The journal of an association of institutes concerned with the quality of built environment. The publishing framework is shaped around the forces which act on built environment, which maintain, change and transform it. The content consists of articles which deal with the development in the built environment. Theories, tools and practice with special emphasis on the institutional frameworks which will support the local initiatives of people in the building process.

Aims
The Open House International Association (OHIA) aims to communicate, disseminate and exchange housing and planning information. The focus of this exchange is on tools, methods and processes which enable the various professional disciplines to understand the dynamics of housing and so contribute more effectively to it. To achieve its aims, the OHIA organizes and coordinates a number of activities which include the publication of a quarterly journal, and, in the near future, an international seminar and an annual competition. The Association has the more general aim of seeking to improve the quality of built environment through encouraging a greater sharing of decision-making by ordinary people and help to develop the necessary institutional frameworks which will support the local initiatives of people in the building process.

Open House International
The journal of an association of institutes and individuals concerned with housing, design and development in the built environment. Theories, tools and practice with special emphasis on the local scale.

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CHANGING PARADIGMS IN AFFORDABLE HOUSING, QUALITY, AND LIFESTYLE THEORIES

Affordable housing has long been an important planning and design concern in large urban areas and around the peripheries of major cities where population growth has led to an increasing demand for descent housing environments. The issue of affordability has attracted researchers and scholars to explore planning and design determinants, financing mechanisms, cultural and social issues, and construction and building techniques. This interest has been the case for several decades since affordable housing themes have offered a rich research area that involves many paradoxes that keep presenting challenges for planners, architects, and decision makers. Housing costs are increasing in most cities and incomes are not increasing at the same rate. Governments, on the other hand, are unable to provide sufficient housing stock to bridge the gap between demand and supply due to decreasing housing budgets and the lack of investment.

Undoubtedly, the issue of housing affordability is widespread worldwide. Governments have responded to this issue through ways of cost reductions in order to make homes available at a price that a user is able to pay. However, this area of concern has been a permanent preoccupation of housing technocrats consumed in the quality and location of the housing unit, often overlooking other socio-cultural and psychological dimensions adhered to it. The academic community is no exception; it has responded to the issue of housing affordability by conducting research that places emphasis on the physical aspects of dwellings, while oversimplifying other critical demands placed on affordable housing provision by society and the environment.

Housing quality is a composite good with a variety of attributes, including: structural condition, standard of services, amenities, location, usable space and occupancy standards. It can, at the same time be laden with physical, economic and cultural dimensions. The user assigns a pattern of preferences (spatial, social and visual) to the housing unit that corresponds to the degree of acceptability which are set within the context of housing quality and life-style preferences. Houses are, thus not only art forms or machines to live in but also goods with immense economic and social value. People purposively (or un-purposively) use the externally defined meanings of ‘housing’ to situate themselves with others who share their values and life-styles in asserting their social status and identity. Understanding how these issues of affordability may relate to people’s preferences and lifestyles mandates an understanding of housing quality and lifestyle theories.

Traditionally, the terms affordable housing, design and the life-style preferences of the low income population have been seen at best, in isolation and at worst, contradicting each other. In essence, measures to provide affordable housing ignores the fundamental principle that housing comes with the standard bundle of services and under-appreciates the lifestyle and cultural values of the targeted population. Recognition of the impact of lifestyle theories on housing quality and affordability is therefore an emerging phenomenon that deserves a considerable research and a critical conceptualisation.

Increasingly, and especially in the developing world, this has manifested in the suburban development in major cities through developers selling the ‘western dream’ that embodies a new set of housing quality, housing design and life-style preferences and albeit the cost. This rides on the notion that housing today signifies a unique expression of the chosen lifestyle, one’s pride and sensibilities. The advent of globalisation accompanied by expanding middle class has accentuated this form of ‘western-romanticism’ which is increasingly defining the new ‘cultural preferences’ of people that need not necessarily align with local preferences on spaces, materials and built-form or people’s affordability level. Such processes are altering the historical and semiotic way we viewed the issue of housing affordability. It is believed that ‘Affordability’ has to be seen more holistically combining housing production process, the product and the cultural adherence and expressions of the users. The worsening housing affordability problems over the years in tandem with failure of government policies makes it imperative that alternative approaches and possibilities are explored. It is a complex, interdisciplinary query that needs an inter-
Building on the earlier publications by the guest editors (Sengupta 2006; Salama, 2006, Salama and Alshuwaikhat, 2006, and Salama, 2007), this issue of open house international places high value on establishing links between issues that pertain to affordable housing, quality, and life style theories as manifested in socio-cultural factors, user preferences, and environmental attitudes. In essence, the papers selected for this edition address timely and pressing issues that continuously present themselves on the map of polemics on affordable housing both in developed and developing contexts, from Ecuador to Australia, from Turkey to Bangladesh and India, and from United Kingdom to Nigeria. Key issues of some of the papers presented in this issue are highlighted to reflect emerging understandings toward developing responsive affordable housing.

Alina Delgado and Frank De Troyer introduce a model for addressing affordable housing preferences. Their work is developed, with a focus on socio-cultural issues, through a “methodological pluralism” approach, in order to identify people-oriented variables and assumptions. The model is based on a case study in the city of Guayaquil-Ecuador. Field work was undertaken to test different aspects of the model. Delgado and De Troyer articulate implications and limitations of the model toward inclusion of housing preferences while meeting local conditions and cultural values.

Addressing multi-contexts that include Colombia, Egypt, and Indonesia, the work of Dina Shehayeb and Peter Kellett establishes a framework within which key phenomena relevant to the notion of home range and the actual use of dwellings can be examined. In essence, their framework is based on the argument that the dwelling is more than just an enclosed private space; it involves a diversity of indoor and outdoor spaces that accommodate a multitude of activities to fulfil latent functions and meanings. Shehayeb and Kellett identify lessons for planners, architects, and policy makers concerned with making housing more appropriate and affordable.

Within the Australian context, R.J. Fuller and U.M. de Jong argue that the environmental impact of modern housing is significant. Australians have resisted the need for increased urban density as their capital city populations grow, while new houses have been built on the peripheries of the existing cities. Their work discusses the environmental “affordability” of current Australian housing and argues that this must be considered alongside traditional affordability criteria so that a more holistic approach to affordable housing is envisaged. Along the same interest in addressing environmental aspects as a key quality in affordable housing, A. K. Burford, J. Thurrot, A.D. Pearson review the context for future housing provision in the United Kingdom. They offer an examination of two existing medium density terraced housing developments. Their examination reflects two contrasting approaches: one derived from low-energy principles utilizing minimum space standards, while the other reflects the need for high quality spaces but at premium cost. Burford et al. propose a new medium density terrace model that deals with these conflicting demands to demonstrate possibilities for providing affordable, higher density family housing whilst conserving energy within the context of the United Kingdom.

Jallaludeen Muazu and Derya Oktay examine the socio-economic and environmental impacts in four affordable housing developments in Yola, Nigeria. Deducted from literature reviews on affordable and sustainable housing a survey questionnaire is developed and utilized to explore key affordability factors. Their findings suggest that due to inadequate availability of housing inputs in Yola, the four housing developments do not seem to have met affordability or sustainability imperatives. Muazu and Oktay’s work can be seen in terms of offering an empirical evidence to overcome shortcomings, while providing a basis for governments’ housing commitments towards developing new policies for community involvement in housing provision processes, while meeting other affordability parameters.

Addressing lifestyle and affordability choices in traditional housing of old Dhaka, Iftekhar Ahmed argues that the recent rapid urbanization has led to a discontinuity of the traditional housing form of old Dhaka, leading to a disintegration of the mix of lifestyle choices and affordability. He states that following popular market trends, they are often replaced by housing blocks in a higher density ignoring the need for a diverse mix. Utilizing a
mixed research method approach that involves conceptual analysis, interviews with local residents, and an examination of archival records and aerial maps, this work identifies lessons from the traditional housing form that may contribute to a new responsive affordable housing in Dhaka.

Within the context of Turkey, Miray Gür and Neslihan Dostoglu address housing policies, and supply and demand issues. Assessing user satisfaction in the public housing of Bursa, their study reveals interesting results and concludes that issues that pertain to quality is critical to successful housing projects and that the incorporation of socio-cultural factors into other typical physical aspects would lead to a more habitable higher quality housing environment. Undertaken in the context of Izmir, the work of Ebru Cubukcu offers an examination of social-economic and cultural factors in two different types of affordable houses; social houses and gecekondu, and foster the argument that affordable housing is not only about cost reduction.

The papers included in this issue can be seen as manifestations for changing paradigms in understanding affordable housing. In the old paradigm, the value of housing is assumed to be in the quantifiable attributes of dwellings, sometimes including their immediate environments. In the new paradigm, housing values lie in the relationships between the process, the product, the users, and the social and environmental contexts. In essence, affordable housing, in the old paradigm, has been conceived in terms of what it is, rather than what it does for local populations and the way in which people interact with built and natural environments. In this respect, we emphasize that by looking at socio-cultural factors, environmental issues, and the typical physical aspects as integral components of affordable housing process promising ends can be reached.

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Abstract
The aim of this paper is to present an approach for comprehending affordable housing. The approach is based on a new paradigm of research: trans-disciplinarity; a form of inquiry that crosses the boundaries of different disciplines. An argument on the impact of trans-disciplinary thinking on understanding affordable housing is developed, then is placed within the perspective of how lifestyle theories and their underlying concepts can be integrated into a comprehensive investigatory process. In turn, a framework of inquiry is developed while reflected on affordable housing knowledge types. An interpretation of the framework into a survey tool is conceptualized. The tool is introduced in the form of a questionnaire to be implemented in different contexts. The testing of the questionnaire as a tool of inquiry reveals its validity, corroborates the value of integrating trans-disciplinary knowledge into affordable housing research, and accentuates the value of introducing lifestyle theories as a new form of knowledge necessary for future inquiry on affordable housing.

Keywords: Trans-disciplinarity, Knowledge, Affordable Housing, Lifestyle Theories.

INTRODUCTION: IDIOSYNCRASIES AND MISCONCEPTIONS IN THE AFFORDABLE HOUSING REALM

Despite the current surge in the construction of low-cost housing environments worldwide, the quest for affordable housing remains elusive for a large segment of local societies. Descent, affordable housing is emerging as a critical issue toward the social and economic well being of local populations. Demands for such housing continue to far outstrip supply and those projects that are currently built suffer from severe cost constraints while lacking important qualities that relate to people needs and cultural aspirations.

To many architects, engineers, and developers, the terms “affordable housing”, “design”, and “the preferences and lifestyles of the targeted populations” are exclusive and are looked at in isolation. Once the goal of providing quality design and once the goal of understanding people preferences and their lifestyles enter the discussion, it is generally assumed that the cost will automatically increase. When production techniques are developed to provide genuinely affordable housing, effort is often focused on cost reduction only while preferences and lifestyle aspects are overlooked. Theorists argue that it has proven difficult to strike a harmonious balance.

While recently there have been notable developments in housing design that demonstrate our increased understanding of social issues and construction techniques, cost efficiency is perceived as contradictory to the overall design quality and the lifestyles of potential users. There have been many explanations given. Most often it is first blamed on a lack of funding. However, another underlying reason may stem from the public perception of what affordable housing means or should look like. Some well-designed projects make people uncomfortable because they are ‘too nice’. “...The underlying belief is that people who do not have a lot of money do not deserve to live in nice housing.” (Maurer, 1994). This notion is a flaw since it is believed that quality design and meeting the preferences of users are critical to instill a sense of pride in potential occupants. “It must also bestow on its inhabitants a sense of dignity...To ignore this aspect of housing or to consider
it a prerequisite for only those who can afford market-rate housing, is to invite both social and financial disaster” (Davis, 1995).

People need to have a personal psychological investment in their houses and are well aware when asked to live in impersonal housing. Unattractive housing directly affects the self-respect of the occupants. “All people want to see themselves reflected, to express themselves on paper or canvass and in speech, dance, and their choice of car, clothing or built environment.”(Davis, 1995). If people are consistently told, through the kinds of housing offered, that they are only worthy of a certain level of quality, they may come to believe it. Understanding preferences and the lifestyles of people gives architects and planners the chance to create a sense of individual expression and thereby a pride at an affordable cost (Burnham, 1998).

The preceding discussion conveys that there are misconceptions where affordable housing is always understood from the perspective of cost reduction only as one single determinant, while other critical determinants such as the lifestyles of the targeted populations, their satisfaction of their current houses, and their preferences of the future houses need to be addressed. This, in essence, requires an alternative approach that integrates these concerns in a comprehensive manner. In this respect, this paper aims at presenting an approach for comprehending affordable housing. The approach is based on a new paradigm of research: trans-disciplinarity; a form of inquiry that crosses the boundaries of different disciplines. An argument on the impact of trans-disciplinary thinking on understanding affordable housing is developed, then is placed within the perspective of how lifestyle theories and their underlying concepts can be integrated into a comprehensive investigatory process. In turn, a framework of inquiry is developed while reflected on affordable housing knowledge types. An interpretation of the framework into a survey tool is conceptualized. The tool is introduced in the form of a questionnaire to be implemented in different contexts. The testing of the questionnaire as a tool of inquiry reveals its validity, corroborates the value of integrating trans-disciplinary knowledge into affordable housing research, and accentuates the value of introducing lifestyle theories as a new form of knowledge necessary for future inquiry on affordable housing.

**THE NEED FOR PRODUCING TRANSDISCIPLINARY KNOWLEDGE**

Theorists and practitioners have been discussing the issue of knowledge for several decades. Recent years, however, have witnessed an intensive debate in built environment literature. Donald Watson attempted to define a demand for knowledge in architecture and built environment. He argues that: “The discipline of architecture needs a rigorous knowledge base by which to support its premises and principles that define the relationship between human and community health, and between building and urban design.” (see Boyer and Mitgang, 1996). Henry Sanoff confirms this view when he argues that architecture should be based on knowledge of people needs; it should not be based just on the creative impulses of architects (Sanoff, 2003).

Watson calls for the need for a rigorous knowledge base in architecture. He believes that this knowledge could strengthen architects potential to understand the object proper of their professional expertise and its value in relation to other fields of expertise (Woyseth, 2002). Along the same line of Watson’s thinking Amos Rapoport (1994) argues for the need for the discipline of architecture to develop a quantifiable body of knowledge based on qualitative measures by calling for a dramatic departure from the art metaphor that the profession and its education are based upon to one based on science and research. Rapoport introduced a number of questions underlying the heading of “knowledge about better environments”; these are: what is better, better for whom and why it is better? (Rapoport, 1994, 1995).

In essence, the preceding arguments call for a more stable basis for knowledge in the creation of built environments and affordable housing is no exception. Such basis would be in the form of a more balanced and integrated types of knowledge. In this respect, the trans-disciplinary mode of knowledge production can be identified. It postulates that the production of knowledge is carried out in the context of application and marked by its:
UNDERSTANDING AFFORDABLE HOUSING FROM A TRANS-DISCIPLINARY PERSPECTIVE

The preceding discussion on trans-disciplinarity as a thinking paradigm reveals that “trans” in the term is about transition and movement where the rigor of research and knowledge production is matched by the concerns for establishing connections and inter-relationships. This means that there is a “middle zone” of exchange between disciplines. It also means shifting the grounds of research in both the sciences and the arts from a concentration on disciplinary needs and history of things/issues, to an emphasis on how needs of one discipline are connected to knowledge goals and aspirations of other disciplines. In other words, it can be argued that no discipline can make strong claims anymore about its own direction, value, and output in isolation from what is happening in other areas of research.

Exploring the literature on sustainable affordable housing as a field of research, one could trace its trans-disciplinary nature (Beer, 2004; Buki, 2002; Chatfield et al, 2000; Hall et. Al, 2000; Munoz, 2003; Salama, 2007; Vittori, 2002). It involves research paradigms that range from policy making, economics and financial concerns, to environmental and cultural aspects, to planning, design, management, and operations. This is due to the fact that the provision of sustainable affordable housing is always constrained by the need to consider social, environmental, and economic implications.

Affordable housing can be viewed as a web of influences and inter-relationships of a wide spectrum of issues and this reflects its trans-disciplinary nature. For example, it is acknowledged in the literature that the morphology of residential production influences the development of cities and concomitantly generates environmental impacts and infrastructure stress. It is also acknowledged that the typology of houses influences the social and environmental performance of neighborhoods. These inter-relationships mandate a comprehensive understanding of affordable housing where the creation of trans-disciplinary tools of inquiry would be indispensable.

Within the preceding context it should be noted that while research studies on affordable housing highlight the multifaceted nature of the process of investigating or creating affordable housing projects, little emphasis was placed upon addressing the socio-cultural, economic aspects in an integrated manner and the way in which they influence one another as different disciplinary issues. This is clearly evident where one could see studies that place emphasis on policy and economic issues without looking at the impact on other critical concerns such cultural and environmental aspects. On the other hand, it is observed in other types of studies that place emphasis on the physical characteristics of dwellings or neighborhoods, again, without clear indicators of how physical aspects can be linked to socio-cultural concerns (Salama, 2005).

While social and cultural issues are introduced in the literature as successful determining factors, very little is offered on how to introduce such issues either when investigating affordable
housing in a research process, or when attempts are envisioned to develop affordable housing projects in a developmental process. The fact that affordable housing is always defined in economic terms or by the relationship between household’s income and expenditures does not mean that other issues, such as socio-cultural concerns including people preferences, lifestyles, and cultural aspirations are oversimplified or addressed in isolation. This suggests that creating affordable housing projects and that producing knowledge about affordable housing requires a new paradigm of thinking, which is based on trans-disciplinarity that crosses the boundaries between wide spectrums of issues that stem from different disciplines. In this context, it is the position of this author that the typical approach for investigating affordable housing adopts the perspective of cost reduction only as one single determinant, while other critical determinants such as the lifestyles of the targeted populations, their satisfaction of their current houses, and their preferences of the future houses are typically absent from the inquiry process (Salama, 2006, 2007). Therefore, emphasis is placed upon integrating economic, cultural, social, and behavioral aspects in addition to other contextual measures within which affordable projects are created.

LIFESTYLE THEORIES AS A FORM OF TRANS-DISCIPLINARY KNOWLEDGE IN THE AFFORDABLE HOUSING REALM

Since the intention of this paper is to develop a new approach for investigating affordable housing, it is essential to redefine the nature, direction, and orientation of knowledge about affordable housing to be more relevant to the socio-economic and cultural contexts within which affordable housing projects are developed. It is therefore proposed that adopting a trans-disciplinary thinking requires that trans-disciplinarity is viewed as a realm of research that differs from other forms of inquiry. Concomitantly, investigating affordable housing in a transitory fashion that crosses the boundaries between different disciplines is paramount. Thus, a number of perspectives are incorporated in a proposed alternative approach, derived from different disciplines while at the same time crosses the boundaries between them. Such an approach is based on introducing lifestyle theories.

Lifestyle Theories

The proposed approach involves the introduction of lifestyle theories into other concerns including financial, cost reduction, and affordability issues. Understanding how the issue of affordability may relate to people preferences and lifestyles mandates an understanding of lifestyle theories that emerged from other disciplines and branches of science such as ethnology, anthropology, and sociology. Ethnology is defined as “the science that analyzes and compares human cultures, as in social structure, language, religion, and technology”, while anthropology is defined as “the scientific study of the origin, the behavior, and the physical, social, and cultural development of humans. (AHD, 1994). It should be noted in this context that ethnology is also defined as a branch of anthropology that addresses cultural issues thereby is often referred to in the literature as “cultural anthropolo-
gy.” On the other hand, sociology is defined as “The study of human social behavior, especially the study of the origins, organization, institutions, and development of human society.”(AHD, 1994).

Sociology involves the analysis of a social institution or a societal segment as a self-contained entity or in relation to society as a whole.

Literature on lifestyle and social issues as they relate to geography and place reveals important perspectives. Giddens (1984) introduced the theory of structuration in his book “The Constitution of Society: Outline of the Theory of Structuration.” His theory is based on establishing a dynamic perspective of how different elements of a society interact. This is based on a critical understanding of people, organizations, agencies, and the power that each element of a society would have (Giddens, 1984). The introduction of the theory of structuration generated an intensive debate on linking issues that pertain to the relationship between the structure of society and the physical environment, namely the concept of place. Pred (1984) developed a framework that is based on an integration of time-geography (place) and the theory of structuration. He conceptualized place as a human product as well as a set of features visible on the landscape.
In essence, what should concern researchers in this regard is the term ‘human product.’

The views introduced by Giddens and Pred on the one hand, foster a deeper insight into affordable housing. For example, the assemblage of buildings in a housing environment, land use patterns, and arteries of communication that constitute that environment as a place cannot emerge fully or formed out of nothingness, stop or grow rigid, or indelibly etched in the once-natural landscape; they represent a human product. In other words, such an environment is seen as a place that involves an appropriation and transformation of space and nature; processes that are inseparable from the reproduction and transformation of society. On the other hand, such views invigorate an understanding that the social aspects of everyday life can be seen as a rich realm that offers valuable theoretical, epistemological, and substantive contribution to how affordable housing environments can be investigated. Three major theories appear to have influenced recent conceptions about lifestyles and human preferences. These are of the Danish ethnologist: Thomas Hojrup; the British anthropologist: Mary Douglas; and the French sociologist: Pierre Bourdieu.

Thomas Hojrup introduced the concept of life-mode in his book “State, Culture, and Life-Modes: Foundations of Life Mode Analysis (2003)”. He argues that our values are constrained by cultural-relational dialectics and are product of cultural life modes (Hojrup, 2003). He attempted to address the problem that different cultural values conflict when they are brought together. The three life modes he introduced are: self-employed life mode, wage earner life mode, and career oriented life mode. This classification manifests that based on income level, work sector, and work style of an individual, house needs and preferences vary dramatically. Putting these three life modes into a house/home, or affordable housing perspective, one could relate them as follows:

• The first mode is self-employed where means of production are owned and included within the house. Therefore, the house acts as both living and working place, and no separation between working time and space time.
• The second mode is wage-earner where the house is either regarded as a primary place serving recreational purposes, or as a place where important spare-time activities are undertaken.
• The third mode is career oriented where ideally the house reflects the personal progress in order to reflect position, social status, and past and recent experiences.

In 1996, Mary Douglas introduced a similar life style theory. Four different sub-cultures stem from this theory; these are: competition and individualism; isolation and avoidance of social controls; equity and negotiation; and hierarchical communities (Douglas, 1984). These sub-cultures relate directly to how affordable housing environments could be understood and investigated. Housing typology in terms of house size, house integration within the neighborhood and the community, and the overall house image are important elements when reflecting this theory on affordable housing.

Pierre Bourdieu’s theory corresponds with Douglas’s theory since he introduced in 1984 three key concepts for understanding the concept of lifestyle; these are: habitus, position, and distinction (Bourdieu, 1984). Habitus refers to past experiences and embedded preferences as well as socio-behavioral practices. Position means what agents have in terms of different kinds of capital and he means by agents people and institutions. Distinction involves being distinguished and being an individual. This understanding can be linked to affordable housing investigation, especially when developing mechanisms of inquiry about what housing environment people have experienced and what housing environment people would like to live-in in the future; inquiry about issues that reflect people past experiences and social practices and preferences of the future.

It is apparent that the three theories are based on different set of interests under different aspects of lifestyles. Therefore, Hojrup’s theory can be labeled as a work-based theory, Douglas’s theory can be labeled as attitude based theory, while Bourdieu’s theory can be labeled as status based theory. All are conceived to dramatically influence the understanding of affordable housing in physical and social terms. Thus, they should be included in any inquiry aimed at knowledge production about affordable
housing. Such understanding is illustrated in Figure (1).

Introducing lifestyle theories can be viewed as an enabling mechanism for a deeper investigation of affordable housing in the context of Saudi Arabia. However, two additional concepts appear to be crucial when establishing a comprehensive investigatory process; these are: a) place attachment and b) home appropriation since they collectively represent a critical relationship between the physical characteristics of a housing unit (which needs to be seen from a ‘home’ perspective), the degree of satisfaction of the existing home environment, and the preference of the home and the overall residential environment of the future. The question that can be raised at this point is how lifestyle theories and their underlying concepts can be utilized in affordable housing research. The following section provides the answer in the form of a comprehensive framework that ultimately leads to designing a tool of investigation.

DESIGNING AND VALIDATING A FRAMEWORK FOR AFFORDABLE HOUSING RESEARCH

In light of lifestyle theories as a form of trans-disciplinary knowledge, a framework for investigating affordable housing is conceptualized based on the fact that people’s current experiences and degree of satisfaction and people future needs and preferences should be integrated in a comprehensive investigatory mechanism. The framework is structured in four clusters; each of which seeks out the development of a specific type of knowledge as illustrated in Figure (2). The four clusters of the framework can be outlined as follows:

- Cluster (1): addresses personal information including gender and age.
- Cluster (2): aims at developing knowledge about family that reflects different life-modes among other issues. It includes issues that pertain to number of family members, educational level, work sector, income level, presence of domestic labor, and number of cars used by family members.
- Cluster (3): investigates issues toward developing knowledge about current home that translates key concepts of understanding lifestyles including issues that pertain to appropriation and place attachment. Such issues are translated into a number of questions that involve home type, ownership status, space availability, and the

Figure 1. Mapping lifestyle theories into affordable housing.
degree of satisfaction.

- Cluster (4): seeks out the development of knowledge about future home that reflects the three life style theories. It includes issues related to future space needs, position within the community/neighborhood, and home typological preferences.

The proposed framework is translated into a survey tool in the form of a questionnaire, developed and designed based on the structure of the framework. In this questionnaire, questions are categorized in a manner that follows the sequence of the four clusters. The questionnaire was developed in two languages; Arabic and English, since the intention was to utilize it in different multi-cultural contexts. Across a period of over five years, the questionnaire was tested in the cities of Belfast, United Kingdom; Jeddah, Saudi Arabia; and Doha, Qatar. Notably, several relationships that manifest a trans-disciplinary thinking and that establish links between complex issues can be conceptualized based on the responses received.

**CONCLUSION**

This study aimed at developing a comprehensive innovative approach for investigating affordable housing. Such an approach was based on introducing a new paradigm of research: trans-disciplinarity as a form of inquiry that crosses the boundaries of different disciplines. An argument on the impact of trans-disciplinary thinking on understanding affordable housing was developed and placed within the perspective of how lifestyle theories and their underlying concepts can be incorporated into a comprehensive investigatory process. In turn, a framework of inquiry was developed while reflected on affordable housing knowledge types.

The proposed framework was conceptualized and translated into a survey tool which was then devised in the form of a questionnaire to be implemented in multi-cultural contexts. The testing of the questionnaire as a tool of inquiry reveals its validity, corroborates the value of integrating different knowledge types into the investigatory process of affordable housing, and accentuates the value of introducing lifestyle theories as...
a new form of knowledge necessary for future inquiry on affordable housing.

It is important to shed light on the fact that the proposed approach involves a number of correlations that aim to reach reliable results. The approach represents a structured method for investigating affordable housing that is based on a critical understanding of the issues involved. As well, it incorporates novel ideas where issues derived from different disciplines are integrated. The importance of such an approach lies in the value of how transdisciplinary thinking in built environment related realms can be introduced, where the boundaries of different disciplines are crossed. In essence, planning and architectural aspects, social and cultural issues, and cost and financial issues are all incorporated into one mechanism toward a comprehensive inquiry on affordable housing.

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Since 1991 with the advent of globalization and economic liberalisation, basic conceptual and discursive changes are taking place in housing sector in India. The new changes suggest how housing affordability, quality and lifestyles reality is shifting for various segments of the population. Such shift not only reflects structural patterns but also stimulates an ongoing transition process. The paper highlights a twin impetus that continue to shape the ongoing transition: expanding middle class and their wealth - a category with distinctive lifestyles, desires and habits and corresponding ‘market defining’ of affordable housing standards - to articulate function of housing as a conceptualization of social reality in modern India. The paper highlights the contradictions and paradoxes, and the manner in which the concept of affordability, quality and lifestyles are embedded in both discourse and practice in India. The housing ‘dream’ currently being packaged and fed through to the middle class population has an upper middle class bias and is set to alienate those at the lower end of the middle-and low-income population. In the context of growing agreement and inevitability of market provision of ‘affordable housing’, the unbridled ‘market-defining’ of housing quality and lifestyles must be checked.

Keywords: Affordability, Quality, Lifestyles, Housing, India.

INTRODUCTION
Few contemporary phenomena have generated such political and commercial fervour as affordable housing in India. As the country urbanizes, affordable housing deficit is projected to reach 38 million by 2030 from today’s level of 25 million. Until 1990s the government built large quantities of public housing for its employees and the urban poor, regarded as low-income group (LIG) and economically weaker section (EWS) in the government classification. The system however failed due to serious underinvestment and corruption in distribution. With the introduction of economic reforms, market forces and private enterprises have come to the forefront of both production and consumption of housing. This shift has benefited the affordable housing sector generally, of which two aspects stand out - availability of private capital for low-income housing through financial deregulation and engagement of government agencies in partnership with the market. There are evidences of government-developer partnership in affordable housing sector using efficient design and sustainable practices such as high-density development, mixed-income development and low-cost materials. However, these efforts are centred on ‘cost’ and ‘quantity’ overlooking the quality aspect of housing. The concept of affordability is viewed in isolation from household requirements and lifestyle issues.

However, the globalising economy is also triggering basic conceptual and discursive changes, setting the stage for fundamental change in the society, in turn, dissipating the state-market efforts in affordable housing sector. The country’s rapid march to economic growth is lifting a substantial population out of desperate poverty, creating massive middle class-centred cities. This growing middle class, as a visual urban embodiment of globalization (Farnandes, 2004) is redefining the production and consumption patterns in two complementary ways. First, rising income of the expanding middle class is pushing prices and qualities of housing. Second, the ‘omnipresent’ middle class, in some ways, is resulting in what Kothari (1993) terms ‘growing amnesia’ towards the needs and preferences of the poor in liberalising India. This dichotomy not only reflects structural patterns but also stim-
ulates an ongoing transition process. The corporate culture is inducing westernized concepts in residential design, enabling consumer to experience a wider suite of experiences, of lifestyles and quality altering the nature of consumption of residential space. A corollary to this view suggests design and lifestyle issues are compelling as private developers compete with each other through design and prices. In this sense, the degree at which space has been invested with the cultural semiotics of place is now shifting housing affordability, quality and lifestyles reality for various segments of the population.

In this context the revival of interest in affordable housing is raising fundamental questions about the changing context of social reality today. Who is buying the new homes that are mushrooming in every city? What income group does this class belong to, and how does their lifestyle preferences relate to affordability in housing? The evidence about who is consuming affordable housing in India has a distinction from such provision elsewhere, particularly in the West. Further, as market increasingly embraces responsibility for affordable housing, concerns for the quality has grown. This feature in contemporary Indian housing is distinctive from previous era. Housing affordability dimension is neither absolute nor atomised, instead, defined by performance of various components, some explicit as housing quality, availability of land and building materials, and some implicit and unexplored such as lifestyle issues. These issues are embedded in both discourse and practice to emphasize that affordability too, needs its space and architecture, both an expression of time.

Housing in India is all about economic globalization and investigating this aphorism is where this paper is specifically situated. The paper highlights some explicit as housing quality, availability of land and building materials, and some implicit and unexplored as housing quality, availability of land and building materials, and some implicit and unexplored such as lifestyle issues. These issues are embedded in both discourse and practice to emphasize that affordability too, needs its space and architecture, both an expression of time.

