

## Eco-Innovations in Housing Delivery: A Case of Malaysia

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### Abstract

In the past decade, the residential property market in Malaysia has been slumping. Despite the rapid growth in population and creation of new households, the sales performances have been poor; affordable housing units were flooding the market, and residential overhang have increased. While many developers were not able to perform optimally, few defied the norms and prevailed. This paper investigates the success factors of these developers by identifying the needs and wants of homebuyers and how these developers have fulfilled them. From May to June 2018, discussions were held with 11 housing developers in the overhang-ridden southern region of Malaysia. Findings revealed that the successful companies were those who incorporated eco-housing concepts. Though Malaysians do not really consider energy efficiency and environmental sustainability in their purchase decisions; they appreciate the visual pleasantness and comfort of green spaces in the housing estates despite being priced beyond the affordability range. To policymakers, this paper provides an example how green spaces may be incorporated into the development of social housing without compromising cost; and to private developers, this paper provides better understanding of homebuyers' green motivations and suggests how they should approach prospective homebuyers with better environmental design.

**Keywords:** Eco-housing; Built environment; Property development; Home purchase.



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### 1. Introduction

Towards the end of the 20th century, the world witnessed the rebirth of aesthetics at the forefront of urban planning which include both building design and architectural landscaping. Neo-traditionalism, or the appreciation of traditional residential design and values have regained urban planners and private developers' interest for its ability to create a sense of community, humanising the built environment, and advancing urban wellbeing in line with social sustainability practices so championed by many of the world's nation (Talen, 1999).

The resurgence of aesthetical urban planning have come a long way since the world began to recover from the warring days in mid-20th century. Through the Second World War, urban planners were quick to adopt brutalism as a convenient and easy way to solve the post-war housing woes. The brutalist architectural movement is a development approach which encourages minimalism whereby construction is for functionality rather than for aesthetics (MacArthur, 2005) The brutalists have been severely chastised by conservationists and architectural commentators for being "radically anti-academic, anti-classical, anti-beauty, and anti-art" (Martin, 2009). Despite these criticisms, their approach was generally well received by many countries particularly the United Kingdom and the Commonwealth nations seeking quicker and inexpensive methods for residential development.

Thereafter came a period of architectural muteness; housing projects from these periods were found to be monotonous, rigid in layout, and seem to discourage community involvement and residential integration (Hanley, 2007); (Mould, 2016). The dehumanising design and layout of these modern housing estates have even been linked to social malaise; rather than building an utopia, these projects created modern ghettos, and deemed to be a waste of both public and private funds (Coleman, 1985). It appears that modernism has insensitively imposed its brutalist architectural overtones upon the world's citizens, ignoring their needs, wishes and opinions (Thompson, 2000). The aftermath of these developments have been labelled as "matters of lasting regret" (Merriman, 2006).

Many noted the defining characteristic of traditional housing values, which lie in its landscaping, to be absent from the post-war housing (Neuman, 2000). Urban planners in the 1950s were against any elaborate landscaping and they have even vetoed ornamental flowering plant species from being planted along modern-rural roads, where they were regarded of being "misplaced in real countryside" (Merriman, 2006). The appreciation of ecological aesthetics was starkly different from the days before the war. In the 19th century, considered by many as the zenith of the garden-suburb movement, all housing estates were defined by named houses, trees, private gardens, and streetscapes could not be differentiated from landscapes (Whitehand and Carr, 2003).

Therefore, the rebirth of traditional housing values, or neo-traditionalism must consider the harmony of human settlements with the regional landscape and account for the "roads, transit, utilities, and communications pathways...

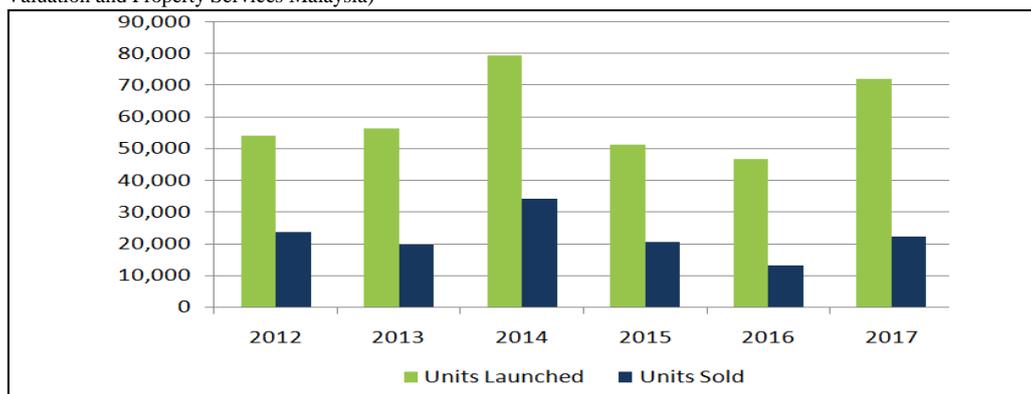
cushioned from each other by large landscapes that allow the settlements to ‘breathe’ river corridors, farmlands, parks, marshes, and other open spaces”(Neuman, 2000). Landscapes function as a bridge that bring together both the natural and built environment (Barlozzini, 2017); it also makes one feel good of an outdoor space and residential interaction appear to be greater for planned communities in garden cities (Hanley, 2007). Hence this have given rise to modern garden-like and greenbelt concepts in residential development.

