003; Zarkaria and Yang 2004). A need therefore exists to focus on these current housing trends, by creating more fruitful partnerships between the key stakeholders in housing industry to result in more sustainable outcomes. There is a need to ensure that home buyers are being presented with an acceptable, affordable and sustainable alternative to what is currently available quite extensively throughout the market. In fact, many would suggest that there needs to be a break in the cycle of the “builder building what the developer believes the buyer will buy and the buyer buying what the developer instructs the builder to build”.

Recent studies have begun to consider the drivers, motivations and external factors that lead to smart and sustainable development, particularly in the residential sector in Melbourne (RMIT 2004; Sibley et al. 2003). Research has also been conducted on the social acceptance and people’s experiences of public housing (DOH n.d.), however little has been done to date on non-public housing, particularly in relation to the attitudinal issues and decision-making of key stakeholders in sustainable housing development, lending weight to the notion that there is much scope for research to be conducted in this area. A better understanding and the knowledge build-up of the current drivers, motivations and mediators can have significant impact on the decision-making process. The overwhelming public response recently to local council rebates on rainwater tanks installation and sustainable homes presents a good opportunity to tap in to the community behavioural patterns. It also demonstrates a valid example to the joint efforts of government bodies, industry and private home buyers.

Responses to key issues and challenges

There are numerous ways to respond to the key issues, challenges and gaps related to the adoption of sustainable housing development. The Research House in Rockhampton and Ecohouse in Melbourne are two examples that reflected a selection of these aspects.

The Research House has been described as Queensland's "first ever house to test and demonstrate new and innovative technologies, building practices and products in a single living subtropical environment" (DOH 2004b). The house acted as a living laboratory from November 2002 through until November 2004, allowing the tenants to experience smart house design principles, building products and current technologies first hand. Residents' satisfaction with the design and physical layout of the house, along with how they interacted with the house was able to be empirically investigated within a real life context, allowing for a maximum understanding of a single case, rather than sampling to cover a wide scope. The Ecohouse, on the other hand, is a key source of data for all research streams of the EcoHome project being run by the Centre for Design at RMIT University. The house, based in outer western Melbourne, broadly aims to investigate the sustainability outcomes that are possible in outer suburban housing estates using current building and design technologies (RMIT 2004). Social research activities, including surveys, focus groups with prospective home buyers, in-depth semi-structured interviews, and a review of available data and literature are also expected to be carried out. While both of these projects covers certain aspects of decision and behavioural issues of home occupants and home buyers, the main research focuses had been on justifying technology inclusions and design and construction decisions. As illustrated in previous sections, dedicated research on stakeholder decision patterns is necessary.

In response to such a need, the authors at QUT (Queensland University of Technology) are conducting a two-year project that extends upon the exploration of attitudinal issues of key stakeholders in sustainable housing development. It is being conducted with the knowledge that there is already a broad understanding of the environmental, social, financial, and governmental issues associated with sustainable housing and assumes that the implementation of smart and sustainable housing is inevitable given the current trends and forecasts for the future. The research structure can be illustrated in Figure 1, with the key components and development processes as follows:

1. **Problem identification.** Much of the initial research, leading up to identification of the problem, was drawn from the authors' professional and research experience. From a management point of view, it was realised that a gap exists in the supply chain of housing development and in the exploration of attitudinal issues and decision-making of key stakeholders in relation to sustainable housing development. Past and present experience also suggested that the key stakeholders in the industry include developers and home buyers, with each playing an important role at the end of the supply chain, and having a high degree of influence in the residential sector of the building industry (Ambrose et al. 2004).
2. **Literature review.** To overcome the missing links in relation to the adoption of sustainable housing as standard practice in the industry, the literature review considered a series of factors, including the trends in the housing sector of the building industry; the sustainability principles related to housing; and the buy-in rates, drivers, motivations and mediators for key stakeholders to adopt sustainable housing. To harness the seemingly boundless number of issues into a practical framework, the attitudinal patterns of key stakeholders along with their decisions at each phase of house development, from design through to construction and then occupancy, were explored through a review of literature. This also facilitated the identification of analytical tools and techniques that can be applied to make sense of the relationships between ecological sustainability and market behaviour. It also helps contextualise the research within the current body of knowledge.

