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ARTICLE

City Development Concepts for Sustainable Development

Shafilla Mohd Saad1, Yasmin Mohd Adnan1, Hasniyati Hamzah1, Md Nasir Daud2, Anuar Alias2, Melasutra Md Dali3

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ABSTRACT

As geographical and legal boundaries of cities becoming vague by rapid globalisation and ease of capital movement, cities must adopt strategies to remain competitive and sustainable. Although the Sustainable Development agenda were only formally propagated through the Brundtland Report in 1991, modern city development strategies have been implemented in the late 19th Century with the Garden City movement. With the Sustainable Development agenda comprising economic, environmental and social dimensions, various city development models have been developed such as Green City, Sustainable City, Liveable City and recently a model identified as Smart City. By undertaking a review and critical evaluation of past researches on city development, this paper aims to discuss the evolution of city development concepts from Garden City to Smart City, providing characteristics of each concept and establishing the timeline of each concept. A matrix will show any overlapping and unique features of these city development concepts. This paper intends to contribute to the academic and practical understanding of different strategies used to encompass sustainable development leading to city sustainability.

Keywords: City development concepts, Sustainable Development, Sustainable cities.

INTRODUCTION

The principles of “Sustainable Development” promoted in the Brundtland Report (1991) have generated several development concepts for cities. Traditionally, the classic dimensions of Sustainable Development include the economy, environment and social aspects of development (Figure 1). Recently, however, a fourth dimension has been added to the classic model i.e. the institutional dimension of development. The Sustainable Development agenda have spawned various city development models, such as Green City, Sustainable City and more recently Smart City.

As cities become a centre place for communication and modernisation, they have become home to the majority of the world’s population. (Girard, 2003). According to Haughton & Hunter (1994), a city does not have any satisfactory definition. However, it has been often defined by the nature of its activities and its population size (Haughton & Hunter, 1994). Cappon (1990) defined city as a more or less regular and recognisable agglomeration of buildings and thorough fares where people live and work, and also engage in many of their social and cultural activities, usually requiring at least 10,000 residents (Haughton and Hunter, 1994). Moreover, cities are the agglomeration of the riches, modern technological
advancement, economic activities and opportunities (Kleniewski, 2006). For this reason, urban sustainability has been a common goal of all countries in the world. However, it is almost unachievable in all dimensions of human life, particularly in perspective of the cities of developing countries.

City development concepts evolve and grow alongside changes in the wider macro environment. Globalisation and technological advancement bring together a new level of competition, as cities become borderless and capital move easily from one location to another. A more recent creation of city development labels is the Smart City concept. By definition, the Smart City entails the usage of the information and communication technologies (ICT) in a way that promotes the economic competitiveness, environmental sustainability and general liveability of cities (Steiner et al, 2011). The strategy in the making of a Smart City involves ensuring Smart Economy, Smart People, Smart Governance, Smart Mobility, Smart Environment and Smart Living (The Committee of Digital and Knowledge-based Cities of UCLG, 2012).

**CITY DEVELOPMENT CONCEPTS**

The development of cities have evolved over the years with many concepts adopted to describe the nature of forms of development that took place accommodating the various needs of the society and nation. A city, like any other organism, evolves/changes over time, adapting itself to satisfy human needs. A city, as a dynamic complex system, is characterized by: circular processes (which stimulate creativity), interdependences (between human-made, natural, social capital, etc.); and synergies (which increase the resilience capacity). Among the prominent concepts for city developments are: *Garden City, Sustainable Cities, Liveable Cities, Green Cities and Smart Cities*.

**Prominent City Concepts**

In considering the various city development concepts, a brief description of the each concept shall be provided as follows:
Sustainable Cities

A sustainable city must be economically viable, socially peaceful and environmentally friendly. More especially, a sustainable city is a place where people live with sufficient income-earning, security and quality of life. Sustainable city depends on society’s relationship with its environment, which is basically a product of powerful and influential groups in that society (Buckingham and Turner, 2008). Girardet (1999) defines sustainable city as “…organized so as to enable all its citizens to meet their own needs and to enhance their well-being without damaging the natural world or endangering the living conditions of other people, now or in the future.”

Haughton and Hunter (1994) define sustainable city as “one in which its people and businesses continuously endeavour to impose their natural, built and cultural environments at neighbourhood and regional levels, whilst working in ways which always support the goal of global sustainable development.” In addition, the idea of sustainable urban development has been seminal and highly significant among intellectuals and policy makers in the 1990s (Pugh, 2000).

Pacione (2007) argued that urban sustainability is fundamentally a political process rather than a technological or design problem in that one of the greatest obstacles to achieving enhanced urban sustainability is the absence of political support for policies aimed at implementing sustainable practices in local contexts. Cities of the future must be sustainable, both environmentally and economically for occupants to enjoy a good quality of life. Many existing cites in developed countries are now making the transition to sustainability through government legislation and economic incentives. The transition of existing cities, especially older cities, to be more sustainable will take more time and money, and will be subject to economic cycles and availability of financial resources. Opportunities do exist in building new cities from scratch to meet population and economic growth in many countries, especially developing countries. However, building new cities will require stakeholders in the construction industries to think outside the box. This will require the coordination and collaboration between all the stakeholders that are involved in planning, designing, constructing, and operating and maintaining the future cities (Majdalani et al., 2006)

The World Commission on Environment and Development (1987) proposed the most consensual definition of sustainable development to date: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” More specifically, as specified in the Brundtland report (WCED, 1987) the concept of sustainable development comprises three aspects: economic, social and environmental. In addition, for development of a given territory to be considered sustainable, it must integrate the qualities associated with interactions and overlapping of these dimensions. Accordingly, development must be equitable (interaction between the economic and social dimension), liveable (correspondence of the environment to social needs, which can refer to the concept of quality of life) and viable (economic development must abide by the supportive capacity of the ecosystems, and depletion of non-renewable resources must be avoided). Increasingly, it has been recognised that the institutional dimension is indispensable in ensuring sustainable development (European Parliament, 2012). The Brundtland report (WCED, 1987) maintains, for development of a given territory to be considered sustainable it must be equitable, liveable and viable. Masdar is an example of a Sustainable City.
Green Cities

Ebenezer Howard, has advocated green urbanism in his early writing entitled ‘Garden City of Tomorrow’ in 1902 which has recently made a comeback. The idea that technology, environmental concerns and human need should be considered an integral part of architecture has been raised by Reyner Banham in 1969. Green urbanism principles have to define clearly and adjusted to an era of rapid urbanization for Asia-Pacific Region to achieve green urbanism. New types of cities have emerged and this green concepts can be seen in this 21st century. Ulrich Beck has noted that a new era of uncertainty, where energy, water and food supply are critical. Some of the cities such as Tokyo, Sao Paulo, Mexico City, Mumbai, Calcutta, Shanghai and Beijing have grown to become endless urban landscapes. New types of mega-cities have existed, which has have shown impossibility of orderly planning and strategic regulation. It is found that Green Urbanism theory for the 21st century has emerged and the aim is to transform existing cities from fragmentation to compaction whilst focusing on adjusting the relationship between city and nature through the Eco-city theory (Lehman, 2010).

Green Urbanism makes every attempt to minimize the use of materials, water and energy at every stage of the city’s life-cycle. Today, architectural and urban design also have to take into consideration the use of energy in the building’s maintenance and changes in its use; not to mention the primary energy use for its operation, including lighting, heating and cooling.

These concepts by Lehman (2010) can best be described by the pillars shown in Figure 2 and Figure 3 respectively.

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**Figure 2:** The three pillars of Green Urbanism, and the interaction between these pillars (Lehmann, 2010)
Lehmann (2009) has also developed the Principles of Green Urbanism in which these are applied and integrated in every aspect within the urban environments and include those that:

- have reduced or have no CO2 emissions, as they are self-sufficient energy producers, powered by renewable energy sources,
- have high water quality, practicing sensitive urban water management
- respond well to their climate, location, orientation and context, optimizing natural assets such as sunlight and wind flow,
- eliminate the concept of waste, as they are based on a closed-loop ecosystem with significant recycling, reusing, remanufacturing and composting,
- apply new technologies such as co-generation, solar cooling and electric-mobility,
- are quiet, clean and effective, with a healthy microclimate,
- apply new technologies such as co-generation, solar cooling and electric-mobility,
- use deep green passive design strategies and solar architecture concepts for all buildings, with compact massing for reduced heat gain in summer,
- provide easy accessibility and mobility, are well inter-connected, and provide an efficient low-impact public transport system,
- are laid-out and oriented in a way that keeps the buildings cool in summer, but which catches the sun in winter,
- take only their fair share of the earth’s resources, using principles of urban ecology,
- integrate landscape, gardens and green roofs to maximize urban biodiversity and mitigate the urban heat island effect,
- use regional and local materials and apply prefabricated modular construction systems,
- create a vibrant sense of place and authentic cultural identity, where existing districts are densified and make use of urban mixed-use infill projects,
• are generally more compact communities around transport nodes (‘green Transit-Oriented Developments, TODs’), with a special concern for affordable housing and mixed-use programs,
• have a local food supply through community gardens and urban farming and which achieve high food security and reduced ‘food miles’, and
• use multi-disciplinary approach, best practice for urban governance and sustainable procurement methods.

Lehman (2009) further added that in order sustainable urban development to be successful on many levels, all urban design components need to work interactively and cannot be looked at separately. The principles are based on the triple-zero frameworks (triple-bottom line) of:

• zero fossil-fuel energy use
• zero waste
• zero emissions (aiming for low-to-no-carbon emissions).

Lehman (2010) then developed a sustainability matrix having the 15 Principles of Green Urbanism consisting of:

• Principle 1: climate and context
• Principle 2: renewable energy for zero CO2 emissions Principle 3: zero-waste city
• Principle 4: water
• Principle 5: landscape, gardens and urban biodiversity
• Principle 6: sustainable transport and good public space: compact and poly-centric cities
• Principle 7: local and sustainable materials with less embodied energy
• Principle 8: density and retrofitting of existing districts
• Principle 9: green buildings and districts, using passive design principles
• Principle 10: livability, healthy communities and mixed-use programs
• Principle 11: local food and short supply chains
• Principle 12: cultural heritages, identity and sense of place
• Principle 13: urban governance, leadership and best practice
• Principle 14: education, research and knowledge
• Principle 15: strategies for cities in developing countries

In another attempt to measure green cities, the Economist Intelligence Unit (London, UK), sponsored by Siemens (Germany), published the European Green City Index report (Economist Intelligence Unit, London 2009). A total of 30 cities (most of them capital cities of European countries) were studied under eight different categories comprising: Transport; Air quality; Water; Carbon dioxide; Energy; Environmental Governance; Waste and land use; and Buildings (please see Table 1 and Figure 1). Within the 8 categories 30 indicators were identified.
In another study by Dekay and O’Brien (2001), they have found that the central insight of the living city concept is that cities and landscapes are living systems. A city is a human ecosystem set in a landscape. Dekay and O’Brien (2001) also have identified the integration of three mental models—living systems, landscape experience, and native context—generate a set of five patterns necessary for the emerging green city which is shown as in Table 1.

Table 1: Five patterns for the emerging green city

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrologic city</td>
<td>Cites have historically had a transformative effect on their local hydrologic systems. The green city makes an alliance with nature to provide hydrologic services to humans and the landscape. The green city must collect, store, and process water, as much as possible, within its own watershed boundaries. The green city can use natural biological processes to treat the little waste it produces.</td>
</tr>
<tr>
<td>Productive city</td>
<td>Urban agriculture in the productive city can grow a significant portion of a city’s food close to where people live. Its goals are to reduce the environmental impact of the food production system, reduce cost, increase self-sufficiency, improve quality by reducing transportation, create employment, reduce chemical and energy inputs, and eliminate much industrial processing and distribution.</td>
</tr>
<tr>
<td>Bioclimatic city</td>
<td>Cities exacerbate rather than moderate local climate, creating urban heat islands without summer shade, windswept winter streets, and dense conditions that block light and air. Bioclimatic design—the use of the natural climatic forces to provide comfort in and around buildings—can have profound effects on the way we consume resources and on our relationships to the natural cycles around us. The design of the city often determines whether a building can actually make use of the free energy it receives from the sun, wind, sky, and ground. The green city must provide access to sun, wind, and light by its very patterning.</td>
</tr>
<tr>
<td>Transit city</td>
<td>The transit city requires a reinvention of zoning laws and an integration of local and regional infrastructure planning.</td>
</tr>
<tr>
<td>Habitat city</td>
<td>The habitat city requires a major restructuring of the social organization of land use.</td>
</tr>
</tbody>
</table>

Source: Dekay and O’Brien (2001)

The other features of green cities are that they must have clean air and water, pleasant streets and parks. Green cities are resilient in the face of natural disasters, and the risk of major infectious disease outbreaks in such cities is low. Green cities also encourage green behavior, such as the use of public transit, and their ecological impact is relatively small (Kahn, 2006)

**Garden City**

The concept of garden city from Letchworth Garden City which begun in 1903, was the first practical demonstration of Howard’s concept. However, the physical form of the garden city proved to be equally applicable to suburban development, particularly around London, and other metropolitan areas.