## 2. Malaysian Homebuyer Demographics and Behaviour

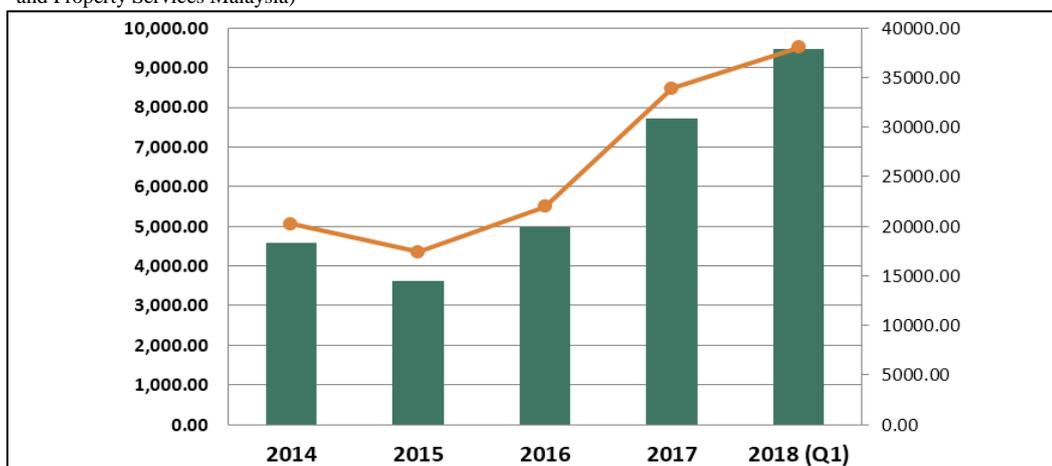
Malaysia, then known as Malaya, is a former British colony located in the south-eastern part of Asia, bordering Thailand at its north and Singapore at its south. Malaysia adopts many of British urban planning systems e.g. the grid-town layout (Stanislawski, 1946) and terraced houses (Whitehand and Carr, 2003). This was the dominant form of residential development during the post-war period. Malaysia’s housing landscape was historically complex whereby different ethnic groups were concentrated at different locations, the wealthier ethnic-minority Chinese usually dwell at urban centres; the majority ethnic Malays were living in informal houses at rural areas; while many Indians live at informal settlements centred on plantations. This was attributed to the multi-racial make-up of the country’s population, and the decades from divide-and-rule policies has split the population based on their economic power. The Malayan society was so divided in the late 1940s to mid-1950 that during the process of decolonisation, Malcolm MacDonald, then serving as the Governor-General of Malaya, tried to bring the communities back together again in a move known as unite-and-quit (Hack, 2013). Thereafter in the 1950s, as urbanisation encouraged rural folk to move into urban centres, terraced housing became among the most common form of dwelling (Ju *et al.*, 2011).

Nonetheless today, Malaysians’ demographic profiles have changed and their tenure choices have become unpredictable; purchasing a house is not just for the sake of having a roof over one’s head. As of 2016, Bank Negara Malaysia, the central bank of Malaysia estimated 166,000 new households to be created every year (Bank Negara Malaysia, 2017) thus in an archetypal balanced housing market, each new household should be offered with a new house. Despite the high demand for houses, only approximately one-third offered units were sold (see Figure 1) and the yearly average number overhung units (unsold exceeding 9 months after completion, launch, and issuance of Certificate of Fitness for Occupation) have been increasing (see Figure 2).

