



**UNIVERSITI PUTRA MALAYSIA**

**LAND USE PLANNING IN PROVISION OF AFFORDABLE HOUSING FOR  
MIDDLE INCOME HOUSEHOLDS IN KUALA LUMPUR, MALAYSIA**

**INTAN MELATI BINTI CHE HASSAN**

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**By**

**INTAN MELATI BINTI CHE HASSAN**

**Thesis Submitted to the School of Graduate Studies, Universiti  
Putra Malaysia, in Fulfilment of the Requirements for the Degree  
of Doctor of Philosophy**

**April 2019**

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in  
fulfilment of the requirement for the Degree of Doctor of Philosophy

## **LAND USE PLANNING IN PROVISION OF AFFORDABLE HOUSING FOR MIDDLE INCOME HOUSEHOLDS IN KUALA LUMPUR, MALAYSIA**

By

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**April 2019**

**Chair: Faziawati Binti Abdul Aziz, PhD**  
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The literature review identifies a particular problem concerning housing affordability among middle-income earners in Kuala Lumpur, Malaysia. Realising that affordable housing accessibility is an acute problem among the middle-income group; the government has initiated several policies and housing programs. Advocates believe that successful growth management can provide housing for the middle-income households via effective and comprehensive planning through the adoption of appropriate land use planning and housing policies.

Nonetheless, no study has assessed if relationships exist between housing policies, land use planning, and middle-income housing outcomes within the Malaysian context. As such, this thesis probed into how land use planning offers affordable housing for the middle-income group in Kuala Lumpur. Through the implementation of relevant housing policies and strategies, the land use planning system should address the needs and demands for affordable housing amidst middle-income households in this city.

A structured interview was carried out to eight agencies responsible for providing affordable housing. This was followed by an analysis on housing affordability in Kuala Lumpur. Six housing policies that governed affordable housing programs deployed by various agencies were assessed. This study appears to be the first to systematically review housing policies in Malaysia and to evaluate the performance of affordable housing programs stipulated in these policies. The roles of planning and providing affordable housing through land use planning were mapped against agencies and policies. This comparative analysis offers in-depth understanding regarding the effectiveness and the comprehensiveness of institutional and governing factors in providing affordable housing for the middle-income group. Lastly,

the Local Plan (LP) land use planning of Kuala Lumpur and its surrounding municipalities that supported the housing demands for Kuala Lumpur had been analysed. An evaluation framework for the LPs was built to assess the effectiveness of the land use planning in providing the middle-income housing.

This study revealed that the formal housing market in Kuala Lumpur failed to provide affordable housing for the middle-income group. The price-to-income ratio for the middle-income households in Kuala Lumpur seemed to fall in the seriously to severely unaffordable category. Housing programs by the agencies were uncoordinated and the National Housing Policy (NHP) was ineffective. Nevertheless, three policies, namely Federal Territory housing (RUMAWIP), Malaysia PR1MA Corporation (PR1MA), and *Rumah Selangorku*, were capable of delivering affordable housing to the middle-income group because the provision for middle-income housing is stated explicitly in the policies. Unfortunately, five of the policies were not linked to the land use planning framework at the local authority level, except *Rumah Selangorku*. Thus, in ensuring delivery, the final provision for the middle-income housing programs would need to fit the present LP land use planning, which should have been planned together in the beginning. This study offers good feedback to the government by providing them relevant information for improvement to the provision of affordable housing for the middle-income group in Kuala Lumpur.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia  
sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

**PERANCANGAN GUNA TANAH DALAM PERUNTUKAN PERUMAHAN  
MAMPU MILIK UNTUK ISI RUMAH BERPENDAPATAN PERTENGAHAN  
DI KUALA LUMPUR, MALAYSIA**

Oleh

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Kajian literatur mengenal pasti masalah tertentu mengenai kemampuan untuk membeli rumah di kalangan masyarakat berpendapatan sederhana di Kuala Lumpur, Malaysia. Menyedari bahawa akses kepada perumahan mampu milik merupakan masalah yang kritikal di kalangan kumpulan pertengahan; kerajaan telah menggubal beberapa dasar dan program perumahan. Para advokat percaya bahawa pengurusan pertumbuhan yang berjaya dapat menyediakan perumahan yang mencukupi untuk isi rumah berpendapatan sederhana melalui perancangan yang efektif dan komprehensif melalui penerapan perancangan guna tanah dan dasar perumahan yang sesuai.