In his book entitled “To-morrow: A Peaceful Path to Real Reform", published in London in 1898, and the revised version published under the title “Garden Cities of To-morrow” in 1902, Howard described a planning scenario in which the existing development structure of large cities, medium-sized cities, small cities, and villages would gradually be replaced by the homogeneous network of a ‘social city’. It would consist of individual development units, the ‘garden cities’, each with no more than 32,000 residents, and in total accommodate a community of 250,000 people oriented around social values. As ‘self-contained towns’, the growth of these development units would be limited, in terms of both population and geographical spread, and they were conceived as economically independent urban organisms with their own agriculture and industry. A rapid transportation system would connect the cities (Figure 4).
Garden city provides the concept of a Victorian ideal of having one’s own home in the country and traditional concepts such as land, family, and nature would guide their urban planning and architecture. The spacious public green spaces of the developments, each with a Central Park featuring community facilities, were intended to offer residents sufficient opportunities for relaxation and social interaction. As ideal places uniting the advantages of urban and rural living, the garden cities were intended to replace the metropolis, which was regarded as obsolete.

Today, garden city principles have provided a conceptual basis for modern urban planning charters such as Principles of Intelligent Urbanism, New Urbanism, and the Sustainable Cities movement, which includes Eco city design. These contemporary manifestations of the garden city movement have made changes to address present-day problems, but major design principles remain the same. These designs all use green urban infrastructure as a main ingredient in formulating a solution to the urban problems they address.
Garden city towns and neighbourhoods around the world were designed to be pedestrian-friendly, mixed-use, community-oriented, affordable, and full of eco-infrastructure in the form of parks and gardens; these elements have persisted because they foster a healthier and happier lifestyle for residents. Many aspects of garden city designs are supportive of environmental conservation and restoration. Garden city neighbourhoods show the ways in which Eco city design goals have been able (or not) to persist over the span of several generations, and how they have adapted and changed over time (Gallanter, 2012).

In general, three elements have been sought as being particularly relevant to the Howard's garden city idea: the notion of self-sufficiency, the agricultural belt or greenbelt, and public ownership of land. This can be seen through the constituent elements which include: the limitation of population growth to about 32,000 people and the creation of a permanent agricultural belt around the city to act as both a barrier to further urban growth and an agricultural hinterland for the city; permanent ownership and control of the entire urban tract by the municipality; the use of the unearned increment of land value for the purpose of benefitting the community; the provision for private commercial and industrial firms to lease property and draw profits from the operation of their businesses, with some allowances made as a hedge against excessive competition on the one hand and oppressive monopolisation on the other hand; and the construction of a regional constellation of similar cities with road and rapid transit linkages to a central city of 58,000 persons.

**Liveable City**

Yuan (2005) indicated that livable cities are cities that exhibit coordinated economic, cultural, social and environmental development, as well as a favorable living environment capable of satisfying the physical and psychological needs of its inhabitants as a city suitable for human work, residence and life. "Livability is the most basic demand people have of livable cities, that is, the ability of a city to make its residents feel safe, comfortable, and relaxed." Salzano (1997) believed that livable cities are hubs connecting the past and the future as cities capable of sustaining further development. Therefore, livability is a concept of sustainable development for society and individual persons (Wei and Chia, 2013). The most important aspects that provide livable conditions are air pollution, weather, and local environment issues. Air pollution and weather issues are two aspects which directly affecting on human comfort and health (Chia and Jeng, 2013).

Cities that provide the place that is suitable to live and habitable for the people constitute the characteristics of Livable Cities. Vancouver has been identified as the most livable city in the world by The Economist, London that developed the new ranking from the Economist Intelligence Unit, London. A ‘livability survey’ of 140 cities makes the Canadian city as the top city in 2008. The determination of livable city is made through the ranking scores of each selected city from 0-100 on 30 factors spread across five areas which include stability, healthcare, culture and environment, education and infrastructure. Vancouver achieved the average score of 98 in comparison to the other best ten cities which scored over 96. In a list of top livable cities in the world, Vienna came second and Melbourne was ranked third. Other cities in the top list are included three Canadian cities, three Australian cities and four from Europe. All the high-scoring cities are located in developed countries with a low population density and tend to be a mid-sized means as they can benefit from the availability of both cultural and recreational attractions, but with lower crime levels and fewer infrastructure problems than are often found among large populations. (RijalSaffuana et. al, 2012).

A second element of livability comprises the city’s environment, as defined by its physical and biological characteristics - the built infrastructures and ecosystems that provide the
goods and services on which lives and livelihoods in the city depend. At a minimum, these ecosystem services stem from the green spaces and water bodies in and around cities that generate not only amenities, and through them economic value, but also provide valuable contributions, for example, to local climate regulation, air quality, and flood control. The biophysical environment thus establishes the boundary constraints that affect the ability of urban populations to thrive, yet those constraints themselves are shaped in complex ways by the pressures that urban populations exert on infrastructures and ecosystems (Ruth & Coelho, 2007).

Clement-Croome (2012) defined the Sustainable Liveable City as:

- **A Just City**, where justice, food, shelter, education, health and hope are fairly distributed and where all people participate in government
- **A Beautiful City**, where art, architecture and landscape spark the imagination and move spirit;
- **A Creative City**, where open-mindedness and experimentation mobilise the full potential of its human resources and allows a fast response to change
- **An Ecological City**, which minimises its ecological impact, where landscape and built form are balanced and where buildings and infrastructures are safe and resource-efficient
- **A City of Easy Contact and Mobility**, which protects the countryside, focuses and integrates communities within neighbourhoods and maximises proximity

Liveability is the sum of the aspects that add up to the quality of life of a place, including its economy, environmental sustainability, equity, amenity, health and wellbeing, education and learning, and leadership. It may be reflected in the amount of local green space and the measure of liveability can be made through the diversity of jobs, range of dining and entertainment options, extent of the public transportation system, or quality of the local schools. Interestingly Thesaurus cites sustainable as one of the possible synonyms for liveable (Clement-Croome, 2012).

Mercer’s Quality of Living survey is different from quality of life. This Quality of Living are objective, neutral and unbiased whilst the quality of live involve subjective opinion about personal state and circumstances in a city. Table 2 shows the criteria of the Mercer’s Quality of Living Survey, which New York serve as the grounded city based on 39 criteria grouped into 10 key categories and measures the quality of living for expatriates.

**Smart City**

Although “Smart City” has now become a term in everyday language, its exact definition is still not well-established (Chourabi et al., 2012; Vanolo, 2013). It has many facets—intelligent cities, virtual cities, digital cities, information cities— and at times considered interchangeable with the term “Smart City”. In practice; the ‘Smart City’ has been interpreted in various ways by the public and private sectors to suit their agenda. Vanolo (2013) described how the Smart City label has been used by stakeholders in city development for city branding, business promotion and funding applications. Such self-labelling, Vanolo argued, had resulted in no one universal definition of Smart City, as motivations, perceptions and expectations of stakeholders differ from one context to another. Nevertheless, a review of the literature has revealed attempts by academicians and researchers to produce the basic definition of Smart City.
Among the selected definitions of Smart City include:

- A city is “smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, though participatory governance” (Giffinger & Gudrum, 2010).

- “A city connecting the physical infrastructure, the ICT infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city” (Harrison et. al, 2010).

- “A community of average technology size, interconnected and sustainable, comfortable, attractive and secure.” (Lazaroiu & Roscia, 2012).

- A “digital city” or “connected city” …that embeds “intelligence in objects” and then fills the cities with those intelligent, connected objects: cars, parking meters, parking lots, police equipment, smart cards for public services, alternative energy sources, “smart” electric grids and intelligent networked telecommunications equipment.” (Schelmetic, 2011).

- “A city in which ICT is merged with traditional infrastructures, coordinated and integrated using new digital technologies defining seven goals which concern: developing a new understanding of urban problems; effective and feasible ways to coordinate urban technologies; models and methods for using urban data across spatial and temporal scales; developing new technologies for communication and dissemination; developing new forms of urban governance and organisation; defining critical problems relating to cities, transport, and energy; and identifying risk, uncertainty, and hazards in the smart city” (Batty et.al., 2012).
• “A Smart City is intended as an urban environment which, supported by pervasive ICT systems, is able to offer advanced and innovative services to citizens in order to improve the overall quality of their life through information technology’. It can easily embrace all available and upcoming wireless technologies, while enforcing, at the same time, ubiquitous and secure applications in many domains, such as, e-government and public administration, intelligent transportation systems, public safety, social, health-care, educational, building and urban planning, environmental, and energy and water management applications” (Piro, 2014).

Giffinger & Gudrum (2010)’s definition considers smart as performing in a forward-looking way. The forward-looking development approach to a smart city considers issues such as transformability, individuality, flexibility, self-decisiveness, awareness, synergy and strategic behaviour. In Harrison et al (2010)’s study, a smart city denotes an instrumented, interconnected, and intelligent city. Instrumentation enables the capture and integration of live real-world data through the use of sensors, kiosks, meters, personal devices, appliances, cameras, smart phones, implanted medical devices, the web, and other similar data-acquisition systems, including social networks as networks of human sensors. Interconnection means the integration of those data into an enterprise computing platform and the communication of such information among the various city services. Intelligence refers to the inclusion of complex analytics, modelling, optimization, and visualization in the operational business processes to make better operational decisions.

From the above, the pervasive definition of smart cities concerns the use of technology, specifically information and communications technology (ICT) and smart computing, in shaping the liveability and sustainability of cities. Within the above context, technology is seen as central to the operation of the future city at large. The scenario entails the usage of ICT, together with diverse instruments, techniques, organizational structures and initiatives that build upon online engagement, to solve the key problems of cities. Belissent (2010) identified a smart city as a city that uses ICT to make the critical infrastructure components and services of a city—administration, education, healthcare, public safety, real estate, transportation and utilities—more aware interactive and efficient. The smart city is about how the community is empowered, through using technology, to play an important role in the new service economy, create jobs locally and improve the quality of community life (Anttiroiko et al., 2013). In this sense, the smart city is an urban laboratory, an urban innovation ecosystem, a living lab, an agent of change (Schaffers et al., 2012). In another definition, a city is considered ‘smart’ when investments in human and social capital and traditional (transportation) and modern (ICT-based) infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory government (Caragliu et al., 2009).

The use of smart computing technologies is seen as a requisite to a Smart City (Washburn et al, 2010), whereby “a new generation of integrated hardware, software, and network technologies” is used to “provide IT systems with real-time awareness of the real world and advanced analytics to help people make more intelligent decisions about alternatives and actions that will optimize business processes so as to make the critical infrastructure components and services of a city — which include city administration, education, healthcare, public safety, real estate, transportation, and utilities — more intelligent, interconnected, and efficient” (Forrester, 2010).
One of the aims of the Smart City movement is *interconnectedness*. It has been identified as a term that integrates those initiatives oriented at improving the quality of life, sustainability and efficient management of services while innovating in relation to the materials, resources and models used and using technology in an intensive manner (Hall, 2000). Interconnectedness of core services requires a self-monitoring and self-response system. IBM’s view of smart city envisions its three main characteristics: instrumented, interconnected, and intelligent. Instrumentation means sourcing of real-time real-world data from both physical and virtual sensors. Such data may be interconnected across multiple processes, systems, organizations, industries, or value chains. The combination of instrumented and interconnected systems effectively connects the physical world to the virtual world.

Other definitions highlight different aspects. Rios (2008) used an architectural-based approach to define Smart City as a city that gives inspiration, shares culture, knowledge, and life, and motivates its inhabitants to create and flourish in their own lives. Toppeta (2010) emphasises the improvement in sustainability and liveability. Another vision of Smart City is the city as a large integrated organic system connecting many subsystems and components, with the interrelationship between the core systems determining the smartness of the city (Dirks and Keeling, 2009; Kanter and Litow, 2009). Again, the last definition of Smart City returns to ICT origins; the organic side of a Smart City is described to be represented by digital telecommunication networks (the nerves), embedded intelligence (the brains), sensors and tags (the sensory organs), and software (the knowledge and cognitive competence).

**Smart City Characteristics**

The elusiveness of a universal definition of Smart City is somewhat replicated in the definition of Smart City characteristics. In one paper, Washburn & Sindhu (2010) described the critical components of a Smart City to include *city administration, education, healthcare, public safety, real estate, transportation and utilities*. These components are best illustrated as in Table 3.

Whilst there are different conceptions of Smart City, there is evidence on the agreed common dimensions of a Smart City. Six dimensions have been identified as indicators of a Smart City, namely *economy, people, governance, mobility, environment and living* (Giffinger et al, 2007; Giffinger & Gudrum, 2010; Balakrishna, 2012; Lazaroiu & Roscia, 2012). Giffinger at al. (2007) further divided the six dimensions into 31 relevant factors (see list of factors in Table 4) which reflect the most important aspects of every smart dimension, before finally deriving 74 indicators from an empirical investigation. Finally, every factor of a smart characteristic has been defined empirically through a group of corresponding indicators.