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HOUSING AND MACRO-ECONOMY: TRENDS AND NEW FRONTIERS

This section considers macro forces responsible for housing production and consumption in India. Since independence, India has been rapidly urbanising, creating a pattern of urbanisation characterized by a continuous concentration of population in large cities and juxtaposition of poverty and affluence in equal measure. Scholars have given various interpretations of this phenomenon - ‘over-urbanisation’, pseudo-urbanisation (Breese, 1969) and dysfunctional urbanisation (Kundu and Basu, 1998) at various stages of the process. The share of urban population has increased from 20 per cent in the 1950s to over 30 per cent currently in tandem with rapid economic growth during this period making ‘urban’ India the ‘world’s third largest country’ (Bullis, 1997). Indian cities today are homes to 340 million people of diverse communities, cultures and income bands. While unbridled urbanization, in spatial and cultural terms, has triggered India’s social and economic transformation, the effects of current economic progress has manifested in two aspects of demography. First, the shape of the country’s income pyramid has changed along with a dramatic rise of the middle class. In the current trend, urban households with true discretionary spending power in India is expected to increase sevenfold, from 13 million households in 2005 to 89 million households by 2025 (MGI, 2010). Two, majority urban citizens in Metro cities continue to occupy the bottom-income segments with an earning an average of ‘80 (around $1.80) a day. These diverging trends are altering consumption pattern in every sector of the economy including housing, triggering a ‘choice-based’ instead of ‘need-based’ consumption pattern.

There are other economic factors, which are fuelling this transition. As the country’s GDP grows,
real estate continues to play a major role in the macroeconomic stability. In India, housing accounts for almost 80 per cent of the real estate market in terms of volumes and has been growing at 30 per cent annually (CRISIL, 2006). The recognition of importance of housing sector in the national economy has renewed focus on affordability and its importance as a market opportunity. A study (KPMG, 2010) puts the housing requirement for the sub-`100,000 income group across seven major cities at 2.06 million units - a market size of `3,300 billion (US$ 66 billion). As a result some national developers such as Sapoorji Pallonji and Tata (of ‘nano car’ fame) are entering this sector. The macro-economic prudence in this focus is robust given the expanding the stock of affordable housing would bring, in addition to social benefits, substantial economic advantages through increased demand for construction, building materials, and housing finance, which in turn spur job creation and further economic growth. Further, negative ramifications of unaffordable, overcrowded, or unhealthy housing in financial, educational, and emotional well-being of individuals and families (Bratt, 2002) is also starting to be realised. To reinforce this policy switch, some efforts to improve the quality, design and construction standards have been observed, but the Indian housing overall continues to be riddled in a complex interplay of housing appropriateness (lifestyle issues), availability and affordability. These three issues take different forms in varied economic environments. They also interact with each other either in a trade-off, as affordability and adequacy usually do, and in concert, as availability and affordability mostly do.

AFFORDABLE HOUSING DEVELOPMENT ANTECEDENTS

Housing deficit in India is estimated to be 25 million suggesting a third of all urban households unable to afford housing at market prices. Around 17 million of these households live in slums or squatter settlements with poor access to basic services of water, sewage, and sanitation and belong to the bottom two section of the economy indicating housing affordability problem is concentrated largely with the poorest of the poor. In India’s major cities, up to 54 per cent of households are estimated to be unable to afford housing at market prices. With the demand coming from the rising wealth middle class population eager to acquire high standard housing, the composition of homes for sale and rent on the market has been inexorably shifting towards very expensive homes.

In India, the National Housing and Urban Policy (NUHHP) 2007 identifies ‘affordable housing for all’ as a key element to achieve sustainable urban development. Private market is considered to be the delivery vehicle for housing, although the remit of providing affordable housing remains in government domain. A number of state initiatives taken place since pre-economic reform focused primarily on in-situ slum improvement given the size of slum population in the country made any policy consideration preclude resettlement as a major policy option. It is also a common knowledge that slums are politically important entities, with vested interest acting against any rehousing attempts. However, The Jawaharlal Nehru National Urban Renewal Mission (JNNURM), launched in 2005 is perhaps the most significant scheme with over 1.5 million low-cost homes currently under production in 65 cities for slum resettlement. Valmiki Ambedkar Awas Yojana (VAMBAY) is another centrally sponsored scheme aimed at ameliorating housing problems for the slum dwellers living below poverty line. Since the cessation of direct construction of public housing, public private partnership (PPP) has been a delivery vehicle for affordable housing (aimed at low and lower mid-income group) through a system of cross subsidy. There is also an increasing evidence of proactive development authorities such as NOIDA, Greater NOIDA, GDA, HUDA, etc. imposing a ceiling on maximum area of the housing units alongside requirement to provide affordable units for LIG and EWS. Despite these concerted efforts, metro cities in India continue to witness both quantity and quality problems in the provision of affordable homes. PPP for example, has been criticized for inelastic supply, causing real price appreciation eventually pricing low-income dwellers out of the system (Sengupta, 2006). This pattern persisted in VAMBAY projects as there was simply too little affordable housing being produced relative to demand.
The state and market have interacted at many levels to create a structure that determines the level of quality and affordability in housing (Table 1) and assigns responsibility for their delivery. So far, the government-led affordable housing has primarily been low-cost single bedroom apartments in isolated suburbs, distinctly different from developer-produced affordable homes through cross subsidy. In the process, an informal distinction between ‘low cost’ and ‘affordable’ homes (Table 2) is being articulated, although in literature, they are often interchangeably used. Whether ‘low cost’ or ‘affordable’, both occupy the lower end of the market exhibiting cramped spaces very basic services. In India as in many other countries, unit size is the principal measure of quality, although housing quality is a composite good (Fiadzo, 2001). Historically, the Indian government has defined basic housing unit as being between 250 and 275 ft² for a household size of 5.5 persons in EWS/LIG categories. The pre-economic reform public housing (Figure 1) bore the dual distinction of being cramped units with very basic services, even though they boasted central locations and medium density. This historical ‘space squeeze’, as a tool for lowering the cost, has persisted in some of the EWS homes under JNNURM. In 2008, a Task Force on affordable housing recommended raising the size threshold to 300-600 ft² for LIG housing, with cost of the house not more than four times annual household income and EMI not more than 30 per cent of monthly income. However, the market forces are yet to respond to these changes. The development of Shubh Griha, which represents the ‘nano’ equivalent of budget homes by Tata ranging from 283 to 465 ft², exemplifies developers...
continuing to squeeze space out of lower end homes (Figure 2).

When put in perspective, rising standards and quality create an upward pressure on the price affecting access to finance for the urban poor. Within the context of a supply-constrained housing market where production of affordable homes is limited, demand is very high and regulations are stringent, there is a market-bias on those with ability to pay (Smets, 1999, Sengupta, 2006). For example, in schemes in New Town Kolkata, where up to 20% units have been reserved for the LIG and EWS, preconditions for acquiring affordable homes are set very high. Applicants are required to deposit up to 40% of the total cost of land and pay the remaining amount in four instalments. The household income of ₹5000 (US$107.5) (based on official income classification for a LIG household) gives little scope for any large savings. The deregulated finance sector continues to be unabashedly neoliberal and characteristically market-driven. By contrast demand for HIG plots has been very high. The demand from the higher income group coupled with pre-existing loopholes in means-testing led to significant ‘down-filtering’ of affordable units.

In a market with a constrained supply prices of housing are inevitably higher and quality is compromised. This assumption is supported by how affordability is defined in scholarly research. The term itself is a dynamic magnitude and incorporates several factors in one single bundle, which represent household preferences and lifestyles. Such factors include the capital costs of housing, housing quality, household income and finance, public policies affecting housing market and the choice that people make about how much housing to consume relative to other goods (Lee, 1990; Quigley and Raphael, 2004; Keare and Jimenez, 1983). Moreover, concern for affordability is consistent with the concern for improvement in the quality of housing as substandard housing can be seen as a symptom of housing unaffordability problems (Malpass, 1993).

GLOBALIZATION AND ITS EFFECTS ON URBAN HOUSING CONSUMPTION

This section focuses primarily on the effects of globalization on housing provision and considers its impact on the prospect of affordable housing. Globalization refers to the increasing connectivity of our world and its cultures, driven by the exchange of people, ideas, and goods, often through key media outlets and marketing efforts (Tomlinson, 1999). This connectivity extends through economic, political, social, and cultural spheres of our lives. At broad level globalisation as an idea, aided by neoliberalism is analogous to economic growth in India. Literature is rife with the rise of the Indian middle class as a consequence of the globalisation of the economy (Deshpande 1998; Kulkarni 1993; Lakha 1999) engendering a new form of class division and cultural contestation. The focus is now on
the lifestyles and consumption patterns of the ‘new middle class’ as the new definer of group identity (Appadurai & Breckenridge 1995, Scrase 2002; van Wessel, 2004) articulating in the housing provision. ‘As a new class of capitalist elites - the young urban professionals, their styles, desires and outlook on the world - are increasingly becoming hegemonic in India’ (Toor, 2000: 27).

The concept of globalisation has helped unlock important aspects of the changing context of housing consumption in India. In contemporary India, the consumer desire that helps precipitate the housing consumption shows first in a frenzy of adopting a global culture on movies, music, foods, drinks and fashion. For instance telecommunication, unavailable in the markets for years, opened up to the mass raising connectivity. A similar revolution was witnessed in the automobile industry, especially with ‘nano’, the cheapest car in the world. Television programs are replete with global channels, which further fuel this transition by introducing new brands of consumer goods and aspiring lifestyles shows. Market researchers and advertising agencies in India now commonly craft hybrid images and messages of a bi-cultural identity (one that is local and one that is global or Western) in what Mazzarella (2003) calls a ‘commodification’ of culture. In the same vein, global media has also adapted to this change. Middle class in India is both recognisably Indian and global.

Consumption in India is nothing if not conspicuous. In Indian real estate sector today, the synonymy of progress with ever-present Westernization has whetted the appetite for higher quality homes. Developers have quickly acted to seize the opportunity to reinforce the definition of the new middle class as consumers. The cultural meanings and images intended and desired for housing, has been in the heart of marketing efforts by developers attempting to sell the product with a specific and more distinctive identity. This includes an array of images targeted to stimulate the middle class interest and meanings attributed to status symbolism. A typical housing colony is desirable only if there is a swimming pool thrown in, no matter that most of the adults in this class don’t swim. Today’s housing has been “new middle class imaginaries” (Figure 3) replete with fitness club, health spa, jacuzzi, steam sauna and Turkish Bath, shopping malls to replicate Harrods ambience and products and state of the art interiors. CCTV in the lifts and lobby area re-emphasize the safety and privacy among other features. A new city aimed at the population of over 30,000 people in Greater Noida (Delhi’s outskirt) boasts of 18-hole golf course designed by Martin Hawtree, Mahesh Bhupathi Tennis Academy, a polo and equestrian club including a five star hotel, serviced apartments, a convention centre and an exhibition hall, all packaged into one project. Such schemes are however outlandishly kitsch tribute to some of the private enclaves that have become a symbol of post-liberalisation urban imagery designed to isolate super rich from the subalterns. Aamby Valley in the outskirts of Pune, near
Mumbai, is a gated and guarded township completely out of bounds to non-residents. These spatial patterns can be reflective of post-colonial urban design trends - anti-urbanism and micro-urbanism (Madanipour, 1996), their influence and inevitability as a lifestyle logic in contemporary India points to emancipation of middle class consumption forces fuelled by globalisation. The finance sector deregulation has further fuelled this ‘indulgence’ among the middle class. This is visible from the advertising and marketing campaigns from banks. Both governments and Banks have long targeted the middle class as the socially desirable sector providing tax benefits and relaxing loan criteria. Nijman (2006, p773) argues that it is ‘consumption, not income, that has become the marker for middle-class status’ among the ‘explosively growing financing, marketing and advertising industries’ upon finding predominantly middle class owners in a study profiling new home buyers in 1200 newly built houses in Greater Mumbai. Ironically, up to 20% of the dwelling units in some of housing colonies are earmarked for EWS and LIG, which clearly appears incongruous with everything else.

In India, the middle class is recognised by the middle tier bulge in the population which is considered to have sub-groups of range of income levels which not only categorises an income group, but also a political and social class and a consumer market. Definitions of middle class vary but according to A McKinsey Global Institute study using National Council of Applied Economic Research (NCAER) data suggests a real annual household disposable incomes between `0.2 and 1 million. The importance of this segment of the population is not so much on its size but how rapidly it is growing and ‘pulling away’ from the lower class (Nijman, 2006), which manifested in the sort of ‘spatial integration’ where slums have continued their subservient coexistence alongside modern high-rise towers. For example posh areas in Mumbai such as Malad and Kandivali consist a large number of slum population reflecting a wider spatial disposition in many Indian cities. It is now easy make a distinction between two parallel lifestyle trends that exist simultaneously. One is the ‘mainstream’, which can, at least superficially, be argued to conceptualise lifestyle as a commodity. The other, more humble consumer behaviour driven by the pressures of needs. However, the phenomenon is often articulated (by the upper class) in a simplistic binary – the slum and the multi-storied spaces in the rhetoric of built-form (Dwivedi and Mehra, 2005) and in redevelopment plans of many slum areas. Critiques of these notions find it disparaging leading to resistance to these plans. The class contestation under neoliberalism, Fernandes (2004) claims, thrives on marginalisation of the poor in the remaking of the urban landscape to cater of the needs and desires of a rising, consumer driven middle class.

AFFORDABILITY, QUALITY AND LIFESTYLE: AN INTEGRATIVE DISCOURSE

In India, the changes in lifestyles and quality have significant influence on how concept of affordability is perceived. To say the least it is a dynamic concept. Emerging trend in housing sector points to three important dimensions. First, housing affordability and quality is trapped in the dilemma of perception among middle and upper income people who as policymakers determine the ‘housing policy and package’. For the middle class, this is associated with ever ‘westernizing’ package of housing and services raising housing prices to a level that is beyond the means of many households even within middle class category. For the majority urban poor, ‘housing package’ is led by the stereotype notion on how people live in shanties and slums - a typical 400 ft2 home accommodating a family of four, in-laws, and visiting cousins from the village who would sleep under the bed. A typical design approach for affordable housing is then to compress a home into a single room with very basic provision and a mismatch in housing characteristics and household requirements. There are other contradictory imperatives at play, which fuel this perception. Increasingly architects are exploring green building techniques to keep the cost down. Such methods range from composting toilets, rubber wood doors, mud rammed earth, red oxide floors, solar lighting and rainwater harvesting. The perception of what constitutes a good home for an upwardly mobile families, however poor they may
be, runs counter to the broader objectives of sustainability and affordability, indicating a house means much more than a simple provision for shelter. Mud walls may be sustainable and eco-friendly, they prefer concrete walls, proper roofs and gavish paint. This sentiment not only subscribes to what Perera (2010) calls a ‘packaged fantasy’ of what a home should look like, influenced by globalisation and westernisation, but also an inherent desire to assimilate with the mainstream. It can be argued that at conceptual level, increasing gap between the middle class and the lower class and excessive focus on commodification of middle class housing dream has reduced affordable houses to a marginalised sector. Such marginalisation or branding of affordable housing is akin to ‘slummification’ as the concept of quality and lifestyles are similarly compromised in the package. The notion of marginalisation is also reinforced through the location of these colonies. High land cost in central areas drive the poor into the suburbs poorly equipped with communication and transport links. When poor households and low-quality housing is concentrated in a single area, the negative ramifications of individual housing challenges substantially increase (Galster 2005).

Second, affordable housing components currently being provided in prestige projects are out of sync with the lifestyles of low-income population, which further deepens the pervasive marginalisation. Indian society is layered in a complex labyrinth of caste, ethnicity and marginality contributing to divergent patterns of values, norms and sociological practices among people, which are not reflected in the new homes being provided to the urban poor. Beneficiaries of these affordable homes are not able to enjoy any of the facilities provided while their lifestyle or ‘need-based’ requirements are not addressed. For example, expensive departmental stores and provision of golf course mean little to low-income families engaged in a daily struggle for bread and butter. Not only exorbitant management fees price the poor out of the system, but the rapid property price appreciation also prompts these families to leave. The corollary to this view points to the fragility and ephemerality of the concept of ‘mixed communities’ resulting from ‘upper income invasion of affordable homes’. Such incongruity however exists even within the provision of LIG homes indicating money is not the only consideration when building homes for the poor. In an opposite illustration, Wharton (2006) gives an example of a squatter milk man, rehoused in one of the LIG homes built by the State of Tamilnadu going back to his ‘coir beds under the night sky’ while he ‘corralls’ buffaloe dung and hay intact inside their tiny one-room homes.

Third, housing today represents one of several ‘spaces of consumption’ in which the features that draw people to the area are increasingly contextualised, and at the same time hybridized, enabling the consumer to experience them as part of a wider suite of experiences. However, the newly ‘reshaped’ spaces in urban areas as new spaces of consumption point to increasing ‘standardisation’ of lifestyles resulting in ‘homogenization’ of spaces through the consumption and lifestyle patterns of the middle class. A mass consumer culture can now be detected bypassing the constraints of established cultures and traditional values with a fascination for westernized apartment blocks replete with modern facilities. The ‘apartment culture’ entered the market as a new, stylish and liberating concept that became increasingly synonymous with isolating, nuclear family structure at all levels in the society. People somehow liked this power of individualism, the sense of having a space, which is private. Even the lower end affordable housing has not escaped this entrapment as property developers broadly bracket it as one- to three-bedroom apartments priced below 3 million. But it is clear that such categorisation does not work uniformly across different cities and income groups. Links with architecture, space and lifestyles differs according to whose affordability. Affordability as a broad concept exists at every level in our society. While access to affordable housing is an acute problem households in the deprived category (annual income of less than 90,000 are unable to access basic housing across urban India, MGI (2010) estimates the affordability gap in each income segment across all tiers of cities. In Tier 1 cities such as Mumbai, the housing shortage is acute even for households with annual earning up to 0.5 million.

There are nevertheless some flashes of resistance and struggle evident in response to the rampant standardisation of bundle of housing products and services at least in the lowest affordability cat-
category. These can be found in beneficiaries rejecting the new housing provision for being inconsistent with their lifestyle. Often, the people who live in slums or squatter settlements and those whose livelihoods are inextricably linked to the location of the place, have chosen to go back to their original slum. While the external economic forces (such as price appreciation, commuting costs etc) influence their decision, the sense of repudiation is not only a simple case of economic prudence but gives a credence to the argument that a home doesn't exist in a vacuum. It needs life, and a livelihood to sustain it. Modern slums in India have distinctive characteristics, imagery and lifestyles and recreating them in an isolated suburb is a challenge to the policymakers. Some resistance may be brewing in the middle class category as well. The current trend may reflect an increasing flight of the middle class to isolated suburbs of metro cities enticed by a systematic campaign in the media, how far this trend is likely to continue is questionable given it ignores the cheek and jowl existence of the slums and high-rise and their legacy of their socio-economic interdependence (Hogan et al, 2010). The middle class suburbs will sorely miss the cheap labour of the service class for gardening, child care, driving, security.

CONCLUSION

Is it clear that quality and lifestyles do not figure as essential components to the perception of affordability and practices of affordable housing provision in contemporary India. The answer is probably yes. The housing affordability impact of sudden swelling of the middle class (both in terms of income and aspiration) and the new forms of consumption pattern triggered by globalization and westernization of housing dream offer an area of study that sees the poor in the society being further marginalized when it comes to access to housing. The housing fantasy currently being packaged and fed through to a the middle class population has an upper middle class bias and is set to alienate those at the lower end of the ‘middle class bracket’. Developers have consistently raised the overall quality and standards of housing (as a bundle of services) defining ‘lifestyle’ for expanding mid-

dle class ignoring, in the process, the lifestyle preferences of the poor.

However, there are still traces within the scholarship that suggest new directions and possibilities for further analysis. The articulation of lifestyle studies as a post-globalisation project involves the rethinking and reworking of forms of knowledge linked to affordability, quality and consumption. Historically housing affordability has been in the domain of the ultra poor in the society. But there is an acknowledgment that perhaps concept of affordability may not be entirely exclusive and should now be understood in conjunction with quality and lifestyles at every level. In the context of growing agreement and inevitability of market provision of ‘affordable housing’, the unbridled ‘market-defining’ of housing quality and lifestyles must be checked.
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MODELING QUALITY AND HOUSING PREFERENCES FOR AFFORDABLE NEW HOUSING DEVELOPMENTS

Alina Delgado and Frank De Troyer

Abstract
A fundamental change in the planning and delivery of new housing projects has taken place in the last years, with the focus shifting towards adding value to projects based on a better understanding of housing preferences. This issue becomes even more critical when it is intended to the provision of affordable houses for low and middle income groups. This paper describes a model designed to help developers and housing users to achieve their expectations regarding quality, affordability and including also reasonable profits. Developed through a “methodological pluralism”, this study identifies people-oriented variables and assumptions. The model was developed based on a case study in the city of Guayaquil-Ecuador, and information obtained from field work research was used to test it. The study examines implications and limitations of the model for inclusion of housing preferences considering local conditions and cultural values. The different parts of the model along with data requirements for each part are described. The paper concludes with findings regarding the identification of most preferred attributes by housing users and the use of alternatives methods to incorporate additional value into projects, translated into more appealing profits for developers and the provision of better and more affordable houses for users.

Keywords: Preferences, Value, Model, Profitability, Affordability

INTRODUCTION

Given the current focus in the housing sector on adding value to projects, this paper argues that a starting point is a better understanding of housing preferences and people’s needs. A distinction can be made between satisfying basic housing needs and providing housing based on attributes needed to satisfy other aspirations, such as comfort, privacy, security and asset accumulation. This difference is even more critical in the provision of affordable houses for low and middle income groups. Traditionally, affordability had been seen as an approach intended to make houses accessible for lower income groups by cost reduction as one of the most important variants, regardless urban environment or socio-cultural considerations. For the most part, these issues have been treated in isolation, not considering many other critical factors for making houses affordable (Salama 2007). A more comprehensive, integrated and trans-disciplinary approach regarding affordability is needed, covering and crossing the fields of different disciplines such as: housing and urban design, economics, social and cultural issues, besides addressing housing preferences, quality, and the participation of different actors in the housing process.

In Latin America the demand for new and affordable housing is continuously growing and at an unprecedented rate. In fact, the demand for new houses in the region stands at 28 million housing units and for housing improvements at 26 million units (World Bank, 2007). The urgency to respond to the enormous housing deficit prioritised a quantitative approach in the production of houses as opposed to a qualitative one (Balchin & Steward 2001; Toro et al. 2003). Massive housing programmes implemented in the region in the period 1954 -1980 were criticized for the inadequate capacity to address people’s needs (Jones 1964). Indeed, areas occupied by informal settlements or squatters seemed to have a more structured social cohesion and greater acceptance by the population (Turner 1976). However the importance of improving the quality of life in new social housing projects had become in the last years a major concern due to the poor quality of the products offered. Chile was one of the first countries in the region to adopt
a new line of action, considering people’s preferences in the provision of social housing projects (Greene & Ortuzar 2002; Toro et al. 2003), studies about other countries such as Peru, followed (Meng & Hall 2006). This approach, even though innovative for that time experienced some difficulties for its measurement. In fact, housing quality is a complex subject, with broader social and economic meanings, depending of the local conditions, lifestyles, preferences and expectations of the inhabitants. Indeed, a great variety of approaches have already been used in other regions of the world for measuring and eliciting housing preferences (Hofman et al. 2006; Lindberg et al. 1988; Rakodi & Withers 1995; Timmermans et al. 1996).

This paper aims to develop a simulation tool to help developers and final housing users to achieve their expectations by incorporating additional value to housing. This approach translates into more appealing profits for developers and the provision of better and more affordable houses for users. Consequently, a win-win situation is generated between the different parties involved. This paper’s case study was carried out in the city of Guayaquil-Ecuador, and its model incorporates field work data over people’s preferences and willingness to pay (WTP). This is the first time, to the best of the author’s knowledge, that housing users’ demands for better quality housing in this specific context of a developing country have been previously translated into simulations models. This is partially due to the fact that the process of translating sometimes subjective data into objective terms in a simulation model is not just a straightforward procedure (Fellows et al. 2000; Ruben et al. 2008). The model described in this paper reviews options for increasing project quality by identifying optimal combination of housing parameters for obtaining maximum quality for housing users (within budget restrictions) and reasonable profits for developers.

CASE STUDY ANALYSIS

Ecuador, as other Latin American countries, has difficulties organizing the growth of the urban housing sector caused by the migratory flow from rural to urban areas and the natural growth of the population (Barros, 2004). The national housing deficit in 2002 was estimated at 1.2 million dwellings by the Ecuador’s National Institute of Statistics and Census, of which 60% was qualitative and 40% quantitative. This paper’s case study focuses on the city of Guayaquil, located on the northern side of the Golf of Guayaquil. Guayaquil is Ecuador’s most populated city, with around 2’345.000 inhabitants, producing more than 25% of the country’s gross domestic product (GDP). The actual population of Guayaquil is the result of internal and external migratory movements of populations with very different cultural, social and economic backgrounds, creating difficulties for communal integration and social cohesion.

Escape from the rural world has multiplied informal settlements in Guayaquil, with little or no provision of basic services and infrastructure. According to INEC, in 2001 around 43% of the population of Guayaquil did not have all their basic needs covered, and 69% belonged to low and low-middle income groups. Considering as part of this category to those who have a monthly income between $240 (minimum salary in Ecuador-2001) and $600 (National Population Income Categories), (Municipality of Guayaquil, 2008). Housing demand in Guayaquil was estimated at 200.000 housing units, 56.000 of which were associated with low income groups.

The Municipality of Guayaquil faced more than two decades ago the recovery of the city from administrative, financial and economical decay. The main starting point for the city’s redevelopment was a 2,5 km project called “Malecon 2000”, whose main objective was to redevelop the waterfront and centre of the city. The whole process was even recognized by the United Nations Development Programme (UNDP) in 2002, as a best practice in local development. Nevertheless, still significant steps have to be set towards improving the quality of life of large sections of the population. Other projects of urban regeneration and social development have followed (see fig.1). One such project, proposed by the Municipality, is “Mucho Lote”, intended for 14.383 dwelling units for low and medium income groups, in an area of 189 hectares, with green and communal facilities and basic infrastructure. Other projects (2010-2011) being promoted are: “Mi lote”, 6.500 plots-107 hectares; “Mucho lote 2”, 9.400 houses-142
hectares (M.I.Municipality of Guayaquil) and “Socio Vivienda”, 2,434 houses-38,7 hectares, (Minister of Housing of Ecuador-MIDUVI).

**METHODOLOGY AND DATA COLLECTION**

A “methodological pluralism” was used in the development of the model, considering this area as an interdisciplinary study that can be enriched by the use of multiple research methods. In this study this term is defined as the use of different but complementary research methodologies, leading to a coherent cumulative knowledge building (Kirsch & Sullivan 1992). This research is based on literature review, a case study involving field work in the city of Guayaquil-Ecuador and a simulation model. To obtain the simulation data, this study employed primary sources such as local technical publications and informal interviews with policy makers, private developers, policy administrators, city planners, and housing users and secondary sources such as international reports. The model is based on the Element Method for Cost Control (De Troyer, 1990).

**The pilot field work:** The survey in Guayaquil was based on a pilot project and undertaken to test user’s preferences and their WTP for housing attributes beyond a certain housing type. Data obtained from the field work was analyzed and processed as quantifiable input parameters for incorporation into the model. Those parameters were then used to formulate quality evaluations to estimate market selling prices.

The survey addressed three low-medium income groups. The Contingent Valuation Method...
(CVM) was used, to elicit preferences directly through the questioning of individuals on their WTP for housing characteristics. This method is also referred to as a “stated preference” method because, rather than inferring values from actual choices, as the “revealed preference” methods do, it asks people to directly state their values. The fact that this method is based on what people say they would do, as opposed to what people are observed to do, is the source of its greatest strengths and weaknesses. This method was selected because it is considered to better predict the latent demand of housing, given local values and lifestyles and representing a more systematic approach for eliciting consumer’s preferences (Turner et al. 2004).

To elicit respondent’s choices or preferences a hybrid approach, as a “payment card” was adopted. For each housing characteristic, respondents were shown different options, along with a list of possible answers- a “payment card”- with payment alternatives and asked to indicate their choice. A provisional list of housing characteristics based on primary and secondary sources was offered to the interviewers (see fig.2), in three main groups: (1) layouts of houses and urban environment; (2) technical choices-materials and (3) project location.

Three groups of housing users were chosen for the interviews, based on their relevant socio-characteristics for this study: (1) current social housing project users (2) future social housing project users and (3) users from a marginal area of the city. This last group was interviewed about what would be more preferable for them in order to move to a formal social housing project. A total of 60 semi-structured interviews were conducted in several parts of the city, as well as interviews with 20 housing experts.

The interviewees were first asked to identify the housing characteristics that they deem the most relevant in a housing project, in order to “test” their relative importance. Users were then asked to determine the extent they are willing and able to pay for improvements over each selected housing characteristic. For this a “basic” price for a known housing type was estimated based on local market prices. Adjustments were also made to this basic price by changing or adding different housing characteristics or improvements. The interviewees then selected additional alternatives of housing characteristics from a basic housing type (36 m² of floor area, three rooms, one toilet, basic sanitary and electrical installations, plastered walls and a tiled...
roof), with additional expenses estimated for each selection. They were able to check the resulting price of the house and monthly payments due to the options chosen and exchanged or give up options when these seemed unaffordable or not desirable. Variations on monthly payments for different financing mechanisms were also presented.

MODEL DESCRIPTION

The model is developed to deal with basically three types of concern: the quality of life to be provided by the project on urban and housing levels; the overall financial feasibility; and the project’s affordability to the intended target groups. The model is conceptually based on five basic issues of housing:

- **Design**: for urban site and housing units.
- **Costs**: of urban development, infrastructure and housing costs.
- **Market prices**: housing prices based on quality evaluations.
- **Project investments**: with profitability margins for housing; commercial, communal, green and circulation areas.
- **Affordability**: for potential users.

These issues, besides data requirements, are explained in the model in a main part (A) for first estimations, related with basic data as well as in additional parts: sub-models (B), with more detailed calculations concerning: layouts, cost analysis, quality analysis, phasing investments and affordability (see fig. 3).

**Design**:

*The model is based on decisions regarding the design of the urban project and housing units.*

Data concerning design options for urban and housing layouts must be entered, such as total area and percentages of housing area, as well as the percentages of plot areas for housing typology, plot dimensions, number of plots per building fragment, number of building fragments per cluster and streets widths. Different housing levels are defined such as plot size, housing unit, and as a result of the combination of different spatial arrangements of plots, buildings and streets of a neighbourhood. Design parameters at the different housing levels are defined according to the Element Method (De Troyer, 1990, 2007).

**Costs**

Urban cost data included in the model are preliminary costs involved in land acquisition, site preparation, taxes and administrative costs, provision of basic infrastructure and commercial, communal and green areas. For housing costs, estimated cost data for plots and houses are input. Simulations are based on an extended database of prices for the different elements and sub-elements required for cost estimation. Elements are defined in such a way as to be as independent as possible, thereby allowing for different combinations of materials, ele-
ments and sub-elements (De Troyer, 1990).

Market Prices
Data concerning estimated market prices for commercial, communal plots, and buildings, as well as for housing plots and housing units are input. Calculations of market selling prices are determined based on quality evaluations. An elaboration of these quality evaluations methods and their main assumptions is given next:

Main assumptions
Main assumptions used for elaborating quality evaluations and interpretation of survey results are: WTP (willingness to pay) and linear housing demand curves. A user’s WTP is based on the assumption that for housing units (including plot characteristics, location and urban environmental characteristics) total quality is the sum of the quality scores for the different aspects of housing characteristics. Linear housing demand curves are based on the assumption that if the number of houses provided to the market in a given period increases, a reduction in their selling price should be accepted.