Walau bagaimanapun, tiada kajian yang telah dilaksanakan untuk menilai sama ada wujud hubungan antara dasar perumahan, perancangan guna tanah, dan hasil pembangunan perumahan mampu milik dalam konteks Malaysia. Oleh itu, tesis ini membincangkan bagaimana perancangan guna tanah dapat menawarkan perumahan mampu milik yang berpatutan untuk kumpulan pertengahan di Kuala Lumpur. Melalui pelaksanaan dasar dan strategi perumahan yang relevan, sistem perancangan guna tanah harus memenuhi keperluan dan tuntutan semasa untuk menyediakan perumahan yang mampu dimiliki di kalangan isi rumah berpendapatan pertengahan di bandar ini.

Temubual berstruktur dilakukan kepada lapan agensi yang bertanggungjawab untuk menyediakan perumahan mampu milik. Ini diikuti dengan analisis mengenai kemampuan pemilihan perumahan bagi golongan berpendapatan sederhana di Kuala Lumpur. Enam dasar perumahan yang menyediakan program perumahan mampu milik oleh pelbagai agensi telah dinilai. Kajian ini merupakan yang pertama memantau dasar perumahan untuk perumahan

mampu milik secara sistematik di Malaysia dan untuk menilai prestasi program perumahan mampu milik yang ditetapkan dalam polisi-polisi ini. Peranan perancangan dan penyediaan perumahan mampu milik melalui perancangan guna tanah dipetakan terhadap agensi dan dasar. Analisis perbandingan ini menawarkan pemahaman mendalam mengenai keberkesanan dan kesesuaian faktor-faktor institusi dan pentadbiran dalam menyediakan perumahan mampu milik untuk kumpulan berpendapatan sederhana. Akhir sekali, perancangan guna tanah Rancangan Tempatan (RT) Kuala Lumpur dan majlis perbandaran sekitarnya yang menyokong penyediaan perumahan untuk Kuala Lumpur telah dianalisis. Rangka kerja penilaian bagi RT dibina untuk menilai keberkesanan perancangan penggunaan tanah dalam menyediakan perumahan berpendapatan pertengahan.

Penemuan dari kajian ini telah mendedahkan bahawa pasaran perumahan formal di Kuala Lumpur gagal menyediakan perumahan mampu milik untuk kumpulan berpendapatan sederhana. Nisbah harga-kepada-pendapatan bagi isi rumah berpendapatan sederhana di Kuala Lumpur adalah dalam kategori serius iaitu ketidakmampuan yang teruk untuk memiliki rumah. Selain itu, program perumahan oleh agensi-agensi yang berkaitan tidak diselaraskan dengan baik dan Dasar Perumahan Negara (DPN) juga tidak berkesan dalam menawarkan perumahan mampu milik kepada masyarakat kumpulan pertengahan di Kuala Lumpur. Walau bagaimanapun, tiga dasar, iaitu perumahan Wilayah Persekutuan (RUMAWIP), Perbadanan PR1MA Malaysia (PR1MA), dan Rumah Selangorku, mampu menyediakan perumahan mampu milik kepada kumpulan berpendapatan sederhana kerana peruntukan bagi perumahan berpendapatan sederhana dinyatakan dengan jelas dalam dasar-dasar ini. Malangnya, lima daripada enam dasar tersebut tidak diselaraskan dengan rangka kerja perancangan guna tanah di peringkat pihak berkuasa tempatan, kecuali Program Rumah Selangorku. Oleh itu, dalam memastikan penyediaan pembangunan perumahan yang berkesan, peruntukan terakhir bagi program perumahan berpendapatan sederhana ini perlu memenuhi perancangan penggunaan tanah RT, yang sepatutnya dirancang bersama sejak dari mulanya. Kajian ini menawarkan maklum balas yang baik kepada kerajaan dengan memberikan maklumat yang relevan untuk memperbaiki penyediaan rumah mampu milik untuk golongan kumpulan pertengahan di Kuala Lumpur.

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**INTAN MELATI CHE HASSAN**  
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## LIST OF ABBREVIATIONS