A recent study by *The Committee of Digital and Knowledge-based Cities of UCLG* (Bilbao, 2012) have further expanded on the dimensions of Smart Cities in the above table by identifying particular experiences and good practices, facilitating the exchange and learning among cities. Among others, *smart economist* described as cities with "smart" industries, especially in the areas of information and communication technology (ICT) as well as other industries that involve ICT in their production processes; *smart people* is pertaining to people who are smart in terms of their skill and educational levels, as well as the quality of social interaction in terms of integration and public life and their ability to
Table 3: Smart City characteristics according to Wasburn and Sindhu (2010)

<table>
<thead>
<tr>
<th>City administration</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>A streamlined management that balances the needs of citizens and businesses.</td>
<td>Using technology, the city will increase access, improve quality, and reduce costs of education.</td>
</tr>
<tr>
<td>Using information communication technology, the city authority manages city’s operations, infrastructures (including buildings, transportation and utilities), services (such as healthcare and education), citizens and businesses.</td>
<td>This includes the employment of smart computing (PCs and internet) and ICT technologies (digital content and collaboration technologies).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthcare</th>
<th>Public safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart computing and ICT can enhance the quality and efficiency of health service delivery, in terms of scalable storage systems and a communications platform.</td>
<td>Real-time information enables the authority (police, fire and other personnel) to respond rapidly to emergencies and threats and also monitor overall crime rate.</td>
</tr>
<tr>
<td>Such IT foundation enables electronic storage and sharing of patient records, thus facilitating disease diagnosis and future research.</td>
<td>ICT is used to feed real-time information to those authorities, by way of a responder network, emergency dispatch and coordination, closed-circuit television (CCTV) and video analytics, which enables the establishment of a virtual command centre and real-time geolocalization information.</td>
</tr>
<tr>
<td>Other benefits include quick response to emergency services and remote medical service provision.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Real estate</th>
<th>Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Smart City framework is envisioned to reduce the operating costs whilst increasing the value and occupancy rates of real estate.</td>
<td>Reduce traffic congestion while encouraging the use of public transportation, which improved over time.</td>
</tr>
<tr>
<td>Smarter real estate are encouraged to deliver financial and environmental benefits.</td>
<td>Due to the long term time scale of traffic and transportation improvement, an interim step using congestion pricing via Smart Computing technologies can raise funds for new public transportation while encouraging the use of existing public transportation.</td>
</tr>
<tr>
<td>Organisations such as the US Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) certification encourages the use of Smart Computing technologies to automate and manage energy use.</td>
<td>An electronically collected toll system charges drivers more at the most congested roads and times, thus influencing when to take mass transit or, reschedule trips.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Utilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A smart utility infrastructure can ensure the delivery of energy or water as is required while reducing waste, by increasing the efficiency and innovativeness of existing systems.</td>
<td></td>
</tr>
<tr>
<td>Due to the scarcity of resources, smarter ways in which energy is conserved, delivered, and managed can be ensured through “smart grids”, comprising grid systems interconnected with Internet Protocol (IP) enabled sensors, supervisory control and data acquisition (SCADA) systems, heating ventilation and air conditioning (HVAC) systems, distribution systems, transformers, and metering technologies.</td>
<td></td>
</tr>
</tbody>
</table>

open to the "outside" world; *smart governance* refers to political and active participation, citizenship services and the smart use of e-Government, while at the same time relates to the use of new communication channels, such as e-government or "e-democracy"; *smart mobility* has to do with providing the public with access to new technologies, and the use of these in everyday urban life; *smart environment* refers to the use of new technologies to protect and preserve a city's environment; and finally, *smart living* contains several aspects that substantially improve the quality of life of citizens, such as culture, health, safety, housing, tourism, etc.

**COMPARISON OF CITY CONCEPTS**

Through a content analysis (CA) of publicly available information such as webpages, reports, article and publication on sustainable city development concepts, a discussion of every cities concept the identification and the clarification of the various criteria for each concept is made. It has been identified that content analysis is most conveniently used with
textual types of data such as print media of various sorts. This method of analysis also known as a method of analyzing documents that allows to test theoretical issues to enhance the understanding of data (Elo & Kyngas, 2007).

According to Kondracki et. al (2002), the process of CA consists of coding raw messages (ie, textual material, visual images, illustrations) according to a classification scheme. The coding process is essentially one of organizing communication content in a manner that allows for easy identification, indexing, or retrieval of content relevant to research questions (Shepherd & Achterberg, 1992). Content components may be words, phrases, theories, topics, concepts, or other characteristics (Berg, 1998).

Having reviewed the various sources on city development concepts, the criteria for each concept are compared side-by-side within the sustainable development framework. It is widely accepted that there are four major dimensions of sustainable development i.e. economy, environment, social and institution. A matrix has been developed to show the varying factors within the four sustainable development dimensions (Figure 5). Figure 5 provides a quick review of how one city development compares to other city types.

Rather than aiming at championing the “best” city type, Figure 5 shows how one city development model is different from or similar to other models. Figure 5 does not represent a quantitative analysis of city development types. At this early point of the research, the factors included under each dimension may not be exhaustive, although comprehensive enough from the review of literature to produce this comparison.

The tabulated criteria suggest that Smart City is the most similar to the Sustainable City. This can be seen in the emphasis on the economic and institutional dimensions of development. Both city concepts promote economic growth as an important requirement to ensure sustainability, whilst acknowledging sound institutional support as the driver of economic growth. Wherein Sustainable City does not spell out the specific type of business environment needed, Smart City is geared towards an ICT-based economy which is both ICT-based and ICT-driven.
However, it is erroneous to conclude that Smart City only concerns ICT. Comparable to other city types, Smart City places significant interest in social and environmental developments as well. As described in the literature, the available software and sophisticated computing systems need to be operated, managed and used by a community that can adapt to the new technology. Investment in social capital is therefore necessary to ensure “smart people”. At the same time, the use of green technology is facilitated by the availability of sensors, data collection and sharing techniques and data processors.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Sustainable Cities</th>
<th>Green Cities</th>
<th>Garden Cities</th>
<th>Liveable Cities</th>
<th>Smart Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-sufficient</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-contained</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic growth</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compactness</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental&lt;sup&gt;2&lt;/sup&gt; (natural and physical environment only)</th>
<th>Sustainable Cities</th>
<th>Green Cities</th>
<th>Garden Cities</th>
<th>Liveable Cities</th>
<th>Smart Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure provision</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abundance of green area</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circumscribed by green-belt</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource management</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containment of area</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built environment</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Sustainable Cities</th>
<th>Green Cities</th>
<th>Garden Cities</th>
<th>Liveable Cities</th>
<th>Smart Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community land trust</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containment of population</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human factors</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of life</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutional&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Sustainable Cities</th>
<th>Green Cities</th>
<th>Garden Cities</th>
<th>Liveable Cities</th>
<th>Smart Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology level</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governance</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Politics</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Matrix of city development concepts according to Sustainable Development principles

Notes:

1Economic dimension: Framework for development and growth within a self-sufficient and self-contained economic environment. Such economic growth should occur within a compact geographical area to avoid externalities that are associated with urban sprawl and promote economies of scale and agglomeration. This dimension also includes entrepreneurship as an important element, describing a symbiotic relationship between the private and public sector in bringing business opportunities to the local community.

2Environmental dimension: Factors include the natural and physical environment only, excluding the cultural environment. This comprises infrastructure provision (horizontal infrastructure such as roads, water, sewerage, etc. and vertical infrastructure i.e. buildings), abundance of green areas, existence of a green belt circumscribing the city area, a resource management system, a system to contain the city area, mobility (public transportation, road network, traffic) and consideration for the built environment (building services, facility management, housing management, etc.).

3Social dimension: Describes the availability of community land trust and containment of population together with a number of different human factors (education, capacity building, adaptation to technology, etc.) and factors related to the quality of life of the residents (safety, security, health, well-being, etc.)

4Institutional dimension: Includes technology level (IT, ICT, smart computing, connectivity, etc.), governance ((transparency, inclusiveness, leadership, partnership with private sector) and politics (includes power relations, lobbying, etc.)
CONCLUSION

It can be seen that various city development models have been developed to encompass the sustainable development concept. Taking into account of the sustainable development agenda comprising economic, environmental and social dimensions, many concepts such as Green City, Sustainable City, Liveable City and recently a concept identified as Smart City have emerged. This paper has undertaken a review of the various sustainable development concepts ranging from the earlier concept of green urbanism which has evolved through the garden city. Though the earlier concept has been found to evolve and encompass the many facets of sustainable development, the pillars of green urbanism set out the origins for green sustainable development.

Through the review and critical evaluation of past researches on city development, this paper has made the comparison of the various types of city development concepts from Garden City to Smart City, providing characteristics of each concept and establishing the timeline of each concept. The analysis of the available materials shown in a matrix has highlighted that there are overlapping and unique features of each and every one of these city development concepts. It has been found that Smart City encompasses the dimension of the Sustainable City. This can be seen in the emphasis on the economic and institutional dimensions of development. Both city concepts promote economic growth as an important requirement to ensure sustainability, whilst acknowledging sound institutional support as the driver of economic growth. Wherein Sustainable City does not spell out the specific type of business environment needed, Smart City is geared towards an ICT-based economy which is both ICT-based and ICT-driven. However, it is erroneous to conclude that the later identified concept of sustainable development of Smart City only concerns ICT. When compared to other city types, Smart City places significant interest in social and environmental developments as well. Thus, it can be concluded that whilst many city development concepts has taken in many considerations to meet the definition of The World Commission on Environment and Development (1987) in meeting sustainable development needs (that is to encompass the needs of the present without compromising the ability of future generations to meet their own needs), the various city development concepts has attempted to include the concept of sustainable development which comprises three aspects: economic, social and environmental. The differences may be observed through the various emphases of the management and the development of the cities.

REFERENCES


ARTICLE

Provisional Attitude of Malaysia Gen Y’s Towards Alternative Housing Tenure

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ABSTRACT

There is no universally accepted definition of Generation Y (‘Gen Y’). However, it can be seen that, a few researchers used the birth dates ranging from the mid 1980’s until early 2000. Gen Y in Malaysia forms a major segment of the population and can be considered a significant proportion of future house buyers. Nevertheless, the escalation of house prices nowadays has pushed home ownership beyond many groups in Malaysia, especially among Gen Y in major Malaysian cities. Among factors that contributed to the housing affordability issue are the government’s past home ownership-friendly policy and the ease of mortgage. In Malaysia, the conventional types of housing tenure available for Gen Y are home ownership and renting. Both conventional housing tenures carry many disadvantages to the Gen Y. Therefore, there should be another choice of housing tenure especially for Gen Y. Housing co-operatives can collectively provide a type of housing that is otherwise unaffordable through the market system. Hence, it can provide an alternative housing tenure for Gen Y. This paper aims to present the preliminary findings about the acceptance of Gen Y towards housing co-operatives. A questionnaire survey was administered on 200 respondents comprising the Gen Y living within the Greater Kuala Lumpur/Klang Valley area. The data obtained was analysed using Statistical Package for Social Science (SPSS) to generate descriptive as well as inferential statistics. The initial findings reveal that the respondents were willing to consider the housing co-operatives as an alternative housing tenure after they learn about its characteristics. In conclusion, the housing co-operatives could be one of the alternative housing tenures that can be offered to address affordability issues among the Gen Y in Malaysia.

Keywords: Gen Y, Housing Affordability, Alternative Housing Tenure, Housing Co-operatives

1. INTRODUCTION

According to literature review, it can be concluded that there is no specific year definition of Generation Y (‘Gen Y’). However, it can be seen that, a few researchers have used the year of birth ranging from the mid 1980’s until early 2000 to define Gen Y. As reported by The Star newspaper, the Minister of International and Trade Industry states that the Gen Y populations represents a big percentage of the population in Malaysia (The Star, June 2, 2013). Based on Population Distribution and Basic Demographic Characteristics Report 2010, there is about 10.8 million or 38.2% of the population represents those aged 15-34 years old and this group is resulted as the biggest portion of the population (Department of Statistic, 2011).

Housing forms one of the important basic needs for humans. In Malaysia, the provision of affordable housing is an important agenda in the five-yearly Malaysia Plans. However,
escalating house prices over the years has alerted the majority of Malaysians that home ownership now has been pushed beyond the reach of many groups in Malaysia, especially the Gen Y in major cities. The government’s past friendly home ownership policy and the ease of obtaining mortgage have been contributing to this housing affordability problem.

Based on the research that was conducted by Kongres Kesatuan Sekerja Dalam Perkhidmatan Awam (CUEPACS), it has been proven that 60% of the government employers with income less than RM 3,000 per month cannot afford to buy a house. Other than that, there is increasing discussion on how the young generation, especially Gen Y, that have just started their career cannot afford to purchase a house. The starting salary is basically enough to pay the cost of living which has become more expensive and repayment of education loan for instance the Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) Loan (Utusan Malaysia, Disember 10, 2013).

As mentioned by Archana and Heejin (2008), the Gen Y consumers are considered as the future market target group as it represents a significant consumer segment. This shows that the Gen Y generally in Malaysia and specifically in Greater Kuala Lumpur/Klang Valley area will become a target group for the housing market. Thus, the concern about high house prices is an area which needs to be addressed by policymakers.