**Figure-1.** Sales Performance of Residential Properties in Malaysia. (Sources: Analysis of Data from the Department of Valuation and Property Services Malaysia)



**Figure-2.** Overhung Residential Properties in Malaysia. (Sources: Analysis of Data from the Department of Valuation and Property Services Malaysia)



When properties are not selling, one usually place the blame on unattractive locations and high prices. In regard to locational factors, the Government has since 2010 resolved to approve only housing projects located within urban centres with high development potentials. Housing has been planned along important transit areas and conurbations,

as well as other prospective growing cities in order to control urban sprawl and to achieve sustainable urban development (Department of Town and Country Planning Malaysia, 2016). This meant that all housing units released between 2011 and 2018 would have been scrutinised, and approved in reasonably favourable locations.

In regard to affordability, it is interesting that there were many unsold units within affordable ranges. In Malaysia, the ceiling for affordable homes is 282,000 MYR (approximately 50,000 GBP). Nonetheless, industry players have reported that the market is flooded with many undesired affordable units; there are even significant quantities of units priced under 250,000 MYR (Nasa and Rasid, 2017); (Thean, 2018) which is way lower than the affordable ceiling estimated by the central bank. Based on these preliminary findings, it is suggested that affordability and location may not be the only factor inhibiting housing market movements in Malaysia and there may be other factors at play.

Stimulating the residential property market is of utmost importance to the nation's economy as commercial banks rely primarily on mortgage loans to generate funds, and these funds will be lent to aspiring entrepreneurs or existing businesses to expand their operation (De Young and Rice, 2004). In addition, household consumption is also tied to home purchase. Moreover, the ability to own a home is a hallmark of familial stability; and rooted families have greater tendencies to increase their household size and consume more goods (Bourguignon et al., 1993). Therefore, it is imperative to find out other methods that can be employed to stimulate the residential property market.

### 3. Methodology

To gain deeper understanding of the factors inhibiting the residential property market, discussions were held with 11 property developers from states which accorded high number of overhung units. The states were identified using data provided by the Department of Valuation and Property Services of the Ministry of Finance Malaysia. The problematic states are mainly in the southern region, covering the states of Malacca, Johor, and Negeri Sembilan. Thirty to forty-five minute discussions were held between May and June 2018 with these companies. The discussants hailed from diverse positions and expertise ranging from sales representatives to managers including project managers, leasing manager, and a group accountant. The topic of the discussion revolved around the problems that they faced in the industry as well as the reasons for success or shortcomings of their companies. Following the discussions, in-situ observations were conducted by evaluating the structural and environmental qualities of the successful companies' housing projects

### 4. Findings and Discussion

Generally, the discussion confirmed that the majority of property developers are experiencing a slowdown in sales. Many have blamed the rising cost of building materials, government affirmative action and low affordability as reasons for their declining performance.

The most pressing problem faced by property developers across the region were rising costs of building materials *i.e.* bricks, sand, cement, steel bars. The implementation of a value-added tax, the *Goods and Services Tax* in 2015 have severely impacted the prices which were already considered high at that time. Given that property developers were required by law to allocate 30 percent of their projects to affordable homes, this had to be done at the expense of regular-priced houses. Developers had to cut the construction of cheaper, single-storey terraced houses and increase the number of double-storey terraced homes. This is then followed by other fees such as for land acquisition or permissions for planning from the local authorities. Another issue is the shortage of appropriate land for housing development, thus developers often tried to maximise their potential earnings by building larger premium homes but these homes are often not sellable. When developers are unable to sell out units on hand, they will be reluctant to launch new projects, leading to market stagnation.

Nonetheless few were able to defy the norms and achieve high sales performance. Upon further investigation, we found that these were the companies who incorporated neo-traditionalist, green concepts into their projects. Despite their relatively higher prices, these projects have been quite successful. The features of successful eco-housing concepts and the characteristics of Malaysian homebuyers will be discussed in the following sub-sections.

#### 4.1. Cost-Efficient Landscaping

From our investigation, successful developers have often incorporated eco-designs into their residential planning projects, synonymous with the neo-traditionalist movement in the United Kingdom. While eco-housing has long been practiced in the United Kingdom and other developed nations, it is relatively young in Malaysia and only began to gain tract in the past decade. It was widely believed that large-scale garden city concepts in Malaysia was popularised with the establishment of Putrajaya, the new federal administration capital in 1995.

While the financial rewards for eco-housing innovations were documented mainly for premium housing, it was also possible for medium-priced housing. In the outskirts of Johor and Melaka, marketable medium-priced homes have been landscaped with parks or green lungs within the communities. In addition, the public green spaces were within view of all units in the neighbourhood. While the landscapes are simpler in comparison to those of premium housing, the selection of plants and their placements were still meticulously planned. All these were successful in improving the comfort and visual pleasantness of these estates. Besides, it encourages residents to engage in outdoor activities, mingle with their neighbours, and breathe life into the neighbourhood.