Act 172	Town and Country Planning Act 1976
Act 267	Federal Territory (Planning) Act 1982
Act 739	Perumahan Rakyat 1Malaysia Act 2012
AHD	Affordable Housing Database
ANN	Artificial Neural Network
BIMB	Bank Islam Malaysia Berhad
BMK	Baan Man Kong
BNM	Central Bank of Malaysia
BOI	Thailand's Board of Investment
CAGR	Compound Annual Growth Rate
CMHC	Canada Mortgage and Housing Corporation
CPF	Central Provident Fund (Singapore)
DBKL	<i>Dewan Bandaraya Kuala Lumpur</i> (Kuala Lumpur City Council)
DEM	Digital Elevation Model
DO	Development Order
DOSM	Department of Statistic Malaysia
EC	European Commission
ECER	Eastern Corridor Economic Region
EPF	Employees Provident Fund
EPU	Economic Planning Unit
EPBC	Environment Protection and Biodiversity Conservation Act 1999
GDP	Gross Domestic Product
GIS	Geographic Information System
GMA	Growth Management Act
GPG	Global Property Guide
HCB	Housing Cost Burden
HDB	Singapore's Housing Development Board
HUD	US Department of Housing and Urban Development
HUDCC	Housing and Urban Development Coordination Council (Philippines)
IBS	Industrialised Building System
JPPH	Department of Valuation and Property Services
KIP	Kampong Improvement Program
KL	Kuala Lumpur
KLC	Kuala Lumpur Conurbation
KLCP	Kuala Lumpur City Plan
KLSP	Kuala Lumpur Structure Plan
KPKT	Ministry of Housing and Local Government
KRI	Khazanah Research Institute
KWP	Federal Territory Ministry
LA	Local Authority
LPHS	Selangor Housing and Property Board
LP	Local Plan
LULC	Land Use / Land Cover
MBPJ	Petaling Jaya City Council
MBSJ	Subang Jaya City Council
MHPI	Malaysian House Price Index
MIDF	Malaysia Industrial Development Finance

MIER	Malaysia Institute of Economic Research
MM	Median Multiple
MP	Malaysia Plan
MPAJ	Ampang Jaya Municipal Council
MPKj	Kajang Municipal Council
MPS	Selayang Municipal Council
MyHome	<i>Program Skim Perumahan Mampu Milik Swasta</i>
NAHC	National Affordable Housing Consortium (Australia)
NCER	Northern Corridor Economic Region
NDPF	National Development Planning Framework
NHA	Singapore National Housing Authority
NHD	Department of Housing Malaysia
NHP	National Housing Policy
NLCD	National Land Cover Data
NPP	National Physical Plan
NPPC	National Physical Planning Council
NUP	National Urbanisation Policy
OECD	Organisation for Economic Co-operation and Development
OFW	Overseas foreign Workers
OSA	Official Secret Act 1972
PDC	Penang Development Corporation
PIR	Price-to-Income Ratio
Plan Malaysia	Department of Town and Country Planning Peninsular Malaysia
PPA1M	<i>Perumahan Pejabat Awam 1Malaysia</i>
PPRT	<i>Program Perumahan Rakyat Termiskin</i>
PR1MA	Malaysia PR1MA Corporation
RMR1M	<i>Program Rumah Mesra Rakyat 1Malaysia</i>
RUMAWIP	Federal Territory Housing
SDGs	Sustainable Development Goal
SPAD	Land Public Transport Commission
SPNB	National Housing Company
SPZ	Strategic Planning Zones
SOCISO	Social Security Organization
SSP 2020	Selangor Structure Plan 2020
SRTM	Shuttle Radar Topography Mission
SWOT	Strength, Weakness, Opportunity, Threat
TOD	Transit-Oriented Development
TPZ	Transit Planning Zone
UGB	Urban Growth Boundary
UGM	Urban Growth Management
UK	United Kingdom
UN	United Nation
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Centre For Human Settlement
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USGS	United States Geological Survey





## CHAPTER 1

### ISSUES IN PLANNING AFFORDABLE HOUSING IN URBAN AREAS FOR THE MIDDLE-INCOME GROUP

#### 1.1 Introduction

Studies conducted by Mingxing et al., (2014) and Jedwab and Vollrath (2015) using data retrieved from several decades ago found that urbanisation is a crucial driver of economic growth. With focus placed on infrastructure, people, and economic inter-relationships that support economic transformation, urbanisation has become critical. Malaysia has been experiencing accelerating urbanisation as a result of the structural economic change from dependence on agriculture to manufacturing, services, and oil & gas. With Malaysia aiming to reach high-income status by year 2020, one of the strategies is to accelerate the pace and the intensity of urbanisation. With the rapidly increasing urban population, Malaysia is among the more urbanised nations than the rest of East Asia (World Bank, 2015).