In Malaysia, the conventional types of housing tenure available for Gen Y are home ownership and renting. However, it is argued Gen Y should be given a choice of housing tenure other than renting and owning as a way to address the current housing problem. In Malaysian context, the concept of housing co-operatives had started long time ago in year 1949. The main objective of establishment housing problems that involved increasing rental that was worsen by high rate of interest for house purchase. In terms of assisting the people, housing co-operatives offers reasonably price housing that is affordable to its members. (Salleh & Bujang, 2008). This research aims to present the preliminary findings about the acceptance of Gen Y towards housing co-operative as an alternative housing tenure for them in the future.

2. LITERATURE REVIEW

2.1 Generation Y (Gen Y) And Housing Issue

A review of the literature reveals that there is no agreed definition of Gen Y in terms of year of birth. Table 1 shows the definition of Gen Y indicated by year of birth according to authors:

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year of Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Der Waard et al (2013)</td>
<td>Early 1980 to the early 2000s</td>
</tr>
<tr>
<td>Delbosc and Currie (2013)</td>
<td>Early 1980 to the early 2000s</td>
</tr>
</tbody>
</table>
From Table 1 above, it can be seen that most of the authors agreed that the range of year of birth to define Gen Y is early 1980s to 2000. This is the definition of Gen Y adopted in this study.

According to Gybson, Gen Y is also known as the millennials, echo boomer and nexters (Gybson, 2013). Martin (2005) stated that Gen Y are unique in that they are very adaptable. In other words, they are able to adapt to new people, place and circumstances and sometimes also demand for change. These characteristics can support the case for a new housing tenure in Malaysia for Gen Y as they are likely to accept and adapt to it. Another unique characteristic of Gen Y is that they are independent and self-reliant. In term of living arrangement, this can be signalled by the tendency of Gen Y to move out of their parents’ house as soon as they could.

Previous housing studies done on Gen Y include the residence location choice (Atherwood, 2014). In Malaysia, as all know that the price of houses especially in Greater Kuala Lumpur/Klang Valley area is pretty expensive and keep increasing over the years causes the first-time homebuyers as well as Gen Y cannot afford to purchase it. Other than that, the Gen Y group is being considered as tech savvy, early adopters of new technologies such as computer and mobile phones and at the same time vast amount of internet user (Archana & Heejin, 2008). According to Islam, Cheong, Yusuf, and Desa (2011), the common characteristics of Gen Y are independent, confident, diverse, collaborative and also selfish. Furthermore, Gen Y is perceived as having high confidence i.e they believe that they can achieve everything including owning a house (Puybaraud, 2010). In addition, they (Gen Y) are liable to be patriotic, having high morality, sociable, keen to fight for freedom and also have strong values for home and family (Eisner, 2005). Whilst suggesting that Gen Y are keen to provide shelter for their family, these characteristics also suggest that the Gen Y are open to new types of housing.

2.2 Intermediate Tenure as a ‘Deferred’ Ownership Strategy

Intermediate tenures have recently emerged in industrial countries both to address housing unaffordability problem and to help achieve a sustainable housing market (Monk & Whitehead, 2011; O’Neill, 2008). Monk and Whitehead (2011) has defined intermediate tenures as “mechanisms or products designed to enable households who cannot otherwise afford home ownership or high-quality rented housing to enter it with the aid of some kind of limited subsidy”.

Overseas intermediate tenures include shared ownership, equity loans for first-time buyers, key worker housing, cost renting, deed restricted mortgages, limited or zero equity cooperatives and community land trusts (Monk & Whitehead, 2011; O’Neill, 2008). Housing cooperatives may be divided into market-rate, limited-equity and zero-equity; whereby residents own a share in the cooperative property unit offering return of profit that ties with their type of share (O’Neill, 2008). Each country adopts basic housing cooperatives models which are suited to the country’s international arrangements and local needs.

2.3 Housing Co-Operatives In Malaysia

In post-independence Malaysia, according to Newcombe (1956), the scarcity of accommodation in urban area became worse due to the changes in socio-economic activities after the war and also the changes of urban pattern as a result of rural-urban migration. At that time, the lack of housing units with the increasing of the housing prices had caused the widespread demand for tea money (a bribe used to facilitate any business
dealing) to obtain a house. As this scenario happened, it caught the attention of the co-operative movement to be involved in housing provision (Dass, 1971).

According to Dass (1971), there are various types of housing co-operatives. In Malaysia, housing co-operatives is perceived as co-operatives that acquire land, develop them and construct homes and finally transfer them to the members when loans are fully and completely settled. The members then take full control and enjoy complete ownership.

According to Cheah (1986), the escalation of house prices and the high cost of borrowing with short repayment term became the reasons for the growth of the housing co-operatives in Malaysia. The number of housing co-operatives increased from 2 in year 1949 to 30 after 1957 with an asset RM62 million. Besides the formation of Federation of Co-operative Housing Societies, the setting up of Housing Trust that is based on the Housing Trust Ordinance No. 62 1950 also had been one of the factors that increase the number of housing co-operatives. The Housing Trust functions are to provide houses at the national level and additionally supplied technical assistance, advice and also financing to the co-operatives (Rahim, Bakar, & Abdullah, 1991).

2.4 Limited Equity Housing Co-Operatives

Limited equity housing co-operatives is a type of housing co-operatives that entails the purchaser not directly owning the unit of the building or receiving the deed to the unit. However, they just own a share of the housing unit (Mallin, 1990). In the LEHC, it comprises a few shareholders in one unit of house. This tenure is based on democratic basis which is each of the shareholders have rights to control the housing. The housing could be the apartments, condominium, townhouses or individual housing. Every month, they (the shareholders) just pay for the amount of their shares that might cover the operating expenses (National Association of Housing Cooperatives, 2013). One of the benefits of the LEHC is the individual does not need a mortgage for his unit since the individual share purchase price is very low. Besides, according to NAHC, when it comes to the LEHC, since the shareholders just buy the share instead of the property, they will be able to make a share loan instead of property loan. This type of loan is alike the normal mortgage in the sense that the borrower still needs to make the monthly payment on the charge to the lender (National Association of Housing Cooperatives, 2013). However, the amount of loan is significantly lower than conventional property loan.

3. METHODOLOGY

This research specifically adopted the quantitative approach in order to achieve the research objective. Questionnaire survey served as a tool in achieving this objective and contained structured questions. The potential respondents that have been selected for the questionnaire survey is the Gen Y and primary target group of respondents for this research are those who are born between 1980 to 2000. In order to conduct the questionnaire survey, convenience sampling has been used to select the respondents. Convenience sampling can be seen as a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher. As reported by Piaw (2012), in the convenience sampling procedure, respondents will be selected whichever subject is closest to the researcher. Based on the survey, about 200 respondents which are among Gen Y have been chosen and all of them are living in Greater Kuala Lumpur/Klang Valley area that covered 10 municipalities i.e. Kuala Lumpur, Putrajaya, Shah Alam, Petaling Jaya, Klang, Kajang, Subang Jaya, Selayang/Gombak, Ampang Jaya and Sepang.
The questionnaire data then was analysed using Statistical Package for the Social Science (SPSS) to generate descriptive as well as inferential statistics. Explicitly the results were produced in the form of frequency and weighted average. Frequency analysis and weighted average are used for ‘ranking’ and the degree of importance among the factors.

For secondary data, the information was gathered from institutional websites, government reports, magazines, newspapers official publication and other related materials. The secondary data was reorganized as the literature review for this research and served as reference materials.

4. RESULTS AND DISCUSSION

Results from the background section of the questionnaire survey show that most of the respondents are Malay with the range of age between 18 to 24 years old. Majority of them work in the professional and management sector. Other than that, the results also showed that the majority of them have the income between RM 2,500-RM 4,000 per month. For the living arrangement of the respondents, the majority of them which is about 107 (53.5%) were renting and only 24 (12%) were living in a house purchased.

Table 2 indicates the income level (per month) of the respondents. From the survey, the highest percentage is 44.9% which is between RM 2,500 to RM 4,000 and followed by income level less than RM 2,000 which is 37.2%. Only 10.9% respondents indicated income more than RM 4,000 and only 7.1% of respondents indicated income level of between RM 2,000 to RM 2,400. The missing data represented those respondents who intentionally did not answer the question as they have no income level such as the university students and also those refused to answer what is perceived as a sensitive question. From the table, it can be concluded that most of the respondents came from lower and lower-middle income group. The income also plays an important role in influencing the affordability to buy a house (Salbi, 2002).

Table 2: Income Level of the Respondents (Per Month)

<table>
<thead>
<tr>
<th>Salary</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;RM2000</td>
<td>58</td>
<td>29.0</td>
<td>37.2</td>
<td>37.2</td>
</tr>
<tr>
<td>RM2000-RM2400</td>
<td>11</td>
<td>5.5</td>
<td>7.1</td>
<td>44.2</td>
</tr>
<tr>
<td>RM2500-RM4000</td>
<td>70</td>
<td>35.0</td>
<td>44.9</td>
<td>89.1</td>
</tr>
<tr>
<td>&gt;RM4000</td>
<td>17</td>
<td>8.5</td>
<td>10.9</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>156</strong></td>
<td><strong>78.0</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Missing System</strong></td>
<td><strong>44</strong></td>
<td><strong>22.0</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
<td><strong>100.0</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1 reflects the living arrangement of the respondents. Based on the analysis, it shows that most of the respondents which is 107 of them (53.5%) are renting a house compared to owning which only 24 respondents (12%). Besides, 48 (24%) and 14 respondents (7%) out of 200 are living with parents and staying at university accommodation respectively. As for Others, there are 7 respondents (3.5%) staying at company’s quarters and also with family. According to the results, it indicates that most of the respondents tend to rent instead of owning their dwelling. This result generally can conclude that the majority of the respondents comprise non-homeowners.

Table 3 presents the intention of the respondents to own house. Based on the survey, the highest responses given by respondents are “yes” or having intention to own the house with 152 respondents (86.4%). In contrast, there are 19 (2.8%) and 5 respondents (10.8%) that say “maybe” and “no” respectively. For the missing data, it represents that the rest of the respondents that already owned the house, thus did not need to answer this part of question.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>152</td>
<td>76.0</td>
<td>86.4</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>2.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Maybe</td>
<td>19</td>
<td>9.5</td>
<td>10.8</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>88.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System</td>
<td>24</td>
<td>12.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
For the Likert Scale questionnaire, the weighted average approach is used to analyse the data obtained. Two weighted average scores were calculated and then organized according to their respective values to identify the importance of factors chosen by the respondents. The first set of weighted average values take into account the Neutral responses to indicate respondents’ who were uncertain or did not have enough information to make a definite judgement. In this first set of values, Neutral is given the value ‘3’. The second set of weighted average values simulated a ‘Forced Choice’ situation whereby Neutral is given the value of ‘0’. This is done to ‘force’ a positive or negative outcome with no middle grounds.

Based on Table 4, both average scores (unsure=3, unsure=0) show that “having a physical structure where you and your family feel safe against the weather and strangers” becomes the most important factor of owning a house with the average scores 4.63 and 3.58 respectively. This is strongly supported by Tan (2009) that has stated that home offers for instance basic protection from physical discomfort or harm (shelter). Besides, a home can give protection from unwanted social contact (privacy) as well. In Place Attachments, Low and Altman (1992) explained that the attachment to home is at the centre of these attachments. Home is stated as the individual place, denoted a place of protection, safety, security and nourishment. The importance of owning a house also is influenced by factor which is as “a good place to raise children and at the same time provide them with a good education”. Based on the literature, Drew (2014) recorded that one of the benefits of home ownership is giving the better outcomes for the children. In this result, it indicates that this factor is ranked at the first ranking as well with the average score 4.63 (unsure=3). However, it shows the changes which is dropped to 3.57 (unsure=0) and ranked at the second ranking. Furthermore, the third ranking is “a good investment” with the score 4.53 (unsure=3) and the position remain the same with the score 3.43 (unsure=0). Based on the current situation in Malaysia whereby the price of the house keeps escalating year by year, this supports the judgement of respondents that home ownership represents good investment in the future.

### Table 4: The Average Score of Importance of Owning a House

<table>
<thead>
<tr>
<th>Importance of Owning a House</th>
<th>Average Score when Unsure=3</th>
<th>Ranking</th>
<th>Average score when Unsure=0</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having a physical structure where you and your family feel safe against the weather and strangers</td>
<td>4.63</td>
<td>1</td>
<td>3.58</td>
<td>1</td>
</tr>
<tr>
<td>Having a good place to raise children and provide them with a good education</td>
<td>4.63</td>
<td>1</td>
<td>3.57</td>
<td>2</td>
</tr>
<tr>
<td>A good investment</td>
<td>4.53</td>
<td>3</td>
<td>3.43</td>
<td>3</td>
</tr>
<tr>
<td>Owning gives more satisfaction than renting for occupants</td>
<td>4.52</td>
<td>4</td>
<td>3.42</td>
<td>4</td>
</tr>
<tr>
<td>Having a title which provides security against eviction</td>
<td>4.46</td>
<td>5</td>
<td>3.30</td>
<td>5</td>
</tr>
<tr>
<td>A good way to build up wealth that can be passed along to my family</td>
<td>4.41</td>
<td>6</td>
<td>3.30</td>
<td>5</td>
</tr>
<tr>
<td>Gives you control over what you do with your living space, like renovations and upgrades</td>
<td>4.27</td>
<td>7</td>
<td>3.12</td>
<td>7</td>
</tr>
</tbody>
</table>
Figure 2 represents the knowledge of the respondents about housing co-operatives. The questions were formulated in a straightforward manner i.e. “Have you ever heard about Housing Co-operatives?” The results indicated that more than half of the respondents did not have knowledge about housing co-operatives with the percentage of 69%. However, only 62 respondents (31%) indicated that they know what housing co-operatives are.