Quality evaluations
The quality evaluations carried out in this research refers to evaluations made to estimate market prices based on users preferences. Two main evaluations were made. In the preliminary survey for each housing characteristic different variants were considered (e.g., different sizes and layouts for plots, different possibilities of facilities for an urban environment and two or three additional kinds of finishes for technical characteristics), people were asked what they would select given a fixed cost (based on present day market prices) and their available means. For each variant the hypothesis is made that “diminishing marginal increases of quality” are associated with additional spending on that item, represented by the following function:

\[ WTP = a_n \times X_n + (b_n) \]

Where \( a \) and \( b \) are constants obtained from the tendency curve equation of accumulated quality points, based on expressed people’s preferences and \( X \) is the additional cost of the considered item (minimum $1). This function represents the importance of the attributes assigned by the housing user, expressed in score quality points. Equation (2) is then used to calculate the total additional price to be paid:

\[ \text{total WTP} = H_n + L_n + \sum_{i=1}^{n} (a_i \times X_i + (b_i)) \]

Where total willingness to pay is a linear function of quality points for houses, land, and housing characteristics and where \( H \) represents housing costs and Land costs, plus the bundle of housing characteristics. Outcomes of equation (1) are represented by WTP curves (see fig. 4), showing graphically the additional value granted by users to housing characteristics with alternatives on increasing cost and frequency of added selection. The \( R^2 \) value in the figures was obtained from the Accumulated QP (quality points), based on preferences obtained from data survey. Then, from the tendency curve of these points constants values \( a \) and \( b \) were obtained to estimated the Calculated QP representing the WTP for additional alternatives of housing characteristics. After this, a second evaluation is made regarding housing demand expressed in housing demand curves (see fig. 5) per each housing typology and target group. From those curves it is possible to predict a reduction in price in accordance with the number of units supplied to the market in a given period of time.

Project investments
The market selling prices estimated after using the demand and WTP curves are employed in a cash flow timeline to consider investment possibilities, showing the amount of money needed to finance the deficit between expenses and income upon time. The results of profitability margins and return on investments are shown as a consequence of all the previous decisions made at the design, costs and market price phases. The main outputs of this part are project profitability, internal rate of return, and return on investments.

Affordability
Affordability for the population comprises the capacity of payment and willingness to pay of different income groups. These aspects can be considered as highly influenced by income category,
but factors such as family size, age, and education can have a greater influence over preferences. Affordability is tested under different options of loan terms, interest rates, and progression rates. Finally, affordability is considered as the budget restriction to be used in the model in determining the range of

Figure 4. Quality evaluations. WTP curves. Diminishing marginal quality increases with additional spending on different characteristics of housing units.

Figure 5. Quality evaluations. Demand curves for housing types.
maximum quality points ("expansion path") that leads to the optimum combination of preferred housing characteristics (see fig. 6).

MAIN FINDINGS

One of the main results of this research is determining the availability of different methods to process a survey that makes use of "payment cards", asking respondents to express their preferences within their available budget. Figure 7 gives an overview of how often changes are selected and how cost grows (in percentages of the basic unit) with the addition of improvements. Furthermore, the explorative survey makes it clear that it is essential to distinguish between attributes that cannot be easily changed over time, (e.g. layout, plot size, street width and land provision for commercial and social facilities) from those that can (e.g. finishes, expansions and additional services). Developers should consider highly valued housing characteristics when initially planning a housing project in order to increase their return on investment.

Regarding location, about the distance to the center of the city, this study’s findings appear to support previous works (Greene & Ortuzar 2002; Lindberg et al. 1988; Opoku & Muhmin 2010) that consider this characteristic not so essential concerning housing preferences but contradict others (Hidalgo et al. 2007; Kiel & Zabel 2008) that considered it as very significant. The low preference given by users to this characteristic in this specific context is probably due to the presence in the city of already existing sub-centers that provide the necessary urban facilities such as health care, education, sports and entertainment.

This study’s results also suggest that the extent to which respondents are likely to satisfy their housing aspirations depends partially on their income, but also on their values and goals, which could be in accordance with their personal situations as well as conditioned by the context, as supported by previous studies (Lindberg et al. 1988). In this context this value-goal behavior is not necessarily a rational behavior in a more classical economic sense. For instance, regarding housing typology and tenure, the overwhelmingly majority of survey respondents (nearly 95%) preferred the option of individual houses instead of apartments despite a considerable reduction of the price for apartments (around 40%). Furthermore, despite their limited incomes, the majority preferred buying over renting. These issues of tenure and housing typology preference are in accordance with previous studies (Opoku & Muhmin 2010) showing that, besides income levels, underlying beliefs and values determine people’s choices of housing characteristics. Nevertheless, it is foreseen that these preferences may change in the future, since the city urban area will expand and land prices will increase.

As a result of the interviews a combination of additional characteristics selected by each individual was obtained, for which users were willing to pay an average of 33% more over the basic housing price. The results also reveal tradeoffs concerning customer values and the price of alternatives or improvements for each selected housing characteristic. Although people generally prefer to select as many options possible, they are less interested if this also means an increase in price (Hofman, et al. 2006). The additional value that can be added to projects can be defined as the additional price that people, based on their own preferences, are willing to pay for housing characteristics. The simulation model uses data obtained from field work to obtained quality points for each housing characteristic, using equations (1) and (2). The optimal combination of housing characteristics (for housing and

Figure 6. Reduced budget restrictions and spending evolution for two characteristics leading to maximum quality.
land) is the resulting curve leading to the highest quality points within budget restrictions (payment capacity). A comparison of the results from the data obtained directly from field work with those from the analyzed data from model simulations reveals slight divergences. This is due that in the field work data, the ranking of preferences is based on the number of times a housing characteristic is preferred, whereas in the model simulations, the ranking is based not just on this frequency but also on quality scores, considering “diminishing increases in quality” for additional improvements of each selected housing characteristic.

CONCLUSIONS: LIMITATIONS, CONTRIBUTION AND POSSIBILITIES FOR FUTURE RESEARCH

This study contributes to its field by proposing alternative ways of linking the subjective side of quality (preferences) with the objective side (incomes, prices and budget restrictions) and incorporating these variables in a model. A case study was used, with fieldwork consisting mainly of interviews with potential housing users. Regarding field work, one of the main limitations of this study is that the data was obtained from a small study, and thus the proposed model must be further validated by future research.

The study’s main original and novel contribution given the case study analyzed is that, to the best of the author’s knowledge, this is the first attempt to incorporate value (based on the WTP of users and future users of housing projects) as quantifiable input parameters in a model for project development in this specific context of Guayaquil-Ecuador. While numerous studies on the topic have been carried out in other countries - mainly developed countries, such as the Netherlands (Hofman et al. 2006; Timmermans et al. 1996); other regions, such as Saudi Arabia (Opoku & Muhmin. 2010) and other Latin American countries, such as Chile (Greene & Ortuzar 2002) and Peru (Meng & Hall 2006) - no such research has been carried out in the context of Guayaquil-Ecuador.

Figure 7. Frequency of improvements selected in survey (left axis) and price increases (as percentage of the basic unit price) when improvements are added in that order (right axis)
A second principal contribution of this study has been about the use of stated preference methods to incorporate data as quantifiable parameters in the model. Up to date, most studies using such methods have focused on housing policy formulation (Hofman et al. 2006; Howie et al. 2010; Timmermans et al. 1996; Rakodi & Withers 1995), and have not yet attempted to incorporate this data into a simulation model for new social housing developments. In fact, most simulation models of housing quality evaluations employ hedonic regression analysis based on revealed preference data or a combination of stated and revealed methods, since the latter is seen as a more “reliable” method for cost and market prices analysis (Baranzini et al. 2009; Gyourko & Tracy 1999; Hofman et al. 2006; Lindberg et al. 1988). In this regard, this study prefers a perhaps slightly less “reliable” but more challenging method for design interventions, since it allows to better predict the latent demand of housing. Nevertheless conclusions should be applied with caution since in the “Stated Preference Method” answers from respondents could be conditioned by other variables such as their economic, cultural and social conditions. However, findings are considered sufficient as a first approximation for understanding the problem and to define a starting point for further research.

The structure of the interviews also provides an opportunity to explore preferences and tradeoffs between desired features and affordability. Budget restrictions are considered in analyzing the optimal combinations of design parameters and housing options as a result of people’s preferences, willingness and capacity of payment for housing characteristics. Based on this exploratory study, it may be possible to obtain some insight into preferred housing characteristics and the use of alternative ways to include these preferences and values as quantitative parameters in a model. The additional value that could be added to projects can be expressed as the higher price people are willing to pay for housing characteristics. Developers should follow strategies of maximizing this difference in price, based on people’s preferences, to increase their return on investment. In a competitive market, this will lead to better and more affordable houses for users.

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THE COST OF HOUSING: MORE THAN JUST DOLLARS

R.J. Fuller and U.M. de Jong

Abstract
Australians were recently awarded the dubious honour of building the largest homes in the world. Our new homes are now seven percent larger than those in the United States and nearly three times larger than those in the United Kingdom. At the same time, the price of an average residential property is now five times what it was 20 years ago. Although incomes have risen over the same period, they have not kept pace with rising house prices. In terms of disposable income, the cost of housing has almost doubled. While traditional housing affordability is measured in terms of house prices and incomes, a broader and more encompassing perspective also indicates that we can no longer ‘afford’ to build houses as we have done in the past. The environmental impact of modern Australian housing is significant. Australians have resisted the need for increased urban density as their capital city populations grow and new houses have been built on the outskirts of the existing cities, encroaching on the greenwedge and agricultural lands, destroying and degrading existing fauna and flora. The houses built have increased carbon emissions because of their size, embodied energy and reliance on the motor car. This paper discusses the environmental ‘affordability’ of current Australian housing and argues that this must be considered alongside traditional affordability criteria so that a more holistic approach to the issues is adopted.

Keywords: Housing, Australia, Environmental Affordability

INTRODUCTION
In 1963, John Betjeman writing the foreword to Robin Boyd’s book The Australian Ugliness mused “The trees, the flowers, the buildings, the crisply, brilliant light, then the variety of scenery and stones and vegetation – these were the first things that struck me when I visited Australia”. It is Boyd who notes that “In the decade after the second world war much of the national economy and most of the resources of the building industry were devoted to the provision of separate houses and the few small schools and shops which are scattered among them. … For half a century Australia has taken for granted that every man deserves his own house and should be able to shape it in some special personal way” (Boyd, 1963:159). Today Australia is one of the most highly urbanised countries in the world.

At the end of 2009, the total population was 22.2 million and growing at an annual rate of approximately 2% (ABS, 2009a). While two thirds of Australians live in the capital cities (ABS, 2009b), nearly 90% of the population live in urban areas (UNPIN, 2009). The number of dwellings per hectare in the capital cities in 2001 was 5.56, indicative of the low density suburban sprawl that categorises the landscape around major population centres (Roberts, 2007). By 2020, the number of Australian households is forecast to grow to almost 10 million and cover an area of 1682 million m². Using 1990 as the baseline, these figures represent increases of 61% and 145% respectively (DEWHA, 2008). Much of this growth has been, and is likely to continue to be, on greenfield sites. Figure 1 shows the housing that is typical of the urban sprawl onto greenfield sites on the outer boundaries of Melbourne and other Australian cities in the last two decades.

Residential property prices have risen by 433% in just over 20 years in Australia. According to Colebatch (2010), this means that an average house, costing $100,000 in 1987, would cost $533,000 in December 2009. Although incomes have risen over the same period, they have not kept pace with rising house prices, rising only 195%. The cost of housing used to be 3.33 years of disposable income but now it is six years of income (Colebatch, 2010). The cost of housing attracts considerable
media comment and some political action in the form of grants and subsidies. What receives less attention is the impact of our housing on the environment.

The protection (and even improvement) of our environment has been a central concern of many in recent decades. The ‘environment’ is usually thought of in terms of ecology, but according to the English Collins Dictionary (2010), the ‘environment’ can be defined as “the external conditions or surroundings, especially those in which people live and work”. This broader definition encourages us to think more holistically about what impacts on our surroundings might be considered when we think about housing. In this paper, using previous research of the authors and other relevant literature, we have looked at a wide variety of impacts to argue that the present pattern of Australian housing is unaffordable. Some of these impacts are those that are traditionally associated with the environment. These include the impacts on fauna and flora, resource use, greenhouse gas emissions and land loss. But we have also included the loss of character and sense of place as an undesirable impact that is increasingly of concern in small coastal and regional towns of Australia. These sections are followed by further discussion to briefly explore whether any of these impacts might be reduced in the future. Some conclusions are then drawn from the previous discussion.

**FAUNA AND FLORA**

Globally, diversity loss continues across a range of indicators (SCBD, 2010). Farmland bird populations in Europe have declined by on average 50% since 1980 and in North America, bird populations in grasslands declined by nearly 40% between 1968 and 2003. Similar statistics point to declines in waterbird populations and amphibians.

According to White et al. (2005), most of the research on birds in urban environments has been carried out in the Northern Hemisphere. The cities of Australia are relatively new in global terms and the housing density is still low. Traditionally the building lot size has been a ‘quarter acre’ and this meant a garden, featuring native and exotic plant...
species, is a feature of most Australian homes. In their study, White et al. (2005) divided their study sites in Melbourne into four broad habitat types: parks, native streetscapes, exotic streetscapes and recently developed streetscapes. Sixty native bird species and seven introduced species were recorded during the study. The researchers found the lowest species abundance and richness occurred on recently developed sites, while conversely the highest species abundance and richness occurred in parks and native streetscapes.

Domestic cats and dogs go hand-in-hand with housing in significant numbers. In Victoria, the number of owned and stray cats in urban areas is estimated to be 500,000 and 300,000 respectively (DSE, 2010a). The impact of cats on native fauna is well-established. Van Heezik et al. (2010) studied the predatory behaviour of domestic cats in Dunedin and found that they brought back a mean of 13.4 prey items per year. An earlier study in Australia by Paton (1990) suggested a figure twice as high.

Native fauna has not been the only casualty of housing development. For example, Williams et al. (2005) have documented the decline and fragmentation of native grasslands in western Melbourne. Of the 7230 ha of native grassland that was recorded in 1985, almost half (44%) had been either destroyed or degraded to non-native grassland in the 15 years to 2000. Williams et al. (2005; 44) noted that for many years community groups, scientists and the State Government have identified “residential, industrial and major projects (…) as an immediate threat to the persistence of remnant grasslands for many years”.

Other native vegetation has similarly declined because of the encroachment of housing. Of particular interest to the authors is the growth of suburbs in the coastal areas that lie adjacent to urban areas like Melbourne and Geelong. Yeoman and MacNally (2005) have studied the impact on avifauna in the coastal plant communities of Moonah Melaleuca lanceolata woodlands on the fringes of Geelong and Melbourne. The Coastal Moonah Woodland Community is listed as ‘threatened’ by Victoria’s Flora and Fauna Guarantee Act (DSE, 2010b). Clearing of these communities is attributed initially to timber-cutters and lime-burners, and more recently to residential development and agriculture (Calder, 1986). Yeoman and MacNally (2005) cite Tonkinson (1999) who believed that more than 95% of the Community had been cleared.

**RESOURCE USE**

In Australia, the average house size has grown significantly over the last 60 years. According to Garden (1995, p.141), “in the late 1950s the average project home was ten to twelve squares” and “by the start of the 1970s, the average home had grown to fourteen to seventeen squares”. By 2009, Australians overtook Americans in building the largest homes in the world (James, 2009a). The average floor area of new homes constructed in 2008-9 was almost 215 m², while the average floor of new free-standing homes also hit a record high of 245 m². Our new homes are now seven percent larger than those in the United States and nearly three times larger than those in the United

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**Table 1. Resource use comparison between 1950 and 2009 houses (source: Fuller et al., 2009)**

<table>
<thead>
<tr>
<th>Material</th>
<th>1950 House</th>
<th>2009 House</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber - hardwood</td>
<td>9 m²</td>
<td>4 m²</td>
</tr>
<tr>
<td>Timber - softwood</td>
<td>0.7 m²</td>
<td>6 m²</td>
</tr>
<tr>
<td>Birds</td>
<td>10 m²</td>
<td>142 m²</td>
</tr>
<tr>
<td>Glass</td>
<td>36 m²</td>
<td>38 m²</td>
</tr>
<tr>
<td>Concrete</td>
<td>0.2 m²</td>
<td>64 m²</td>
</tr>
<tr>
<td>Cement sheet</td>
<td>38 m²</td>
<td>261 m²</td>
</tr>
<tr>
<td>Plastic board</td>
<td>333 m²</td>
<td>635 m²</td>
</tr>
<tr>
<td>Steel decking and/or galvanised iron</td>
<td>113 m²</td>
<td>113 m²</td>
</tr>
<tr>
<td>Tiles</td>
<td>113 m²</td>
<td>261 m²</td>
</tr>
<tr>
<td>Aluminium</td>
<td>0.1 m²</td>
<td>0.1 m²</td>
</tr>
</tbody>
</table>
Kingdom. In resource terms alone, this increase in the size of dwellings has been significant. Fuller et al. (2009) compared the resource use of a typical 95 m\(^2\) house of the 1950s with a 234 m\(^2\) house built in 2009. Table 1 shows a comparison of the various materials used in the two house types.

In the 1950s, most of the Australian houses were of timber construction. By the end of the 1960s, brick veneer\(^2\) houses dominated the marketplace and this change in construction style, together with the increase in house size, has seen the quantities of bricks, tiles and concrete rise dramatically when typical houses of the two eras are compared. The area of bricks used has risen 14-fold, concrete volume has multiplied 163 times and the once-ubiquitous tin roof has now been replaced by tiles. While there is no suggestion that we are running out of raw materials to produce these construction materials, the waste generated and its environmental impact is considerable. On average, Australians each generate nearly half a tonne of construction and demolition waste annually, and this constitutes 34% of our landfill waste (Newton, 2006).

**LAND LOSS**

Australia is an exporter of agricultural products. Traditionally clearing of Australia’s native vegetation was for agricultural purposes, either crop production or for raising livestock. Although Australia is a vast country, the land suitable for agriculture is limited, and most of the suitable land is on the continent’s coastal fringe (Sinclair, 2003). The peri-urban regions in five states are responsible for 25% of Australia’s total gross value of agricultural production (Houston, 2005). With the increasing demand for housing close to major population centres, there is now concern about the loss of prime agricultural land and market gardens for housing. The concern is that this may impact on the nation’s ability to feed itself and/or that transportation costs will rise as food must be transported increasing distances.

In a submission to the 2008 Senate Inquiry into Food Production in Australia, James (2009b) stated that the peri-urban region around Sydney accounts for 40% of vegetable production in New South Wales. Protection of peri-urban land for agricultural production is haphazard, according to James. Furthermore, the need to maintain food production within a reasonable distance of population centres is important to limit ‘food miles’. Addressing the problems of excessive greenhouse gas emissions and an over-reliance on oil are exacerbated by the loss of peri-urban agricultural land.

**GREENHOUSE GAS EMISSIONS**

Globally, the single most pressing environmental problem we face is the continued rise in carbon dioxide levels and the changes this is predicted to make to our climate. In Australia, the residential sector is responsible for approximately 9% of total emissions (DCCEE, 2010). While the emissions associated with all the usual household appliances are accounted for in this figure, the most carbon-intensive household ‘appliance’ - the private motor car – is not included. In Victoria in 2005, the emissions from private motor vehicles (PMV) represented 39% of the sum of residential and PMV emissions (Wilkenfeld, 2008). Where we construct our housing and the access to public transport are the two principal factors which determine car usage.

Fuller and Treloar (2004) analysed the relative magnitude of the greenhouse gas emissions associated with the operational (heating and cooling) and embodied energy, and travel energy of a hypothetical family in Melbourne over a 50-year period. The research scenario assumed that the size, style and location of the family’s home changed every ten years, following average patterns. House size increased from 93 m\(^2\) in 1950 to 270 m\(^2\) in 2000. The family was assumed to move further and further away from Melbourne’s Central Business District every ten years. Housing building style trends were mirrored by a change from weatherboard construction in 1950 to brick veneer in

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1 one square is the equivalent of 100 square feet i.e. 9.3 m\(^2\)
2 a brick veneer house has a timber frame clad externally with a non-structural brick wall
subsequent decades. Insulation levels were increased progressively along with the use of ‘slab-on-ground’ construction from 1980. The use of the motor car for work travel was assumed to increase from 25% in 1950 to 93% by 2000, as reported in Mees (2000).

Figure 2, shows the change in carbon dioxide emissions associated with these three factors. As the house size increases, its growth impacts on both operational emissions and the emissions due to embodied energy in the materials used. Travel energy, however, grows more sharply due to the increase in distance travelled to work and the greater reliance on the car. The emissions associated with operational energy use dominate at the start of the scenario period but are overtaken by travel energy emissions by 1970.

The emissions associated with our housing can be significant components of our overall impact on the planet. The ecological footprint is the area of productive land (ha) required to support our lifestyle. Fuller et al. (2008) explored the impact on house size, occupancy level and type of electricity supply on an individual’s footprint using a publicly-available footprint calculator. House size was clearly the dominant factor. A similar exercise using an updated version of the calculator has been used to calculate the contribution of house size on ecological footprint and carbon emissions. Assuming a free-standing house occupied by three persons, a 100-150 m² house represented 11% of the ecological footprint. This percentage doubles when the house size is 250 m². According to the calculator, an individual’s carbon emissions rise by 26% when they live in the larger house, assuming all other factors remain unchanged.

**ENVIRONMENTAL CHARACTER**

De Jong and Fuller (2008, 2010) have investigated the suburbanisation of the historic coastal towns of Sorrento and Queenscliff. These towns are at the ends of the two opposing peninsulas (Mornington and Bellarine) that form the bay on which Melbourne, the capital of Victoria, is located. The twin peninsulas, major beach resort destinations since the 1880s, have become increasingly popular in the post-war years. It is the ‘sense of place’ and neighbourhood character, both intertwined with the natural environment, that have attracted humans to these locations for over a century. The towns were notable for the many holiday homes sequestered in the tea tree, moonah and banksia woodlands. Part of their character was that few houses were actually visible from the arterial roads. Even from the sand dunes the panorama was of a vegetated rather than a densely settled landscape. Many of these houses were basic single-story fibro-cement sheet constructions on individual allotments, inconspicuous dwellings among the tea trees. On the Peninsulas, where landscape determines meanings and relationships, these generally architecturally-inconsequential houses were respectful of their place, if only in their unobtrusive demeanor and small scale. Today, at the beginning of the twenty-first century, the Peninsulas face perhaps their greatest challenge ever to preserve their unique environments. Large houses, are now being built on dune ridgelines, often dominating their immediate neighbours, and thus violating the sense of place and neighbourhood character (Figures 3a & b).
Figure 3a. Large house on dune ridgeline

Figure 3b. New house dominates neighbour
In their first paper, de Jong and Fuller (2008) documented the impact of some of the changes that have taken place in these twin historic coastal towns in recent decades. Most notable of these were the transformations of traditional harbours to marinas, historic hotels into luxury apartments and large-scale housing developments. In their subsequent paper, de Jong and Fuller (2010) investigated what indicators could be used to quantify the changes in town character. These included: growth in building footprint, changes in employment profile, rise in the number of permanently-occupied houses and the rise in planning decision appeals. It was acknowledged that while none of these are the perfect indicator of change, they do point to the complexity of change and the difficulty of councils, communities and planners to preserve the integrity of their towns. They concluded that the ‘so-called’ sea change phenomenon is impacting on the look and shape of coastal towns and such towns are being adversely affected by the importation of unrestrained urban values of housing (size being one clear determinant), destroying the very ‘sense of place’ that draws new residents to the area (unspoiled natural environment). These developments all point to a failure to understand and value the local landscape, the sense of place and the neighbourhood character.

DISCUSSION

The previous sections have established that housing, directly and indirectly, impacts significantly on our environment is diverse ways. In this section, we briefly explore whether there is any chance that some of these impacts might be reduced in the future.

Smaller Houses

The Small House Movement has existed for over a decade in the US. The movement is driven, not just by the cost of conventional housing, but also by environmental concerns. The Small House Society is a voice for this movement, which includes the designers and builders of small houses. While Australians are usually quick and enthusiastic followers of overseas trends, in this instance there does not appear to be significant interest. While there has been some media interest in small houses e.g. ABC (2006) and Kunutz (2008), a similar movement does not exist in Australia. There have also been calls for a reduction in the size of new houses e.g. Robert Caulfield, Director of Archicentre, who has advocated an end to 40 square “McMansions”, saying that they were “environmentally and financially unsustainable” (Age, 2004) and the current Victorian Minister for Planning, who has echoed this call (ABC, 2007). While data indicates that there was a slight decline in average house size in the years 2007 and 2008, the trend reverted upward in 2009 (James, 2009a).

Densification

In an attempt to establish a framework to contain the sprawl of its capital city, the Government of Victoria has launched a major policy document entitled Melbourne 2030 (DOI, 2002). One of the policy recommendations is to increase the average housing density significantly within new development areas, for example from ten to 15 dwellings per hectare. Buxton and Tieman (2005) have analysed the growth of medium density housing in Melbourne since 1988. They found that approvals for multi-unit dwellings had risen from 10% to 38% by 2002, demonstrating a change in dwelling preference over that time. However, despite this shift, 80% of Melbourne’s population growth was still occurring in Outer Melbourne where 60% of new houses were approved. Buxton and Tieman (2005) also found that there was a low proportion of medium density development in the greenfield areas, indicating a continued preference for low density living and to achieve its consolidation target, a housing density of at least double the current level was required. Australians have not shown themselves to be overly enthusiastic about higher density living in established suburban areas. The community group, “Save Our Suburbs” (SOS), is the most tangible evidence of this disaffection. SOS, which was formed in early 1998 in Victoria, now has bases in other states and campaigns specifically against “the over-development in suburban streets” (SOS, 2010).

The positive impact of higher density living in Melbourne on energy use and greenhouse gas emissions has been demonstrated by Fuller and Crawford (2011) when they analysed three exam-
n examples of possible future housing types for Melbourne: high rise inner city apartments; inner suburban medium density energy-efficient apartments; and energy-efficient detached housing on outer suburban greenfield sites. Operational, embodied and travel energy, and greenhouse gas emissions were compared, as in Figure 2. Although all three housing types were an improvement on current housing, both types of apartments were far superior because of the need for less travel and their smaller size. For example, travel energy requirements fell by approximately 90% because of proximity to the city centre and the suburban apartments were only 27% of the size of a typical new outer suburban home.

**Rural land protection**

The need to protect ‘good quality agricultural land’ (GQAL) from housing and other development is recognised, for example, by the Queensland Government (DERM, 2008) and the principles to guide protection of the GQAL from residential development and fragmentation. Eight principles are outlined in the State Planning Policy 1/92: Development and the Conservation of Agricultural Land to mitigate against inappropriate development. The need for better planning to preserve agricultural land from housing development in the greater Melbourne area is similarly recognised (DOI, 2002). Whether such policies will translate into the protection of rural land under development pressures is debateable. The large residential housing development, described in 2008 by de Jong and Fuller as a proposal, was formally approved in early 2010 by the same Minister for Planning cited above, despite the overwhelming opposition of local residents. Almost 700 homes will now be built on a wetland area which links two RAMSAR-listed sites. Not only does this development threaten the local ecology of these water bodies, but also will seriously degrade the character of the local historic coastal town. The addition of 700 homes will increase the local population by one third.

**Character preservation**

The urgent need to protect our coastal towns has been recognised by the Federal Government of Australia. The National Sea Change Taskforce was established in 2004 and has a membership of over 68 local councils around the country. The Taskforce works “to ensure coastal development is managed with a focus on sustainability of coastal communities and the coastal environment” (NSCT, 2007:5) It has also been acknowledged that more research is needed to develop new responses to coastal development, particularly in terms of promoting community well-being, strengthening social cohesion, avoiding socio-economic and socio-spatial polarization and preserving town character (Gurran et al. 2006). In an attempt to conserve town character, local town planning schemes have been developed to supplement state-wide planning schemes. The Borough of Queenscliffe (2010), for example, has a scheme that aims “to ensure that the installation of physical infrastructure has minimal impact on landscape and heritage values”.

Despite the scheme’s intent and local opposition, inappropriate developments continue to erode these values and the visual amenity. This situation is vividly summed up by the past national president of the Planning Institute of Australia, Barbara Norman (2008) who wrote that ‘(T)he Australian coastline is littered with exhausted communities battling to save the character and environment of their townships’.

**CONCLUSIONS**

This paper has argued that the concept of the ‘affordability’ of housing is much broader than commonly understood. In dollar terms, there is clear evidence to confirm that it is now increasingly difficult to achieve the Australian dream of home-ownership. However, there is equally compelling evidence to say that we cannot afford to keep building our houses in the same way and in the same places if we wish to reduce their impact on the environment. The increase in the size of Australian houses has meant that more non-renewable resources are being consumed, many of which become landfill at the end of their useful life. The change in preferred style from timber to brick and concrete construction has meant that more greenhouse gas-intensive materials are now being used and the embodied energy of Australian homes has risen in line with their size. New homes, usually built on greenfield sites at the boundaries of our urban centres, are usually not close to public transport and the new residents are car-dependent. Urban
sprawl has resulted in the loss of rural land, and whether in a natural or cleared state, there have been negative consequences. Natural fauna and flora have been the casualties of the former, while the latter has the potential to threaten the local food production. Unfortunately, there is little evidence to indicate that these environmentally-damaging trends are being arrested.

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AFFORDABLE HOUSING IN TURKEY: USER SATISFACTION IN TOKİ HOUSES

Miray Gür and Neslihan Dostoğlu

Abstract
Affordable housing policies in Turkey have reached a new stage over the last decade in the context of the TOKİ model advocated by the government. Housing developed by TOKİ (the Public Housing Administration), the top official agency responsible for affordable housing policies in Turkey, has become so widespread in all cities of Turkey that it involves not only the construction sector but also trade associations and the public in general. In this article, following a general discussion of the demand and supply of housing in Turkey, we evaluate user satisfaction and the quality of TOKİ implementations since 2000 for low- and middle-income groups in Bursa, the fourth largest city in Turkey. Bursa sets an interesting example for the study because of the city’s long-term prominence in commerce and its current status as an important industrial city. Massive migrations and unplanned urbanization have resulted in a need for housing for every income group in Bursa, especially for low- and middle-income groups. The emphasis in this study is that, in addition to quantity, quality should be considered in housing production. Furthermore, the implementation of TOKİ should be aimed at developing more habitable and higher-quality environments by considering all socio-cultural and physical factors. It is expected that these evaluations will lead to the development of a more comprehensive affordable housing policy in Turkey.

Keywords: Affordable Housing, User Satisfaction, Residential Quality, Bursa, TOKİ

INTRODUCTION AND THEORETICAL FRAMEWORK

During the Industrial Revolution in England in the second half of the eighteenth century, and spreading to other parts of the world, the concentration of industrial production in cities has resulted in mass migration and rapid urbanization. Consequently, a need arose for housing in urban areas that has steadily increased. Especially after World War II, housing became a vital issue worldwide. In many European countries, housing demand during the postwar period was generally met with quantity; however, most of these housing developments proved inadequate in terms of quality, and attempts were made to improve such housing stock in the 1980s.

In countries where the housing stock has become inadequate due to rapid population growth, urbanization, migration and income inequalities, governments have attempted to develop policies to provide loans and housing for low-income groups (Smets P. 1999, Lemanski C. 2009, Connoly P. 1990). However, low-income groups in many developing countries, such as Turkey, India, Brazil, South Africa and Mexico, have largely met their housing needs through illegal squatter settlements. Thus, transforming existing squatter settlements into housing areas with legal arrangements and procuring credit for low-income groups have become major projects in these countries, although the result has been inadequate in terms of the quantity and quality of housing. The approach to housing in Singapore presents an interesting case because successful government programs in the country have responded to poverty and improved housing quality by evaluating the situation as part of economic development, efficient policy implementation and financial systems (Sim, L.L., et al. 2003, Tu, Y. 1999, Wong, T.C., Yap, A. 2003). In fact, public housing policies adopted in Singapore are based on the balance between housing affordability and quality.