In the urbanisation process, migration to urban centres, coupled with rapid population growth, has created massive demand for houses. This huge demand for houses requires proper planning, wherein many countries have laid out a comprehensive planning policy to support the delivery of houses to their urbanites, such as Australia (Commonwealth of Australia [COA], 2011), the United Kingdom (UK) (Department for Communities and Local Government [DCLG], 2012), and Canada (Government of Canada [GOC], 2018). There are, however, constraints due to shortage of developable land in urbanised areas, thus exceptional urban growth management (UGM) tied with efficient land use planning is necessary. Property developers have been focussing on high-end housing and the government has been busy attending to the low-income group. This has left a big gap for the middle-income housing supply. Apart from the insufficient housing supply, several studies have lighted the issue of housing affordability faced by the middle-income group in Malaysia (see Bujang et al., 2010; Wan Aziz et al., 2011; Khazanah Research Institute [KRI], 2015). This phenomenon has led to housing stress among the middle-income group, thus requiring some thoughtful strategies in addressing the escalating housing issues.

The living cost in urban areas is not only high, but it also rises rapidly, thus affecting the affordability of people to buy homes, especially amongst the young executives and first time home buyers (Khan et al., 2012). Despite of the various policies, initiatives, and mechanisms devised by the government aimed at ensuring a sustainable living environment for the urban inhabitants; they still demand adjustment, revision, and consideration to be effective for the middle-income housing (Baqtayan, 2014).

Malaysia is not the only country that is faced with issues related to affordable urban housing, as this is also experienced in several other developed countries, such as New Zealand (Mattingly & Morrissey, 2014), the United States of America (USA) (National Low Income Housing Coalition [NLIHC], 2018), the UK, and Australia (Austin et al., 2014). Inadequate supply of affordable housing in urban areas could give rise to other urban problems (see Bhatta, 2010; Boori et al., 2015), which has enticed several governments to hold intervention for the middle-income through specific policy (Baqutaya et al., 2016), housing programs (City of Boulder [CoB], 2016), and inclusionary land use planning (Mekawy, 2014).

## **1.2 Housing Affordability As A Problem For Middle-Income Group**

Governments around the globe reckon that housing is a fundamental requirement for every citizen. The realisation has led them to formulate policies and programs aimed at ensuring that the citizens have the opportunity to stay at suitable places. Access to housing directly influences, among other things, educational accomplishment, outcomes of employment, as well as impacts on physical and mental health (Kottke et al., 2017).

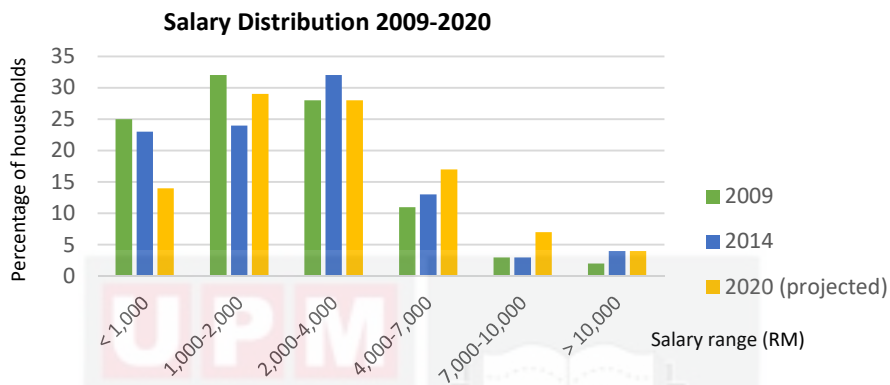
Many urban areas in Malaysia seem to experience an undersupply of affordable houses (Samad et al. 2016). The term 'affordability' refers to the capacity of buyers that directly translates the socio-economic situation of a nation. Housing affordability is influenced by a number of interrelated factors, such as housing price, financial capacity, access to credit, and supply of suitable housing stock. Although the definition varies across economies, affordable housing typically embeds three components, which are: income threshold, affordability threshold (the percentage of income devoted to housing), and minimum acceptable housing standard (McKinsey, 2014).

The Knight Frank's Global House Price Index (KF, 2016) reported that the prices of homes in Malaysia have rocketed for the past years. For example, the report showed that the prices had risen by 7.2% from 2015 to 2016, which was higher than that in the UK (5.2%) and the US (5.1%). Worse still, the cost of purchasing a house here had increased by 99% since the last decade (Global Property Guide [GPG], 2015). The scarcity of supply resources, mainly strategic land with reasonably construction cost, created challenges in developing affordable housing in urban areas. Previously, intervention policies and tools, such as land use planning; only focus on the low-income group (Baqutaya et al., 2016), while dismissing the inadequate supply of affordable housing for the middle-income as an issue.