In contrast, Figure 3 gave the results when respondents were given a choice of possible description of housing co-operatives to elicit respondents’ intrinsic knowledge of housing co-operatives. When given prompts, it can be seen that the number and % of respondents claiming no knowledge of housing co-operatives drops. 36.5% instead of 69% respondents now were not sure about housing co-operatives. There were an almost similar proportion of respondents who chose the most accurate general description of housing co-operatives (23%) and the description of the Malaysian housing co-operatives format (21.5%). This can indicate that there may be a fair level of intrinsic knowledge of housing co-operatives among respondents.

Figure 4 shows that the willingness of the respondents to be a co-operative member. From the survey, the result shows that 111 respondents (55.5%) which represent the majority were willing to be co-operative members. Furthermore, 66 (33%) of them answered “Unsure”, whereas a small proportion i.e. 23 (11.5%) respondents were not willing to be a co-operative members.
The result in Figure 4 is further supported by the result obtained when the respondents were asked if they would consider buying a house developed by housing co-operatives. Figure 5 shows that most respondents (54%) would consider buying a house developed by housing co-operatives, compared to only 11.5% who would not do so. Martin (2005) stated that Gen Y were adaptable, able to adapt to new people, place and circumstances. This supports the willingness of respondents to consider purchasing housing co-operatives products compared to those who were unwilling to purchase. However, 69 respondents (34.5%) were “unsure” about buying the house developed by housing co-operatives. This could be explained by the natural tendency of people to seek more information when unsure about a product.

**Figure 4 : Willingness to be a Co-operative Member**

**Figure 5 : Consideration to Buy a House Developed by Housing Co-operatives**

Figure 6 shows the expectation of the respondents towards the housing scheme developed by housing co-operatives. Based on the table, the majority of the survey participant which are 91 respondents (45.5%), expected that the houses price developed by housing co-operatives to be lower than the market price. This result can be supported by Gwin and Ong (2004) who stated that house price affects an individual willingness to pay the price set by the seller or developer. Other than that, the low and low-medium income level of respondents suggests that logically, they have to consider the price of the house. Also, 36 respondents (18%) expected that the quality of the houses developed by housing co-operatives to be better than “normal developer”. Furthermore, 42 (21%) of the respondents expected that the housing co-operatives give the priority to the members in the sale of housing co-operatives. A small portion of respondents expected negative experiences with housing co-operatives; only 4% expected the housing co-operatives to build houses located...
at poor locations and merely 0.5% expected late delivery of units. The percentage of respondents who were unsure about what to expect from housing co-operatives was 11%, still a significant amount.

Figure 6: Expectation from Housing Scheme Developed by Housing Co-operatives

Figure 7: Willingness to Consider LEHC by the Respondents

Figure 7 shows the willingness to consider Limited Equity Housing Co-operatives (LEHC) before and after knowing its characteristics. According to the analysis, the initial result shows that the highest frequency goes to the respondents who are willing to consider LECH as the alternative housing tenure for them which is 39.5%. Moreover, after briefed about its characteristic, its percentage increased to 51.5%. This figure illustrates that the Gen Y group is willing to change for a better life style. This statement is supported by the literature that Gen Y demands change (Martin, 2005). Conversely, compared to the initial result, the percentage respondents not willing to consider LEHC decreased from 33% to 26%. Additionally, the percentage of “Unsure” in considering LEHC as their alternative housing tenure automatically decreased from 27.5% to 22.5%. The trend shows that the respondents generally were willing to consider the LEHC after knowing its characteristics.
Finally, the respondents were asked to rate the attractiveness of LEHC characteristics, whereby 1=Very unattractive, 2=Unattractive, 3=Unsure, 4=Attractive and 5=Very attractive. Again, two sets of weighted average were produced i.e. when Unsure=3 and Unsure=0.

Table 5 shows the ranking of characteristics of Limited Equity Housing Co-operatives (LEHC) based on their attractiveness. According to the analysis, when Unsure=3, the first ranking indicates that “lower capital payment compared to buying a house outright” is the most attractive characteristics that was chosen by the respondents with the average score 4.06 (unsure=3). Since the affordability to pay for housing is linked to income, the lower initial capital seemed to be most attractive to respondents who were mainly from low to low-middle income range. The second highest ranking in terms of LEHC attractiveness with the score 4.02 (unsure=3) is “higher tenure security compared to renting i.e difficult to evict”. Security of tenure is one of the main contributors of ontological security sought by most people. Ontological security can be provided through enabling a sense of constancy, facilitating daily routine, ensuring autonomy and freedom and guaranteeing a secure base (Dupuis & Thorns, 1996). The lowest ranking of the LEHC characteristics by the respondents was the fact that LEHC unit is unable to be sold at market price as it is non-profit entity. This is presented by the average score (2.81). The analysis illustrates that although the co-operative members are attracted by the idea of keeping the LEHC unit affordable to future buyers, however the necessity to sell the unit below the market price was quite unattractive. This situation conforms to the characteristics of Gen Y which is a bit selfish and individualistic (Jones, 2009).

Table 5: Characteristics of LEHC

<table>
<thead>
<tr>
<th>Characteristic of Limited Equity Housing Co-operatives</th>
<th>Average Score when Unsure=3</th>
<th>Ranking</th>
<th>Average Score when Unsure=0</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower capital payment compared to buying a house</td>
<td>4.06</td>
<td>1</td>
<td>2.83</td>
<td>1</td>
</tr>
<tr>
<td>Higher Tenure security compared to renting i.e difficult to evict</td>
<td>4.06</td>
<td>2</td>
<td>2.63</td>
<td>2</td>
</tr>
<tr>
<td>LEHC have control over new occupants</td>
<td>3.84</td>
<td>3</td>
<td>2.57</td>
<td>3</td>
</tr>
<tr>
<td>Since members cannot sell their unit above a certain price, the units are kept affordable</td>
<td>3.59</td>
<td>4</td>
<td>2.48</td>
<td>4</td>
</tr>
<tr>
<td>Not able to sell your unit without other co-op members’ consent</td>
<td>2.87</td>
<td>5</td>
<td>1.79</td>
<td>5</td>
</tr>
<tr>
<td>Not able to sell your unit at market price as Limited Equity Housing Co-operatives are non-profit entities</td>
<td>2.81</td>
<td>6</td>
<td>1.75</td>
<td>6</td>
</tr>
</tbody>
</table>

5. CONCLUSION

Based on the analysis, it is fair to conclude that more than half of the respondents were currently renting although majority of them have the intention to own a house in the future. However, the current income range indicated by respondents showed that they cannot afford to buy in the near future. From the analysis, it can be seen that most of the respondents lacked knowledge of housing co-operatives. Nevertheless, most of them were willing to be co-operative members and would consider buying a house developed by housing co-operatives as it is perceived to offer the lower housing price rather than market.
As for the LEHC, at the beginning most of the respondents did not show interest toward it. Interestingly, after briefing them its characteristics, respondents were willing to consider LEHC as the alternative tenure for them in the future. However, results confirmed that LEHC is not quite well-known in Malaysia. In conclusion, these preliminary findings indicate that most of the respondents have shown an interest in the housing co-operatives scheme.

REFERENCES


The Star. (June 2, 2013). Quality lure for Gen Y youths.

The Assessment of Young Couples' Behaviour on Expenditure Towards Homeownership

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*Corresponding author

ABSTRACT

Housing is a basic human need and becomes a dream for everyone especially among the young couples and the newly marrieds. However affordability, as usually measured by the level of income, has often become an issue with these groups’ pursuit of home ownership. Income levels and house prices are not the only determinants of housing affordability. In fact, spending behaviours among young couples could serve as a reference in determining the level of their affordability. Therefore, this study aims to examine the spending patterns of young couples that could impact their ability to buy a house. Data was obtained from interviews with 215 respondents aged between 20 and 35 years living in the state of Selangor, Malaysia. Three sets of data were generated for the purpose of Chi-square and Pearson correlation analyses. The results show that majority of respondents representing those unable to buy a house spent much of their incomes on miscellaneous spending which involves unplanned expenditure such as groceries shopping, dining out, movies, clothing, grooming, women's accessories and makeup while those who already own a house, were found to emphasise on savings. This explains that the spending patterns among young couples have an impact on house buying decision and should be noted in determining housing affordability.

Keywords: Expenditure, Young household, Affordability, Housing, Spending, Saving, Malaysia

INTRODUCTION

Housing supply in real estate market today should be a catalyst for community development (Hashim, 2010) regardless of young or old people. Yet many housing units remain unsold in the market more than 2 years after their completion. Despite the various home ownership programmes introduced by the government, home ownership among young couples is still low. A majority of young couples still do not have their own house despite having been married and having children. The inability to own a house among young couples is believed to result from rising house prices (Lin et al., 2014). However, aspects of this inability should be studied in more detail. Buyer behaviour seemingly affects the rate of house ownership indirectly (Majid, 2010). Attitudes, thoughts and actions of the potential buyers could affect their house purchase decisions. Although housing affordability
is generally based on people’s income (Rappaport, 2008; Khan et al., 2012; Lin et al., 2014), this factor alone does not determine the level of affordability. This is because each earned income is tied to certain types of expenditure that should be prioritized by potential buyers before any decision for buying a house (Thalman, 2003). Many previous studies had identified the relationship between individual incomes and expenses in determining affordability (Hulchanski, 1995; Hui, 2001; Kutty, 2005; Whitehead, 1991; Moore & Skaburskis, 2004). Thus housing affordability among young couples should take into consideration the spending patterns that emanate from their behaviour. This study has highlighted the pattern of household expenditure as the new aspect in benchmarking house affordability apart from the current measurement.

AFFORDABLE HOUSING AMONGST YOUNG COUPLE HOUSEHOLD

Malaysia Government (2012a; 2012b) defines a young married couple as a group within the age range of 21 to 34 years. This group represents approximately 20% of the total population and 33.3% of the total labour force. Meanwhile, Wilcox (2007) defines a young household as a couple whose members are aged 20 to 39 years. This age group comprises young adults with the capacity to work and contribute to labour supply in the country (Nozin, 2013). Young people in this age group were reported to have considerably higher rates of impulsive spending than the population as a whole, often based on the use of credit (Atkinson & Kempson, 2004). As a result, housing affordability becomes widespread amongst the group. Purchasing a house on a single income is almost a non-option for most young adults when even dual-income couples are struggling to find affordable housing (Heath, 2008).

Affordability relates to the relationship between income distribution, household income (Hui et al., 2014), cost and the financial condition in housing submarket (Moore & Skaburskis, 2004). It is also associated with a house purchase that would not cause excessive burden on a household’s monthly financial commitment (Majid et al., 2012; Pollack et al., 2010). In Malaysia, the 30% limit of gross income used as a rule of thumb to assess the financing for the affordable housing thus becomes the reference for financing risk (Sani, 2012). According to Nguyen (2005), a household would pay no more than 30% of their annual income. It means that to be considered affordable; monthly mortgage repayment should be less than 30% of a household’s income. Meanwhile, a household who pays more than 30% of its annual income for housing is considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care. However, the fixation of 30% is quite conjectural. In fact, the ability to own a home is often dependent on the spending behaviour (Suaid, 2012) of potential buyers on their existing income. Non-housing household expenditure should be balanced with cost of homeownership in determining the affordability (Abd Aziz, 2011). Meanwhile, sound financial structure and efficient expenditure patterns also could influence house affordability among potential buyers (Jose, 2002).

HOUSEHOLD INCOME AND EXPENDITURE

Household will spend their income income on various items along the road to home ownership. In the state of Selangor, urban household income was recorded at RM 4,025 per month in the year 2009 after increasing 8% from year 2007 (Malaysia Government, 2011). Meanwhile, household income also increased by an annual average of 7.2% from 1970 to 2009 (Syukry, 2012). The income available to each household, usually becomes the main measure of affordability. However, housing affordability should consider expenditure patterns among the potential buyer (Fratantoni, 2001). According to Abd.Ghani &
Ab.Ghani (2006), each house buying decision must factor household income and household expenditures such as food and drinks, clothing, transportation, communication, education and those fulfil household consumptions. The expenditure also indicated substantial increases for related item such as housing, water, electricity, gas and other fuels (10.2%), transport (94.6%), food and non-alcoholic beverages (60.9%) (Malaysia Government, 2012 a; 2012 b).

**TYPES OF HOUSEHOLD EXPENDITURE**

The monthly loan repayment is one of the major expenditure items among the potential house buyers (Majeske & Lauer, 2013). This payment could be their personal loan or vehicle loan. Vehicle loans account for the second largest proportion of household debt (Stephens, 2008). According to Becker & Shabani (2010), most household who have mortgage debt would reduce their attention in owning more assets.