At present, TOKİ is the top official agency responsible for affordable housing policies in Turkey. The agency was established in 1984 with
the purpose of providing housing for low-income groups. It surpassed its goal of 400,000 houses in 2009 and increased its goal to 480,000 houses for 2010. The quantity of affordable housing produced by TOKİ cannot be denied. However, providing an optimum balance between quality and low cost is a source of difficulties in TOKİ housing implementations because the majority of users (70%) indicate that they prefer these houses because of economic factors. To meet the requirements of low-income users and reduce the cost in accordance with its target, TOKİ has compromised some criteria related to quality, which has resulted in increasing criticism during the past few years. Thus, TOKİ has had to concentrate on initiatives that address quality and establish relationships between agencies. Although these attempts are still in the beginning stages, it appears that rather than viewing the increasing quantity of TOKİ implementations as a way of alleviating the lack of housing, production based on quality will gain more importance in the future. In this context, the construction of affordable housing and the economic and political reasons behind this process require a detailed analysis.

Housing is generally accepted as a human right throughout the world. This means that every person has a right to live in a house capable of meeting his or her needs. As indicated by Koç (1997), a satisfactory house is also accessible, unrestricted and affordable.

People’s satisfaction with their housing is a multidimensional construct that is related to disparate disciplines such as planning, economics, sociology, psychology, and geography. Thus, occupants’ satisfaction with affordable housing should be studied in relation to all of these various disciplines. The social scientists’ approach constitutes the background of the research on satisfaction with housing (Marans, R.W., Spreckelmeyer, K.F., 1981, Francescato, G., et al. 1989). The model produced by Marans and Spreckelmeyer (1981) addresses how environmental attributes and subjective perceptions affect satisfaction. Following Francescato’s (1989) comprehensive model emphasizing attitudes and factors of environmental evaluation, the systemic model produced by Amerigo (1992) explores the interaction between objective and subjective attributes of the housing environment, residential satisfaction and satisfaction with life in general.

Many studies have examined satisfaction with housing based on various approaches. Some of these include housing mobility (Speare, A. Jr. 1974, Lu, M. 1999), housing deficits (Morris, E. W., Winter, M. 1978), low-cost housing (Salleh, A.G. 2008, Mohit, M.A. et al. 2010) and public housing (Amerigo, M., Aragones, J.I. 1990, Varady, D.P., Carroza, M.A. 2000). There are more examples, but the significant point is that residential satisfaction is an important topic for research because of its value for informing public housing policies and new residential construction and for measuring housing quality, which is a major component of overall quality of life.

The most frequently studied housing issue is affordability, a comprehensive concept based on measuring the ratio of housing costs to household income. Thalmann (1999) distinguishes between apparent affordability and actual affordability, and Kutty’s (2005) study of housing affordability examines housing-induced poverty related to poverty of non-housing goods, based on Stone’s (1993) notion of shelter poverty. According to Hulchanski (2005), housing affordability conflates various issues and outcomes, such as income inequality, housing as a fundamental necessity, public policy, adequate housing and housing quality. Various studies have associated affordability of housing with quality of life (Abelson P. 2009, Mak, S.W.K. et al. 2007), a perspective that relates to housing conditions and satisfaction of the residents.

In short, the conditions of housing units and their surroundings are among the main indicators of the quality of life. In this context, user satisfaction is a concept that should be taken into consideration in the process of housing production to ensure that it is user oriented. The level of satisfaction is related to the quality of construction and materials of the housing structure as much as its affordability. Considering the negative reviews of current users of TOKİ houses that frequently appear in the media, this study critically discusses the quality of the housing constructed by TOKİ and makes suggestions aimed at meeting the expectations of both users and society in general in light of the wide influence of TOKİ implementations. The city of Bursa has been selected as a case study on this subject because of its role as a metropolitan city with rapid urbanization, its high population growth.
due to the influx of immigrants and its status as one of TOKİ’s top construction areas.

THE ROLE OF TOKİ IN AFFORDABLE HOUSING CONSTRUCTION IN TURKEY

The roles and responsibilities of the actors involved in forming housing policies in Turkey are continuously changing. The main reason that housing policies have not been applied satisfactorily in Turkey is the administration’s inability to create an institutional form that is relevant to the target audience. In 2003, the strongest and the best-equipped agency dealing with housing policies was the Undersecretariat of Housing. However, the authorization of TOKİ has increased since 2003. In fact, the role of the Undersecretariat of Housing was conveyed to TOKİ in 2003 and to the Land Office General Management in 2004. With the rise of TOKİ’s role in the Resident Coordination Council, TOKİ has become the highest authorized agency with regard to housing policies. TOKİ has become very active in developing and building new affordable housing throughout the country since 2003 (Smith, 2009). Housing construction by TOKİ is important not only socially but also physically because of its negative impact on the city skyline and urban fabric; thus, it needs to be studied from a variety of perspectives (Figure 1).

Considering the issue first from the perspectives of architectural design and technology, the situation is not promising. The housing policies in Turkey are generated non-theoretically, and no norms are in place concerning public housing and its environment (MATPUM, 2010). Housing planning and design in TOKİ projects have become based on cliché typologies and several standard plans that are reiterated in many locations and environments (Çalıştay, 2009) (Figure 2-4). Furthermore, the architectural design process occasionally remains at the preliminary project level in TOKİ developments. However, because the law allows the administration to select the contractors and architects, projects of much higher quality can be built. In summary, the methods of project acquisition used by TOKİ need to be revised, and sensitivity to user needs and architectural quality has to be increased.

Using the cross-financing method, TOKİ also constructs houses for upper-income groups to generate funds within the scope of projects devoted...
to resource development (TOKİ, 2007). However, in constructing housing for the low-income groups, it fails to apply the care and diligence it applies in the houses for buyers from the upper-income group. Efforts to minimize costs and construct houses for users with minimum purchasing power have led TOKİ to compromise on some quality criteria.

TOKİ has vast powers, an enormous financial capacity and net worth, and a strong credit rating. It can and should do much more, but, in fact, it should do less in the area of direct development and construction (Smith, 2009). The legal zoning authorization assigned to TOKİ is used in a way that is incompatible with the environment, zoning laws and culture (Çalıştay, 2009). When the agency is faced with any kind of criticism, it uses “public demand” as its primary defense. In this context, an evaluation of the opinions of people who support TOKİ is very important for increasing the quality of the built physical environment.

**HOUSING NEEDS AND TOKİ IMPLEMENTATIONS IN BURSA**

Bursa, a city with a 2,200-year-old history, was the first capital city of the Ottoman Empire (Figure 5-7). Bursa is among the Turkish cities that have historically been the destination of a large number of immigrants. Because of its long-term prominence in commerce and its current status as an important industrial city, Bursa has attracted squatter settlements and unplanned urbanization. Nonetheless, the city’s industry has also drawn higher-income groups such as managers and employers as well as low- and middle-income groups to serve as the labor force in the city. Therefore, there is a need for housing stock to suit every income group. Accordingly, Bursa serves as an interesting case study for this article, which investigates user satisfaction and the quality of TOKİ housing that was built with the aim of affordability for low-income groups.

Parallel with the rapid increase of the population in Bursa, the need for new housing has increased. However, most of the housing needs in Bursa have been met by illegal and unsanitary buildings, and the number of buildings that lack proper architecture and engineering has risen in recent years.

Most of the 16,082 residential buildings that were initiated were completed by TOKİ between 2003 and 2010 in the Bursa Metropolitan Area (TOKİ,
The completed TOKİ housing implementations in Bursa are Hasanağa, Yıldırım-Yiğitler, Yıldırım-Akçağlayan, Osmangazi-Yunuseli, Kayapa, Kestel, and Hamitler, and the ongoing TOKİ project is the Doğanbey Urban Transformation Project.

**METHODOLOGY**

In the scope of the case study, three TOKİ housing implementations for low- and middle-income groups located on İzmir, Mudanya and Ankara highways in Bursa were analyzed. The reasons for selecting the Hasanağa, Yunuseli and Kestel TOKİ...
residential areas for the case study are the variety and quality of social facilities in these areas, their utilization periods, and their locations in three different areas of Bursa.

TOKİ Hasanağa, which consists of 1,584 houses targeting low- and middle-income groups, includes a primary school, a shopping center, a mosque, a cafe, a restaurant, a gymnasium and recreational areas (Figure 9-10). In TOKİ Osmangazi-Yunuseli, 912 houses were constructed with the aim of meeting the needs of both impoverished groups and low- and middle-income groups. Social facilities in the housing area include a primary school, a mosque and recreational areas (Figure 11-12). TOKİ Kestel, with 716 houses, has residents from the impoverished group, but the majority are from low- and middle-income groups. The social facilities in this residential area include a primary school, a health center, a shopping center, a mosque and recreational areas (Figure 13-14).

These residential developments were analyzed based on responses to the questionnaires focusing on seven factors affecting satisfaction and problems often discussed in the media that have been clarified with quantitative data. Evaluations were made in this context.

A stratified sampling approach was used in the study as a sampling technique, and a proportional distribution approach was selected to distribute the sampling volume to layers. From a total of 3,212 residences, tables were used to set the sample size at 343 with a tolerable sampling error of 5% and a confidence interval of 95%. Because the reliability of the results would increase if the data gathered for the study exceeded 343, 400 questionnaires were distributed, of which 380 were returned. Sixteen questionnaires were omitted from the scope of the study because of the inconsistency of the responses; thus, the study was conducted on a total of 364 respondents.

Data obtained after the survey were coded using SPSS 16.0 software pack. Findings related to the user profile were obtained the analysis and calculation of frequency and percentage distributions of the coded data. A T-test was implemented to compare the factors used to measure user satisfaction with different variables to test whether
the difference between the averages of two independent samples was statistically significant. In addition, post hoc tests were used to determine between which groups differences exist, which were found for mass averages of groups with three or more sample averages. Because mass variances were equal, accessible findings were obtained using the Tukey test.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Number of houses</th>
<th>Sample size expected as a result of proportional distribution</th>
<th>Sample size used in the study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hacranğa</td>
<td>1884</td>
<td>169</td>
<td>180</td>
</tr>
<tr>
<td>Yunuseli</td>
<td>912</td>
<td>87</td>
<td>100</td>
</tr>
<tr>
<td>Kestel</td>
<td>716</td>
<td>77</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>3512</td>
<td>343</td>
<td>364</td>
</tr>
</tbody>
</table>

Table 1. Sample size distribution
EVALUATION OF CASE STUDY FINDINGS

In the case study aimed at measuring users’ satisfaction with TOKİ housing in Bursa, a variety of studies (Salleh A.G. 2008, Li S., Song Y. 2009, Türkoglu H. D. 1997) were used, and a total of seven factors influencing the evaluation through factor analysis were determined. These factors are social facilities and public open spaces (Factor 1), environmental characteristics (Factor 2), physical features of the house (Factor 3), accessibility and transportation (Factor 4), security (Factor 5), climate control inside the house (Factor 6) and relationships with neighbors (Factor 7). Factor analysis was conducted on a 1 to 5 point Likert-type scale consisting of 39 questions prepared by revising a variety of sources to measure user satisfaction.

In the application of the factor analysis to a group of questions in the questionnaire consisting of 39 items, items with factor loadings higher than 0.30 were taken into consideration, and 10 items with factor loadings lower than 0.30 were omitted. The Principal Component Analysis was used as a factor derivation technique, and Varimax with Kaiser normalization was used as a rotation technique. The rotated components matrix obtained as a result of the analysis is presented in the table below.

In the factor analysis, the aim was to derive factors with eigenvalues greater than one. Thus, seven factors were derived. The eigenvalue and explained variance values of each factor are provided in Table 2. The seven factors obtained as a result of the analysis explain 68.3% of the total variance. As a result of the conducted reliability analysis, Cronbach’s Alpha values related to each dimension obtained through the factor analysis were found to be in the range from 0.73 to 0.90, and all coefficients were found to be within acceptable limits.

Most of the respondents included in Table 3 with user evaluations were from the TOKİ Hasanağa (50.5%), followed by Yunuseli (27.5%) and Kestel (22%). Public records of the majority of the respondents, of whom 63.5% are male, are in provincial (47.8%) and town (34.1%) centers. Of the respondents, the majority are married (84.6%).
and 41.5% have an education level of primary school or lower. Of the respondents, the majority have full-time employment (65.7%), have social security (88.7%) and 55.5% declare their economic status as average. The majority of the respondents (56.9%), 90.9% of whom lived in Bursa before moving to their current residences, indicated that they experience difficulties in paying their TOKI mortgages. Although most of the respondents resided in low-rise blocks of flats before moving to their current residences (54.4%), 19.2% of them previously lived in squatter settlements. An evaluation of the reasons behind the respondents’ choice of TOKI housing demonstrates that the majority live in TOKI residences for economic reasons (70.9%). Most of the respondents (68.1%) reported that they feel some kind of exclusivity from living in TOKI houses.

Although no significant difference has been obtained among the seven dimensions related to user satisfaction based on the gender of the respondents, statistically significant differences were obtained based on employment status, environmental factors, renting status and security and relationships with neighbors. Respondents employed full time expressed higher satisfaction with environmental factors in comparison with housekeeper/retired respondents. The level of satisfaction with security was higher among tenants than among house owners, whereas house owners demonstrated higher satisfaction with relationships with neighbors compared to tenants.

Based on the variance analysis conducted, user satisfaction levels related to six of the factors other than relationships with neighbors were found to vary depending on location of the house. The accessibility and transportation satisfaction level among respondents with good economic status was found to be higher than among respondents with average and poor economic status. Satisfaction with security among respondents with good economic status was higher than among respondents with average economic status. Age-based results show that security satisfaction is higher among younger users (age group from 20 to 30) compared with the middle-age group (from 41 to 50). People 31 to 50 years of age were more satisfied with relationships with neighbors compared to

| Table 3. Evaluations Related to User Profile |
show that the evaluation of user satisfaction in TOKİ hasanağa, Yunuseli, Kestel.

In light of the preceding discussion, the results of the study of three TOKİ housing implementations in Bursa to measure user satisfaction are summarized in the following table.

The parameters measured by the questionnaire to evaluate seven factors are shown in Table 2. The evaluation of satisfaction factors with social facilities and public open spaces shows that the level of user satisfaction among residents of TOKİ Hasanağa was higher than that among residents of TOKİ Yunuseli and TOKİ Kestel. As predicted, the diversity and quality of social facilities positively affects user satisfaction. Because the TOKİ Yunuseli housing implementation is the weakest of the three residential areas in terms of the diversity of social facilities, the level of satisfaction with this factor is low. Comparing the housing implementations of Hasanağa and Kestel, Hasanağa houses are found to be both richer in terms of social infrastructure and better established than Kestel, given its age of 3 years. For this reason, it is natural that residents of TOKİ Hasanağa would enjoy a higher level of satisfaction in terms of this particular factor.

In evaluating satisfaction with environmental factors, TOKİ Hasanağa was found to have the lowest level of satisfaction. Due to the high number of houses in TOKİ Hasanağa, the settlement area is larger, which causes inequalities in terms of lighting, cleanliness and maintenance among sections. This leads the residents of TOKİ Hasanağa to view the area as crowded or noisy. Furthermore, because it is crowded, TOKİ Hasanağa is the area with the greatest diversity of residents in terms of age, occupation, education level and employment status, which makes diversification among user expectations inevitable.

The evaluation of physical features of houses shows that the level of satisfaction among residents of TOKİ Yunuseli was lower compared to that among residents of the other two residential areas. Considering that Yunuseli has the highest proportion of houses for poor and low-income groups, the survey shows that houses in this area were constructed using low-quality material and labor to reduce costs, which accounts for the low level of satisfaction with this factor.

Evaluation of the accessibility and transportation factor, reflected in access to the city center, cash machines, shopping, healthcare facilities, workplace and main education facilities, showed that TOKİ Hasanağa enjoys the highest level. If proximity to location is considered, the most accessible residential area is TOKİ Yunuseli, although it is situated far from surrounding social facilities, as indicated by the dwellers. TOKİ Kestel's location far from the city and the absence of other residential areas nearby cause the residents to criticize the issue of problematic access to the city center and workplaces using public transportation. Users who can afford private cars have a higher level of satisfaction with accessibility and transportation than do respondents who use public transportation.

In evaluating satisfaction with the security factor, TOKİ Yunuseli demonstrated the lowest level. Although measures for cases of natural disasters and fires have been equally implemented in all TOKİ housing implementations, the elements that lead to differences among levels of satisfaction are security of life and property and the safety of children. TOKİ Hasanağa, with a checkpoint at its entrance, and TOKİ Kestel, reached from a road that has a separating effect because of the absence of other settlements nearby; operate as closed and safe residential areas despite not being surrounded by walls. In contrast, it was observed that residents
in TOKİ Yunuseli, which is surrounded by unlicensed construction (Figures 15, 16), are unable to use the public open spaces in the area because they are concerned about people coming from surrounding neighborhoods, and they believe that safety of life and property in the residential area is not properly ensured.

TOKİ Yunuseli, which was constructed to target low-income and poor groups and which has been observed to have the lowest user satisfaction level in the evaluation of climate control inside houses, consists of houses that are problematic in terms of labor, materials and quality and have poorer insulation.

The factor of relationships with neighbors was related only to the age of the respondents. The middle-aged group was satisfied with this factor regardless of the differences among houses.

CONCLUSION

Housing demand, which has emerged as a result of rapid population growth and migration from rural areas to cities, has been among the most important issues facing Turkey. The housing construction procedures adopted by the administration in recent years greatly differ from the methods applied so far in terms of planning, architecture, economics and politics. TOKİ, which has absorbed the Undersecretariat of Housing and AOOGM (General Directorate of Land Office), has overtaken all other authority. The quantitative performance of TOKİ, in proportion with its authority, cannot be denied. However, TOKİ’s approach has been criticized because it minimizes user expectations. When the institution faces criticism, it always defends itself with the argument of “public demand.” Nonetheless, this study has shown that the majority of residents (70%) choose this form of housing for economic reasons.

Consequently, discussion of residential satisfaction in TOKİ housing is critically important for Turkey. The factors that determine residential satisfaction are social facilities, public open spaces, environmental factors related to neighborhood, physical features and climate control of houses, accessibility, security and relationships with neighbors. The findings of the research show that richer social infrastructure, homogeneous resident distribution, and features and facilities of the housing environment affect residential satisfaction. In addition, parameters concerning the dwelling plan and the quality of building and materials related to lower costs determine residential satisfaction as well as access to city center, workplace, and shopping, healthcare and education facilities. These parameters affect the satisfaction levels in different neighborhoods.

In this context, we can state that in answering the demand for housing, the purpose should not be to construct a “house”, but to create a “home” in which residents can live with satisfaction. In other words, an approach prioritizing social and cultural values in addition to meeting the basic needs of users should be adopted in the architectural design process of housing.

Considering the size and scale of the construction as well as the locations to which TOKİ
housing implementations have spread, it must be emphasized that a holistic design strategy should be applied and attempts made to meet social expectations and create general satisfaction. In future operations of TOKİ and its general structuring, cooperation with institutions and organizations, especially universities and professional groups with multi-disciplinary studies and networks, is highly important. To improve the quality of houses constructed by the most dominant agency in Turkey’s housing industry, TOKİ as an institution should be supported by scientific studies and a more holistic housing strategy. In recent years, the scope of the problem has widened because TOKİ currently develops projects that reach beyond the field of housing. In this regard, it is important to adopt the principle of project acquisition by means of architectural competitions and to base operations on a participatory approach. The establishment of relations between TOKİ and various universities, such as METU, is an important development indicating that the institution is heading in a new positive direction.

Given the scale of its implementations, it is obvious that TOKİ is generally not interested in incorporating contemporary design concepts into its projects. However, the present study conducted in TOKİ housing implementations in Bursa has shown that user satisfaction is not based merely on the idea of home ownership. In this context, it is clear that TOKİ needs to adopt an architectural approach, with the goal of creating more livable housing, by assessing natural, ecological and cultural values.

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MINIMUM ENERGY- MAXIMUM SPACE: HIGHER-DENSITY ATTACHED FAMILY HOUSING

N. K. Burford, J. Thurrot, A.D. Pearson

Abstract

In 2016 all new houses in England and Wales must be zero carbon. To date most work in zero carbon housing has been carried out on detached family housing typologies. Practice has shown that one of the overriding factors in the struggle to achieve zero carbon status (Code for Sustainable Homes Level 6) is the projected significant increase in construction cost. While grant funding can offset some of this increase, further costs savings will be required to allow developers to deliver affordable homes within reasonable profit margins. One result of this will be a reduction in design quality; which will impact on the quality of the spaces provided and the robustness and longevity of the construction and finishes. In order to deliver better design standards, higher density attached family housing models should be considered to ensure that a proportion of the projected increase in cost of the building fabric can be transferred to the internal volume of the house, thus achieving better quality living spaces. The following paper reviews the context for future housing provision in the UK and examines two existing medium density terraced housing developments. The existing examples reflect two contrasting approaches: one derived from low-energy principles utilising minimum space standards, the other reflecting the need for high quality spaces but at premium cost. A new medium density terrace model is proposed that deals with these conflicting demands to demonstrate that it is possible to provide affordable, high quality, higher density, family housing whilst meeting low energy targets.

Keywords: Zero-carbon, Family-Housing, Urban Housing, Sustainability, Medium-Density.

INTRODUCTION

The aim of this study was to develop a new model of medium-density, low-energy, sustainable urban family housing as an alternative to the more accepted suburban housing typologies. The focus has been on the development of an attached model of family housing that would fulfil future low energy requirements, provide high quality internal and external spaces but not exceed the minimum floor areas defined by affordable housing standards. This design based research used a qualitative approach investigating solutions from the macro level perspective of urban design to the micro scale technologies. The objective was to develop holistically, a new housing model that could be used as the basis for further quantitative analysis.

The following paper reviews the broad context for housing within the UK, critiques two innovative examples of attached family housing and outlines the design and decision making process in the development of a proposed new model for affordable, low-energy, high-quality, urban family housing. In section two, the background to the provision of family housing in the UK is discussed with a particular emphasis on current urban policy, the impact of new energy legislation and how these seemingly conflicting demands may influence the future provision, form and quality of affordable family housing. Section three critiques two innovative but, contrasting approaches to the design of attached family housing. Accordia, Cambridge, reflects the need for high quality spaces but at premium cost whilst BedZed, London, is a zero-energy mixed-use affordable housing development derived from low-energy principles utilising minimum space standards. Section four reviews the decision making process in the theoretical development of the Atrium House – a proposed new model of attached family housing designed to satisfy the parallel requirements of affordability and low energy whilst maintaining high-quality spaces.
TOWARDS NEW MODELS OF HIGHER DENSITY FAMILY HOUSING

DENensity Versus Quality Conflicts of Higher Density Development and High Quality Spaces

Living near to one’s place of work and having all the social and functional requirements of modern life on the doorstep is intrinsically more sustainable than the high carbon, car intensive lifestyles inherent in edge-of-city, mono-cultural suburban housing developments. City centre living patterns potentially not only reduce the carbon footprint of individuals and therefore housing communities, but more importantly help to reinforce more complex socio-urban cultures which historically have formed the foundation to Europe’s compact cities (Mumford 1938). With the majority of people working in towns and cities, higher density housing provides the most sustainable and affordable solution to meeting the predicted market and sustainability demands for new urban family housing in the UK (Schittich 2004).

Over the course of the last 50 years, there has been a significant decline in the numbers of people living in city centres with the majority of new housing being provided in edge-of-city low-density developments. For families, these suburban housing solutions have provided an affordable vehicle to individual home ownership. Coincidentally they cater to the majority of families’ aspirations for larger internal spaces and the perceived psychological freedoms that suburban living alludes to - a detached family house, encircled by private protected external spaces on quiet streets surrounded by generous open public space. Loved and loathed, suburban housing is now the domain for the majority of people - more than 80% of the population living in the UK. The suburb through its attributes and failings has become a catalyst for theoretical and political debate concerning the future of housing in a new era where sustainable agendas are gaining credence and continuous urban sprawl is being challenged.

Today’s ‘suburb’ has its origins in the Garden City Movement, originally conceived by Ebenezer Howard. Howard’s vision of compact communities, accessible by foot, served by local amenities with places to work and connected by national road, rail and public transport links laid the foundations for many of the current 21st Century sustainability principles (Firley and Stahl 2009). Garden City housing densities were typically below 20 dwellings per hectare (dph) comprising detached and semi-detached housing typologies with open garden spaces, sitting on tree-lined radial boulevards surrounded by generous public parks (Howard 1946). This socio-sustainable utopia contrasted sharply with Corbusier’s visual-technical utopia which formed the underlying basis for much of the UK’s post 1950’s high-density housing development (Scoffman 1984). With the failings of post-war modernist housing, the earlier Garden City concepts became the catalyst for a new generation of low-density development but this was only partly realised in the UK as it manifested into the Garden Suburbs of Gidea Park, London and Wavetree Garden Suburb, Liverpool. These residential ‘districts’ were the antithesis to the Garden City lacking the commercial and industrial components of the latter, paving the way for contemporary, mono-cultural, suburban development.

Today, the dystopian reality of suburban living for the masses is quite different to the original concepts of the utopian Garden City. Constrained land supply has increasingly lead to higher density developments usually on the edges of existing settlements and disconnected from amenities and public transport links. The continued use of detached housing models has resulted in a compromise between privacy and price with tightly packed detached houses and fewer less generous open public spaces (Figure 1). Densities of between 25-30 dph, combined with minimum footprints, low quality amenity standards and pattern book standardised planning arrangements has lead to smaller plots with poor delineation of boundaries and uncontrolled thresholds. Cluster arrangements defined by loop roads and cul-de-sacs determined by regulatory road requirements have resulted in disconnected streets, spaces and communities - a far cry from Howard’s original vision of Town-Country where the Garden City would gain the opportunities of town and those of the country (Hall and Ward 1998).
Arguably, the current suburban housing model contributes to urban sprawl and high-cost, carbon-intensive lifestyles. Designed to tackle this problem, ‘Towards an Urban Renaissance’ introduced the concept of a regional sustainable plan comprising compact cities with distinctly defined centres developed around transport nodes, first applied in a simplified way in the London Plan in 2004 (Rodgers 2002, Mayor of London 2008). A central facet to the development of this spatial development policy was to accommodate a city’s growth within its boundaries without encroaching on open spaces. In order to encourage people to move back into the city it recognises the intrinsic need to make cities better places to live by promoting social inclusion, tackling deprivation and discrimination, requiring them to be more attractive, well-designed and sustainable. However, in practice the limiting Brownfield policy increases land values needing very high densities to make housing development viable. In so doing the compact city model has resulted in the provision of a limited range of housing tenures – usually apartment typologies with densities in excess of 70 dph (Colins 1998). A greater though less noticed increase in density is occurring through infill development on previously open green spaces such as parks and gardens served by new networks of roads and services amounting to an inner-urban sprawl (Meades 2010). Both solutions cater for high value market sectors, pricing certain income classes - primarily family housing – into out-of-city developments.

Whilst not necessarily the cause of suburban sprawl the compact city policies are serving to continue the trend towards suburban development as the only viable solution for affordable family housing. A long-term result could be a legacy of undesirable housing stock, as the current housing
provision (urban and suburban) contradicts the prevailing trend in family housing sectors to demand not only high quality, value-for-money homes but also more space (Risom and Sisternas 2010). In the quest to improve the sustainability of cities and family houses through ‘new-style’ densification it will be necessary to avoid destroying the suburb’s original attributes, namely spacious rooms, privately owned external spaces and access to fresh air. In Europe it has been shown that densities of 40-50 dph are attainable using alternative models of family housing without damaging spatial quality (Cousins 2009). It has also been shown that density alone is insufficient and must be accompanied by other design standards such as lower parking provision, preservation of open space and higher build quality (Stevenson and Williams 2000). This needs to be achieved without resorting to town cramming and high-rise development (Llewellyn-Davies 1994+1998). Arguably, city expansion is inevitable with the predicted increase in private home ownership coupled to the consequent spatial and cost requirements of family housing being in conflict with premium inner city space. New cluster typologies and housing models where buildings and greenery, private and public spaces are seductively entwined could provide a sustainable and more affordable, qualitative approach to family housing requirements. This will only be viable if new higher density attached housing typologies can be conceived whilst still fulfilling the aspirations of the majority of people for clearly delineated, high-quality, private home ownership. Edge of city development based around mixed use neighbourhoods and higher-density ‘urban’ housing typologies may be the only solution to preserving the qualities of both town and country.

SPACE VERSUS ENERGY
BALANCING THE CONFLICTS OF
ACHIEVING HIGH QUALITY SPACES
AND LOW ENERGY CONSUMPTION

Today, further pressure is being brought to bear on detached suburban housing with the introduction of more stringent legislation, effective in 2016 governing the environmental efficiency of houses. Housing accounts for 27% of all UK carbon emissions from energy needed to heat, light and operate the houses (Wilford and Ramos 2009). Recognition of the depletion of non-renewable fossil fuel based resources and the affects of carbon dioxide emissions in the production of energy has resulted in a renewed interest in developing low energy housing. The goal is to provide superior comfort by conserving heat and by using low or non-carbon emission energy sources. Europe has been a leader in low and zero-energy housing since the oil crisis in 1972, which stimulated research into renewable energy as a means to reduce oil dependency. By the 1990’s Germany, Austria and Scandinavia had become leaders in state of the art low energy house design resulting in a number of different approaches to the problem. The Solar House Freiburg showed that total energy autonomy was possible in northern cold climates but was unlikely to be a solution for mass market housing due to the costs of the technology at the time (Hastings and Wall 2007). The Austrian PassivHaus system using highly insulated, air-tight construction and mechanical heat recovery ventilation emerged as one of the most efficient and cost effective methods of low energy house design and constituted a step change in thinking. Today, PassivHaus is the world leader for energy saving construction resulting in 80% savings in heat energy demand to that of the 2006 UK Building Regulations (Feist 2004). To date over 10,000 dwellings have been built to the Standard throughout Europe, including 4,000 in Germany, Austria, Norway, Sweden and Denmark (Waltjen 2008). Recent research in Northern Ireland has shown that relaxation of the Standard (originally developed for a central European climate) is possible for UK climates due to the generally milder winters (Anon 2007).

Potentially, this gives more design freedom in terms of the dwellings, spaces, construction and affordability.

Until recently, the UK had fallen far behind Europe in maintaining concerted research or funding programmes to aid the development of energy efficient houses. Only small incremental improvements to energy efficiency were achieved compared to European counterparts until the introduction of Code for Sustainable Homes (CSH) in December 2006. Effective in the UK’s 2016 building regula-
tions, CSH is recognised as one of the most ambitious programmes out of all worldwide national standards for the practice of low energy housing (Anon. 2008). Its aim is to achieve Net Zero Carbon Housing, eliminating carbon emissions from regulated energy and unregulated energy arising from the use of appliances (Anon. 2009). It is designed to support the parallel policies of carbon reduction, long term energy security and fuel poverty and adopts a hierarchical approach to achieving zero carbon, namely:

- ensuring an energy efficient approach to building design;
- reducing CO2 emissions on-site via low and zero-carbon technologies and connected heat networks;
- mitigating the remaining carbon emissions with a selection of allowable solutions.

CSH measures the carbon efficiency of housing by creating performance levels on a rating scale of CSH Levels 1-6, with Level 6 being zero carbon. Current housing in the UK built to Part L building regulation standards 2010, would achieve a CSH Level 3 rating (Anon. 2006). Currently, there are only a few examples of prototype houses built to meet Level 4, 5 and 6 requirements. Recently RuralZED™ has received Code 6 certification for the One Earth homes at Upton, Northampton; the first commercially-built terrace homes to receive certification (Lane 2010) With the exception of the Sigma House and RuralZED, all the prototype solutions are designed as detached and semi-detached family housing.