Another central issue is the availability of financial support and stricter lending guidelines. Based on the estimation by the Malaysia's Performance Management and Delivery Unit (PEMANDU) Prime Minister's office (see Figure 1.1), about 60% households in Malaysia were in the medium income bracket (PEMANDU, 2015). The socio-economic growth of the middle class



needs to be emphasised, as they are more vulnerable to experience downward socio-economic mobility (KRI, 2015). Hence, it is vital to address affordable housing requirement for the middle-income group, which constitutes the majority of the urban population.



**Figure 1.1: Salary Distribution in Malaysia, 2009 – 2020**  
(Source: PEMANDU, 2015)

The annual reports published by the National Property Information Centre (NAPIC) revealed huge gaps; up to 40%, between the demand and supply for affordable housing in Malaysia. For instance in 2013, only about 30% of the total number of housing units constructed was priced below RM 250,000 (Department of Valuation and Property Services [JPPH], 2014). Realising that access to affordable housing is an acute problem among the middle-income group, the government began initiating several programs, such as Malaysia PR1MA Corporation (PR1MA) and Federal Territory housing (RUMAWIP). There was huge demand for these programs with the number of people applying exceeding seven times of the planned supply (PR1MA, 2015). This clearly reflects the mismatch between demand and supply of middle-income housing.

### 1.3 Urban Growth Management and Planning of Affordable Housing In Urban Areas

Cities have been the centre of social and economic interaction. The remarkable expansion of cities has led the majority of the world's population to reside in urban areas (United Nations Environment Programme [UNEP], 2017), which has been continuously attracting more people. The role of cities for global sustainability is widely acknowledged to accelerate urban growth in many developing nations, which has led to unplanned development and poor management systems (Bhatta, 2010). As such, urban growth needs to be planned and managed so as to maintain and to enhance the quality of life of the community. As defined by the Australian Planning Institute (PIA), UGM is *"the application of planning tools in a coordinated manner to guide the development of cities and towns towards desired patterns of growth"* (PIA, 2007).

Managing urban growth requires policy instrument, integrated land use planning, regulatory, and authority of local governments to guide the pattern of growth and development (Horn, 2014; Infrastructure, 2018). The land use element is the central requirement in UGM because it offers the basis for all the other required elements, including housing, transportation, facilities, and utilities, which depend on the land use pattern and the population. In enhancing land use planning and development in urban areas, several concepts have been amalgamated to cover the wide range of growth management initiatives, such as smart growth (Shrivastava & Sharma, 2011), new urbanisation (Rahnama, 2012; Boeing et al., 2014), and compact city (Organisation for Economic Co-operation and Development [OECD], 2014). UGM aims to yield environmentally sound, economically efficient, and socially just outcomes using various tools to manage the future growth of urban (Ruddiman, 2013).

Growth management policy or statute is a potential vehicle through which land use planning is organised and implemented (Fertner et al., 2016). In the USA, many states have enacted the Growth Management Act (GMA) to guide planning for growth and development. The policies or statutes ensure that localities recognise the need for affordable housing and provide planning to meet those needs. Through growth management principles, localities need to assemble their land use planning objectives and tools with affordable housing in becoming a component of land use. With limited land in the urban area to accommodate projected affordable housing growth, it heavily relies on the ability to increase the average densities of new development and appropriate consolidation of the existing lower density residential areas.

Land use planning is a powerful tool to plan for affordable housing, particularly at the local level (Agyemang and Morrison, 2017). This involves preparation of plans and development control to generate better living environments, as well as to address the persistence gaps of land utilisation and development sustainability. More challenges are found in planning affordable housing in the urban areas due to constraint of land available for development, besides integrating the transport system and provision of facilities into the land use plan (Winston, 2010; Cahill, 2018). It is also tied to administrative jurisdiction and several concepts, such as conurbations that cover administrative areas, thus affecting effective land use planning (OECD, 2017).

Housing affordability is made part of the implicit goal of land use planning policy across most jurisdictions (Caldner, 2017; Cahill, 2018). Through the planning system; several policies, regulations, and implementation guidelines can be established to overcome the deficiencies of housing affordability. They include the following:

- i. Providing greater housing diversity in the allocation of land uses to achieve social mix and to support economic prosperity.
- ii. Making affordable housing inclusion a requirement of development.
- iii. Minimising the impact of planning on the availability of affordable housing.

As for Kuala Lumpur, the capital city of Malaysia, its development plan includes policies and strategies aimed at promoting and managing growth, so as to ensure that it can meet the aspirations of its diverse communities. Housing is a key subject matter discussed in both plans. The principal strategy in these plans is to equally distribute the housing needs at strategic zone - an attempt to reconcile the tension of population growth. The needs of having affordable housing scheme for the urban population in Kuala Lumpur were highlighted in both these documents.