Food and non-alcoholic beverages is one of the items measured in determining expenditure (Fiedler, 2013; Jacobson et. al, 2010). Food is a necessity as it provides energy and strength for growth and healthy lifestyle. Global food prices have continued to rise, recording a 15% increase from October 2010 to January 2011 (Cuesta, 2011). A situation of continuous food price increase could lead to food denial syndrome.

Transportation is a regular expenditure incurred by any household that contributes to crucial cost (Stephens, 2008). LeRoy and Sonstelie (1983) and Tivadar (2010) indicated that transportation cost can affect the spatial distribution of homeownership. Meanwhile, most of the households prefer reduced transportation costs to the workplace, leisure or any other facilities. However, 15% of household incomes have been spent on own transport, transport maintenance, fuel and as well as public transport expenditures (Cervero, 2011). In addition, expenditure on utilities has also been spent including electricity, water, sanitary, sewage or other fuel sources and services provided by authority for the smooth operation of that particular house. Thus, utilities are an integral part of fixed expenses that should be paid by respective homeowners (Phipps & Burton, 1998).

Communication cost is undoubtedly needed to be considered in determining the level of spending (Igor et al, 2002). With the fast growth of telecommunication product and services, each household needs to adhere to this trend which would increase the communication expenditure. High-speed data cable enables teleconferencing, face-to-face video calls, internet TV and global positioning system (GPS). These technologies provide convenience at a cost. According to Malaysia Government (2011a; 2011a), the number of 3G subscribers in Malaysia is 10.3 million while the number of short messages services (SMS) sent is about 93.1 billion.

Furnishing, household equipment and routine household maintenance also become one of the expenditure item (Blundell et. al, 1994) It includes movable appliances such as beds, sofas, tables, chairs, drawers, lighting equipment, repainting, pictures, sculptures, tapestries, carpets, rugs, air-conditioner, ceiling or floor fan, lighting equipment, kettles, washing machine, glassware, tableware and utensils (Nozin, 2013). It also includes smaller item such as gardening tools, brooms, brushes, duster, bin which is necessary for the maintenance of household and the purchase of non-durable item such as detergent, disinfectant, washing powder, and insecticide.

Healthcare and education also become part of people’s expenditures (Jung & Thorbecke, 2003; Ham et. al, 2004; Parker & Wong, 1997). Aspects of health always become primary concerns among young couples. Cost of education towards the young couple only applies
to a certain condition when either one or both husband and wife is still studying or education for their children (Dresch, 1986). In addition, the majority of young couples still have the remaining repayment of educational loans (Harding, 1995). Even if they do not have credit card debts, they are tied to repayment of study loan (Callender & Jackson, 2008). This education lending trends have created a society that has always been in debt and will greatly affect housing affordability among young couples (Cristie et al, 2002; Sani, 2012; Hussin et al, 2005).

Miscellaneous spending refers to other expenses (Wilkes, 1995) which do not meet the criteria for the other types of expenditures. This may include unplanned groceries shopping, dining-out, movies, clothing, grooming, women’s accessories and makeup, fees for sport at gym or club membership and any other item or expenditure that has the same characteristics as above (Nozin, 2013). Trends in household expenditure could vary from one individual to another.

Savings are absolutely essential in family planning (Bosworth et al., 1991) which could help to support young couple during the unstable time, unstable economic and financial conditions, medical emergencies or even immediate repairs of property. Savings are also important as retirement plan, for expensive trips, as well as sinking fund for home, car or other material possessions (Louth, 2002, Banks et al, 1998). However there is no one-size-fits-it-all definition for how much a young couple should save their income since income is different across area, age, career and qualification. However, Opdyke (2008) proposed a 50:30:20 formulas where 20% of the monthly income received goes into a savings account while the rest 80% goes toward expenditure on basic necessities and wants.

RESEARCH METHODOLOGY

Respondents for study comprised 215 young people of 20 to 34 years in the state of Selangor, Malaysia. The questionnaire comprises nine categories of expenditure as used in household’s income & expenditure survey report (HIES) published by the Department of Statistics, Malaysia. Data has been classified into three sets corresponding to Set O (for Overall), Y (for owning a home) and N (for not owning a home). Set O covers the entire respondent population whereby chi-square analysis was used to examine the significance of the nine categories of expenditures in determining the affordability. For the other two sets (N: 84) and (Y: 131), correlation analysis was employed to examine the extent to which all of these expenditures influence housing affordability among young couple households.

THEORETICAL FRAMEWORK

This research was designed based on the theoretical framework as shown in Figure 1. Household income will be the main factor determining the level of housing affordability. Every purchase decision is based on buyer's spending patterns. Therefore, this research will examine the spending patterns of nine existing categories that are capable of affecting the level of housing affordability.

RESULTS

The study had set out to examine the homeowner group and the non-home owner group across six different profile elements. There is a larger percentage of respondents (34.4%) who do not own a house at the age of 30 years and below as compared to those who own (15.8%) at the same age bracket. The same table also suggests that, at the lowest education rank, the percentage of homeowners is much smaller than for non-home owners; this
scenario however changes as we move higher and in fact begins to reverse as we move to the next higher rank. In terms of mobility, all respondents own a transport of one sort or another regardless of their home ownership status. There is a fairly even proportion of public-sector and private-sector employees (30.2% as against 30.7%) among the house owner group. However, the proportion is relatively much higher towards the private-sector employees (32.6% as against 6.5%) when it comes to the non-house owner group. 30.7% of respondents that have their own house already have at least two children. The income levels for both respondent groups display scattered distribution. The majority of the respondents who have had their own house have incomes between RM1,500 and RM5,500 while those without a house also recorded a high percentage of their income from RM4,500 and below (Table 2).

Figures 2 to 10 show the distribution of certain types of expenses among young couples on nine different income levels. Each of group for household income per month has been coded as the following table (Refer Table 1)

![Figure 1: Theoretical Framework](image)

**Table 1: Label for Household Income Group per month**

<table>
<thead>
<tr>
<th>Group for Household Income per month</th>
<th>Label for each group</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; RM 1,500</td>
<td>G1</td>
</tr>
<tr>
<td>RM 1,501 - RM 2,500</td>
<td>G2</td>
</tr>
<tr>
<td>RM 2,501 - RM 3,500</td>
<td>G3</td>
</tr>
<tr>
<td>RM 3,501 - RM 4,500</td>
<td>G4</td>
</tr>
<tr>
<td>RM 4,501 - RM 5,500</td>
<td>G5</td>
</tr>
<tr>
<td>RM 5,501 - RM 6,500</td>
<td>G6</td>
</tr>
<tr>
<td>RM 6,501 - RM 7,500</td>
<td>G7</td>
</tr>
<tr>
<td>RM 7,501 - RM 8,500</td>
<td>G8</td>
</tr>
<tr>
<td>&gt; RM 8,501</td>
<td>G9</td>
</tr>
<tr>
<td>Category</td>
<td>Home ownership (%)</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>21-25</td>
<td>5.6</td>
</tr>
<tr>
<td>26-30</td>
<td>10.2</td>
</tr>
<tr>
<td>31-34</td>
<td>24.7</td>
</tr>
<tr>
<td>&gt;35</td>
<td>20.5</td>
</tr>
<tr>
<td>Education Background</td>
<td></td>
</tr>
<tr>
<td>SPM or Equivalent</td>
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<td>28.4</td>
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<td>21.4</td>
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<td>Units of Lorry</td>
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<td>3</td>
<td>30.7</td>
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<td>4</td>
<td>5.6</td>
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<td>7.0</td>
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<td>RM 2,501 - RM 3,500</td>
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<td>5.1</td>
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<td>RM 6,501 - RM 7,500</td>
<td>5.6</td>
</tr>
<tr>
<td>RM 7,501 - RM 8,500</td>
<td>2.8</td>
</tr>
<tr>
<td>&gt; RM 8,501</td>
<td>11.2</td>
</tr>
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</table>
Figure 2 shows the majority of young couples spend up to RM1,000 on existing monthly loans payment. From this figure, 9.3% of respondents earning between RM5,501 to RM6,500 (G6) pay between RM500 and RM1,000 for these expenses (84.6%) while 70.4% earning RM1,500 to RM2,500 (G2) spends below RM500.

Expenses for food and beverages per month also display different amounts. 100% of respondents (G7) had contributed RM 750 from their income for this category. Only 16.7% respondents under G9, 15.4% under G6 and 10% under G3 have spent more than RM1000 for this item (Figure 3).
Figure 4 displays 100% of young couples (G1) have spent their available incomes for the purpose of transportation that below RM 200 per month. Meanwhile, 50% from the highest group income (G9) had allocated RM 601 to RM 800 per month for these expenses. The figure also shows the highest level of expenditure (>RM801) which has been allocated by respondents who earned income between RM3500-RM4500.

Utility expenses per month also display different amounts. Most of the respondents have paid below RM 150 per month for this expenditure (G1, G2, G3, G4, G5). The highest level is referred to expenditure amount more than RM350 per respondents, which represent by G7 (33.3%), G9 (25.0%) and G2 (7.4%).

Figure 4: Allocation of Transportation Expenditure from a different level of household income

Figure 5: Allocation of utility expenditure from different levels of household income
Figure 6 shows that most young couples’ spend less than RM150 for communication purposes. Meanwhile, 8.3% to 63.6% of respondents under G9, G8, G4 and G3 had allocated RM351 to RM450 for this category. The highest level of this expenditure is between RM551- RM650 contributed by G9 (16.7%) and G3 (10%).

100% of respondents (G1, G3, G5, and G8) had been found to allocate RM500 for household equipment expenses. There are only 4.3% to 16.7% respondents under G2, G4, G6, and G9 had spent RM1000 for this expenses. Meanwhile 66.7% from G7 had spent more than RM1500 for this purpose.
Expenses for health and education among young couples display the lowest level of spending which is less than RM100 per month. However, 16.7% to 38.5% of respondents are able to allocate between RM301 – RM400 a month for this category of expenses. Only 33.3% (G7) and 8.3% (G9) has spent more than RM 500 per month.

Majority of respondents had been found to allocate RM100 to RM300 for miscellaneous expenses. It was followed by a total spending of RM300 to RM400 from 15.4% to 66.7% (G3, G4, G5, G6, G7, and G8). Only 8.3% of the respondents (G9) had spent the highest rate of miscellaneous expenses of between RM601 to RM700 (Figure 9).
The majority of respondents had allocated RM300 and below for a total savings from earned income. Only 16.7% to 33.3% of respondents (G4, G6, G8 and G9) allocated the amount of more than RM500 for this purpose (Figure 10).

Overall, the graphs show a different spending pattern among young household couple from different income categories. The graphs also show that the young-couple in low-income category had spent the same amount similar to young household couple in high incomes categories.

The research further shows that each type of expenditures is significant at 0.00 through the chi-square analysis (Table 3). This implies that each category of expenditure can influence buyer's decision making.

Table 3: Significance of expenditure as tested with Chi-Square

<table>
<thead>
<tr>
<th>Type of expenditure</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly loan repayment other than housing loan</td>
<td>.000</td>
</tr>
<tr>
<td>Food &amp; beverages per month</td>
<td>.000</td>
</tr>
<tr>
<td>Transportation per month</td>
<td>.000</td>
</tr>
<tr>
<td>Utilities</td>
<td>.000</td>
</tr>
<tr>
<td>Communications</td>
<td>.000</td>
</tr>
<tr>
<td>Household equipment</td>
<td>.000</td>
</tr>
<tr>
<td>Healthcare expenses &amp; children education</td>
<td>.000</td>
</tr>
<tr>
<td>Miscellaneous spending</td>
<td>.000</td>
</tr>
<tr>
<td>Savings</td>
<td>.000</td>
</tr>
</tbody>
</table>
Tables 4 and 5 show the correlations that exist between nine expenses and seven profile elements of the respondents. All of the correlations are summarised in the correlation status. Dataset for households who do not have a house was found to have a correlation with all of the proposed expenditure. Their indicated correlation values range from 0.216 to 0.751 (Table 4). Meanwhile, the house owner respondents also have a correlation value for all the available categories, which indicated a range of 1.98 to 7.28 (Table 5). This suggests that each type of expenditures examined indeed has an impact on the buyer’s ability to have their own house, especially among young couple households.