Ousting plays a key role in the national energy strategy in both minimising electricity requirements but also in determining to what extent it can contribute to the supply of electricity to the grid. This places a significant burden on developers and individual home owners in terms of absorbing the additional costs of improved thermal construction as well as the uplift in costs of energy technologies needed to meet Code Level 6. Practice has shown that the construction cost of a standard 92 m² home will almost double, the majority of the increase coming from the need to install large amounts of renewable electricity generation (Jury 2009). In contrast, Minergie, the Swiss National Standard which uses similar fabric performance values to the proposed 2016 CSH standards, requires that building costs are no more than 10% higher than base cost to gain certification (Anon. Minergie 2010). This means that the significant increase in building costs necessary to raise detached housing to CSH standards may make the single family detached house typology redundant in the future as a solution for mass-market affordable housing. Higher density attached housing such as row houses and terraces are intrinsically a more sustainable and affordable alternative to detached family houses. (Schittich 2004).

Terrace housing has the advantages of a compact form that tightly controls the use of open spaces and reduces the size of the façade. The small surface to volume ratio of a terrace housing unit compared to a detached unit reduces fabric heat losses and energy costs. The ability to share services and utilities (such as district heating systems) releases more of the building cost into improving fabric energy performance where the major energy losses in housing occur and the greatest payback over time can be achieved. This would allow for further improvements to the proposed fabric energy standards, bringing these more in line with European counterparts thereby significantly reducing regulated energy consumption. Because construction elements and services are shared between units the construction costs are inherently lower. This gives house builders the opportunity to focus on issues that are much more intrinsic to quality of life by improving the housing models through the provision of richer, higher quality external and internal spaces. It has recently been shown that carbon emissions and potentially household heating costs could be reduced by reconfiguring both the demographics of power generation and housing provision (James & Bahaj 2009). It would mean more dispersed power generation located closer to major population centres thereby increasing the capability for utilising waste heat and reducing distribution energy losses from the grid. This approach would greatly reduce the need for individual houses to be energy autonomous as it would allow energy to be dealt with at district and community levels. Importantly, it could pave the way to the development of new types of mixed-use neighbourhoods with higher density housing mod-
els opening the door to the development of more sustainable edge-of-city communities and economies.

**TERRACED HOUSING**  
**TWO NEW APPROACHES TO MEDIUM DENSITY, TERRACE HOUSING PROVISION**

Throughout history terrace housing design has adapted to changing social, economic and environmental conditions. It is particularly relevant today as a model due to its capability to improve the sustainability and environmental efficiency of housing. Flexibility and adaptability of design and the ability to optimise both spaces and construction are fundamental attributes of terrace typologies (Pfeiffer 2010). This makes attached housing particularly suited to an era where continuous and rapid change is in demand due to the potential for producing efficient urban and internal space planning that caters for a great variety of living situations. However, the terrace cannot be considered in isolation because the urban block becomes particularly important in determining the effectiveness of a given house typology in relation to a particular urban condition. It has been shown that the interior to the block is one of the principle elements in determining the quality of the internal and external environments (Firley and Stahl 2009). The following innovative examples of terrace housing illustrate two approaches in which the environmental, urban planning and internal space planning considerations are given contrasting levels of consideration.

**Bedzed**  
BedZed completed in 2002, is the UK’s largest mixed use, mixed-tenure carbon-neutral development (Figure 2). Built on a brown field site in Hackbridge, South London, BedZed comprises 82 affordable town houses, maisonettes and flats and approximately 2500m$^2$ of workspace and offices organised within a single cross section (Dunster, Simmons & Gilbert 2008, Kucharek J 2010). The blocks are planned in terraces with clearly delineated external spaces and thresholds. The town houses are single aspect and face due south with north facing gardens at first floor level. The flats, located above the town houses, are dual aspect with north facing gardens. The compact floor plans are designed for affordable private tenure and make maximum use of the single aspect building form. A combination of passive measures and active technologies are used to achieve carbon neutral status. The houses face south to take advantage of solar gain, are triple glazed and have high thermal insulation. South facing conservatories provide winter garden spaces whilst maximising the use of solar insulation which is stored in the thermally massive construction. The project was designed to use only energy from renewable sources generated on site. Heat and power are generated using both a biomass power plant and large areas of PV panels. Various other environmental measures are taken such as the use of energy efficient appliances, low-impact building materials and water recycling.

Whilst BedZed is a model for high-density, low-carbon residential development, it is not with-

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**Figure 2. BedZED housing, Hackbridge, London, UK.**
out its problems. The arrangement of the programme within a small planning footprint and single cross-section has resulted in single aspect deep plans and awkward narrow rooms some of which can only be lit through top-lighting. In addition, all the elevated gardens are cut-off from the internal living spaces, thereby putting their effective use into question.

**Accordia**
The Accordia project, designed in 2002, is a high quality, high density residential development located within the listed garden grounds of Brooklands House, Cambridge (Figure 3). Within this master plan, designed by Fielden Clegg Bradley, three architectural practices developed 23 innovative housing typologies (Keys & Laslett 2009, Latham & Swenarton 2007). These comprise a graduated scale and variety of buildings from two storeys to five storeys organised around a central Boulevard. The combination of building types, heights and scales of carefully controlled public and private external spaces provides nuances of character to offset the monotony of the homogeneous scheme. The relationship of dwelling to ground was a major structuring theme of the project.

The core of terrace townhouses, designed by Macreanor Lavington Architects, are notable for the high quality of internal and external spaces and exceptional natural lighting achieved within very compact planning dimensions. These townhouse types form a continuous four storey terrace of 18 houses. The terrace fronts directly onto a park on one side and a mews lane on the other. The form and language of the townhouses and organisation of internal spaces are derived from a reinterpretation of the Georgian townhouse. The plan maximises the living space and establishes a direct relationship between each primary room and associated external spaces throughout the dwelling.

The traditional construction of the first phase development had high levels of insulation, good air tightness and careful detailing to improve sustainable performance rather than a focus on renewable technologies. The townhouses achieved a 30 percent improvement in energy performance over 2002 Building Regulations.

Whilst Accordia creates housing that is high quality and in demand it would not meet 2016 regulatory requirements and would not be viable as mass market family housing due to its high costs.

**ATRIUM HOUSE**

The historical precedent for the atrium house is a Georgian terraced house, typical of Edinburgh New Town (Figure 4 & 5). The terraced house typology provides medium density housing in a low-rise urban setting.

**External Spatial Organisation**
The urban framework for the atrium house is based on two New Town typologies: the formal street with shared rear gardens and the mews lane with private rear gardens (Figure 6). In the first typology, the frontage of each house is separated from the public pavement by an enclosed private garden, hence; the distance each house is set back from the pavement is enough to ensure privacy whilst engaging the occupants in a community of houses along the
street. To the rear there is a private deck, immediately adjacent to each house, with an outlook onto shared gardens. Access to these shared gardens is restricted to the home owners within each urban block; thus they are semi-private in nature. Lack of formal boundary walls between houses within the shared gardens opens up social possibilities.
between neighbours. In the second typology, the front door of each house is directly accessed from a public mews lane. The lanes run perpendicular to the main street and are of minimal width. The surface is paved in a manner to articulate its shared use: that of pedestrians and vehicles. Car parking is provided for each house in garages located across the lane from the front door. The garages can be enclosed or open and may double as secure play areas for children. The garage infrastructure can be adapted for live/work units or for future expansion of the house should the family grow or there is a need to house elderly relatives.

Internal Spatial Organisation
Although the ratio of outside wall and roof area in a typical terraced house is kept to a minimum thus providing maximum thermal benefits, the plan is usually long and narrow; hence, natural light and ventilation are difficult to provide to the centre of the house. The Atrium house solves this fundamental difficulty by placing a top-lit vertical space in the centre of the plan. In addition to the environmental benefits, one of the primary functions of the atrium is spatial. By introducing a light-filled core in the centre of the plan, the house feels bigger than its statistical footprint. The plan is based on a 3m module: 6m across and 9m deep. A 2m wide zone along one of the party walls contains vertical circulation and bathrooms, thus leaving a rectangular accommodation footprint of 9m x 4m which is divided into 3 bays. These bays can be partitioned off to create rooms or they can be left open, depending on the needs of the occupant. As the floors span the full width of the house, the internal space can be altered without affecting the structural envelope. Although the accommodation within the house is flexible, the proposed hierarchy is based on internal/external relationships, in both plan and section. The ground floor contains a kitchen and dining area with direct access to the rear garden and a room facing the street which could be used as an office or bedroom. The primary living space is located on the Piano Nobile facing the street with a bedroom to the rear. The top floor contains further bedrooms and a roof terrace on each side of the atrium (Figures 7 & 8).

Technology and Environment
Moving to higher density terraced housing provided a number of technological difficulties but several opportunities. The study assumed a reduction in the need for individual houses to be energy autonomous, with electrical energy generation being dealt with at district levels. The subsequent energy concept for the house adopts Passivhaus principles modified to a UK climate based on the guidelines for the design and construction of passive house dwellings in Ireland. Much of the focus in the UK over the last 20 years has been in the development of MMC’s to improve the efficiency of construction in terms of quality, cost and buildability. The majority of UK house builders use different forms of off-site timber frame construction which has been proven to be effective in terms of economics and environmental performance. It was considered that if the new design proposal was to gain acceptance by existing housing developers it would need to use similar technologies that could be easily absorbed within the existing manufacturing infrastructure. Timber frame technology was considered to be the most viable solution, not least because of timber’s low environmental impact. However, it was recognised that the standard timber frame products offered by current UK manufacturers would need development in order to improve the environmental performance of the building fabric to meet higher energy targets.

The housing blocks are orientated on a north/south axis with the main elevations facing east and west and external spaces between housing blocks orientated due south. The stepped section maximises sunlight penetration into the private external spaces behind the street throughout the day, even in the winter months. The atrium in the centre of the plan faces due south and acts as a solar collector. It bisects the plan allowing every room to receive morning and evening sunlight passively. The roof light can be isolated from the main volume to prevent heat losses at night and to control heat gains during the summer months. All glazed elements can be shut down at night with sliding insulated shutters reducing heat losses. Throughout most of the UK there is little requirement for cooling during the summer. Over this period the atrium and openable windows generate a stack effect assisting in the natural cross ventilation of the spaces. During
the remainder of the year, the air-tight construction, mechanically controlled heat recovery ventilation and biomass heater located in the centre of the house is sufficient for space heating and hot water. The cellular spaces are heated via a forced air distribution system. Heating between the intake air and the stove exhaust gases is used to control the temperature of the intake air. The internal floors and partitions use Brettstapel, thermally massive timber construction elements to balance out the internal diurnal temperature fluctuations. These have the additional benefit of providing better acoustical separation between rooms.

CONCLUSIONS

The UK’s Code for Sustainable Homes and Germany’s Passivhaus are two world leading standards in the drive to develop more sustainable, low energy approaches to housing development. Although they share common goals the ideologies are fundamentally different. Passivhaus leads to very low energy demand housing by improving fabric thermal performance, air-tightness and heat reclamation ventilation to such an extent that additional regulated energy demands are minimal or zero. CSH on the other hand is striving towards total energy autonomy to achieve net zero carbon, but with lower fabric performance values, ultimately having a larger regulated energy demand. Practice has shown that while both strategies are possible Passivhaus is more economically achievable due to the inherent high costs in producing electrical energy at a building level. To date, much of the research in zero carbon has focused on detached or semi-detached housing, whereas it is well known that higher density housing models with lower surface to volume ratios are more efficient from the point of view of energy demand.
Additionally, there are much broader questions as to the overall viability and sustainability of low-density suburban models, particularly as the UK moves towards a low carbon future. BedZed and Accordia are two innovative high-density housing developments that demonstrate the conflicting requirements of achieving good quality internal and external spaces within the limitations of low-energy and zero carbon contexts. The Atrium House attempts to show that if low-energy is considered rather than zero-carbon, it is theoretically possible to develop high-density, housing with high quality spaces using minimal plan areas. While the Atrium House concept remains to be tested quantitatively, both the urban planning and spatial configuration of internal spaces allude to a potential solution for creating more sustainable, high quality, mass market housing.

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LIFESTYLE AND AFFORDABILITY CHOICES IN TRADITIONAL HOUSING OF OLD DHAKA

Iftekhar Ahmed

Abstract
Affordability and lifestyle choices in housing are critical to meet basic human needs for shelter, security and wellbeing. What is ‘affordable’ for a particular community involves mixed housing types, tenure options and cost-models. A lack of appropriate, affordable housing to meet the needs of different age groups, incomes and household composition affects social cohesion. Affordability ensures a better community. Placing all affordable housing in one subdivision often creates a ghetto effect. One of the success factors in these traditional houses is the healthy mix of the income ranges to avoid a ghetto effect of low cost housing. The recent rapid urbanization has led to a discontinuity of the traditional housing form of old Dhaka, leading to a disintegration of the mix of lifestyle choices and affordability. Following popular market trends, they are often replaced by housing blocks in a higher density ignoring the need for a diverse mix. This paper studies the traditional housing of old Dhaka with two case study neighborhoods. Several elements of housing like the common price, materials and construction, space layout, scale, social space, facades, street interface, etc are selected for a qualitative study. Local residents interview, archival records, maps, Plans, figure-ground, aerial images are used to analyze, identify and demonstrate the elements that made them socio-culturally sustainable and affordable for the community. With the analysis, lessons from the traditional housing form that may contribute to the new housing in Dhaka are identified.

Keywords: Traditional Housing, Lifestyle Choices, Affordability, Old Dhaka.

INTRODUCTION
Both affordability and lifestyle choices in housing are critical to meet basic human needs for shelter, security and wellbeing. What is ‘affordable’ for a particular community involves mixed housing types, tenure options and cost-models. A lack of appropriate, affordable housing to meet the needs of different age groups, incomes and household composition affects social cohesion.

Affordability ensures a better community. Placing all affordable housing in one subdivision often creates a ghetto effect. There have been many examples of poor planning that have created islands of low-income housing surrounded by regular subdivisions ignoring lifestyle and cultural values.

With different income levels and family composition, the preferences become widely diversified; requiring different space composition, rent, access, flexibility to adapt, etc (Mallach, 2009: 53-72). Another important issue is the requirement for home ownership or rental housing at different ranges for different income groups, at different life stages and family compositions. Affordability problems deepen with the economic condition, especially for the low to middle income households. Affordable rental accommodation seems the only alternate under such circumstances. It is important to find an appropriate home within a community one feel’s connected to and convenient with preferred lifestyle choices. Many contemporary housing schemes fail to meet this requirement for lack of housing mix and diversity, adaptable housing and universal design, tenure mix, and affordability. This creates a need to look back into the wisdom of the traditional housing form.

There have been studies in the context of housing affordability and lifestyle choices (see Salama, 2006 and 2007) and on housing prob-
lems of Dhaka (see Kamruzzaman and Ogura, 2006 and Hafiz, 2000). This paper particularly focuses on the affordability and lifestyle choices in traditional housing, as there has been no significant research in this area.

The paper has three main sections; the first section establishes the traditional and contemporary housing condition of Dhaka. The next section is about space formation and lifestyle choices in the traditional housing. The final section elaborates the flexibility, adaptability and affordability of traditional housing. Finally concluding remarks are made for possible use of the lessons learned.

RESEARCH METHODOLOGY

This paper studies the elements and wisdom that made the traditional houses socio-culturally sustainable and affordable in the older city fabrics, for possible implementation into the contemporary urban housing. Old Dhaka is approximately 25 sq km, with a population density of nearly 80,000 people per sq km (The Independent, 2003), one of the highest in the world. Two case study neighborhoods of Old Dhaka: Shankharibazar and Armanitola are selected. Shankharibazar is a 300 years old high density (about 12,000 people in 4.6 acres) neighborhood, high in socio-cultural significance. Most of the residents are Hindu specialist craftsmen who make shankha (special bangles) for living. Armanitola was once a thriving center for the Armenian merchant community and dates back 200 years. Over time, people from other communities settled here. Most of the people belong to low to middle income groups.

Selected housing elements like the common price, materials, construction, space layout, scale, social space, facades, street interface, etc. are chosen for a cross neighborhood qualitative study to analyze what elements work better under different circumstances. Local residents interview, Archival records, maps, Plans, figure-ground, aerial images and other relevant data are used in the study to analyze, identify and demonstrate the features of the traditional housing form of old Dhaka. The problems and challenges of the contemporary housing are also identified. From the analysis, lessons from the traditional housing form that may contribute to the new housing in Dhaka are identified. Finally, conclusions are drawn for possible alternative measures for a sustainable balance between the traditional wisdom and contemporary demands of lifestyle and affordability.

HOUSING CONDITION OF DHAKA

Housing of Old Dhaka: Community living and cultural values

Dhaka is the capital of Bangladesh. The historic core of the city known as old Dhaka is a combination of several traditional neighborhoods. Houses in these traditional neighborhoods or mahallas are integral units of a social system (Vastu-Shilpa Foundation, 1990), having a good mix of place of work and individual lifestyle choices. Field study of housing of old Dhaka shows adaptation of rural space formation with the urban ideas of early 17th century. These neighborhoods were (some still are) enclaves of particular cultural groups with strong social bond.

The houses reflect socio-cultural values, social status and identity; meeting the spatial, social and visual requirements. They show flexibility, adaptability (scope for personalization and lifestyle choices) and mix of income ranges. All three major lifestyle (where sub-cultures lead to different lifestyles) theories: the work-based, Attitude-based and status based; are successfully demonstrated in the traditional housing.

The houses show spatial territoriality, as Newman (1996:10) recognized, ‘territoriality must be connected to community’. In a contemporary housing complex, individual families are limited to the threshold of their door. Comparatively, with hierarchy of private to public spaces (figure 1); the traditional houses have spatial territoriality. This ensures safety and security of the households and the community, and also makes a more cohesive social living possible. As Newman (1996) identified, this hierarchy begins with the common space or corridor shared by a small number of households and extends to the main entry/entries to the building, next it moves to the households open space or courtyard and finally to the interface between the house and the public realm. The close involvement of the households in forming these
spaces ensures better living environments; as seen in the traditional houses.

The house is seen as an integral unit of social system. The meaning and attachment associated with house is cultivated over several generations’ social interactions. The housing typology ensured such social interaction with spaces like the ground level verandah known as rock and the courtyard.

PROBLEMS OF CONTEMPORARY HOUSING

Dhaka has greater population density and rate of expansion compared to most of the mega cities of Asia. By 2015, Dhaka will be the 4th most populous city in the world with an estimated population of 21.1 million (Kamruzzaman and Ogura, 2006). About 1000 migrants arrive in Dhaka daily, resulting in a phenomenal growth in the existing housing demand of 60,000 units per year with a yearly supply of only 2,500 (Hafiz, 2000). Apartment buildings came into the scene during the 1980s with an effort to solve the housing problem. Instead, their unplanned growth has converted various parts of the city into veritable high-rise slums (Figure 2).

The rapid urbanization led to discontinuity of the traditional housing form, replaced by high density housing; ignoring the need for diverse housing mix. Following the popular market trends, the contemporary housing does not fit the demographics of the areas concerned. Some of the main problems are: lack of affordable houses for rent or purchase, unnecessary larger units, etc. They generally ignore local preferences on spaces, materials and built-form or people’s affordability. Naturally, they have often proven unsuccessful. Two major problems stand out, they are:

Low access and affordability: According to a 1996 report of Government of Bangladesh (Kamruzzaman and Ogura, 2006), house price to income ratio is 18.93, meaning a median income household needs 18.93 years annual income to own a house. 65 percent of the population of Dhaka lives below the poverty line. Their access is greatly restricted due to high cost of land (land values in prime locations range from US$ 350 to $1430 per square meter which is too high compared to other developed countries), material and construction. Due to this, only the upper-middle to upper income families (which constitutes less than...
4% of the urban population) Hafiz, 2000) can afford the current apartment prices. A study for Dhaka Metropolitan Development Plan (DMDP) in 1995 (www.rajukdhaka.gov.bd) showed, ‘the first quintile of city household has zero affordability to housing; the second quintile can afford US$ 2 to 4.5 per month; the third quintile can afford US$ 4.5 to 6 per month; the fourth quintile can afford US$ 7 to Tk. 9 per month and the fifth quintile of household can afford US$ 15 - 35 per month. Only 3.85% of household can afford above US$ 35’. A study by the Consumers Association of Bangladesh (CAB), in 2007 (The Financial Express, 2008.) showed that house rent in the Dhaka city increased by 250 percent in last 17 years despite presence of rent control laws.

Problems of lifestyle choices: Some of the main problems of contemporary housing are: lack of responsiveness to the dwellers’ lifestyle choices, lack of personal space, lack of natural outdoors, poor or no social contact with neighbors, unacceptable places to raise children, lack of flexibility to cope with changing lifestyle, etc. Several of these issues can lead to socio-psychological problems.

AFFORDABLE HOUSING IN CONTEMPORARY PLANNING

One of the contemporary planning visions for housing delivery is “A comprehensive housing development programme” (Islam, Shafi and Moniruzzaman, 2009), that proposes ‘a vision for housing programme by 2025’; with the ‘philosophical stand’ concerning housing access for all, satisfying affordability and equity. It is expected that, when executed, the proposal would initiate a ‘spatial restructuring’ that may bring significant change in housing affordability in Dhaka city by delivering 4.45 million dwelling units (Ibid, 2009). The table shows the focus on providing housing for the middle to lower income groups. Lessons learnt from the traditional housing will be very relevant to achieve greater housing affordability.

About 30 percent of the housing is delivered by the formal non-government sector, i.e. developers and 60 percent by the informal sector. The developer build housing is mostly targeted for upper income groups. The main obstacle for developers to adopt the traditional housing pattern is the apparent low-return from alternate housing typologies, which, when dealt in a sustainable manner, may not be the case. This will require a major shift from the existing ‘convenient’ parameters of housing, and look into alternate locations to lower land cost and revisit the time tested traditional methods of construction, which may lower the material and construction costs.

SPACE FORMATION AND LIFESTYLE CHOICES

Basic Housing Form and Typologies of Traditional Housing of Old Dhaka

Many visually pleasing houses fail to fulfill the requirements of a safe and satisfactory home. In old Dhaka, the houses may not always be apparently ‘beautiful’ by modern architectural standards, but nonetheless they have effective space formations that have worked efficiently for hundreds of years.

Field study shows three basic typologies of traditional houses: the courtyard house, linear tenement house and the villa type house (figure 3). Not going into details of particular types, this section discusses their key success factors in general.
In traditional houses, use of space is both religious and cultural. Functions have their respective sacred or polluting character. Polluting spaces like toilets require separation from the main living quarters, while cooking and cleaning areas also require separation from the living quarters (figure 4).

Originating from the rural courtyards, the urban courtyard houses in their cluster arrangements work as very successful communal spaces for the extended family households. They make adaptation possible for lifestyle changes. Often, nuclear families become a joint family or vice versa, where a large joint family breaks down into several nuclear families. This was possible in the courtyard houses as the space formation takes place from outside in, rooms are added around the shrinking courtyard. In cases of household division, the courtyard itself (or spaces around it) could also be divided.

For every family, the behavior politics is different and this should be reflected in space formation. The courtyard houses could successfully address this. They ensure a smooth execution of avoidance-respect behavior through separation of male-female and public-private spaces. (Figure 4). The breakdown in social hierarchical structure results in diminishing use of rules of precedence as well as avoidance behavior in use of space, as evident in the contemporary housing.

Lifestyle Components in Traditional Households
Wentling (1995: 3) identifies several key components in lifestyle oriented space formation. These components are rather general areas of a home based on principal use and the households as assemblage of these components. These components appear in varied compositions in the traditional houses of old Dhaka, based on requirements of social interaction, privacy or backyard behind the door functions. They are shown in Diagram 1.

LIFESTYLE THEORIES AND THE HOUSING OF OLD DHAKA
Houses affect human life in all its aspects either powerfully or subtly by the lifestyles chosen. Though the lifestyle theories consider different lifestyle choic-es, they also share several common aspects and help to understand the physical and social factors in affordable housing (Salama, 2006 and 2007). The housing of old Dhaka is successful considering all the major lifestyle theories; as discussed here:

Work based lifestyle choices: Pioneered by Hojrup (2003), the theory is principally concerned with career dominated or self employed wage earner and the related dynamics in the lifestyle choices. Hojrup (2003) stated that people’s values are constrained by cultural-relational dialectics and are product of cultural life modes. Curiously, all three lifestyle modes under Hojrup’s work based theory are present in old Dhaka at varying degrees. The shop-houses have a very strong live-work relationship demonstrating the self-employed type. Most of these households run family business for generations. The second mode (wage-earner) has become more common recently with separation of work place with living quarters, which is used mostly for recreational purposes. The third mode (career oriented) relates the personal position in society with career progression and its reflection in household choices by past and recent experiences in household preferences. This mode is expressed in extension and addition of facilities, or an entire block into present household with career progress.

Affordability is critical as with rising price of land and construction, reasonably priced houses are short in supply, which makes the area less attractive for the wage earner. The traditional housing was successful due to shorter (often walking) work-living distance as the development was mixed. This is lost in contemporary housing for over segre-
gation of living place with work. Commutes have an inverse relationship with affordability, adding to the living cost and are reflected in housing choice. Often current residents leave the region and prospective residents choose against moving in. Lower income households suffer most in terms of housing cost and housing occupancy with overcrowding. Affordable housing should have a good mix of location for all income ranges, which, the traditional neighborhoods achieved successfully. Concentrating the poor to moderate income households to the lesser desirable locations stigmatizes them and impacts job choices. Traditional housing avoids over segregation and with a good mix of household income ranges, offers a well balanced living-work environment.

**Status based lifestyle choices:** Bourdieu’s (1984) status based lifestyle theory highlights the factors of distinction and social position having strong influence in housing choices. Traditional home ownership is indicator of occupational and social status and is a produce of social relations. In the traditional neighborhoods’, the social relations are cultivated over generations and status is maintained even under changing economic conditions. The flexibility and adaptability of the traditional houses help to maintain this.

There are examples of Gated communities (Ex. The Japan garden city) in contemporary housing, which have often failed. Comparatively, the traditional housing offers better solutions of status based lifestyle choices that are more integrated with the community.

The house is seen both as a social and economic unit. It is a common practice to rent out the front room of the ground floor to recover construction cost or as an additional income source. It is essential that this is possible maintaining the social boundaries and privacy factors.

**Attitude based lifestyle choices:** Mary Douglas’s (1996) attitude based lifestyle theory is based on household preferences backed by strong competitive forces, individual choices, seclusion and individualism and ultimately the scope of their integration in the neighborhoods. Her proposed sub cultures are: competition and individualism; isolation and avoidance of social controls; equity and negotiation; and hierarchical communities (Ibid). The sub cultures facilitate the understanding of the household choices. In old Dhaka, they vary according to house size, position and relationships of the house in the neighborhood and the image of the house in terms of affordability, mostly in the form of villa type houses.

As the communities are not too hierarchical, examples are found in the palatial residences of the rich. Subsequent subdivisions over generations show their flexibility to changing needs. Isolation and individualism is essential in household choices. There should be a good mix of these types of households in a community for a healthy social environment and avoid creating ‘household islands’. The attitude based household examples of old Dhaka show ability to adapt and co-habit with other houses.

**MAJOR CHANGES IN LIFESTYLE CHOICES**

There has been significant change in the household lifestyle choices in the traditional houses in the last few decades. Some these are:

**Changing household composition:** With changing socio-economic conditions, the household composition also changes. Nuclear families replace the large extended families. There are also increasing number of single parents, childless adults, single persons, and unrelated people sharing household putting greater demand on the household spaces to be more flexible and adaptable to cope. There is also the need to meet the varied demand of different age groups which the traditional housing has been able to sustain.

**Changing social and personal values:** One of the key changes in the late twentieth century has been prioritizing carrier advancement before family life. Leisure and socio-cultural pursuits, which are reflected in the household design, followed suit. Fortunately, this trend is waning, meaning there is increasing tendency to spend quality time with family with greater demand of shared family spaces. Within similar affordability, the spaces formerly used differently are converted into something new, as has been achieved successfully in many of
Since the nineties, an increasing number of households have two parents working. Breakdown of the corporate entities into smaller businesses means that people have more flexible working hours and may work more from home with advance of computer and internet technology; decreasing the requirement for physical presence at workplace. This resulted in the conversion of part of household into an extension of workplace, impacting the household space usage. While many of the traditional houses were also places of work, the composition has changed with changing employment pattern and advanced technology.

**Changing employment patterns:** Since the nineties, an increasing number of households have two parents working. Breakdown of the corporate entities into smaller businesses means that people have more flexible working hours and may work more from home with advance of computer and internet technology; decreasing the requirement for physical presence at workplace. This resulted in the conversion of part of household into an extension of workplace, impacting the household space usage. While many of the traditional houses were also places of work, the composition has changed with changing employment pattern and advanced technology.

**FLEXIBILITY, ADAPTABILITY AND AFFORDABILITY OF TRADITIONAL HOUSING**

Frank (1985) points out, all designed environments result in environmental changes, meaning, they are purposeful modifications of our physical surroundings. Flexibility of both affordability and life style choices is required with change in family structure, social networks, gender compositions, economic
and educational opportunities. Figure 4 shows a traditional courtyard house of an adapted extended family. Size along with flexibility to adapt to changing family compositions was satisfied with change in lifestyle choices like use of space by household members within the dwelling, and development of new modes of privacy. The adaptive space re-configuration (figure 5) in the traditional housing units was possible by their relatively narrower width and the use of common circulation spaces like the courtyard. The narrow width and courtyard allowed subsequent subdivisions.

Another prevailing housing typology is the hybrid tenement house that successfully responds to the demand of affordable high-density low cost dwelling. The inhabitants’ original life style had been adapted to changing economic conditions and collective co-habitation gained new norms and values with internal space divisions. Diagram 2 shows some issues related to affordable lifestyle choices.
ELEMENTS OF AFFORDABILITY AND LIFESTYLE CHOICES

Though diverse in nature, the elements of affordability and lifestyle choices in the case study areas can be sub categorized into few groups (diagram 3). Within a category, the choices vary widely according to the socio-economic preferences and status. Greater density is achieved, when the location is closer to urban transport centers, recreational and other quality lifestyle choices. The dwelling size is generally smaller compared to the lot size, which reduces development costs and enables flexibility of future household needs and expansions. Comparatively, the larger houses provide opportunity to subdivide according to requirements of subsequent generations. Other important factors are neighborhood and housing layout, permeability and connectivity, mix of room types and space configurations, community integration, proximity of open spaces, etc. The key to affordability is to have variation and options in desirable locations.

Cost effective use of material and local construction techniques
Rising construction cost is one of the main reasons behind a low supply of affordable housing (Hasan, 2000). Even the most inexpensive newly constructed residential units are way beyond the reach of the lower income groups (Landt & Bray, 1997). This leads to filtering down of older units at lower cost. For this reason, the traditional houses of old Dhaka are still high in demand. The construction materials and techniques used were and still are local, which reduces the unnecessary cost of transportation that in turn adds on to the construction cost. This has enabled the traditional housing lot to remain more economic compared to the contemporary housing.

Space subdivision and affordability
Affordable housing should not put undue or disproportionate burden over the household income to spend on shelter. ‘Affordable housing should be understood as a commitment of time rather than simply immediate solution to a pressing need’ (Bell, 2003:84). What is affordable may not always be related to the numbers rather what a household feels they are comfortable to spend for a house of their preference based on their means and socio-cultural preferences. But a thumb rule standard is maintained that a family should not be forced to spend more than 30 percent of the household
income for shelter. Unfortunately, contemporary housing fails to keep to this limit.

The traditional houses display a great capacity to adapt to changing needs of the residents (Figure 6). Though generally undesirable, greater housing expenses have led to overcrowding. Overcrowding is very closely associated with the rising housing cost, compelling many to share the same household though subsequent generations. Houses should be flexible enough to accommodate different sets of user-space relationships.

In extreme cases, there is no option but to share the household to avoid homelessness. It also provides added income in the challenging economic conditions for the owner to rent out the extra spaces. The traditional dwelling units by their space distribution have scope of such adaptation. One good example is the shared access to the common spaces like the courtyards from the continuous running corridors that enables easy access for everyone without compromising the privacy of others.