For medium-priced eco-housing projects to be cost-efficient, the plants selected has to be hardy and of easy-maintenance varieties. Trees are preferable over shrubs and annuals. This would reduce the need for watering,

pruning, sweeping off fallen leaves, and the cost and trouble of replacing withered plants. As noted in Figure 3, the trees planted are of evergreen varieties and the leaves were fine presumably because they would fall into the space pockets between the grass blades and not look unsightly. It was for this reason flowering plants are usually avoided. Fine leaves also create dappled light resembling the feeling of woodlands, reducing glare from the sun as well as keeping the grass beneath green and healthy. Of late, the two popular kinds of architectural trees in Malaysia are the Brazilian ironwood (*Caesalpinia ferrea*) and Black olive (*Bucida molineti*) both of which are evergreen and small-leaf varieties, requiring little maintenance.

**Figure-3.** Green Lungs in Eco-Housing Estates



Source: Taken by the author

In addition, the placements of the trees were in such a manner that it would not directly obstruct the view when one is standing at the entrance of the home. This is also in line with *feng shui* principles practiced by ethnic Chinese who forms a significant minority of Malaysia's population. Feng shui goes hand-in-hand with eco-housing as it is a philosophy that seeks to harmonise environmental design with natural laws in order to benefit the inhabitants of a place.

#### 4.2. Residential Security Features

Through our observations, these housing estates have do not have many entry and exit points. There were only a few main entry points to the housing estate, and one goes deeper into the residential area, they will then encounter either one or two entry point for each neighbourhood. In each neighbourhood, the houses usually face a common recreational area such as a park; they were also aligned in such a manner that each house is within view of all other houses in the vicinity. This enable residents to keep watch on one another against burglary; it also deters robbers as they will fear being watched by the residents. Such spatial planning methods reduces the need for brick walls and unsightly fences as commonly used in gated communities. It also does away with security services, making them cost efficient, suitable for houses in the medium-priced range

In these housing estates, back lanes are also usually absent as houses are usually clustered or standalone. Back lanes are wasteful utilisation of space. Good spatial planning would turn extra spaces into either public greens or other development that benefit the residents. They were also unsightly and high in maintenance as they must be regularly cleaned to avoid attracting strays and rodents. They are also considered a security hazards, being potential entry and escape routes for burglars and robbers.

#### 4.3. Housing Orientation

Successful eco-housing projects have always tried to maximise natural light. Whenever possible, houses are oriented so that they face east. For instance, south or east-facing homes are preferred over west-facing homes as it allow natural penetration of light into the house with less heat brought by the setting sun (Tan and Cheah, 2012). Ethnic Indians generally prefer homes facing the direction of sunrise; ethnic Chinese generally prefer homes facing East to South; while the Malays who are Muslims, prefer their homes facing the qibla or the direction of the holy Kaaba in Mecca, used in performing their daily obligatory prayers. The qibla is coincidentally located at 21°25'24.0"N 39°49'24.0"E, approximately to the Northeast of Malaysia. Houses facing the eastern regions like these would thus appeal to the Malaysian population in general regardless of ethnicity and religious differences, thus they would sell fast.

#### 4.4. Structural Design of Houses

Incorporating more green lungs and landscaping into residential planning has been considered costly because it reduces the area available for construction. Nonetheless having more green spaces do not have to come at the expense of fewer homes. As evident in several of the successful developers' projects, the solution was to build smaller homes, but with better design and intimacy. The price to built-up ratio may no longer be relevant today as Malaysian households are getting smaller in size (Department of Statistics Malaysia, 2017). Today there are higher number of unmarried adults, greater number of divorces, smaller family sizes for married couples and greater mobility as youths move between places in search of better employment opportunities, higher number of families where both parents are working to support their families in higher living cost conditions. All these have called for smaller, more manageable homes.

Consider an award-winning cluster eco-housing in Malaysia (see Figure 4). The project was a bestseller despite having a total built up area of only 1,600 square feet and being priced at a minimum of 400,000 MYR, which was considered beyond the affordable range in the area where it was offered. These houses are clustered in groups no more than fours to ensure each unit has a green patch for gardening and outdoor activities. Despite the small space provided, they were airy and visually appealing, and incorporates the neighbours' open spaces into one's own landscape. The open green patch also allows greater amount of light into the house, improves ventilation and allows one to do away with unsightly air wells common with terraced homes.

Figure-4. Green patch in clustered eco-houses



Source: Taken by the author

Having these green patches in place of back lanes makes the homes more visually pleasing and enhances the value of the neighbourhood as a whole. The absence of the hideous back lanes also increases the security of the houses as there are less entry points *i.e.* doors and windows. The proximity with the adjoining unit at the rear also encourage both neighbours to mingle and keep watch on one another.