Table 4: Correlation between type of expenditure and respondent profile who do not own any house

<table>
<thead>
<tr>
<th>Type of expenditure</th>
<th>Other Monthly loan repayment</th>
<th>Food &amp; beverages per month</th>
<th>Transportation per month</th>
<th>Utilities</th>
<th>Communication</th>
<th>Household equipment</th>
<th>Health care expenses &amp; children education</th>
<th>Misc spending</th>
<th>Savings</th>
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<tbody>
<tr>
<td>Age</td>
<td></td>
<td>.374**</td>
<td>-</td>
<td>.307**</td>
<td>-</td>
<td>-</td>
<td>.332**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualification</td>
<td></td>
<td>.300**</td>
<td>-</td>
<td>.229**</td>
<td>.602**</td>
<td>.375**</td>
<td>.547**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorcycle</td>
<td></td>
<td>-.314**</td>
<td>.490**</td>
<td>-.396**</td>
<td>-.291**</td>
<td>-</td>
<td>-.234**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td></td>
<td>.751**</td>
<td>.451**</td>
<td>.294**</td>
<td>.357**</td>
<td>.327**</td>
<td>.260** .216** .582** .232**</td>
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<td></td>
</tr>
<tr>
<td>Job Sector</td>
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<td>-</td>
<td>-</td>
<td>-.349**</td>
<td>-.439**</td>
<td>-</td>
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<td></td>
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<tr>
<td>Household under responsibility</td>
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<td>.361**</td>
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<td>-</td>
<td>-</td>
<td>-.449**</td>
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<td></td>
</tr>
<tr>
<td>Household Income per month</td>
<td></td>
<td>.379**</td>
<td>.508**</td>
<td>.280**</td>
<td>.233**</td>
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<td>√</td>
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</tr>
</tbody>
</table>

Table 5: Correlation between type of expenditure and respondent profile who already bought a house

<table>
<thead>
<tr>
<th>Type of expenditure</th>
<th>Other Monthly loan repayment</th>
<th>Food &amp; beverages per month</th>
<th>Transportation per month</th>
<th>Utilities</th>
<th>Communication</th>
<th>Household equipment</th>
<th>Health care expenses &amp; children education</th>
<th>Misc spending</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
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<td>Age</td>
<td></td>
<td>.515**</td>
<td>.542**</td>
<td>.401**</td>
<td>.602**</td>
<td>.213**</td>
<td>-</td>
<td>.198** .390**</td>
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<tr>
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<td>.255**</td>
<td>.240**</td>
<td>.432**</td>
<td>.340**</td>
<td>-</td>
<td>- .268**</td>
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</tr>
<tr>
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<td>-.326**</td>
<td>-</td>
<td>-.207**</td>
<td>.271**</td>
<td>-.173**</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td></td>
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<td>.570**</td>
<td>.595**</td>
<td>.728**</td>
<td>.339**</td>
<td>.197** .250** .236** .474**</td>
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<tr>
<td>Job Sector</td>
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<td>.377**</td>
<td>.308**</td>
<td>.495**</td>
<td>-</td>
<td>.467** .314** - .405**</td>
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<td></td>
</tr>
<tr>
<td>Household under responsibility</td>
<td></td>
<td>.587**</td>
<td>.708**</td>
<td>.534**</td>
<td>.523**</td>
<td>.386**</td>
<td>.203**</td>
<td>.399**</td>
<td>.467**</td>
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<tr>
<td>Household Income per month</td>
<td></td>
<td>.724**</td>
<td>.547**</td>
<td>.648**</td>
<td>.681**</td>
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</table>
The analysis ultimately shows spending pattern between young couples households that have not purchased a home and already bought a house. Out of nine expenditure categories, five of them had displayed different percentages among these two groups of respondent, based on expenditure for saving, diversification, utilities, transportation and commitment for monthly loan repayment.

Young household couples that have not been able to buy a house are found to spend their income on miscellaneous expenditure (67%) such as groceries shopping, dining out, movies, clothing, grooming, women's accessories and makeup, fees for sports at the gym or club membership. On the other hand, those who have purchased a house had managed to allocate their incomes to savings (71%), utility (68%), transport (65%) and monthly repayments of existing loans (72%). This indicates that successful young couples who own houses are actually more cautious in their spending structure. The high percentage of transportation expenses may be due to high commuting costs arising from house locations that are far from the workplace.

CONCLUSION

Housing affordability is not straightforward to be measured. Although 30% of total income has been practised as a benchmark, many other aspects should be included in its measurement. Household incomes and high house prices are no longer the principal benchmarks for housing affordability. However, it is also contributed by buyers’ habit through their expenditure patterns. Among young couple households, the pattern of household income has generally influenced house ownership. The different pattern would contribute to different allocation of their affordability. Therefore, as a potential buyer, they need to plan and structure their expenditure properly. Proper allocation of the income combined with careful and detailed planning of household expenditure would increase the chance to own a house.
REFERENCES


The Employer's Claim Against The Contractor For Damages For Defective Work

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ABSTRACT

Where the contractor is liable for defective work, there is often a tussle between two dominant types of measure of damages that may be available to the employer: the cost of reinstatement and diminution in value. This paper examines the attitudes of the courts towards the issue of the appropriate measure of damages for defective work and the various factors to be considered. A doctrinal analysis is conducted on relevant court decisions to extract the legal principles involved. The courts seem to generally agree that the normal measure of damages should be the cost of reinstatement since this would meet the expectation interest of the employer under the contract. However, if the cost of rectifying the defects is disproportionate to the end to be attained, then damages fail to be measured by the diminution in value. Cost of reinstatement and diminution in value are not invariably mutually exclusive measures of damages as where after the repair work has been done, there is still a residual depreciation in the investment value of the property. An intention to repair the defects is a relevant factor to be considered as to whether it is reasonable for cost of reinstatement to be awarded. If the employer has in fact repaired the works, the cost may be recoverable if it is reasonable. The result of this research will benefit those involved in construction through an awareness of the rights of the employer should the contractor fail to meet his contractual obligations.

Keywords: Construction Contract, Contractor, Damages, Defective Work, Employer

1. INTRODUCTION

Construction defects arise as a result of the contractor's failure to achieve the precise contractual objective. Usually the building is functional and capable of being used for its purpose. Nevertheless the employer has not get what he contracted for and the loss is normally reflected in financial terms.

An appropriate starting point for an appraisal of measure of damages harks back to the year 1848 with Parke B's much quoted words in Robinson v Harman [1848] 1 Exch 850, “The rule of the common law is that where a party sustains a loss by reason of a breach of contract, he is, so far as money can do it, to be placed in the same situation, with respect to damages, as if the contract had been performed”. This rule has wielded enormous influence over the development of the law on remedies for breach of contract.
Where the contractor is liable for defective work, there are two dominant types of measure of damages that may be available to the employer: the cost of reinstatement and diminution in value. The cost of reinstatement is the ordinary measure of damages for defective work by the contractor as illustrated by the case of *Lim Chon Jet & Ors v Yusen Jaya Sdn Bhd* [2011] 8 CLJ 598.

As Oliver J said in *Radford v De Froberville* [1977] 1 WLR 1262:

> If [the plaintiff] contracts for the supply of that which he thinks serves his interests – be they commercial, aesthetic or merely eccentric – then if that which he contracts for is not supplied by the other contracting party I do not see why, in principle, he should not be compensated by being provided with the cost of supplying it through someone else or in a different way, subject to the proviso, of course, that he is seeking compensation for a genuine loss and not merely using a technical breach to secure an uncovenanted profit.

2. **TEST OF REASONABLENESS**

In *Ruxley Electronics and Construction Ltd v Forsyth* [1996] AC 344, the defendant had contracted to build a swimming pool for the plaintiff. The contract stipulated that the deep end of the pool should be 7 feet 6 inches deep but as constructed, it was only 6 feet deep. The plaintiff claimed damages in the sum required to reconstruct the pool to the specified depth. The House of Lords rejected the plaintiff's claim for reinstatement costs on the ground that such costs were out of all proportion to the benefit to be obtained. The pool was held to be perfectly safe to dive in. The court also found that there was no diminution in value so a claim on this ground also failed.

In articulating the principles to be applied in granting damages for construction defects, the House of Lords in *Ruxley* invoked not only English authority, notably the speech of Lord Cohen in *East Ham Corpn v Bernard Sunley & Sons Ltd* [1966] AC 406, but also authoritative statements of principle from the High Court of Australia (*Bellgrove v Eldridge* [1954] 90 CLR 613) and the United States (*Jacob & Youngs Inc v Kent* [1921] 129 NE 889). Lord Lloyd gave guidance as to the circumstances in which cost of reinstatement is the appropriate measure of damages:

> Where the cost of reinstatement is less than the difference in value, the measure of damages will invariably be the cost of reinstatement. By claiming the difference in value the plaintiff would be failing to take reasonable steps to mitigate his loss. In many ordinary cases, too, where reinstatement presents no special problem, the cost of reinstatement will be the obvious measure of damages, even where there is little or no difference in value, or where the difference in value is hard to assess. This is why it is often said that the cost of reinstatement is the ordinary measure of damages for defective performance under a building contract.

Lord Lloyd further added that if it is unreasonable for the plaintiff to insist on reinstatement, for example where the expense of the work involved would be out of all proportion to the benefit to be obtained, then the plaintiff will be confined to the loss in value. The cost of remedy is central, and often decisive, to the issue of reasonableness in this context.

In the same case, Lord Mustill observed:
As my Lords have shown, the test of reasonableness plays a central part in determining the basis of recovery, and will indeed be decisive in a case such as the present when the cost of reinstatement would be wholly disproportionate to the non-monetary loss suffered by the employer. But it would be equally unreasonable to deny all recovery for such a loss.

Another judge who delivered his decision in the same case, Lord Jauncey, was of the opinion that if it is unreasonable in a particular case to award the cost of reinstatement it must be that the loss sustained does not extend to the need to reinstate.

Lord Lloyd adopted the principles laid down by Cardozo J in Jacob & Youngs that first, the cost of reinstatement is not the appropriate measure of damages if the expenditure would be out of all proportion to the benefit to be obtained and, secondly, the appropriate measure of damages in such a case is the difference in value, even though this may result in a nominal award. He then restated these principles, expressed in terms of reasonableness:

Once again one finds the court emphasising the central importance of reasonableness in selecting the appropriate measure of damages. If reinstatement is not the reasonable way of dealing with the situation, then diminution in value, if any, is the true measure of the plaintiff’s loss. If there is no diminution in value, the plaintiff has suffered no loss. His damages will be nominal.

Where repairing the defects is a reasonable course to take, then the cost of reinstatement will be the preferred award even where this is substantially greater than the diminution in value (Ruxley and see also Bellgrove v Eldridge [1954] 90 CLR 613; East Ham Corpn v Bernard Sunley & Sons Ltd [1966] AC 406). Whether it is reasonable or not to award the cost of remedial work, the context of the particular contract must be considered (per Lord Jauncey in Ruxley).

It was argued for the plaintiff in Ruxley that because there was no diminution in value, the cost of reinstatement was the proper measure. Lord Bridge's response to this was that to hold that the measure of the building owner's loss is the cost of reinstatement, however unreasonable it would be to incur that cost, seems to fly in the face of common sense. He said:

The circumstances giving rise to the present appeal exemplify a situation which one might suppose to be of not infrequent occurrence. A landowner contracts for building works to be executed on his land. When the work is complete it serves the practical purpose for which it was required perfectly satisfactorily. But in some minor respect the finished work falls short of the contract specification. The difference in commercial value between the work as built and the work as specified is nil. But the owner can honestly say: 'This work does not please me as well as that for which I expressly stipulated. It does not satisfy my personal preference. In terms of amenity, convenience or aesthetic satisfaction I have lost something.' Nevertheless the contractual defect could only be remedied by demolishing the work and starting again from scratch. The cost of doing this would be so great in proportion to any benefit it would confer on the owner that no reasonable owner would think of incurring it.
The critical importance of reasonableness was emphasised in *Southampton Container Terminals Ltd v Schiffahrtsgeellschaft “Hansa Australis” MGH & Co (The MV “Maersk Colombo”)* [2001] EWCA Civ 717 where Clarke LJ said, “As I read the authorities, where reinstatement is the appropriate basis for the assessment of damages, it must be both reasonable to reinstate and the amount awarded must be objectively fair as between the claimants and the defendants”.

The court in *Vercoe v Rutland Fund Management Ltd* [2010] EWHC 424 (Ch) was of the view that in controlling the amount of damages to be awarded for breach of contract as in *Ruxley*, reference should be made to the strength of the plaintiff’s interest in performance of a contractual duty, judged objectively and weighing that against the legitimate interests of the defendant so that the remedy awarded is not oppressive to the defendant and is properly proportionate to the wrong done to the plaintiff.

In *McGlinn v Waltham Contractors Ltd* [2007] EWHC 149 (TCC), the court held that foreseeability is plainly of importance in assessing the correct measure of damage. The court added that if the plaintiff “only has a limited interest in the property, or if he could obtain a satisfactory replacement for the property by buying elsewhere, then it would not be foreseeable that he would carry out repair/reinstatement, and his loss would be accurately assessed by reference to the diminution in the value of the land or the cost of purchasing a replacement”.

### 3. INTENTION TO SELL THE DEFECTIVE PROPERTY

Where the owner of a building sells the property with defects due to the contractor’s fault for which the cost of reinstatement is the appropriate measure, but such sale does not result in loss due to the defects, then the loss that the law supposes is avoided and no damages are recoverable. It is not in law right or reasonable to compensate the owner for such a loss. An illustration of this principle is afforded by the case of *Birse Construction Ltd v Eastern Telegraph Co Ltd* [2004] EWHC 2512 (TCC) where the defendant construction company failed to properly construct a residential training college. The claimants intended to sell the college without remedying the defects. The court rejected the claimants’ claim for recovery of the cost of rectifying the defects.