CONCLUSION

The changing economic conditions have compelled many low to moderate income households to live in smaller units out of necessity. It is also not practical to expect ready units of affordable size of the households. Thus the viable alternate no doubt is the re-organization of the existing households for greater number of occupants. Many traditional houses offer this flexibility, while many of the contemporary houses fail.

The study shows two particular findings. The more obvious one is the failure of modern housing to provide changing lifestyle choices in most cases. Comparatively, the traditional housing has successfully adapted to changing socio-economic conditions aided by the flexibility and adaptability of their spatial layout, which has scope for re-arrangements and subdivisions. Despite their apparent older look, investigation shows that they are more livable than the contemporary housing.

The affordability indices and failure of the private housing sector of Dhaka City imply that the govt. has to play both provider and facilitator/enabler for different income groups. Revisiting the housing challenges by enabling, facilitating and channeling the potentials of traditional housing can be a good way to start the search for housing affordability. The contemporary housing is too highly priced owing to high land, construction and material costs and only serves the higher-middle to high income groups, which constitute a very small part of the population. To provide affordable housing for major part of the urban population, a fresh outlook into the current housing scene is required. Fundamental change in attitude and unconventional innovative methods needs to be adapted.

Traditional housing form, which can be more affordable for the highest segment of city dwellers ranging from low to lower-middle income groups can be a possible answer to the problem. Besides being affordable, they may also successfully answer the socio-cultural problems persistent in the contemporary housing. There are several important lessons to learn from the traditional housing space formation and their adaptive qualities that in turn may be used successfully in the contemporary housing.
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TOWARDS AFFORDABILITY: MAXIMISING USE VALUE IN LOW-INCOME HOUSING

Dina Shehayeb and Peter Kellett

Abstract
Much research into housing concentrates on the dwelling as a place of shelter for the household, as a unit to accommodate basic domestic activities or as an asset to secure and facilitate social reproduction. However, the dwelling is more than an enclosed private space; it involves a diversity of indoor and outdoor spaces that house a multitude of activities to fulfil latent functions and meanings. The scarcer the resources of the residents, the more critical it is to maximize the use-value of the home environment, and key ways to add value is for the dwelling to become a place to house income generating activities, a place to produce one’s food or a place to accommodate changes in household structure over time. In such cases, public and private space use within the home range is intensified through multiple usage, often changing diurnally or seasonally to afford the occupants increased adaptability and maximum use value. Drawing upon empirical data from Egypt, Colombia and Indonesia, this paper proposes a conceptual framework to analyse the diverse manifestations of this phenomena and to identify lessons for designers and policy makers concerned with making housing more appropriate and affordable.

Keywords: Affordable Housing, Activity Systems, Dwelling, Functional Opportunities, Lifestyle.

THEORETICAL TENETS

Despite increasing policy and research interest in providing the poor with appropriate, affordable housing, innovative research to explore what is appropriate and for whom, is relatively scarce. In most cases such interpretations are focused on climatic appropriateness, or initial economic affordability, with little regard to the long-term cost-benefit, or rather value for cost of the different residential designs. Rarely are such interpretations informed by detailed studies of how people use domestic space, how such uses change over time or how the spaces are valued. This paper aims to redress this. Following a discussion of the key conceptual/theoretical ideas which have informed our analysis we will draw on a range of cross-cultural examples to illustrate an essential, and operationally useful, principle for designing ‘appropriate’ residential environments for different user groups. We will draw both on professionally designed and produced residential environments to examine how people adopt, adapt, appropriate and value the spaces provided by others, as well as informal housing environments produced without professional involvement. Here we will be able see how space is appropriated to create places which enable the poor to enhance their living conditions within the limitations of their resources. The paper demonstrates how affordability is a key component of appropriate housing – the more appropriate in terms of use values, the more potentially affordable it is likely to be, especially if it offers possibilities for home-based income generation or expenditure reduction. In other words affordability is the economic dimension of appropriate housing.

Dwelling as an activity system
Dwelling is both a noun and verb. The act of dwelling is comprised of activities related to the very survival of the human being: basic living, such as sleeping, eating, grooming and reproducing. The dwelling is also the physical embodiment of these activities. It provides space, shelter, and social and physical environmental quality to sustain the performance of these everyday living activities. Studying how these activities are performed, where, when, in association with whom and what other activities,
has revealed that these activities often extend outside the boundaries of the dwelling unit as defined by the formal boundaries of the private domain, whether it be a house, an apartment, or a room. In Rapoport’s view of ‘activity systems’ and ‘systems of settings,’ the dwelling becomes the group of interrelated settings (indoor, outdoor, privately owned or shared) where everyday domestic activities take place (Rapoport, 1990).

**Functional opportunities**

One way people perceive their physical environment is in terms of the opportunities it offers them: opportunities for manifest use, opportunities to satisfy social and psychological needs and opportunities to attribute different meanings to it (Shehayeb, 1995). These Functional Opportunities, FO, can be classed as Potential, Perceived and Utilized (Shehayeb, 1995) and exist in the physical environment independent of their discovery (fig 2). We can refer to them as Potential FO to establish what behaviours are possible and constitute the ecological resources of the environment. We therefore consider Potential FO as those FO that are perceivable in principle within the context of the culture core of the population.

Perceived FO are the mental interpretation of the former which are the product of tacit perceptual and cognitive operations. Perceiving Potential FO is dependent on the individual’s awareness of their presence in the first place. In the same environment, different people will perceive different Potential FO depending on their personality, age, gender, and socio-cultural norms.

It follows that Utilized FO are a subset of Perceived FO, where they represent those perceived functional opportunities deliberately chosen to be utilized by the perceiver. Assuming that this process of choice is often more reflective in nature than the process of perception (Kaplan, 1983) factors that
affect this process of choice may include: (1) a person’s purpose and priorities; (2) a person’s preferences; and (3) regulatory rules that govern the operation of the physical environment. Applied to the domestic space, this concept reveals the relationship between the design of the domestic space and the way residents use it.

**APPROPRIATENESS AND APPROPRIATING**

In the design field, there are ongoing debates on how designers should create appropriate residential environments, and ‘appropriateness’ would generally refer to the harmony or close agreement between the physical environment and behaviour taking place in it. One widely shared assumption is that the ‘fit’ between the physical environment and users’ behaviours or needs should be maximized. There are two challenges to this assumption: whose needs and preferences; and how do priorities change over time? The literature provides two concepts in response to the previous challenges of the ‘appropriate’ home design. The first, ‘adaptability’, ‘resilience’ or ‘inherent adaptability’ are terms used to refer to the ability of the environment to serve a variety of functions and allow a variety of cultural interpretations over time, without disrupting the structure of the whole (Vernez-Moudon, 1986). The second concept is ‘flexibility’ defined as the ability of the environment to change or “be made different” to adjust to change in order to fit the function it serves (Oxman, 1977). For example, allowing mixed use, can be crucial to the economic situation of low income groups; being able to rent out part of their home, operate a workshop, or share a day care service with neighbours is vital to low income residents (Kellett & Tipple, 2000).

According to a model of appropriateness in the home environment (Sherif et al, 2005), one should design spaces that increase users’ choices at one point in time, and accommodate change over time, where principles of adaptability and flexibility are used to complement each other. Hence, to achieve “appropriate” domestic space, one should offer the users designs that enable and encourage “appropriation” of those designs to become homes. Appropriation of the domestic space by its users can be seen as a function of the opportunities they perceive to adapt, or adjust, to their needs and lifestyle. The extreme case of this is housing created by people themselves - informal housing (Roy, 2005; Roy & AlSayad, 2004). Here the assumption must be that when processes of consolidation, development and change take place, they are a direct reflection and physical embodiment of the underlying cultural values of the users, albeit in circumstances of considerable resource constraint (Hernandez et al, 2010). The creation of an increasingly ‘appropriate’ dwelling environment may take years (or may never be achieved) and may be interpreted as a processes of narrowing the gap between aspiration and reality in which use-values are a vital ingredient.

**USE VALUE**

If FO are a way to conceptualize the physical environment, use value is the hypothetical measure of the value of each FO. It is a relative measure that qualifies FO to reveal their relative importance, versatility, and sustainability. For example, a room with two windows has the potential FO to be divided into two naturally ventilated and illuminated rooms. The use value would reveal the spectrum of uses that dividing the room into two spaces might serve; separating children’s sleeping areas by gender, creating a space for an income generating activity, or to accommodate an extended family member. It follows that the ‘use’ of the FO in the dwelling could be either manifest use, such as increasing income (Kellett & Tipple, 2000), or latent use such as communicating social status to others (Shehayeb et al, 2004), or affirming self-identity and esteem through representations of hopes and aspirations (Kellett, 2005). Design elements, under certain conditions, could be said to have a high use value because they offer a multitude of FO, and/or the FO they offer is highly valued in their cultural context. Our argument is that maximizing the use values of the designed residential environment for its prospective users, is a focal design objective to achieve social, economic, and cultural ‘appropriateness’. The importance of this approach increases the lower the status of the residents, due to the scarcity of their resources and the relative increase
in the importance of latent functions a dwelling can offer. The less manifest functions the dwelling can fulfil, the more importance is given to the latent role of the dwelling to the extent that Peattie (1992:23-32) argues that in low status, low income populations the desire to demonstrate dignity and positive moral values may underlie much of the effort and energy which goes into domestic environment improvement.

MAXIMIZING USE VALUE IN RESIDENTIAL ENVIRONMENTS

Drawing upon empirical data from disparate studies in different cultural contexts the following section presents characteristics of the built environment that maximize the use values of the residential environment.

Breathing Space: Undesignated spaces with multi-FO

Accessible Rooftops
In many parts of the Middle-East and North Africa, the rooftop is a semi-private, collective place, where domestic activities may extend to grow poultry as a healthy, economic food source and for occasions when an important guest arrives, home raised poultry would be central in the festive meal. On some occasions pets that cannot be kept inside the dwelling unit, can be kept there too, such as a goat, or a dog. In mild weather conditions, as is the case in Egypt, men sleep up on the rooftop on summer nights, the family may receive friends and family, sit on a sofa, or on pillows on the floor. The TV set is moved up and the summer evening breeze enjoyed to its maximum. For many low income households in Egypt, the rooftop is the only sunny, spacious place to dry laundry, air bedding, and wash and dry floor rugs. Articulated rooftop space helps subdivide the roof into different zones for different uses, (fig 3), provided the number of households sharing this rooftop is not beyond that which can enable them to organize and share its use (whether spatially or temporally, or both). This limit to cooperation and sharing of semi-private spaces differs from one sub-culture to the other and needs to be discovered in each housing context.

Open-air Stairwells: (in buildings up to 3 storeys)
Landings on such stairwells can provide a pleasant, multi-purpose outdoor, semi-private space in the immediate vicinity of the home. In the absence of a balcony or a courtyard, these landings may be the only semi-private outdoor space; often used for drying onions and garlic, women enjoy good weather at their doorstep while preparing food, and sometimes stair banisters are used to dry bedding and floor rugs. On the ground floor, the stairwell space can offer the FO of a shared courtyard especially for ground floor dwellers. In many cases, ground floor dwellings are smaller than upper floor dwellings, and, the ‘proxy’ courtyard maybe used for washing clothes, sometimes even cooking occurs entirely outside the dwelling unit, young children play under the surveillance of parents and neighbours. The use value of such breathing spaces increases for lower income dwellers; those who cannot afford more than one or two internal private spaces.
Landings, stairwells, courtyards and rooftops used as an extension space for dwelling activities have high use values in many subcultures. Like so many design issues, the value attributed to spaces depends not only on their physical configuration but on the social context of which they form a part. The positive use of such spaces depends on two main social context factors: socio-cultural and lifestyle compatibility among neighbours rather than economic strata (Serageldin & Shehayeb, 1987), and the number of households sharing the semi-private space. In Egypt, for example, no more than two to three households in small shared courtyards (Shehayeb, 1999), or no more than nine households sharing a cul-de-sac, or building rooftop.

These figures are culture-specific; however, the factors hold cross-culturally and help explain why some shared spaces have been found to be problematic, leading to conflict between neighbours precisely because of the ambiguous nature of the space (Kellett, 1987). This reminds us of the danger of attempting to create any strictly physical guidelines of good practice in housing design.

ARTICULATION OF SPACE: INCREASING POTENTIAL FOR SEGMENTATION

Space Shape
Another relevant characteristic is the opportunity for space segmentation, where identifiable functions are located in specific spaces defined physically and named accordingly as essential cultural categories. Findings suggest that the use value of a space increases the more it is internally divisible into a multitude of ‘settings’ both spatially and temporally, and that some shapes have higher potentials, as the more corners the shape has the more settings or ‘fields’ (Zeisel, 1981) it can accommodate spatially. However, space can also be defined by moveable elements such as furniture and curtains; or by conceptual boundaries without any obvious physical elements but with behavioural cues securely embedded (Oliver, 2003), so that the argument for space shape is that some shapes may increase the use values of the space more than others.

Number of Enclosed Spaces
A comparison between two 65m² apartments: one 19thC in a traditional neighbourhood, and the other in one of the earlier New Cities (6th October), reveals that the 19thC design allows more adaptability to changing family lifecycle needs (Shehayeb et al, 2004). The salon, used to be the daughter’s bedroom until she was of marrying age, when she moved to join the retired parents in their bedroom and her former bedroom is now the guest room, a ‘salon’, the “front” of the family for their display of status and identity necessary to impress potential grooms and their relatives (fig 4). The son’s room (over 30 years and unmarried for financial reasons) becomes the parent’s daily living room with a well-used balcony. The central space is now an informal sitting/eating space for entertaining close relatives and friends. Even the bathroom is segmented into three spaces: enclosed WC, shower area and sink in the hallway between. The kitchen is also off the same hallway.

The ‘new, modern’ design does not facilitate change over time or such an efficient use of space. The intended living/reception space is kept clean and unused by family members; reserved strictly for the reception of formal guests, thus forcing the family to squeeze its daily living activities into

Figure 4. Comparing two 65m² apartments; the one on the left is a 19th C. design in a popular district of Cairo, Sayeda Zeinab, while the one on the right is the ‘modern’ apartment in 6th October City.
just half the 65m²! In such scenarios, the children’s bedroom is used as the family living room; to eat meals, watch TV, prepare food, as well as a place to receive informal guests such as close relatives, or a neighbour (Eid & Shehayeb 2004).

**Spatial Configuration**

Segmentation and spatial organization of circulation elements can be used to achieve desired changes in levels of privacy, of clean and dirty, and of social control. In an historic district of Cairo, a resident/owner/builder creates an efficient single family row house on a 21m² plot of land (fig 5). The ground floor is the most public, least clean, without TV so visitors do not linger (he has teenage girls). The first floor consists of the formal guest reception room, ‘salon’ and boys’ bedroom; and the second floor contains the girls’ bedroom, the second toilet and parents room. Adopting space syntax terminology, the activities that need the most privacy and control are located in the ‘deepest’ spaces of the dwelling. The vertical, front and back segmentation of the house, helped the resident achieve this gradient in several aspects important to the user’s culture. The open-air stairwell is of high use value as it solves the ventilation/illumination problem of the backrooms on this single frontage (3m) dwelling.

**TEMPORAL SEGMENTATION: HOME AND INCOME GENERATION**

Design guidelines are usually based on the concept of segmentation in which each activity has a specific defined space, usually a room. This may be appropriate in middle and high income housing with a substantial number of rooms but for lower-income dwellers such segmentation is a luxury. They must use their limited spaces in the most efficient way thereby maximising the FO at their disposal. In many parts of the world low-income households expand the use-value of the dwelling by introducing income generating activities within the home (Kellett & Tipple 2000). Such activities potentially impact on how space is used, and in some cases introduce conflicting demands on limited space. Many possible strategies can be identified, which in different ways draw on the various FO available in each context and space.

Larger dwellings have sufficient space to enable activities to be defined in spatial terms with dedicated spaces for productive activities. In smaller dwellings this is not possible and different activities must take place within the same space, sometimes simultaneously but in other cases time is used to demarcate the boundaries (Kellett & Bishop, 2003). High intensity of use within confined spaces is possible because the “spatial and chronological symbiotic interaction of activities creates a greater effective space than exists physically” (Payne, 1974:63). The smaller the space the more difficult this is. For example, Doña Juanita in an informal settlement in Colombia (Kellett, 2000) runs a small school in her one room home. Every morning she pushes the bed to make space for the children’s desks (fig 6). Similarly the woman in Indonesia carries out her mask-making activities in the small limited space available in her single room rented dwelling: she makes the masks on the kitchen worktop and puts finished masks on the bed (fig 7). In both cases they have identified time as a FO to resolve otherwise impossibly completing demands for space.

Other strategies to maximise space and minimise conflict between domestic order and work...
imperatives include expanding the total space available by making the dwelling larger. The way this is done is dependent on context and the ability of residents to identify FO within their spatial circumstances. The use value for low income dwellers of owning a plot is evident in such cases where the plot, however small, allows adding an additional storey or mezzanine, or where it is possible to enlarge rooms or build new ones. Another strategy is to respond to changing demands by reconfiguring the space more efficiently thereby increasing its use value. This may be done by moving furniture and equipment, redefining entrances and changing the location and time of different activities. The range and scale of productive activities is increasing as formal sector employment opportunities are limited in many countries. However, this is not a uniquely developing country phenomena: the use of the home to generate income in industrialised countries is also increasing the use value of domestic space, especially with the rapid development of information technologies which are not space specific (Ahrentzen, 1989, 1997).

**THRESHOLDS: MULTI-MODAL INTERFACE**

**Operable windows**
Manifest functions of openings (windows and balconies) include ventilation, illumination, views and sunlight. These are the universal FO of operable windows, perceived by many cross-culturally. However, there other potential FO pending certain conditions of the window, for example, windows with varying sections for a range of combinations of ventilation, privacy and views. Windows in popular districts of urban Egypt are an important means for communication with the public outside (social interaction); visually, verbally, and for the exchange of goods (sometimes with a basket and rope). Also, the out-looking provides the ‘eyes on the street’ thus achieving the social surveillance that is essential for establishing safety in the public domain.

**Balconies**
Balconies can be an essential multifunctional space, a window on to the world for retirees and older people to know what goes on, to buy daily needs from nearby small shops (using a basket), to sustain neighbourly relations, supervise children’s play, to grow plants, birds and pigeons (hobbies), as private outdoor space, or for afternoon tea, etc..
They have high use values which can be maximised if the height and size are appropriate, as height permits verbal communication. It also depends if the external activity is worth observing.

For example, balconies (and windows) no more than 4-storeys high overlooking a pedestrian populated space (path, street, or open space) are of high value for aged low income dwellers: they may not get out much, and they may get someone to run an errand for them by calling from their window/balcony. Therefore, the smallest balcony (fig 8) on a neighbourhood street, was the number one priority for this retired couple in search for an apartment. It follows that when designing for such a community, balconies are of high use value and should be included.

**STRANGER-FREE NEIGHBOURHOOD STREETS: POTENTIAL FOR APPROPRIATION**

In low income settlements many activities take place outside the walls of the private dwelling unit and spill out from the plot into the street itself. We can regard the street area in front of the dwelling as a shared extension of the dwelling. This is often facilitated by the scarcity of vehicles which may result from different reasons; the poor physical state of unpaved streets, the organic street pattern and dead ends of historic areas, or the fact that car ownership is low among the residents of these areas. Whatever the reason, these streets are essentially pedestrian with limited vehicular movement and no through-traffic. A fact which encourages multiple activities; children can play safely and it is common for neighbours to bring chairs and sit out in the shade. In many countries the first task of women in the early morning is to sweep the street in front of the dwelling, which we can interpret as action to appropriate the space. In other places similar appropriation is carried out by businesses on the street. In Egypt for example, this would include wetting the pavement (to keep the dust down and cool the air on hot summer days), planting trees, and providing the lighting of the space substituting the un-maintained city light poles. In return for this care, they control what goes on the portions they appropriate; textbook territorial behaviour. We can identify several use values in such neighbourhoods streets (fig 9):
1 The street as children’s playground and social club (leisure). The literature is full of examples of children playing in the streets. When the climate is appropriate games and other social activities take place amongst groups of friends and neighbours. It is usual that particular places are selected and become the focus of the activity, precisely because they offer greater FO.

2 The street as community centre (community services). Particular places take on the role of informal gathering places to discuss, plan or implement community-related issues and actions such giving vaccines to residents. The activity may be anchored in a particular space by the presence of a tree, which offers a potential FO.

3 The street as work place. In Egypt we find many examples of car body painters, carpenters, upholstery makers, and street vendors where the street is their work space. In the urban kampungs in Indonesia many economic activities take place in the narrow pedestrian streets: women sewing shoes, mask makers drying their masks in the sunshine, and numerous small shops in the front of the terraced houses.

4 The street as place for festivities. Several religious feasts are celebrated in the streets of Cairo, with people from the countryside setting up camp in the street whilst visiting the city for a few days. The street becomes a fairground with games and rides along neighbourhood streets. Other smaller events include weddings, and funerals.

5 The street as a place of prayer. In many countries the classification and demarcation of places into clean (suitable for praying) or dirty is fundamental to understanding space usage. These divisions are not static, the ‘dirty’ street can temporarily be turned into a ‘clean’ place suitable for communal prayer by laying down mats over the ‘dirty’ floor. In Indonesia alleys are kept relatively clean by regular sweeping several times a day. These are occasions for women to interact socially and the sweeping itself emphasises collective possession of the ground. This also happens when the women in the kampung host a monthly prayer meeting, ending with a collective meal. On these occasions the street is thoroughly swept and mats laid down. Rows of shoes at the ends of the matted area emphasise the change of function.

The above settings have high use-values because of distinctive characteristics in the fixed elements that protect them from the unwanted penetration of strangers into the neighbourhood, thus allowing the accommodation of the semi-fixed elements and the FO to appropriate the street. Cul-de-sacs for example, have high use-values in Egypt, since they offer residents a space for young children to play safely and for women and girls to move freely in home clothes. Residents can accommodate guests in numbers difficult to fit in the private dwelling unit, or use it for storing extra furniture, or supplies such as wood and coal, and quite often for raising chickens and other poultry. Clearly the street is much more than a place for circulation. There are many complex issues of territoriality, ownership, safety, security, social interaction and social
control involved which this paper begins to address.

LOCATION AND NEIGHBOURS

A woman in Mansheyyet Nasser (one of the largest informal settlement on the Eastern edge of Cairo) pointed out that she would struggle to live in one of the modern apartment buildings closer to the main road. Although very small, her current one-room dwelling has high use value: she can use the tin-roof for storage of materials and a place to dry bread for the chickens: the shared courtyard is a safe place to grow chickens, wash and hang the laundry, and many household chores that require minimum privacy. The young children play there under the surveillance of herself or other neighbours, and the older ones venture onto the street where they can interact and play on more neutral grounds. She said that even if she could get an apartment for the same price of her current room, it would mean she only had her dwelling unit to utilize, with no other spaces around it fit for domestic use. She was also aware that the neighbours would be detached and unable to effortlessly prove helpful by watching her young children while doing their chores.

Abel (1997) notes that the principal economic unit in Asian cities is the family, and that ‘community, family life and work are all intimately interconnected’ to provide an ideal climate for developing home-based economic activities. For example, for Mrs A in Indonesia, the availability of relatives close by allows her to call on them occasionally to help with the brief but intense workload of her intermittent cake-making enterprise. Similarly an existing shoe-sewing enterprise run by a woman at the end of her alley has at its core a group of related family members augmented by a broader network of friends. If the dwelling is a generator of income then this directly increases affordability. This can be encouraged through more responsive planning regulations, policies and practices which facilitate rather than discourage income generation in residential areas. This approach was implemented in a neighbourhood revitalization project in Historic Cairo (Shehayeb & Mikawi, 2003). In this project, the rehabilitation of the heritage housing stock was rendered affordable through a micro-credit programme accompanied by vocational training and enabling the opportunity to start hazard-free income-generating activities in the rehabilitated housing to assist the household in the payment of the monthly instalments.

CONCLUSION: USE AND VALUE

Drawing on cross-cultural data, this paper has identified and illustrated a number of circumstances in which dwellers are able to significantly improve their living conditions through the utilization of particular design elements to yield maximum use value. These include ‘accessible, articulate rooftops’, ‘open-air, 3-storey-maximum stairwells’, ‘all-residential, stranger-proof, cul-de-sacs’, ‘balconies large enough for sitting on’, flexible domestic space which can accommodate home-based enterprises’ and ‘alleyways and streets conducive to social interaction and income generation’. The above elements have a high use value primarily by offering a wide spectrum of FO which are highly valued and a priority for the particular user group. Adopting this approach in housing design would increase the cultural appropriateness of the design. Achieving cultural appropriateness in fulfilling dwelling needs means more value for money which is one way of looking at affordability.

Many low income dwellers are design experts; they are skilled at maximising the functional opportunities available in a given space and through innovative arrangement and management of spaces and activities they are able to achieve considerable efficiencies. As cities grow larger, population densities and pressures on limited resources increase and it becomes ever more difficult to provide affordable housing. Professionals including planners and architects, have yet many lessons to learn from real-life dwelling practices of the modest income groups. To use all resources as effectively and sustainably as possible.
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Towards Affordability: Maximising Use Value in Low-Income Housing

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WHICH IS BETTER, SOCIAL HOUSES OR GECEKONDUS? AN EMPIRICAL STUDY ON IZMIR’S RESIDENTS

Ebru Cubukcu

Abstract
This study applied Salama’s (2006, 2007) framework for affordable housing research and compared house and neighborhood satisfaction and future house aspirations of low income residents’ who are dwelling in two different types of affordable houses; social houses and gecekondu in Izmir, Turkey. The study applied survey technique and 54 residents (27 in social housing area and 27 in gecekondu area) were interviewed. The results showed that residents’ family characteristics were different on some issues (education, employment, household size) and similar on others (homeownership, income, duration of residence, and life style). Physical conditions were poor in both areas, but were far worse in gecekondu. Residents’ evaluations of the current house and the neighborhood confirmed this argument. Despite such differences in physical conditions, when residents’ general satisfaction with the house and the neighborhood was compared, residents of the two areas gave similar positive responses. In fact, majority of both residents reported that the house and the neighborhood had a positive effect on their life. Moreover, both residents’ aspirations for future house were similar and limited in two areas. The applied value of these results and areas for future research are discussed.

Keywords: Affordable Housing, Social Housing, Gecekondu, Squatter Settlements, Shanty Towns.

INTRODUCTION

Housing is a basic need for all individuals and provision of affordable (and also decent) housing for low income populations is a challenge for all governments (Oxman & Carmon, 1986; Yetgin & Lepkova, 2007; Davis, 1995). The term ‘affordable housing’ often refers to ‘social housing’ (Davis, 1995) and is defined as housing provided below market prices with certain aids from private and public sectors (Davis, 1995; Turk & Korthals Altes, 2010; Yetgin & Lepkova, 2007; Lawrence, 1995; Oxman & Carmon, 1986; Yetgin & Lepkova, 2007). However, such houses have not been provided in enough quantity to meet the demand (Van Vliet, 1987) and have constituted only a fraction of the housing stock in many developing countries (Van Vliet, 1987; Davis, 1995). Turkey is no exception (Yetgin & Lepkova, 2007).

Due to the low supply of social houses (as well as other reasons), many low income families in developing countries could not afford a house in planned areas and tend to live in informal and illegal houses in unplanned areas (Yetgin & Lepkova, 2007). In other words, poor people in developing countries invade public land and build a house illegally to meet their need for shelter (Lawrence, 1995; Van Vliet, 1987). This situation has lead the formation of gecekondu areas in Turkey (also called shanty towns, squatter and slum settlements). Such areas constitute a large space on urban land. Data from Turkish Statistical Institute have shown that between one quarter (Yetgin & Lepkova, 2007) to one third (Turk & Korthals Altes) of the urban population lives in gecekondu. Gecekondu are typically located on geographically undesirable areas and often lack proper sanitation, electricity, water and road structure (Erman, 1996; 1997). Dwellings in those areas are often made from scrap material and are always constructed without professional knowledge. Dwellers of such houses are often poorly educated low income families.

Rent and Rent (1978) argued that social housing was introduced and advertised as a solution to the slums of American cities. Planners and politicians in other countries, including Turkey, often praised (and still praise) such arguments. However, there is a huge gap between targets and achieve-
ments. Oxman and Carmon (1986) noted that social housing neighborhoods tended to deteriorate rapidly. Physical improvements in such areas were temporary and anticipated social benefits were not materialized (Rent & Rent, 1978). Defining social housing in economic terms, considering cost reduction as the most important (if not only) determinant and aiming to provide merely a shelter may have caused such a failure. Given that, could we still expect social houses to be a solution to gecekondus? Do social houses provide better social and physical environmental conditions? If not, a discussion on quality (rather than quantity) of affordable houses is on call.

Salama (2007) argued that to many architects and researchers, who are dealing with affordable housing, the terms ‘affordable’ and ‘quality’ are exclusive (if not contradictory) and are looked at in isolation. This kind of an approach inevitably leads to development of undesirable, depressing environments for low income populations. Similarly scientific studies showed that to many European governments housing quality is not a high priority (Lawrence, 1995) and common knowledge suggests that the situation is far worse in developing countries. One study, which used survey techniques and interviewed 500 households, showed that construction quality issues are completely ignored in mass housing projects (which involves social houses) in Turkey (Kazaz & Birgonul, 2005). Mass housing residents were not satisfied with the quality provided by their housing unit and made extensive interior and exterior renewals and modifications. In other words, ignorance of quality related issues in project development and implementation may bring extra financial burden to affordable housing residents (in addition to psychological and social discomforts), whose budget is already limited.

Residents’ satisfaction with quality related issues have been investigated among mass houses in Turkey via extensive surveys (Dulgeroglu Yuksel, Aydinli Pulat, 1996; Berkoz, Turk, Kellekci, 2009). Also, previous studies have compared residents’ satisfaction with the house and the neighborhood in planned and unplanned areas (Ergun Yirmibesoglu, 2000), in gecekondus and apartment districts (Ermanc, 1996; 1997), in metropolis slums and small city slums (Sandhu, 1987). However, no study has compared the residents’ satisfaction with quality related issues in gecekondu and social housing areas, which are the two different types of affordable houses in developing countries; (1) illegal and unplanned, (2) legal and planned. This study aims to do that to stimulate debate on the situation of legal and illegal (planned and unplanned) affordable houses in developing countries in general, and in Turkey in particular.

A standardized method to evaluate affordable housing residents’ satisfaction has not been developed. Although the literature on Post Occupancy Evaluation method (Preiser & Nasar, 2008; Preiser, 1994; Preiser, Rabinowitz & White, 1988) has advanced substantially, adopting this approach to neighborhoods and affordable houses might not be sufficient. Salama (2006, 2007) suggested a more holistic approach to investigate the quality related issues in affordable housing research and practice. Yet, this approach has not been applied enough. This study aims to apply Salama’s framework and provide detailed information on methodology to inspire future research and practice on affordable house to apply a more standardized method to understand affordable housing residents’ needs.

**METHOD**

**Description of the Questionnaire**

Salama (2006; 2007) conceptualized a framework for investigating affordable housing and translated this proposed framework into a survey which includes questions on four issues. Following his work, a similar questionnaire was developed in the present study. The questionnaire had four sections to collect information about (1) the characteristics of the participant, (2) the characteristics of the participant’s family, (3) participants’ evaluation of current house, and (4) participants’ aspirations about future house.