#### **1.4 Problem Statement**

The Economic Planning Unit (EPU) (2015) reported that the supply of affordable housing unit was insufficient, especially for low- and middle-income households residing at urban area. Similarly, Bloomberg (Chong, 2017) and KRI (2015) found that homes in major cities, such as Kuala Lumpur, Penang, and Johor Bahru, were 'seriously unaffordable' by global standards. Thus, it is vital to understand the failure of the present practices in supplying affordable housing in these cities.

The plight of having planned affordable housing in Kuala Lumpur has been highlighted in many mainstream newspapers (Ahmad, 2016; Nee, 2018; Hamid, 2017). Despite that, the affordability of housing is still a major public concern, topping the budget wish list in the past three years - 2016, 2017, and 2018. Hence, despite the government's efforts in promoting homeownership, some issues need to be addressed in meeting affordable housing needs. Interestingly, studies have reported that most of the Kuala Lumpur population that did not own a house and needed government intervention for programs and initiatives to close their housing affordability gap were from the middle-income group (Wan Aziz et al., 2010; Baqutaya, 2014; Zainon et al., 2016).

As highlighted earlier, housing affordability infers the correlation between housing price and household income. Since affordable housing has always been associated with the low-income group, from the perspectives of both consumer and economy, it is important to study the middle-income housing affordability in large metropolitan, especially Kuala Lumpur city. Data from reliable sources, such as JPPH, Central Bank (BNM), and Department of Statistics Malaysia (DOSM) should be incorporated to evaluate the issue of middle-income housing affordability.

Although the implementation of affordable housing development lies with the local authority, several national development policies do give attention to affordable housing. Although these policies and planning obligations have been devised for quite some time, the problem of affordable housing for the middle-income has kept surfacing. The effectiveness of policies and practices related to affordable housing, and planning mechanisms deployed in Kuala Lumpur to meet the affordable housing demand for middle-income group, had been assessed in this study.

Looking at the governance aspects, several government authorities and agencies are directly involved in planning and developing affordable housing in Kuala Lumpur. The key organisations are the National Housing Department (NHD), the Ministry of Federal Territory (KWP), the National Housing Company Ltd (*Syarikat Perumahan Negara Berhad* or SPNB), and PR1MA. With this number of authorities, it would be interesting to study the coordination and the implementation mechanisms for the provision of affordable housing meant for the middle-income group in Kuala Lumpur. Besides, it is imperative to have sustainable policies, as well as effective practices and mechanisms, deployed in Kuala Lumpur to meet the affordable housing demand. With that, the governance structure, the institutional arrangement, as well as the implementation of policies and plans for affordable housing in Kuala Lumpur, were appraised in this study.

Despite the rapidly growing support for managing the urban growth in Kuala Lumpur, there are concerns regarding the influence of present growth management on housing affordability (Merican, 2015; Gambero, 2013). Rapid urbanisation implies difficulties in managing growth and causing a challenge to manage the expanding populations and to secure resources for the provision of social needs and services, including houses. Housing affordability is included as sustainable economic and social factor in urban development. The influence of UGM on land and housing demand must be established, especially when the amalgamation of urban areas around Kuala Lumpur forms the Greater Kuala Lumpur. Although urban expansion is a dynamic process and does not adhere to a perfect uniform growth pattern for sustainable development strategy and efficient management, it is vital to determine the growth pattern of Kuala Lumpur and its surrounding regions. This pattern and monitoring urban growth dynamics can be studied using Geographic Information System (GIS) and remote sensing technology, so as to bring an impact on the tools and methodologies applied in land use planning (Boori et al., 2015).

Land use and development planning play an important role in delivering housing supply. Thus, the provision of affordable housing encompassed in the Kuala Lumpur development plans had been deliberated with the assessment on several related planning policies and strategies in meeting the demand of middle-income housing in Kuala Lumpur. With limited land available in Kuala Lumpur and with most developers concentrating on high-end housing, the new middle-income housing is expected to be developed in the surrounding

municipalities. However, no study has directly assessed if national and state has mandated planning for affordable housing that has improved housing affordability for middle-income households at the local level. Hence, the relationship between land use planning strategies and policy levers of the surrounding Local Plans (LPs) to support the provision of middle-income housing was evaluated in this study.