For fast-selling premium estates, their landscaping and greening initiatives were undertaken at a higher level, and higher-maintenance plants such as annuals and shrubs are used. Given the higher expectation of these houses, the neighbourhoods are almost always gated for safety, and have extensively manicured landscapes that line the pedestrian walkways, bicycle lanes, and motorways (see Figure 5).

**Figure-5.** Premium eco-housing estates

Source: Taken by the author

#### 4.5. Malaysian Homebuyers' Green Behaviours

Malaysians have long placed great value on greenscapes. Historically, as Malaya transformed from an agrarian to an industrial society during the post-war period, many have migrated from rural to urban centres in search of employment and have to adjust to formal housing which comprises mainly of terraced houses and flats. However, these rural folk had difficulty accommodate to the limited planting spaces allotted by formal housing therefore they often took to converting roads and other public spaces to recreate the village greenery that used to give them that sense of place (see Figure 6). Although this is a common sight in Malaysia, authorities usually turn a blind eye as long as the area is not unkempt and does not become a nuisance or endanger other residents. In addition, housing estates in the early days are often planted with fruit trees like mango and rose apples, to promote sharing of fruits with neighbours. It also says plenty about Malaysians as close-knitted societies, hence the need for green public spaces for interaction

**Figure-6.** Part of a children's playground converted into backyard garden

Source: Taken by the author

Psychologists have long considered the impact of the environment on human behaviour. From the field of humanistic psychology, Maslow theorised that humans have five basic needs i.e. physiological, safety, love and belongingness, as well as esteem, and finally self-actualisation, or “what a man can be, he must be” (Maslow, 1943). Based on Maslow’s hierarchy of needs, the housing environment can be understood to function not merely as to

provide for physiological needs, but also to fulfil higher-order social needs (by creating a sense of belongingness) or esteem (one's self-respect as well as admiration by others). From the field of environmental psychology, Mehrabian and Russell theorised that stimuli from the environment will affect a person's approach or avoidance behaviours through the mediating effects of emotions i.e. pleasure, arousal, dominance (Mehrabian and Russell, 1974). From this perspective, we may explain why eco-housing and gated communities are enjoying better sales despite their higher prices. The housing environment, which is made pleasant by the addition of green spaces, elicit favourable emotions (a sense of pleasure, excitement, and control or safety) which will in turn affect their decision to purchase (approach behaviour).

A study on migrant adolescents have also revealed that the presence of trees and greeneries makes them feel safe and protected. Gardens, parks and green spaces were found to have strong positive associations with safety and other positive emotional attachment to a home (Sampson and Gifford, 2010). All these have shown the importance of green practices in housing initiatives.

## 5. Conclusion

In the past decade, housing developers have been struggling due to a slumping property market. The main reason that contributed to their poor performance is the hike in the cost of construction materials. With the implementation of the value added Goods and Services Tax in 2015, developers have to mitigate the rising costs by cutting down on construction of regular-priced houses and put more emphasis on more expensive premium homes which should give them higher returns. Nonetheless they were still not performing; this was evident with the high numbers of overhung units both in the affordable and premium ranges. It signifies that the problem lies in the delivery of housing. The houses that are being offered in the market did not meet housebuyers' expectations regardless of whether they are from the lower or upper-middle income groups.

The characteristics of Malaysian homebuyers have been changing. While affordability and location remained among the most important factors, recent years have seen the Malaysian property market flooded with unsold affordable homes. These houses are minimal in features and have low resale value which is why even they have been shunned by those from the lower-income group. Nonetheless, the more expensive eco-housing were selling well and developers that incorporated green spaces and good home designs have been prospering. It should be understood that Malaysians are increasingly identifying themselves with smaller families, higher living standards, increasing stress levels, and changing lifestyles. In addition, Malaysians are also close-knit people who need to congregate and interact at public spaces; all of which has called for eco-housing.

However, Malaysians are generally not concerned about pro-environment practices such as energy and water conservation or recycling. Instead, eco-housing has been attractive for their visual pleasantness and comfort. Therefore, to improve sales and promote homeownership, developers should give priority to improving the housing environment by landscaping and green spaces and design homes for comfort by improving natural light, ventilation and good house orientations. All these eco-innovations can be cost-effective for property developers to build. Over discussions with the successful property developers have revealed that these homes were built with good spatial planning where all available land is put to good use and the landscaping is done meticulously also factoring in the costs of creation and maintenance.

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