The first section included questions related to participant’s age, gender, marital status, education and employment level. The second section included questions related to household size, number of children per household and children’s age distribution, education level of adults in the household, employment status of the adults in the household and head of the household’s working sector,
family income, house and car ownership status, length of residence in the current house, reasons to move into the current house, and life style of the women in the household. The third section included three groups of questions; (1) economical value of the current house, (2) physical characteristics of the current house (house typology, year of built, house size, number of rooms), and (3) residents’ degree of satisfaction with the current environment. In order to measure residents’ degree of satisfaction with the current environment, two studies that were conducted in Turkey were followed; Alkay’s (2009) and Kellekci and Berköz’s (2006) works. Four measures were used: (1) accessibility to work, school, shopping areas and city center, (2) perceived problems within the neighborhood (including physical incivilities, noise, safety, traffic, car parking), (3) neighborhood satisfaction with regard to specific neighborhood features (including infrastructure, road structure, landscape, aesthetic quality, the quality of recreation areas, child care centers and primary schools, health care facilities, and public transportation), (4) general satisfaction with the house and the neighborhood (perceived belonging and identity, whether their close friends reside within the neighborhood, whether the house and the neighborhood has a positive effect on their life, whether they would pick the house or the neighborhood as better environment and listing the best and the worst neighborhood characteristics). The last section on aspirations of a future house and a neighborhood included four group of questions; (1) typological preference, (2) optimum house size and room number, (3) their expected behavior for hypothetical situations (whether they would prefer to move to a close neighborhood in case of a compulsory movement in the city, search for a similar neighborhood in case of a compulsory movement to another city, plan to stay in the same location in the long run), (4) average monthly payment that is perceived as affordable to move to a new residential setting and the expected features of a new residential setting.

**Research Sites**

Two sites were selected, both of which were located at the southwest periphery of the Izmir (the third largest city in Turkey) (Figure 1a). One site (Buca Social Houses) lies on the slopes of a hill and is surrounded with apartment blocks on its north-east, east and southeast, with an urban green area on its north-west, and with a high school and a vacant land on its west (Figure 1b). About 18 four-story buildings are located in parallel to topography lines (Figure 1c). The roads between buildings are paved. All houses received basic infrastructure. The other site (Kurucesme gecekondu area) lies on a
relatively flat terrain and is surrounded with a vacant land and a highway on its south and east and with apartment blocks on its north and northeast (Figure 1d). A power line is very close to the area as well. About 35 free standing one story detached houses are scattered in the area (Figure 1e). The roads between them are narrow and unpaved. The road on the north of the area connects the area to the rest of the city. Most houses did not have legal connection to city water and electricity. In brief, the physical conditions are poorer in gecekondus than social houses (Figure 2).

In each environment, 27 residents were interviewed to obtain information about average selling and renting prices and house sizes. All of the interviewed gecekondu residents were living in detached houses, whereas all social housing participants were living in apartment flats. None of the gecekondu residents estimated the selling price and only one resident reported to be paying about 90$ per month for rent. Low response rate for this question is reasonable considering the illegal homeownership in this area. On the other hand, majority of the social housing residents (22 of 27) estimated the selling and renting prices. Average selling price was estimated as about 40,000$ and average renting price per month was about 240$, both of which were below market prices. Although in both environments houses were old and small, social houses were older (about 30 years old) and larger (about 60m²) compared to gecekondus (about 16 years old and 48m² on average). Although average room number per house was about two rooms in two residential areas, resident density was higher in gecekondus. Average square meter per resident was about 10m² in gecekondus and 27m² in social houses.

Procedure
One female interviewer was instructed to interview the woman in the household who was more than 18 years old. The target group was women because they tend to spend more time in house and neighborhood [Erman, 1996]. However, when the female member of the household was not available, the interviewer was allowed to interview with the male member. The interviews were on pedestrian streets in the social housing area and in front of the entrance gate of the garden or entrance gate of the detached houses in the gecekondu area. Respondents were informed that anonymity would be assured and they were encouraged to report their true feelings. The interviews took about ten minute per participant and were completed in September, 2010.

Participants
Fifty four volunteers, half of whom were living in gecekondus and the other half were living in social houses, participated in the study. In both residential...
environments the majority of the respondents were married (about 80%), unemployed (about 85%) females (about 75%) in middle ages (about 45 years old on average). Participants in both environments were poorly educated, more than half of them had only less than 5 years of schooling and none had a college degree. Yet, gecekondu residents were less literate than social housing counterparts; percentage of middle and high school graduates were higher for social housing residents (about 47% in social housing and 21% in gecekon dus).

COMPARISONS OF GECEKONDU AND SOCIAL HOUSING RESIDENTS’ FAMILY CHARACTERISTICS

Gecekondu and social housing residents’ family characteristics showed differences on some measures (household size, number of children, education, and occupational distribution) and similarities on others (unemployment, family income, house and car ownership, length of residence, and life style). Gecekondu families were larger (average household size was about 5 people in gecekon dus and 3 people in social houses) and had more children (average number of children per household was about 3 children in gecekon dus and 1 child in social houses). While all gecekondu families had at least one child, about half of the social housing families had no child. Although families in both residential areas were poorly educated, education level was poorer for gecekondu families. While, majority of gecekondu women and men (about 80%) had less than five years of schooling, about half of the social housing women and men had less than five years of schooling. In other words, for both women and men, percentage of middle school and high school graduates were higher in social housing area.

In both residential environments majority of women in the household were unemployed (about 95 %) and about slightly more than half of men in the household were employed. Although unemployment rates were similar in two areas, the occupational distributions were different. Of the employed gecekondu males, majority (13 of 15) were self employed or employed in low paying, insecure and temporary jobs (working as unskilled laborers in construction industry) and only a few were working on salaries basis. Whereas, half of the social housing males were self employed (5 of 10) and the other half were working on salaries basis. Of the unemployed social housing males about one third (3 of 9) were retired; however none of the gecekondu counterparts were retired. In both settings, majority of families were not paying rent (about 95 %) and have been living in the same neighborhood and the house for about 15 years. Also, majority did not own a car (about 90 %) and live in poverty. When asked about life style of the women in the household, majority of the participants’ did not fall into one of the three life mode classifications introduced by Hojrup (2003). This adds a new life mode as “unemployed”, which refers to a situation where the residents spend most of their time in the house and the house acts as a living place and serves for recreational purposes.

COMPARISONS OF GECEKONDU AND SOCIAL HOUSING RESIDENTS’ EVALUATION OF THE CURRENT HOUSE AND THE NEIGHBORHOOD

Residents’ evaluations of the house and the neighborhood revealed that the physical conditions in both settings were evaluated as poor in both settings and poorer in gecekon dus. First, consider the residents’ evaluation of accessibility. In both areas majority of the employed males (about 80%) were using a motorized vehicle to go to work, children (about 85%) were walking to school, and women (about 90%) were walking to shop. In parallel to this finding, average time spent to go to work, school, and shopping areas were similar in two settings. Residents spent about 35 minutes to go to work, 16 minutes to go to school, and 26 minutes to go to shopping. Also, both residents rated accessibility to school as ‘easy’ and accessibility to city center as ‘moderate’. However, accessibility to work was rated as ‘moderate’ by gecekondu residents, and as ‘easy’ by social housing residents. In brief, residents in both settings reported that accessibility to important areas is not a major problem (despite a slight difference in evaluation of accessibility to work).
For the perceived problems within the neighborhood (Figure 3), the problem of traffic and lack of parking areas, which are accepted to be major problems in Turkish cities, were identified as an “unimportant criteria” or “no problem at all” by majority of gecekondu and social housing residents (about 90%). This is not a surprising result given the low car ownership in both areas. On the other hand, physical incivilities was picked as the major problem by majority in both areas (about 60% of social housing residents and about 95% of gecekondu residents) and safety and noise appeared to be a major concern for only gecekondu residents (Figure 3).

Next consider the residents’ level of satisfaction with the neighborhood in general. When residents were asked to list the ‘best’ and the ‘worst’ neighborhood features, they tend to refer to social factors as the ‘best features’ and to physical environmental factors as the ‘worst features’. More than half of the gecekondu residents (about 60%) and less than half of the social housing residents (about 40%) mentioned ‘nice neighbors’ for the ‘best features’, a figure consistent with majority of residents in both environments (about 85%) reporting that most of their close friends were living in the same neighborhood. For the other best features, about a quarter of social housing residents listed ‘being quiet’ and ‘location’ and one fifth of the gecekondu residents listed ‘being quiet’, ‘air quality’, ‘opportunity to grow vegetables and fruits’, or ‘being detached house’. However, each feature was mentioned by only few gecekondu residents. Put it differently, nice neighbors were almost the only feature that majority of gecekondu residents had praised. Despite this finding on high satisfaction with neighbors, majority of residents in both environments gave poor scores when they were asked about their feeling of belonging and identity. Only about half of the social housing residents and one tenth of the gecekondu residents reported to feel high belonging to the neighborhood, and think that the neighborhood reflects their identity. This contradiction (high satisfaction with neighbors but unwillingness to be identified as a gecekondu or social housing resident) might be explained with the negative image of such residential areas among many Turkish citizens. Living in gecekondu symbolizes negative identity, low social status and not being adopted to urban society (Ermán, 1996). The findings of this study may imply that this negative image of gecekondu applies to social houses as well. This argument could be further confirmed with the finding that limited number of gecekondu and social housing residents’ willingness to suggest their neighborhood to their friends. About one third of the social housing residents and only about four percent of the gecekondu residents reported that they would suggest their friend to move to a neighborhood similar to their present one.
For the worst neighborhood characteristics, gecekondu and social housing residents referred to different physical environmental factors. Majority of gecekondu residents (about 40%) mentioned ‘poor road conditions’ and about a quarter of them listed ‘poor upkeep’, ‘poor infrastructure’ and the ‘risk of demolition and expropriation’. On the other hand, more than half of the social housing residents (about 60%) complained only about ‘poor upkeep’. The other listed worst features included ‘safety’, ‘house size’, ‘lack of social interaction’; however, each feature was mentioned by only few.

Finally consider residents’ evaluation of the specific neighborhood features (Figure 4), residents in both areas rated infrastructure, landscape, aesthetic quality, recreation areas for children and gathering areas for young people as ‘very bad’. The quality of nearby child care centers, primary schools, and health care centers were rated as ‘very bad’ by gecekondu residents and as ‘moderate’ by social housing residents. The quality of public transportation was rated as ‘moderate’ by gecekondu residents and as ‘between very bad and moderate’ by social housing residents. In brief, majority of specific neighborhood characteristics were rated as below average in both residential environments.

Yet, when participants were asked to pick the house or the neighborhood as better, majority of the gecekondu residents (about 70%), and slightly less than half of the social housing residents (40%) reported that they think both are good and majority of the participants in both residential environments (about 70%) thought that the house and the neighborhood had a positive effect on their life. This contradiction (being aware of the problems when specific features were asked but ignoring them when their overall satisfaction was asked) might indicate that people’s evaluation of overall satisfaction with the neighborhood is not solely related to physical and social factors but to their total life experiences and background. Relative to what they or their families have experienced in the past, an obviously unsatisfactory environment might seem satisfactory to its residents (Rent & Rent, 1978). This finding could also be seen as a support to the well-known ‘Pollyanna Effect’ (people’s natural tendency to respond with more positive ratings when their general satisfaction with the environment is asked) (Hur & Marrow-Jones 2008).

When gecekondu and social housing residents’ aspirations for future house and neighborhood were compared, results showed that majority of both residents (about 90%) preferred detached houses over apartment flats and on average they did not have ‘big dreams about an affordable house’ in terms of house size and number of rooms. Both reported that about a 100m², 4 room house (including guestroom and bedrooms) would be sufficient. Considering Turkish public’s general conception about detached houses being luxurious and the low supply of detached houses in Turkish housing market in general and majority of social housing stock being apartment flats in particular, low income families desire to live in detached houses might seem unreasonable. Nevertheless, this finding points to the necessity of analyzing the typological preferences of low income families, which may better fit to their life styles.

Only a few participants (1 gecekondu and 7 social housing residents) responded to the question about average monthly payment that is perceived as affordable. Those responded reported...
that 250$ per month, about one third of their income, is payable. Low response rate for this question might indicate that residents were not willing to or had no plan (or chance) to move to a different location. Put it differently, living in this current neighborhood was obligatory. In fact, when their reasons for moving into the current house was asked, majority of gecekondu residents reported that it was their only option to satisfy their need for shelter (78%) when they migrate to the city for better employment and education opportunities and majority of the social housing residents (67%) reported that they moved because of expropriation. Participants’ responses on expected behaviors in case of hypothetical situations provided further support to that argument. More gecekondu residents (about 85%) than social housing residents (27%) planned to stay in the same neighborhood in the long run and in case of a compulsory movement in the city more gecekondu residents (about 90%) than social housing residents (about 55%) would prefer to move to a close neighborhood. Similarly, in case of a compulsory movement to a different city more gecekondu residents (about 75%) than social housing residents (about 35%) would look for a similar neighborhood.

When desired features of a new house and neighborhood were asked, the response rate was low and more residents revealed an opinion about features of a desired house than neighborhood (11 residents did not respond to the question about features of a desired house and 32 residents did not respond to the question about features of a desired neighborhood). Also, those who responded gave a very narrow list about the desired features. This may indicated that low income families have not developed a vision for a better house and a neighborhood. For a better house residents in both environments mentioned ‘detached house type’, ‘being spacious, comfortable and legal’. For a better neighborhood they mentioned ‘being well kept’, ‘close to city center’, ‘high air quality’, ‘quietness’ and ‘social interaction’.

CONCLUSION

The findings on gecekondu residents’ family characteristics were consistent with previous studies (Erman, 1996; 1997) and with a more extensive study (Ozdemir et al. 2004) which conducted surveys with 661 households in various gecekondu areas in 8 districts of Izmir Turkey, between the years 2001 and 2004. Gecekondu families in this study were large and poorly educated and were employed in low paying, insecure and temporary jobs. Whereas, families residing in social housing were smaller (with one children) and more literate. Despite such differences in family characteristics, gecekondu and social housing women had similar life styles, which did not fall into one of the three life style classifications introduced by Hojrup (2003). Majority of gecekondu and social housing women were unemployed, spent most of their time in the house and see the house as a recreation area and a living space. This kind of life style could be named as “unemployed life mode”.

In line with previous literature (Erman, 1996; 1997; Oxman & Carmon, 1986; Ozdemir et al. 2004; Rent & Rent 1978; Sandhu, 1987) physical conditions in gecekondus and social houses were poor, but those were far worse in gecekondus. Gecekondu houses were smaller and denser. They lack proper sanitation, water, electricity and roads. Residents’ evaluations of physical conditions in both areas provided further support to the argument of poor physical conditions in both areas and poorer conditions in gecekondu. Yet, majority of respondents in both areas reported that the house and the neighborhood have a positive effect on their life and their aspirations for a new house and neighborhood were limited and their dreams about a new affordable house has not been developed yet. There may be three explanations for this contradiction. First, residents in both environments accepted what they have (despite obviously poor conditions) and do not ask for more, because they feel that (and they were constantly being reminded to feel so through the kinds of environments offered) ‘unless they do not have enough money (this does not seem to be realized in the short run) they do not deserve to live in better environments’ (Salama 2006, 2007). In fact, two residents said that ‘Until you asked, I have never thought about
my desires’. Second, relative to what they or their families have experienced in the past, an obviously unsatisfactory environment might seem satisfactory (Rent & Rent, 1978).

Observations showed that, gecekondu residents in Turkey often live in outskirts of the city and they are usually unconnected with the urban life, but social housing residents are more connected with the rest of the city. Perhaps this situation reduces gecekondu residents’ chance to experience what is better. Also, majority of social housing residents has once experienced gecekondu. When they move from gecekondu to social houses, they experienced an improvement in physical conditions (infrastructure and road structure). With this experience they may have realized that; “others live in better environments and they deserve to live in better environments as well”. Finally, this contradicting finding might also stem from the fact that majority of respondents were house owners in both areas (96% in gecekondu and 92% in social houses) and people tend to exaggerate their positive feelings for the things they own. In brief, a useful extension of this study could investigate whether this contradicting result of this study is replicable, and if so, future studies are on call to investigate the reasons behind why gecekondu and social housing residents’ evaluate an obviously unsatisfactory physical environment as satisfactory when their general feelings are asked.

Another major finding of this study is that; despite poorer physical conditions in gecekondu, more gecekondu residents than social housing residents plan to stay in the same house and the neighborhood in the long run or move to a similar one in case of an obligatory situation. This contradiction might also relate to low income residents’ general feeling of being stranger (or alien) to other parts of the city or their obligation to stay in the current poor physical environmental conditions. Recall, majority of gecekondu residents reported that they moved to current setting because they had no other choice. Perhaps this limited possibility in reality limits their desires for better environments. Again, investigating why residents prefer to continue living in the same poor physical conditions was beyond the scope of this study, such reasons could be investigated with further studies.

In brief, the shortage of affordable housing throughout the world, and in Turkey, is indisputable. However focusing on merely increasing quantity and copying the previous examples to supply demand may invite social and financial disasters. The physical environmental conditions in social houses were slightly better than that of gecekondu. Both areas suffer from physical deterioration. Compared to gecekondu residents, social housing residents are more aware of the problems and are more likely to complain about them.

Note, majority of the social houses in Turkey show similar characteristics as the one investigated in this study and does not offer better social environments than gecekondu. However, one expects, and rightly so, that a planned residential environment (social houses) shall provide better and livable environments than the unplanned ones (gecekondu). Looking at ‘affordable housing’ and ‘environmental quality’ as isolated concepts would not allow that. More work needs to be done to improve the conditions in social houses in Turkey. First, a standardized method to evaluate affordable houses should be developed but adopting the well known Post Occupancy Evaluation method (Preiser & Nasar, 2008; Preiser, 1994; Preiser, Rabinowitz & White, 1988) directly to evaluation of affordable houses might not be sufficient. A more holistic approach is needed. Salama (2006, 2007) proposed such a comprehensive framework specifically for affordable housing research and practice. This study used his framework and explicitly explained a survey that is derived from such a framework. Thus, the methodology used in this study is hoped to inspire future research in this area.

As all other empirical studies, this study has some limitations in terms of sample characteristics. Thus, generalizations from this study should be made cautiously. The current study could be further enhanced by larger samples from different cultures. Also the survey questions could be extended to involve other related questions, such as residents’ movement history, history of modifications in the house, and general life satisfaction. A comprehensive study which repeats the methodology used in this study on various social houses is on call. Such a study might be very helpful in redefining the ‘affordable housing’ and developing affordable housing policy and design guidelines.
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CHALLENGES AND PROSPECTS FOR AFFORDABLE AND SUSTAINABLE HOUSING: THE CASE OF YOLA, NIGERIA

Jallaludeen Muazu and Derya Oktay

Abstract
This paper aims to determine the challenges and prospects for affordable housing within the context of sustainability by investigating the socio-economic and environmental impacts of housing developments based on the analysis of four so-called affordable housing schemes in Yola, Nigeria. Using questionnaire survey and indicators developed from literature reviews on affordable and sustainable housing, the findings suggest that due to inadequate availability of housing inputs (land, finance, infrastructure, labor and materials), lack of diversity, improper location, inefficient transport facilities and lack of user participation, the examined developments are neither sustainable nor affordable. The research hence contributes some empirical evidence to overcome the defined shortcomings and provides a basis for governments’ housing commitments towards reforming and devising policies for community involvement in housing provision, providing easy access to land with legal title deeds, easy access to housing finance, infrastructure, etc.

Keywords: Urbanization, Affordable Housing, Sustainable Development, Yola, Nigeria.

INTRODUCTION

Despite the growing attention on the housing problems, housing shortages still persist in most parts of the world especially in developing countries. According to UN-HABITAT (2000), more than “one billion human beings still lack adequate shelter and are living in unacceptable conditions of poverty” (Habitat Agenda, paragraph 53). In developed countries, many people cannot find housing near their workplace or find work at a reasonable distance from where they can afford to live in the communities they serve.

As access to decent, affordable housing is a basic requirement for human well-being and a fundamental human right, the construction of affordable housing is promoted as a tool to alleviate concentrated poverty, enhance access to opportunity, and improve affordability for many populations viewed as necessary or desirable to a community (Freeman 2003; Hartman 1998; Shlay 1995; Musterd and Andersson 2005; Pendall 2000; Iglesias 2007). However, as the growing incidence of homelessness, which is most visible in the inner areas of large cities, clearly indicates, there is a lack of provision of affordable housing. On the other hand, policies for promoting affordable housing are required to adopt a long-term prospective role. This is particularly so when society, in managing urban change, seeks to strike a balance between economic priorities on the one hand and social and environmental priorities on the other. On that ground, “affordable and sustainable housing” is emerging as an important issue to be explored more systematically.

The basic premise of this paper is that although affordable and sustainable housing has been a major focus of national policy in many countries, the current practice in many cities is lacking important social-cultural and environmental qualities, and failing to integrate building economics to social-cultural aspects in particular.

This paper, following a background knowledge and discussion, focuses on the analysis and assessment of the so-called affordable housing projects in terms of their socio-economic and environmental peculiarities in order to determine the challenges and prospects for affordable and sustainable housing in Yola, Nigeria, and developing countries of similar characteristics in large.
LITERATURE REVIEW

Affordable housing
The term “affordable housing” is very broad and might mean different things to different people, it is generally used to refer to the relation of a consumer’s housing costs to his or her available resources, and is more likely to be a perceived and real problem among consumers with fewer available resources (Hartman, 1998; Andrews, 1998; Chaplin and Freeman, 1999). In this context, MacLennan and Williams (1990) stated that affordability is concerned with securing some given standards of housing at a price or rent which does not impose an unreasonable burden on household incomes. Pacione (2005), similarly, defined affordable housing as “dwellings built specifically for those on incomes that deny them the opportunity to purchase or rent on the open market”. Perhaps the best known affordability indicator is the rule of thumb that suggests a household should pay no more than a certain percentage of income (30 percent) for housing (Jensen, 1998; Andrews, 1998; Salama, 2006). However, no assessment of housing need would be complete without defining affordability for the situation at hand.

In terms of a nation’s economy, Yates et al (2004) noted that affordable housing potentially has an impact on a country’s economic outcomes in a number of ways. In the first place, it can affect the macro economy. Secondly, lack of provision of affordable housing may affect the efficiency with which labor markets operate either at national and regional level; and thirdly, it has an impact on wealth distribution in the society and therefore can contribute to social and economic problems that flow from an inequitable distribution of resources.

Affordable housing operates within the context of a society and economy with the purpose of providing a standard of living for all households. Therefore such housing schemes are aimed at providing quality homes below market price for those members of the societies that can’t access it at market price. The objectives of affordable housing are to provide high quality homes for those in need, widening the opportunities for home ownership or promoting community development can be summarized into a phrase: social cohesion. Social cohesion is a process of developing a community of shared values, shared challenges and equal opportunity, based on a sense of trust, hope and reciprocity among the population (UNECE, 2006a).

Sustainability
The term “sustainability” is currently acquiring paramount significance worldwide, thus dominating both the planning and architectural professions. During the seventies and early eighties, the term “sustainable development” used to refer to “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Later the notion developed to “describe the goal of integrating concerns and analyses that join economic development and ecological health” (Hart, 1999). On that ground, what is expected from sustainable planning is a holistic look that sees the relationships between things, embodying an ecological understanding of the world. First, it means linking the different planning specialties that have historically been compartmentalized, such as planning for housing, transportation, land use, and environmental quality, as well as integrating goals of planning “maintaining ecological integrity”, “meeting human needs for food, shelter and health” and “attaining social self-sufficiency and inter-generational equity”. These objectives can be grouped into social, economic and environmental objectives which are known as the three dimensions of sustainable development. Since housing areas are the places where the problems of the environment touch most people’s quality of life, the planning and design process needs to effectively consider the dimensions of sustainability.

So far as housing is concerned, local sustainable development deals with improving the quality of life of the local community through the prudent use of local resources. In this context, as energy use is largely determined by the density of layout, location, orientation, etc. of the original design, designers and builders can exert a great influence over their initial decisions and thus also over the opportunities for improvement later.

From sustainability to affordable housing
If the typical definition of sustainable development by World Commission on Environment and
Development (WCED) is applied into affordable housing, sustainable affordable housing forges a strong link between social justice and environmental sustainability, and connects the wellbeing of people with the wellbeing of the environment, thus building on the core social and economic values of affordable housing (Global Green USA, 2007: 1). According to Pullen et al. (2009: 29), characteristics of affordable and sustainable housing include a product where the rent or mortgage repayments do not exceed 30 percent of household incomes for the bottom 40 percent of income groups, appropriately located, socially acceptable, a product that does not increase social exclusion or polarization, located on a site that minimizes biodiversity losses and a product that encompasses the following environmental features: energy efficiency, passive solar design, sun shading, water conservation, appropriate waste management during construction, occupation and deconstruction.

Priemus (2005) highlighted that sustainability of housing relates to profitability in long term, affordability, people, and planet earth. Thus, the objectives of sustainability and affordability in housing are similar in many ways hence mutually supportive.

Sustainability seeks to protect and enhance affordable housing environment through:

a) Energy; energy efficient, locally appropriate built form and layout promoting the use of renewable energy (climatic characteristics), cycling and walk ability (Oktay, 2002; Khandokar, 2009).

b) Natural resources; local and recycled building materials, traffic reduction hence air and water quality improvement, promoting higher densities hence reducing urban land intake (Oktay, 2004).

c) Improving occupants’ health and wellbeing through natural lighting and ventilation (Barton, 2000; Porter et al, 2000).

Sustainability seeks to meet the social and cultural needs of affordable housing through:

a) Equity and choice; housing access to all social groups, facilities that are easily accessed by foot or public transport (Oktay, 2004).

b) Community development through a variety of settings beyond the confines of the house (childcare facilities, common outdoor spaces, safe and traffic calmed streets, coffee- and tea-houses, shops, markets, clubs, workshops, and so on); neighbourhood social balance and social cohesion (Rapoport, 1985; Oktay, 2001/2002).

c) Valuing and protecting diversity and local distinctiveness hence strengthening local community and cultural diversity (Alao, 2009; Barton, 2000; Porter, et al. 2000).

Sustainability seeks to promote economic growth in affordable housing through:

a) Economic buoyancy; creating local economy through new markets and opportunities for sales growth, cost reduction through improved efficiency of resources.

b) Job opportunities; employment as a result of diversity of work and varied economic base.

c) Environmentally friendly economic growth (Barton, 2000).

However, given the diversity of cities in terms of size, population growth rates and their economic, social, cultural, political, and ecological settings, it is difficult to apply each of these criteria to the concept of sustainable development generally. The priorities for each city in relation to sustainability and development inevitably vary. On that ground, it might be unrealistic to expect poverty-stricken residents of Third World cities to attach as much importance to long-term environmental sustainability as the more comfortably placed proponents of green politics in advanced societies.

**RESEARCH CONTEXT AND METHOD**

**The case**

Nigeria is the most populous country in Africa and the eighth most populous country in the world (Encarta, 2007) (Figure 1). Like most of its counterparts in the developing countries, Nigeria has housing shortages, with a high percentage of its citizens living in poor quality housing and in unsanitary conditions.
environments. This problem of inadequate housing is as a result of the rapid rural-urban migration which is caused by the lack of development, poor economic conditions of the dwellers, etc. in rural areas. The absence of these amenities leads to migration of rural dwellers into urban centers in Nigeria.

The city of Yola is the capital and administrative center of Adamawa State, in Nigeria. It is a medium sized traditional city with a population of about 395 thousand (NPC, 2006). Like most cities in Nigeria, its population is increasing due to the rural-urban migration hence, surrounded by neighbourhoods of poverty and informal houses. Although various housing schemes have been implemented by governments, little success was achieved in terms of meeting the specified housing construction targets owing to the housing deficit at approximately 17,500. The low supply of affordable housing is due to inadequate access to land, access to finance, high cost of building materials, inadequate infrastructure, etc. The inadequate availability of these housing inputs to aid housing production means increase in housing cost that are outpacing low income earners wages.

Numerous studies have been carried out on the challenges of housing delivery in Yola and Nigeria at large. Olotuah (2008) highlighted reasons such as wrong perception of the housing needs of the low-income earners, the proposal of housing prototypes to be implemented all over Nigeria despite the differences in climatic, cultural and socio-economic environments, improper planning and poor execution of housing policies, unrealistically high cost of houses built for the low-income people, etc.

According to Ndubueze (2009), unless there is an adequate availability of housing inputs (i.e. land, finance, construction materials, labor and basic infrastructure) to aid housing production, it will neither be possible to create a prosperous housing market nor to provide adequate affordable housing for the low income earners. Therefore, the challenges of affordable housing in Nigeria is ensuring adequate supply and access to such housing inputs within a framework that guarantees the supply of decent housing at affordable costs.

These challenges are enormous and unfortunately government’s resources are scare. However, there are “imaginative ways of seeking the rational and efficient use of scare resources”
In an attempt to tackle some of the affordable housing challenges in Yola especially the issues of land and housing finance, the state government has established Adamawa Homes and Savings LTD and Adasolids Properties Limited with the objectives of granting loans with low interest rates for purchasing, building, improvement or extension of dwellings, engaging in property trading (land acquisition and disposal), etc. Despite these initiatives, informal houses formation is on the increase in the city. This is because they have failed in providing the less privilege group with sustainable and affordable houses due to ignorance from the general public, corruption, government bureaucracy, etc.

Within the city four selected affordable housing namely ‘Bekaji’, ‘State Low-cost’, ‘80 Units’ and ‘400 Units’ housing estates were assessed in terms of socio-economic and environmental issues. Since governments (states and federal) are the main developers of affordable housing in Yola, the case areas are selected on that basis.

Methodology
A mixed-methods technique has been used in the research accommodating both qualitative and quantitative data collection methods. A questionnaire survey was used for collecting quantitative data while for qualitative data collection, the case areas were analyzed in terms of density and context, housing diversity, diversity of use, land design, movement patterns, community development, and regional design. The interviews were conducted in the summer 2010 by the first author under the coordination of the second author.

A total of 220 questionnaires were distributed using “drop and collect” method. Of the 220, 120 were distributed to Bekaji households, 50 to State Low-cost and 50 to 80 Units households, and the response rate was 80 percent in general. The interview schedule included questions that tap at people’s socio-economic levels i.e. householders income, cost of rent, rooms occupied by respondent, conditions of housing units, etc. Table 1 shows the questionnaire content and their relationship to affordable and sustainable housing.

Site Analysis Indicators

Indicators used for analyzing the selected cases were developed through examination of indicators/guidelines for sustainable developments by American Institute of Architects (AIA), Global Green, Leadership in Energy and Environmental...
Design (LEED), Oktay (2001) and Pullen et al. (2009). Each indicator was chosen to represent a component of each of the three dimensions of sustainability i.e. economic, social and environment. By aligning the indicators with the dimensions of sustainability, it would highlight the potential impacts and benefits of these developments on the residents, neighbourhood, and the broader Yola community. Table 2 provides a brief definition of the indicators and describes the types of measurements used in each of the categories.

**THE CASE STUDIES**

**Case 1: Bekaji Housing Estate.**
Located opposite State Polytechnic Staff quarters, Jimeta - Yola, it is a mixed-use development which includes commercial, educational, social facilities and 300 affordable housing units. It is targeted at young couples and families with children at or below 50 percent income. (Fig.3a – 3b.)

<table>
<thead>
<tr>
<th>SOCIO-ECOLOGICAL INDICATORS</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-economic diversity</td>
<td>Diversity of household income, age, gender, household type, education, tenure status, economic status, number of subsidized units per block group, and so on.</td>
</tr>
<tr>
<td>Housing diversity</td>
<td>Variety of housing types, percentage of single person housing, percentage of young couple, percentage of family housing prices, rental rates, etc.</td>
</tr>
<tr>
<td>Community development</td>
<td>Play areas, community facilities, childcare facilities, common outdoor spaces (parks, etc.) to meet, etc.</td>
</tr>
<tr>
<td>Affordability</td>
<td>Rent/mortgage, utility costs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENVIRONMENTAL INDICATORS</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density and context</td>
<td>Entity/cohesion, ratio of dwelling units/land area to population, grain of streets and public routes.</td>
</tr>
<tr>
<td>Diversity of uses</td>
<td>Fine-grain mixed-use (variety of functions in a walkable scale); dispersal of affordable or low-income housing throughout the community.</td>
</tr>
<tr>
<td>Land design</td>
<td>Access to nature, access to edible landscape, parks per square meter, private exterior spaces.</td>
</tr>
<tr>
<td>Movement patterns</td>
<td>Walkability (appropriateness of scale and spatial quality for walking), efficiency of bus service, availability of bike routes, distance to bus stop, distance to bike path network, distance to car parking, etc.</td>
</tr>
<tr>
<td>Regional design</td>
<td>Building orientation and massing (natural ventilation, access to daylight), use of local, recycled or renewable materials.</td>
</tr>
</tbody>
</table>

*Table 2. Socio-economic and environmental indicators.*

*Figure 3a - 3b. Typical floor plan and view of the house (J. Muazu archive).*
Case 2: State Low-cost Housing Estate.
Located opposite Adamawa State Urban Planning Commission, Jimeta, Yola, it is a semi-detached affordable housing of 111 units targeted at young couples and families with children at or below 40 percent income. (Fig. 4a – 4b.)