A number of programs have been successfully carried out in other nations, such as in the UK (Hilber, 2015; DCLG, 2006), the USA (Housing and Urban Development [HUD], 2015), Canada (Cox & He, 2016), and Australia (Department of Family and Community Services [DFCS], 2013), in meeting the needs of affordable housing in urban areas. The suitability and practicality of the mechanisms in supplying affordable housing deployed in these nations, especially for the middle-income group, should be reflected in attempting to deploy them in Kuala Lumpur. This would improve both the UGM and planning the necessary middle-income housing supply in Kuala Lumpur.

### 1.5 Research Questions and Research Goal

The specific questions addressed in this study are outlined as follows:

- i. Why do the middle-income households in Kuala Lumpur face housing affordability problem?

In 2015, Khazanah Research Institute (KRI), a government research subsidiary, reported:

*"Gaps are beginning to appear in the system, as exemplified by the growing concern of middle-income households who are neither eligible for social housing nor are able to afford private sector-supplied houses."*

The non-existence of the authoritative definition for the term 'middle-income household' has made it difficult to relate to the affordability profiles of this group of earners. Other factors also have to be deliberated in relation to middle-income housing affordability. Amongst others are housing supply (both quantity and spatial distributions), institutional practices, household income, and trends.

- ii. How do governance and development policies for affordable housing affect the housing provision for the middle-income group in Kuala Lumpur?

This research question looked into the policies that are currently in place in the country to address affordable housing, as well as the social and spatial effects that these policies have. This study focused on the governance of the policies, and the appropriate application of these policies at national, regional, and local levels. The responses to this question reveal the planning aspects and the urban growth strategy that had impacted the availability and the appropriateness of affordable housing in Kuala Lumpur.



- iii. How can land use planning implementation, based on the present governance and governing housing policies, is able to provide affordable housing for the middle-income group in Kuala Lumpur?

Given the lack of affordable housing delivery, there is no clear flow between development policy and land use planning system. This is a particularly important and an under-researched issue. In effect, the question is raised if local authority policies on affordable housing in their LPs are developed due to national and regional government intervention or in spite of it? The strategic standing of the land use planning system in providing affordable housing, thus, was verified and explored in this study to address the planning system deficiencies that undermine housing affordability.

The broad goal of this study is to better understand how to make land use planning more effective in delivering affordable housing for the middle-income group. In more specific terms, this study enhances the present composite approach that consisted of several components (e.g. housing affordability, UGM, governance, policies, and land use planning), and to assess the provision of affordable housing for the middle-income group in Kuala Lumpur. With that, the study objectives are as follows:

- a. To redefine affordability and the definition of affordable housing for middle income in urban context like Kuala Lumpur
- b. To evaluate the development policies and to analyse their attributes to the provision of middle-income affordable housing.
- c. To assess the governance and the implementation of land use planning in addressing the demand for affordable housing for the middle-income group in Kuala Lumpur.

## **1.6 Contribution of the Study**

Primarily, this study assessed local, state, and national land-use planning in providing middle-income affordable housing. The study outcomes reflect the effectiveness of the policies, programs, and initiatives in supplying middle-income affordable housing. Taking into account the present land use planning systems in Malaysia, this study highlights issues, challenges, and practical urban planning mechanisms for middle-income housing in urban areas. Kuala Lumpur, being unique in its urban administration as a state (Federal Territory) and a city, had been selected the case study to probe into housing affordability amongst the middle-income households, land use planning approach for middle-income housing, and the implementation of programs for the provision of middle-income housing.

This research emphasised on the importance of detailed housing planning, being part of the land-use planning, in UGM. The research offers intuitive

technical deliberations on a number of aspects pertaining to affordable housing planning, such as

- i. thoroughness of scheming urban housing affordability,
- ii. forecasting affordable housing demand,
- iii. spatial planning utilising Remote Sensing and GIS technologies for temporal urban growth and land use trend, and
- iv. a framework to evaluate land use plan in providing affordable housing.

The research outcomes, especially on the implementation of policies and practices on provisions of middle-income affordable housing, are meant to give a bearing on the contemporary needs and the possible reforms. This streamlines land use planning processes within the context of supplying middle-income housing in urban areas and minimising supply-demand issues. This is further enriched by a comparative study concerning practicality and efficacy of urban planning governance, mechanism, and programs for affordable housing from several other countries. This study directly benefits several stakeholders, namely local authorities, policy makers, urban planners, developers, and government agencies dealing with affordable housing, such as the NHD and the Plan Malaysia.