If the sale of the property without rectification of the defects results in a loss to the owner, then that loss may be recoverable as the proper measure of loss. Such diminution in value was awarded in *Rawlings v Rentokil Laboratories Ltd* [1972] 223 EG 1947.

### 4. DEMOLITION AND REBUILDING

There may be situations where it is justifiable for the employer to recover the cost of demolishing the property and building afresh as damages on the basis of the cost of reinstatement. In *Ruxley*, Lord Jauncey said:

> What constitutes the aggrieved party's loss is in every case a question of fact and degree. Where the contract breaker has entirely failed to achieve the contractual objective it may not be difficult to conclude that the loss is the necessary cost of achieving that objective. Thus if a building is constructed so defectively that it is of no use for its designed purpose the owner may have little difficulty in establishing that his loss is the necessary cost of reconstructing.

In *Harrison v Shepherd Homes Ltd* [2011] EWHC 1811 (TCC), the claimants had bought houses which had defective piles. The court had to decide on the question whether it was
reasonable for the claimants to be awarded damages representing the full cost of repiling the properties and the necessary costs associated with vacating the houses when being partly demolished and rebuilt. The court held that the claim for reinstatement cost was not reasonable in the circumstances. Among the reasons given by the court in reaching this decision were first, the engineering experts agreed that from a structural engineering point of view the cracking and movement would not warrant those works. The cracks were so fine that they were difficult to see and those that were larger were below the threshold that engineers would normally be concerned about. Secondly, there were only remote to low probabilities of significant movements of the foundations in the future. Thirdly, the claimants would likely sell their existing houses and use the money to move elsewhere. Fourthly, the costs of repiling and associated costs would be out of all proportion to the loss suffered. Fifthly, the houses had already been built for some eight years. Investigations had been made and there was less uncertainty as to the future performance of the houses. Upon these reasons, the court held that it was unreasonable to award the cost of major remedial works and that the proper compensation was an award based on diminution in value.

In McGlinn, the defendants had built a house for the claimant. The claimant being dissatisfied with the works completely demolished the house. The claimant sought to recover the costs of demolition and of building anew. The defects affected the whole house: the floors, the walls and the roof. However, those defects were mainly aesthetic in nature. The house was not structurally unsound or dangerous. The court said it was an extreme course to knock down a newly completed building in such circumstances. The court concluded that the right measure of loss was the cost of repair work for the defects and that it would be unreasonable to assess the damages by reference to any other methodology.

However, in Bellgrove, the High Court of Australia did allow the plaintiff’s claim for the cost of demolishing and rebuilding a house. The builder had put grossly under-strength concrete and mortar in the foundations of the house and in its brickwork. The builder argued that the foundations could be underpinned, or alternatively replaced in small sections. The builder also contended that the house had a marketable value for speculative builders prepared to do reinstatement of this kind and therefore diminution in value would be the appropriate compensation. On the facts, these arguments were not acceptable to the court.

5. INTENTION TO REINSTATE

Concerning the question of whether the intention to reinstate is relevant in considering whether cost of reinstatement should be awarded, Lord Jauncey said this in Ruxley:

The appellant argued that the cost of reinstatement should only be allowed as damages where there was shown to be an intention on the part of the aggrieved party to carry out the work. Having already decided that the appeal should be allowed I no longer find it necessary to reach a conclusion on this matter. However I should emphasise that in the normal case the court has no concern with the use to which a plaintiff puts an award of damages for a loss which has been established. Thus irreparable damage to an article as a result of a breach of contract will entitle the owner to recover the value of the article irrespective of whether he intends to replace it with a similar one or to spend the money on something else. Intention, or lack of it, to reinstate can have relevance only to reasonableness and hence to the extent of the loss which has been sustained. Once that loss has been established intention as to the subsequent use of the damages ceases to be relevant.
Lord Lloyd in the same case said, “I fully accept that the courts are not normally concerned with what a plaintiff does with his damages. But it does not follow that intention is not relevant to reasonableness, at least in those cases where the plaintiff does not intend to reinstate”. He then said, “Where a plaintiff is contending for a high as opposed to a low cost measure of damages the court must decide whether in the circumstances of the particular case such high cost measure is reasonable. One of the factors that may be relevant is the genuineness of the plaintiff’s desire to pursue the course which involves the higher cost. Absence of such desire (indicated by untruths about intention) may undermine the reasonableness of the higher cost measure”.

Accordingly, the intention to reinstate is relevant because it may be some evidence of whether the cost of carrying out remedial works is disproportionate to the benefit to be obtained and whether it is reasonable to reinstate.

In Ruxley, the plaintiff gave an undertaking that he would spend any damages which he might receive on rebuilding the swimming pool in support of his claim for reinstatement cost. The question was whether this would make any difference. Lord Lloyd answered:

Clearly not. He cannot be allowed to create a loss which does not exist in order to punish the defendants for their breach of contract. The basic rule of damages, to which exemplary damages are the only exception, is that they are compensatory not punitive.

Where there is no diminution in value and no intention to remedy, it is unlikely that the court will award remedial cost. As Sir Robert Megarry VC said in Tito v Waddell (No 2) [1977] Ch 106, “Per contra, if the plaintiff has suffered little or no monetary loss in the reduction of value of his land, and he has no intention of applying any damages towards carrying out the work contracted for, or its equivalent, I cannot see why he should recover the cost of doing work which will never be done. It would be a mere pretence to say that this cost was a loss and so should be recoverable as damages”.

### 6. THE EXISTENCE OF DIFFERENT REMEDIAL SCHEMES

Reasonableness is also the critical factor where a plaintiff carries out reinstatement of his property. The court in Hospitals for Sick Children Board of Governors v McLaughlin & Harvey Plc (referred to below as Great Ormond Street) [1987] 19 Con LR 25 said:

The plaintiff who carries out either repair or reinstatement of his property must act reasonably. He can only recover as damages the cost which the defendant ought reasonably to have foreseen that he would incur and the defendant would not have foreseen unreasonable expenditure. Reasonable costs do not, however, mean the minimum amount which, with hindsight, it could be held would have sufficed. When the nature of the repairs is such that the plaintiff can only make them with the assistance of expert advice the defendant should have foreseen that he would take such advice and be influenced by it.

If there are two or more equally effective remedial schemes available, the plaintiff should opt for the cheapest. If he chooses otherwise, then he cannot recover more than the cost of the cheapest scheme. Such a proposition was made in Great Ormond Street, where the court said:

The plaintiff has, whether as part of the requirement that he acts reasonably or otherwise, a duty to mitigate his loss. This may require him, if presented with two or more choices, to choose the one which will keep his losses to the
minimum. If he is incurring loss because he cannot use his property, his duty to mitigate may require him to repair it as quickly as possible, even if earlier repairs would cost more than later repairs would. The duty to mitigate may require the plaintiff to have regard to advice from third parties, or even from the defendant, or from the defendant’s advisers.

In the case of George Fischer Holding Ltd v Multi Design Consultants Ltd [1998] 61 Con LR 85, the remedial work had not been undertaken at the time of the trial. There were two proposed remedial schemes, one of which was significantly cheaper than the one favoured by the claimant. In holding that the proper measure of loss was by reference to the less expensive scheme, the court said:

Each scheme was criticised by the proponents of the other. Neither had been designed in full detail, so acceptance of either is to some extent dependent, first, on a judgment as to the ability of a designer, with the assistance of the specialist knowledge of the relevant manufacturer and a contractor experienced in using the system, to devise suitable detailed treatment of all the potential trouble-spots and, second, on an assessment of the guarantees and bonds offered by the manufacturer and contractor. Since Soladex would be so much the cheaper and cannot be said to be the more detrimental to the appearance of the buildings – I should have thought, if anything, the reverse – it must clearly be preferred unless the criticisms of its expected effectiveness are, taking the above considerations into account, made good on the balance of probabilities. In my judgment they are not.

A different approach may apply if a plaintiff has taken professional advice and implemented a repair scheme based on that advice. The court in the Great Ormond Street held that in certain cases it would be foreseeable that a plaintiff would decide which remedial scheme to adopt with the help of expert advice, and that it would be foreseeable that the plaintiff would be influenced by and comply with such advice. In such cases, prima facie, the plaintiff is entitled to the cost of the work carried out in accordance with that expert advice, even if, with hindsight, criticism could be made of the scheme that was carried out. In such a case, for the defendant to defeat the damages claim based on work actually carried out, the defendant must normally show that the advice upon which the plaintiff relied on was negligently given.

The court summarised its conclusions in Great Ormond Street thus:

If at the date of the trial no remedial works have been carried out by the plaintiff, then the court has in order to assess damages to decide what work should be done. The parties are entitled to put forward rival schemes and the court has to choose between them or variants of them ... The assessment has to be made on the basis of what the plaintiff can reasonably do. ... where works have been carried out, it is not for the court to consider de novo what should have been done and what costs should have been incurred either as a check upon the reasonableness of the plaintiff’s actions or otherwise.

The importance of the plaintiff’s reliance on expert advice was considered in the context of an assessment of damages in Skandia Property (UK) Ltd v Thames Water Utilities Ltd [1999] BLR 338. In that case, the claimant was advised by experts that a tanking system was the only practical way to protect a building that had been damaged by a flood caused by the defendant. However, unknown to the experts at the time of such advice, pressure grouting treatment had been performed some time prior to the flood. This meant that the
flood had not in fact damaged the integrity of the building. The system that was put in place as part of the remedial scheme was thus unnecessary. In assessing damages, the court rejected the claimant's claim for the cost of the tanking system, despite the absence of any suggestion of negligent advice by the experts. The Court of Appeal held as follows:

*If there has been an escape of water that causes some physical damage then prima facie it is only the cost of reinstatement of that physical damage which is recoverable. If a plaintiff is to recover damages for something beyond the cost of reinstatement of physical damage then he must on any view show that it was reasonable to incur expenditure beyond that quantifiable figure ... What should be emphasised is that it must be rare if ever that a plaintiff will be able to establish the reasonableness of any assumption of damage to something which is accessible and inspectable. Certainly, simple reliance by a plaintiff on an expert cannot be the test as to whether a plaintiff has acted reasonably in making an assumption, albeit, provided the plaintiff has provided the expert with all material facts and the expert has made all reasonable investigations, the advice will be a highly significant factor.*

*Great Ormond Street* is therefore doubtful as an authority for the wide proposition that the employer's decision to demolish and rebuild if made with expert advice will conclusively pin the contractor with the costs of such work, and that all other considerations are essentially rendered irrelevant (*McGlinn*).

7. **DOUBLE RECOVERY**

Reinstatement cost and diminution in value are not mutually exclusive heads of damages. There may be situations where even with remedial works, there is still a diminution in value. If the remedial work is substantial, it may affect the investment value of the property. It may also affect the property aesthetically resulting in a depreciation of its value. In such circumstances, it may be proper to award both repair cost and diminution in value. This is not a matter of double recovery but of adequately compensating the plaintiff for his loss.

8. **CONCLUSION**

The above analysis seems to lead to the following principles governing the measure of damages for construction defects. The cost of reinstatement is the normal measure of damages for defective work by the contractor. Where the cost of reinstatement is less than the diminution in value, the measure of damages will invariably be the cost of reinstatement. The cost of reinstatement is not the appropriate measure of damages if it is not reasonable in the circumstances, most notably where the expenditure would be out of all proportion to the benefit to be obtained. Where this is so, the appropriate measure of damages is the difference in value, even though it would result in a nominal award. Certain circumstances may justify the cost of reinstatement to be based on the demolition of the defective property and rebuilding especially where the building is structurally unsound and unsafe. An intention to repair the defects is a relevant factor to be considered as to whether it is reasonable for cost of reinstatement to be awarded.

**REFERENCES**

*Bellgrove v Eldridge [1954] 90 CLR 613*

*Birse Construction Ltd v Eastern Telegraph Co Ltd [2004] EWHC 2512 (TCC)*

*East Ham Corpn v Bernard Sunley & Sons Ltd [1966] AC 406*
George Fischer Holding Ltd v Multi Design Consultants Ltd [1998] 61 Con LR 85
Harrison v Shepherd Homes Ltd [2011] EWHC 1811 (TCC)
Hospitals for Sick Children Board of Governors v McLaughlin & Harvey Plc [1987] 19 Con LR 25
Jacob & Youngs Inc v Kent [1921] 129 NE 889
Lim Chon Jet & Ors v Yusen Jaya Sdn Bhd [2011] 8 CLJ 598
McGlinn v Waltham Contractors Ltd [2007] EWHC 149 (TCC)
Radford v De Froberville [1977] 1 WLR 1262
Rawlings v Rentokil Laboratories Ltd [1972] 223 EG 1947
Robinson v Harman [1848] 1 Exch 850
Ruxley Electronics and Construction Ltd v Forsyth [1996] AC 344
Skandia Property (UK) Ltd v Thames Water Utilities Ltd [1999] BLR 338
Southampton Container Terminals Ltd v Schiffahrtsgeellschaft “Hansa Australia” MGH & Co (The MV “Maersk Colombo”) [2001] EWCA Civ 717
Tito v Waddell (No 2) [1977] Ch 106
Vercoe v Rutland Fund Management Ltd [2010] EWHC 424
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