Case 3: 80 Units Housing Estate.
80 semi-detached affordable housing units located in Dougirei, Jimeta, Yola and it is targeted at young couples and families with children at or below 40 percent income. (Fig. 5a – 5b.)

Case 4: 400 Units Housing Estate.
A group of 400 affordable housing units targeted at single persons, young couples and families with children at or below 40 percent income. (Fig. 6a-6b.)

RESEARCH FINDINGS

The findings of the study include the following indicators classified in two groups: Socio-economic indicators and environmental indicators.

Socio-economic indicators

a) Socio-economic diversity
Bekaji and 400 Units housing estates (Case 1 & 4) are highly diverse in terms of socio-economic profile as it accommodates households of different tenure status, economic status, tribes, etc.
hence there is a variety of meaning in the neighbourhood. However, in the long run, it may lead to insecurity and social conflict if convenience for all is ignored. In Case 2 and 3 (State Low-cost and 80 Units) where the households are of specific socio-economic background, i.e. low income and high income earners, social cohesion is more likely to happen, but the exclusion of other

b) Housing diversity
The variety of housing types, rental rates, and so forth in 400 Units housing (Case 4) means households of different types. However, the lack of housing diversity in Case 1, 2 & 3 (Bekaji, State Low-cost and 80 Units) causes monotony and exclusion of single persons household type because they are targeted at young couples and families with children, hence promoting segregation.

c) Community development
There is no doubt that community development activities and participation create better quality houses, promote community cohesion and spirit, social interaction, etc. hence enhance the social capital and economic well being of neighbourhoods. However, facilities that promote such activities i.e. childcare facilities, common outdoor spaces, safe and traffic calmed streets, coffee- and teahouses, shops, markets, clubs, workshops, etc. are not available in the selected cases. Perhaps that is the reason why social interaction is low in some of the cases.

d) Affordability
All the cases analyzed are affordable due to heavy subsidize from state government and low interest rate mortgage facilities from Adamawa Homes and Savings. However, in terms of “affordable to whom?” despite the subsidies and low interest rate mortgage, Case 1 and 3 (Bekaji and 80 Units) are only affordable because most of the residents are senior civil servants. Hence Case 2 (State Low-cost) is the only housing development among the selected cases that is affordable to low income earners.

As for “affordable for how long?” cost such as transportation, utility, etc. have substantial impact on households. This is because a home may be affordable to purchase, but in time, its occupants may spend the same value as the initial purchase price in excessive transportation and other costs. In this context, Bekaji and State Low-cost (Case 1 & 2) residents spend less on cost such as transport due to their locations (mixed use neighbourhood). However, as 400 Units future residents (still under construction) will spend a high percentage of their incomes on transportation because of the location in an urban fringe, it may not be affordable in the long run.

Environmental indicators
a) Density and Context
Density plays an important role in achieving affordable housing because high density simply means more units per acre which therefore lowers the cost of land per unit. Density is also important in pursuit of sustainable housing as low-density developments often threaten wetlands, forest, agricultural areas, riparian habitats, and endangered species, and cause more consumption of energy/oil and time. In addition to the effects of lower densities, internal geometry of residential developments and sitting of individual units affect the amount of energy used for heating/cooling and transportation.

Bekaji, State Low-cost and 400 Units (Case 1, 2 & 4) are characterized with low density in vertical dimension and medium density in horizontal dimension. This is fair when relating it to the wider urban context of Yola. However in the case of 80 Units (Case 3), which is characterized by low density in both vertical and horizontal dimensions, sustainability is lacking; as density decreases, the costs of servicing key infrastructures increases and so also the per capita energy consumption.

As Bekaji and State Low-cost (Case 1 & 2) are located in the commercial zone of Jimeta, Yola, the housing blocks and parcels are smaller than those in the suburban i.e. 80 and 400 Units (Case 3 & 4). Accordingly, distances to supporting facilities are shorter, and this indicates reduction in fuel consumption for travelling.

b) Diversity of uses
The location of the affordable housing within a community and its proximity to other services plays an important role in determining how sustainable
that housing development is. In Bekaji and State Low-cost (Case 1 & 2), which are located in a mixed use area, there is opportunity for walking and cycling, and the fuel consumption is decreased. Due to their integration with other neighbourhoods as well, there is a chance of communication among people of those neighbourhoods. On the other hand, 80 and 400 Units are located in dominantly residential neighbourhood with no easy access to other functions (case 3&4). As such, these are resulted in increase in fuel consumption and transportation.

c) Land design
Public open spaces within a neighbourhood where its members can gather, children can play safely, etc. encourage community interaction hence promote social dimension of sustainability. Whereas green landscape provides shade, controls wind, erosion, noise reduction, etc. promoting economic and environmental dimensions of sustainability. Unfortunately, the open spaces in the selected cases lack such qualities. They are usually left over spaces with neither grasses nor trees except in case 3 (80 Units) where grasses exist but left unmaintained hence they appear as lost spaces. Streets are in dilapidated state with neither tarmac nor street furniture except in case 4 (400 Units) that is under construction.

d) Movement patterns
Although the environmental impacts of automobile is recognized, all the selected cases are car- and motorcycle-orientated developments. This is because there are limited provisions for public transport except in Case 3 (80 Units) where it is linked to a major bus transit route. However, the majority of the residents do not use that service due to inefficiency of the buses. In terms of pedestrians and cyclists, the examined cases have neither proper demarcation i.e. pavements nor green buffer zone to protect from vehicles.

As discussed in housing dispersal, Bekaji and State Low-cost are located in a mixed-use area, and therefore supporting facilities are in walking distance. Due to their integration with other neighbourhoods as well, there is a chance of communication among people of those neighbourhoods. On the other hand, 80 and 400 Units are located in mainly residential neighbourhood with no easy access to other functions.

e) Regional design
The design of the unit, its size, configuration and materials, reflects and influences lifestyle patterns that determine energy and resource use in heating and cooling, refrigeration, water consumption, and in general, use of small and large appliances (Beatley and Manning, 1997).

Proper building orientation and openings location in all the selected cases and the use of courtyard in Case 2 & 3 (State Low-cost and 80 Units) enable natural ventilation and day lighting in the houses. However, as for materials, non-recycled and imported materials such as cement, steel, etc. were used in all cases rather than local, recycled or renewable materials.

CONCLUSION
Although numerous affordable housing policies have been developed and implemented over the last decades, the empirical evidence suggests that most of the so-called affordable houses are lacking important dimensions of sustainability, and housing affordability will always be a problem to the majority of Nigerians in the foreseeable future. Based on the findings of our multi-methods research, in order to achieve affordable and sustainable housing in Yola, Nigeria, and developing countries of similar characteristics at large, the following recommendations should be adequately considered in the further policy and applications:

1. Houses should not be allocated to a specific social class. They should accommodate people of various demographic backgrounds i.e. income, occupation, tribe, etc. thereby enhancing socio-economic diversity provided that they all have convenience.

2. Houses should be diversified in terms of types and tenure, hence providing accommodation options to a broader range of residents and creating a diverse and vital neighbourhood.

3. When designating potential sites for locating housing development, proximity to supporting facilities should be taken into consideration because close proximity reduces transport and infrastructure cost.
4. Housing inputs (land, finance, infrastructure, labor and materials) should be adequately available in order to make houses affordable. This means developing an efficient land administration system to make land ownership available, accessible and easily transferable at affordable cost, creating adequate and affordable housing finance by developing an efficient mortgage system, promoting the use of local materials and developing both skilled and unskilled manpower.

5. Users should be engaged in housing development process in order to create better quality housing environment and dwellings that are socially and culturally appropriate.

6. When designating potential sites for locating housing development, access to efficient public transport system should be taken into consideration. More emphasis should be given to cyclist modes of transportation and walkability.

7. Design with natural climate should be encouraged.

8. Public open spaces should be well designed, climatically comfortable and integrated with landscape elements in order to attract people of different background and help fostering community interaction.

As the priorities for each city in relation to sustainability and development inevitably vary, there are no simple, ready-made or uniform solutions to affordable housing problems. However, for poorer cities like Yola, the priority should be the attainment of basic social, economic and political goals within a context of seeking to minimize demands on environmental sources. In line with this proposition, it can be suggested that for housing to be affordable and sustainable, governments’ housing commitments should include reforming and devising policies for community involvement in housing provision, providing easy access to land with legal title deeds, and easy access to housing finance.

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SQUATTER HOUSING AS A MODEL FOR AFFORDABLE HOUSING IN DEVELOPING COUNTRIES

Elmira Gür and Yurdanur Dülgeroğlu Yüksel

Abstract
An affordability challenge for the governments is the trade-off between cost and quality. The housing gap is a reality for developing countries, and most frequently the gap is met by producing large numbers of low-cost housing units for the maximum number of people. Declining affordability is known to adversely affect both owner occupiers and tenants. The needy, due to an uninterested private sector, usually has either to depend on low quality housing mislocated in the city, without supporting infra- and social structures, or on squatter dwelling. The second option, despite being informal, is responsive to the spatial and cultural needs of the users who ideally partake in the construction. The article explores and explores the ways in which the process and cultural preferences of the users of squatter houses, as builder-owner-occupants, are harmoniously intermingled in squatter housing; and draws housing policy implications through institutionalising some of their potentials. Considering squatters are at the lowest stratum areas and that their housing constitutes significant portion of the urban stock, government’s pareto optimal which claims maximum good for the maximum number of people at minimum cost is seemingly justified with the quite restricted budget of governments of developing countries.

Keywords: Affordable Housing, Squatter Housing, User Preferences, User Lifestyles.

INTRODUCTION

Theory and implementation of affordable housing and their issues have attracted considerable attention in the housing literature in the past two decades (Farthing and Ashley 2002; Gallent et al. 1998, 2002; Monk and Whitehead 1996; White and Allmendinger 2003). Contemporary attempts to tackle affordability issues are to create sustainable communities through multi-actor, participatory programmes (McDonald et al. 2009). Households are said to have housing affordability problems when they pay more than one-fourth of their income “to consume suitable levels of housing” (Hulchanski 1995:471). Studies of household resources generally argued for “one week’s pay for one month’s rent” to measure the affordable (Feins and Lane 1981:11; Hulchanski 1995:471).

The article focuses on exploring ways in which the process and cultural preferences of the squatters - as builder-owner-occupants - are harmoniously intermingled and draw housing policy implications. They will result out of examining the process of establishing squatter houses as well as comparing it with government’s process for affordable housing provision. The assumption is that for integrated and long-term development, the existing strategies and methods are too inflexible and too restrictive for the targeted populations to reflect their neglected choices.

CONCEPT AND DEFINITION OF AFFORDABILITY

Frequently the housing affordability issue is linked to sustainable development; Formerly, the concept of “sustainable development” was related to macro economic development (International Union for the Conservation of Nature and Natural Resources, 1980). Yet now, this concept is related to the quality of development in human settlements (Choguill 1999:133), and in accommodating the ‘ecological’ or ‘environmental’ sustainability. During the 1950s the emphasis of the definitions was on quantities, but by the 1970s it had shifted more to quality and eligibility. In many countries, the level of public housing provision fell during the latter years...
of the 20th century as public policy increasingly favored the expansion of home ownership (Paris 2007). More recently the definition of affordability in terms of price versus means has come to the fore (Whitehead 1991).

Affordability can be described as: ‘A decent home for every family at a price within their means’ (UK policy definition) (Bramley and Karley 2005:686), “the relationship between housing cost and the income and other resources of households” (Bramley and Karley 2005:687), “A housing expenditure to income ratio of less than 30%” (HUD 1998). Housing affordability can be evaluated by the ratio of income to the quantity of housing consumed times the relative price of housing (Lau and Li 2006).

APPROACHES AND THEORY

Literature on housing affordability focuses mainly on low income families and the median (Hulchanski 1995; Kutty 2005; Stone 2006). However, they are concerned with cities in Western countries (i.e. in UK, USA), where land is mostly privately owned and governments intervene in the market-oriented system of housing provision directly or indirectly to subsidize affordable housing for low and middle incomes (Chiu 2007). UN reports that the world’s largest cities will be located in developing countries by the year 2020. In them, income growth has been much less notable (Pamuk and Dowall 1998) and its distribution has been uneven (Hancock 1993; Whitehead 1991). Basic economic theory hypothesizes that rapidly rising land prices demand pressure in severe land supply shortages in developing countries (Pamuk and Dowall 1998). Land prices in cities with high rates of average annual urban population growth (i.e. in Bangkok, Jakarta, Rio de Janeiro and Istanbul) are skyrocketing’, and land supply is limited (Dowall 1989, 1992). This affects people’s affordability of a decent house. Different levels and concepts of affordability are interrelated with each other. According to Bramley and Karley (2005), housing (un)affordability is a form of deprivation and explains different levels of (un)affordability among different social groups: (1) households with very low incomes and limited housing alternatives; (2) households that experience problems in their current housing; and (3) existing or potential households that confront problems in affordable market housing. Gan and Hill (2009) pointed out that affordability is not an issue of those owner occupiers who have already purchased a home, but an issue of first-time home buyers.

The needy, has either to depend on low quality housing mislocated in the city, without supporting infra-and social structures or build their own squatter housing. The second option, despite being informal and illegal in most cases, is responsive to the spatial and cultural needs of the users who ideally partake in the construction. Housing for them has both use and cultural value. With a critical approach to the theory and definitions of affordable housing, in the following sections, the complex squatter housing process will be analyzed in order to explore its potentials to become institutionally acceptable, culturally adaptable, economically feasible, and environmentally sustainable solution. Squatting process with its natural dynamics will then be compared to the production of formal housing by the government housing in view of affordability. Finally, evaluation of the comparison is expected to contribute to the understanding of the components of sustainable affordable housing.

SQUATTING PROCESS

Squatter villages/towns are geographically distributed in South American developing countries (i.e., Brazil, Peru and Mexico); some Asian countries (i.e., India); and Africa. Turkey rates 10th in the countries with high gecekondu population of 19.100.000 squatters, corresponding to 42,6% of urban population (BM Habitat 2003). Istanbul which is a mega-city in the world, is the most crowded one in the nation, with its population of 12,915,158 (2008) and population increase of 0.33%.

Despite the unique characteristics of the squatter settlements in different developing nations, “squatting” as a process is common. It starts with in-migration, develops in the form of unplanned spontaneous settlements and becomes integrated into the city with urban facilities and legal rights. Squatter communities are unable to afford well-located, infrastructured and well-established neigh-
borhoods within the city or at the suburbs in the formal housing market: affordable new locations are on the outskirts of the city. Therefore, they would settle on the periphery on unusable “brown” fields. The Squatter Law No: 775 (1966) in Turkey defines the squatter house as the house built usually by the builder-occupier on a piece of land acquired by invasion. The gecekondu literally means “built-overnight”.

The earliest gecekondu were 1/2 story single family dwellings with a garden, characterized by a substandard load-bearing structure and temporary construction materials. They grew in time, from a single one-room house to a multi-room, multi-story house. Squatter neighborhoods are organized around quarters. Beginning with the late seventies, almost half of the squatters became tenants in the “gecekondu” built by former squatters. The earliest appearance of apartment blocks in squatter settlements was in the late seventies and flourished in the eighties as multi-family housing structures. The first apartkondus were occupied by the original core family. Unlike slum dwellers, gecekondu inhabitants are motivated to invest more in their houses in the hope of obtaining legal status. The process can be described to be an ongoing struggle of different groups of squatters at different levels of integration in the city (Erkip 2000).

In the following paragraphs key characteristics of the process will be explored. The properties which potentially make a squatter house a prototype for the institutionally acceptable affordable house are as follows: The squatter house is a low-cost shelter. The target group is the low-to-lowest income. The dweller is builder, owner and occupier simultaneously. Its location is selected by its dwellers. Squatter house is built through a participatory process. The main decision-maker is the dweller and the squatter house grows horizontally first and vertically second over time.

The squatter house as a low-cost shelter

The outcome is a shelter with minimal cost, self or mutual labor, construction of a temporary shelter out of second-hand cheap materials on invaded public land. This adversely affects the intervention of the city government. Thus, a squatter house best typifies the basic shelter at minimum cost by and for the lowest income urban groups. Although its cultural value and meaning lies in “taking a foothold in the city”, it is sub-standard in structure, size, and quality of the material initially (Figure 1a and Figure 1b).

Affordable housing is needed by the lowest income group in the society. Housing savings patterns are directly effected by household income distribution, consumption tendencies and national resources allocated to residential buildings. Studies in various developed and developing countries show that the lowest and lower income households can save nothing or at most 5-15% of their disposable incomes. This is also the case in Turkey.

The lowest income households do not succeed to have a sustainable dwelling even with 20 years savings. For the households in lowest income groups, only 10% and 20% saving in 20 years may be enough to have 36 m² and 54 m² dwelling units (Table 1). Therefore this scheme is not feasible financially. The case study confirms that squatter dwellings should be improved rather than providing new incredibly small houses to them. Although squatters may not afford to purchase a new decent
house, they may be able to expand the size of their dwellings units as much as 14 to 54 m$^2$ with 10-20% savings in ten years (Saglam et al. 1996:47).

**Low-to-lowest income as the target population:**
Regardless of whether squatter is owner or tenant, he usually starts out as marginalised in the social, physical and economic urban space. At initial stage squatter house provides affordable house option and it symptomizes the poverty which is recycling in the city: the newcomers are the poorest. Yet, they get better off in time and rent out some part of their squatter dwelling to those who are the new in-migrants. This chain process explains the ongoing urban poverty which repeats itself in transitional zones. The target population is the lowest 10-20% of the urban society. In the new era, the gecekondu dwellers have rich and the poor. Gecekondu construction in Turkey by the year 2002 has reached 2.200 thousand, increasing from 50 thousand in 1955; and its population became 11 million which corresponds to 27% of the urban population, as opposed to 250 thousand in 1955 to constitute 4.7% of the total population.

Main components of the model (Figure 2) shows that whether people can afford a dwelling or not depends on their savings and time limits. The public sector finances most of the infra-structure and service components of squatter settlements. The informal sector finances a large part of the shelter through mobilizing personal and household savings, loans and grants from friends and relatives. If legal restrictions are not enforced strictly, squatter dwellings may grow with the adequate household affordability.

The results of the case study, including a survey of 110 households in Pınar squatter settlement in 1996, aiming at exploring dwellers’ current sources of finance, demand and estimation of housing finance are: those squatter households which prefer to upgrade their houses (60%) is more than those which prefer to buy a new house (40%) (Saglam et al. 1996:26). Types of upgrading include completing the house, adding a new room/new floor, improving the house components (i.e. roofs), and changing spatial organisation. This study indicates the potentials of squatter families to improve their homes. Sources to upgrade are expressed to be mostly accumulated saving and loaning from families and relatives. Utilizing ordinary credit of commercial and state banks or any other alternative for housing supply is not popular. For repayment, they use their current income, and sale of assets (i.e. real estate holdings jewelry) (Saglam et al. 1996:30). Low-income households making up 40% of the total population hold only a 14,78% share of the national income in cities (Table 2).

<table>
<thead>
<tr>
<th>Income group</th>
<th>Average</th>
<th>Median</th>
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<tr>
<td>Lowest income group</td>
<td>14.92%</td>
<td>6.45%</td>
</tr>
<tr>
<td>Lowest income group</td>
<td>14.92%</td>
<td>14.70%</td>
</tr>
</tbody>
</table>

Table 2. Household Compositions and their Share of GNP (Saglam et al. 1996:35)

The dweller as builder-owner-occupier
Squatting started in developing countries after World War II. Mechanization in agriculture, leading to surplus of labor in the villages, have resulted in
in-migration from rural to major urban areas in expectation of jobs. In Turkey, Istanbul had taken most in-migrants. The first stage squatter is a migrant who comes from the village to find a job and get a foothold in the city. The final aim is to become part of the urban life. Net migration speed for the period between 1995-2000 is 4.61% and corresponding to a population of 920,955. For the period between 2008-2009, the in-migration was 388.467 with net migration speed of 3.06% (www.tuik.gov.tr 2009).

Most, squatter settlements are built in transition zones. In Istanbul, Zeytinburnu was the oldest and largest squatter town founded in 1947, and was rehabilitated by the Squatter Law No. 775. Although it is undergoing a major urban transformation as a pilot neighborhood, its development typifies a squatterisation process. A landlord illegally subdivides agricultural land and sells it to the new in-migrants coming from the villages in the form of small plots of land to squat. They aim to own it legally (formally) by becoming builder, owner and occupier. The firstcomers rent their gecekondu to others, as they get better off.

**Selection of location by its dwellers**

Naturally, the poor newcomers settle in urban space. They concentrate in the areas where people with the same place of origin, ethnicity or religion have already formed spatial organisations. The dwellers are usually from the same village who build their gecekondu on such plots. Such preferences for location to squat have been reinforced by many studies on Turkish squatter settlements (Sewell 1966, Tumertekin 1968). In many megacities of developing countries explanation of such behavior is based upon their need to form solidarity. The urban geographers call this concentration in urban space, and the aim is to defend the boundaries of their affordable housing settlements against evictions and new invasions. Furthermore, affordable housing is purposefully located close to the work place to minimize distance to work and therefore to pay less for transportation. Within the limits of empirical data on spatial distribution of population, one can conclude that a fragmented structure dominates the map of Istanbul. In fact, "The inequalities in the economic and social processes are also reflected in the locational choice of citizen groups" (Erkip 2000:375).

**Horizontal and vertical development of squatter dwelling**

The growth of a spontaneous community can be examined through the changes which take place on the physical structure of the settlement, and dwelling. It is possible to trace the footstep of natural process–whenever it is halted by the government policies or whenever it is speeded up by community action. In both cases, the visual growth could be observed in (A) horizontal and (B) vertical dimensions. While (A) takes the form of an additional room (s), balcony etc. in a dwelling, or more ground coverage by a group of dwellings; the (B) usually becomes apparent in the form of additional stories to an existing dwelling or a change in the silhouette of the settlement, usually a higher skyline. The cultural characteristics influence the horizontal and vertical growth of the settlement, with the crucial factors of leadership, and community organization. The landlords play a significant role in this growth. The prototype for a squatter house in Istanbul is a one-storey load-bearing dwelling for one family. When first built, the dwelling reminds a traditional village dwelling with a small garden. Each plot is an unofficial subdivision with a size of about 250 m². Its layout can be characterized by a central hall, surrounded by other rooms. It usually functions as a living room, directly accessible from the main entrance. The surrounding spaces are specialised into a master bedroom and guest room. The children sleep in the living room, and bathing activity takes place in one corner of the kitchen or in a separate bathroom. The added room is a bedroom or guest room. Further extensions take place in the direction of the garden based on the possibility of squatter’s increasing affordability level from a marginal into secure jobs in the formal sector. A new bedroom and sometimes a new bathroom are added to the dwelling when typically the son gets married. Sometimes, the rural extended family tradition is carried over the squatter dwelling and the house expands vertically to accomodate closely-related family members at different floors (Dulgeroglu 1991), as well as to rent to others for extra income.

Legal restrictions to prevent growth of houses and settlements are demolished or replaced
during urban transformation. Apartkondus are located in the squatter settlements, usually nearby the original former gecekondu on the same site. They are the equivalents of apartment houses in formal settlements: both are multi-family housing structures with 4-5 stories. Apartkondus unlike their counterparts in the formal areas, are not constructed at once, but gradually, following the economic opportunities of household to afford it. Usually one story at a time is built, and the construction and material quality are not as good as those of legal apartment houses in regular neighborhoods. The squatter settlement could still be illegal and unplanned from authorities’ point of view, but the intensity of the built-up area is increased to a great extent. Some form of solidarity might have obtained in the meanwhile so that at least the neighborhood receives the basic infrastructure and the schools.

**Participatory process**

In Istanbul, the production of affordable housing is scarce due to public policies. The accommodation of the very poor constituted by the in-migrants or the tenants in the marginal sector has been neglected for over half century. Among many reasons are increasing land prices, house construction material, land speculation, and lack of interest of the private sector. Both positive and negative pressures are found to be at work among the urban actors involved in house production (Whitehead 2007). Landowners who subdivide their agricultural land and squatter lords unearnedly profit from increase in land value arising from urbanization. Occupants are the clients of an affordable housing system and the target group with the power and ability to pull together their various resources creatively. They are the dwellers who need to be urgently housed and sufficiently serviced. Decision-makers are the central and local government agencies who keep the power over urban land allocation, and decide not only on providing adequate and decent shelter for all, but also lead urban development via planning policies. For squatters, the local government is the most influential actor. The dweller of a gecekondu should be the main decision maker. Planners and designers aim at orienting affordable housing systems toward the neediest sectors of the urban poor. They are the ones to negotiate between the developers, government agencies, and the people.

After having analyzed the squatting process, some answers to “why is squatter housing a model for affordable housing?” can be found as follows:

- The dwellers can pool their resources.
- The dwellers have tendency to save their monthly income from expenses on food and clothing with the aim of investing in house improvement.
- The dwellers can get organized in squatter settlements.
- Squatters can claim and maintain vacant land for future development.
- Squatters upgrade their dwellings by time.
- Squatter dwellings grow by time.

**GOVERNMENTS’ (UN)AFFORDABLE HOUSING PRODUCTION PROCESS**

Housing affordability is conceptualised differently in different countries. Yet commonly most governments’ inability to meet the housing gap between the demand and supply, especially for the poor, is explained by Salama and Alshuwaikhat (2006) to be caused by “decreasing housing budgets” and “the lack of investment”. Various government policies have been designed and implemented so far: one of them is laissez faire, the other is the enabling strategy. While the first one is commonly implemented in most developing countries where public investments are minimal and the private sector is uninterested in housing the poor; the second one is relatively new and promoted by the UN Habitat in 1986 international summit.

In Turkey, every year 300,000 new housing units are required. The increase of households has been faster than population increase (www.dpt.gov.tr). Annual population rate of increase in 2000 was 1.51%, while urbanisation rate was 3.3%. Major Economic Development Plan Periods in Turkey starting in the Sixties marked the transition into Planned Periods. The first 4 Five Year Development Plans had aimed to demolish all gecekondu in major cities of the Nation and replace them by social housing projects. With further increase of squatter settlements; the 5th Five Year Development Plan neglected the issue and tended to forgive them. In the following
Development Plans Periods, 6th and 7th up to 2000, “aided-self-help” and “core housing” strategies were emphasized and amendments were made to the Gecekondu Law. The 7th Five Year Development Plan redefined the lowest income groups by being employed in regular jobs paying low-income. In the previous definition, only those people who were in the marginal sector were considered to be low-income. During the 8th Five Year Development Plan period; insufficient production of affordable housing was taken as a feedback from the previous period. To attack increasing illegal and informal housing; a more powerful financial system is aimed to be established (SPO 2000).

Existing formal structure in the production of housing in the city and actors involved can be followed from Figure 3. During the last decade Mass Housing Authority took most responsibility to produce housing to meet the annual housing gap in general. Yet the affordable housing constituted about 10% of in total house production, and it was realized through subvention from 90% of higher and middle income housing. Government provides financial support, through the Mass Housing Authority (MHA), directly or through Real Estate Partnership with profit gain. Its support had been 67% of the total construction of houses with an area of 60 m². The Real estate bank offered loans through MHA less than 70% of the estimated value of housing unit, with 36 month period to repay, and monthly interest of 8%, and its credits are given on mortgage basis.

From the analysis of public housing issues discussed above, some potentials as to “how can government provided housing become financially feasible for the lowest income?” can be drawn as follows:

- Government must and can develop new funds and new organisations to handle the savings of the households.
- Government can provide credit possibilities for house upgrading and maintenance.
- Government can motivate squatter communities to form cooperatives and institutionalize the existing associations (i.e., quarter beautification, voluntary associations, etc.).
- Government shall support the communal initiatives claiming the vacant lands within the settlement.
- Government may provide to the squatters low-cost construction material for changing their temporary construction material into permanent one.
- Government may radically decide to put into use vacant mass housing projects as rentals for existing squatters/ the newcomers of the city.

**COMPARISON OF THE FORMAL / GOVERNMENTS VS INFORMAL / COMMUNITY PROCESSES**

As in many major cities of developing countries, Istanbul is accommodating more than half of the urban population in informal developments. Most dwellers are rural-to-urban migrants. As in the formal housing market, in the informal one there are regulating factors, such as landowners, builder-owner-occupants, and landlords, re-cycled construction material storekeepers (Gur and Dulgeroglu 2010). Unlike formal housing stock, informal housing stock is formed without a master plan and is not located on formally designed residential lands, but on land-slides, swamps, hilly areas unsuitable for regular land development. The squatter housing process has such drawbacks, as
lack of housing quality, unfavorable risky sites, and unsustainable urban development. Lack of clarity of the laws and regulation issued for the benefit of squatters, inconclusiveness of the government’s implementation of housing and economic policies, slowness to enact the Development and Rehabilitation Plans, inability to address communities, leaders or representative organizations, lack of diversity in employing channels of information regarding urban squatters and the inconsistency in handling urban problems are some of the problems squatters encounter in communicating with the government (Figure 4). The positive power of the informal can be joined with the passive security of the formal in order to integrate everyone.

The squatter process is informal, affordable and socially sustainable; whereas government housing provision is formal, unaffordable and socially unsustainable. Furthermore, in the squatter process, house construction is flexible and achieved in a participatory manner, while in the government-provided housing, finished constructions are costly and low income can attempt to receive credit for long term re-payment, high downpayment and unrelia-

le (changing) interest rates. Due to top-down decisions, the dwellings are inflexible and unadaptable to their users.

In conclusion, lack of available information about home buying and credit, affordable housing supply, measurement of affordability, local socio-cultural and environmental housing conditions as factors of affordability (Salama 2006), and potential user types of affordable housing are the topics already discussed by other scholars. This study aims to contribute to literature by focusing on the squatter housing process which is carried out by its dwellers in reaction to the lack of affordable housing supply for extremely low-income households. Government, by policy, provides finished houses whereas squatters build a simple shelter which grows in life time. The first option is unaffordable, because it is incompatible with its monthly income. The second option however is adaptable to the gradual development of household income. In a huge city the governments’ legislations and master plans are difficult to interpret and implement. Diverse settlements constitute special and unique cases each, and national sources spared for
the affordable housing is very limited. However, a ready source of knowledge can be obtained from the squatter process for action.

Long-term housing and settlement policies must be established, and made open to the public. Government can be supportive by providing such incentives to the private sector, as tax exemptions and legal amendments. Directly enabling market factors is possible by creating public-private partnerships (Payne 1999; Pugh 1994, 1997). The planner has to reconcile the benefits of the target group, the urban poor, with those of the profit-oriented factors as well as decision-making bodies. This incremental value is seen as a need to be taxed. By incorporating certain characteristics of informal housing process such as phasal production and the growth of housing, use of recycled construction materials, participation of the dwellers in construction of the self housing and claiming responsibility for common and public areas in the neighborhood, the formal sector can enable the informal sector. This means partially institutionalizing the informal sector. Government’s role is significant in “relaxing” the laws. The inclusion of affordable housing within a neighborhood might change the most profitable mix of housing on the site toward smaller, cheaper units and increase the total number of housing units.

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