3. **Integrated relation matrix.** From the literature and body of knowledge drawn from the author's experience, an integrated relation matrix has been developed. The integrated relation matrix aims to identify the most important factors that should be considered when successfully adopting smart and sustainable housing. This has been themed according to five key areas of sustainable housing, awareness, accessibility, advantage, adaptability and application (the 5A's to sustainable housing). The matrix will then need to be validated and verified through a series of surveys and interviews.
4. **Surveys/questionnaires/interviews.** The surveys and questionnaires will be semi-qualitative and semi-quantitative. They will be based around the integrated relation matrix, requiring participants to rank the importance and relevance of the statement to their everyday actions and answer open-ended questions in order to get a more precise idea of individual perspectives and attitudes towards the adoption of sustainable housing as standard practice in the industry. To facilitate the categorisation, prioritisation and thematic analysis of attitudinal issues and decision-making of key stakeholders in sustainable housing development, questions will be themed according to the 5A's to sustainable housing. After all, the relationship between design and use, and the physical and behavioural is complex and dynamic. A series of semi-structured interviews will be also conducted, with interviewees consisting of representatives from the residential sector of the building industry, including not only developers and home owners, but also government agencies, design consultants and builders, as they are considered to be influential on the decision-making of developers and home owners. According to past research, this step will allow various stakeholders to be engaged in the process of discovering the 'real' needs and wants of both developers and home buyers in terms of adopting sustainable housing (Greville 2004; Zarkaria and Yang 2004).
5. **Case studies.** After the data from each of these steps has been analysed and interpreted it will again be verified alongside a series of case studies. These case studies will aim to distil the findings and also act as verification of the recommendations and strategies for key stakeholders in sustainable housing development.
6. **Outcomes.** This research aims to provide a set of recommendations and strategies in order to rectify the current trends and ideally break the negative cycle in housing development, where the "builder builds what the developer believes the buyer will buy and the buyer buys what the developer instructs the builder to build". A series of educational workshops and seminars are also planned for trade forums, professional body meetings, and local council's and ward's gatherings. After all, a rosy future for the residential sector of the housing industry, where sustainable housing is adopted as standard practice in the industry, ultimately requires that the most influential stakeholders to wholeheartedly embrace the principles and practice of sustainable housing development.

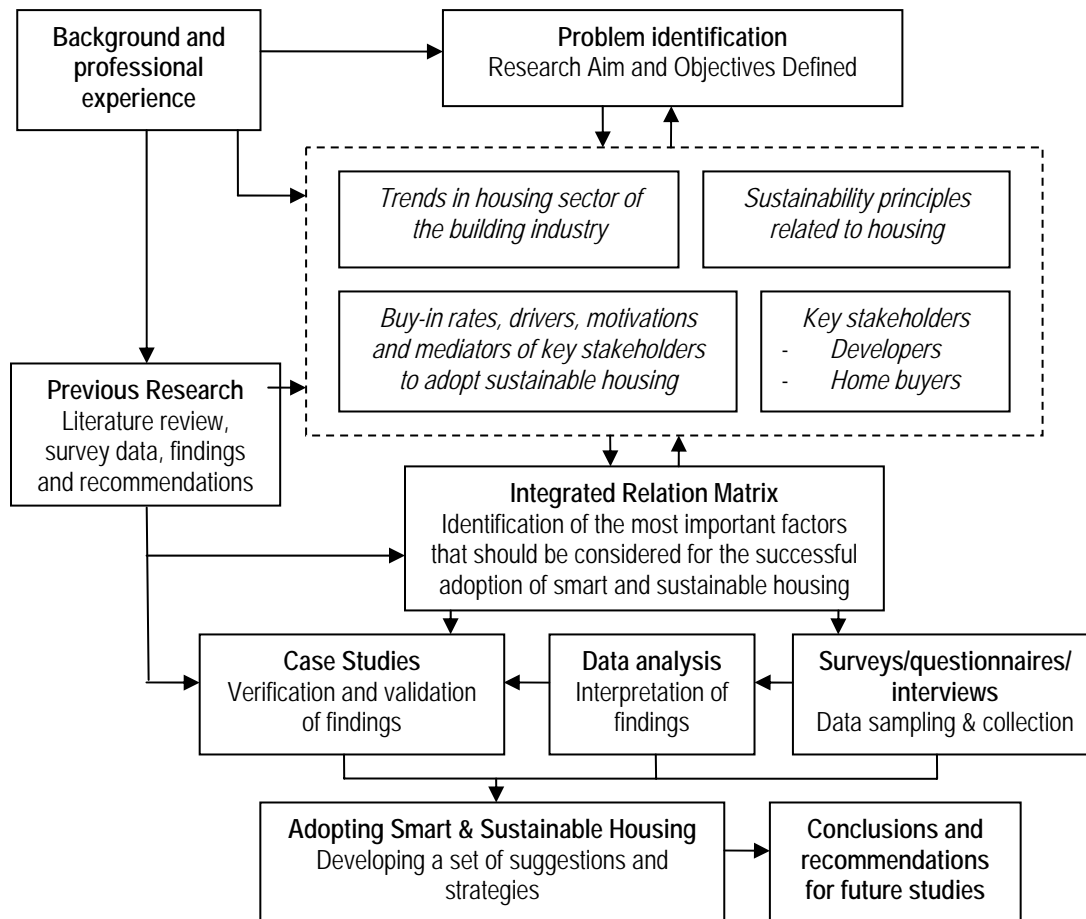


Figure 1. Research structure and key components

Conclusion

Sustainable development will not be a phenomenon in specific industries for the time being but a way of life for all of us in the long term. As the housing sector influences a vast majority of us, how to recognise, familiarise, nurture and implement sustainable housing strategies and practices will be extremely important. While previous efforts in this area have made substantial progress, their focus on technological solutions had resulted in an imbalance between all necessary responses to the sustainable challenge. This paper reported some of the current problems and challenges in these regards, as part of the literature findings of an ongoing research. It also highlighted the plan and developmental steps of this research which aims to fill one of the voids by examining the attitudinal issues and decision-making patterns of main stakeholders of the residential building industry. When fully completed, the potential recommendations and strategies stemming from this research will ultimately contribute towards breaking the cycle of negative feedback in the housing industry and improve the uptake sustainable housing products in Australia. Through research such as this, the voice of the general public concerned with housing will not only be better heard by builders and developers alike, but also become part of the basis for sustainable housing development.

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