## 1.7 Thesis Organisation

The thesis is divided into seven chapters. **Chapter One** contains the introduction of the study comprising the research background, the problem statement, the research aim and objectives, and the research contribution. **Chapter Two** reviews three crucial traits of this study: affordable housing, land use planning, and UGM. Successful urban planning programs and mechanisms executed around the globe in supplying affordable housing are also presented. Local and international guidelines, policies, and strategies were reviewed to determine their roles in resolving and in undertaking the task of minimising issues related to affordable housing among the middle-income households.

**Chapter Three** delineates the research framework, the methodology, and the process flow in meeting the study objectives. The research framework shapes the research with the gathered and analysed relevant data. This research is unique since it combined quantitative and qualitative approaches to gauge development policies and planning practices with corresponding numerical indications linked to affordable housing. The quantitative analysis is depicted in **Chapter Four** to study housing affordability for the middle-income group in Kuala Lumpur. The standard measuring affordability technique and methodology adopted internationally are elaborated in this chapter. **Chapter Five** details out the prevailing government development policies and interventions in providing affordable housing. These include the national initiatives at the Federal level, such as the Malaysia Plan, the National Development Planning Framework (NDPF), the National Physical Plan (NPP), the National Housing Policy (NHP), and the National Urbanisation Policy

(NUP). The challenges in implementing federal programs, including institutional factors, which affected the provision of affordable housing, were addressed, with specific focus on the provision of middle-income housing for Kuala Lumpur.

The development plan of Kuala Lumpur and its mechanism in providing affordable housing is described in **Chapter Six**. The Kuala Lumpur Structure and LPs were appraised to assess the provision of middle-income housing. The urbanisation and the temporal urban growth of Kuala Lumpur for the past three decades were analysed quantitatively using Remote Sensing and GIS technologies. Related land use planning factors, provision in managing urban growth, and affordable housing supply in Kuala Lumpur were examined in this chapter. Finally, **Chapter Seven** summarises the findings and delivers the conclusions of this research, along with several recommendations for future study.



## REFERENCES

- Abdullah, J. (2003). *The Suburbanization of the Kuala Lumpur Metropolitan Region*. Journal of the Malaysian Institute of Planners 1(2003), 119-26.
- AGC (2013) Ministers of Federal Government (No 2) Order 2103. Ministerial Functions Act 1969. Attorney General's Chamber. P.U. (A) 184
- Agyemang, F. and Morrison, N. (2017) *Recognising the barriers to securing affordable housing through the land use planning system in Sub-Saharan Africa: A perspective from Ghana*. Urban Studies 55 (12), 2640 – 2659. doi: 10.1177/0042098017724092
- Ahmad, M.H. (2016) *Cabaran perumahan mampu milik*. Utusan Malaysia 23 Ogos 2016. <http://www.utusan.com.my/rencana/cabaran-perumahan-mampu-milik-1.373549>
- AHI (2015) *What makes housing affordable?* Affordable Housing Institute. <https://ahiglobal.wordpress.com/2015/02/11/what-makes-housing-affordable/>  
Accessed on 11<sup>th</sup> April, 2016
- Akmar, A.A.N, Konijnendijk, C.C., Sreetheran, M. and Nilsson, K. (2011) *Greenspace Planning and Management in Klang Valley, Peninsular Malaysia*. Arboriculture & Urban Forestry 37(3), 99–107
- Alfasi, N. Almagor, J. and Benenson, I. (2012) *The actual impact of comprehensive land-use plans: Insights from high resolution observations*. Land Use Policy 29, 862–877  
doi:10.1016/j.landusepol.2012.01.003
- Almselati, A.S.I., Rahmat, R.A., Jaafar, O. (2011). *An overview of urban transport in Malaysia*. The Social Sciences, 6(1), 24-33
- Ambrose, A.H.A., Aslam, M. and Hanafi, H. (2015) *The Possible Role of Waqf in Ensuring A Sustainable Malaysian Federal Government Debt*. Procedia Economics and Finance, 31(2015) 333 – 345.  
doi: 10.1016/S2212-5671(15)01205-8
- Arribas-Bel, D., Patino, J.E. and Duque, J.C. (2017) *Remote sensing-based measurement of Living Environment Deprivation: Improving classical approaches with machine learning*. Public Library of Science Journal, PLoS ONE 12(5): e0176684. doi:10.1371/journal.pone.0176684
- Aurand, A. (2014). *Florida's planning requirements and affordability for low-income households*. Housing Studies 29 (5), 677–700.  
doi:10.1080/02673037.2014.882497
- Austin, P.M., Gurrán, N. & Whitehead, C.M.E (2014) *Planning and affordable housing in Australia, New Zealand and England: common culture;*

*different mechanisms*. Journal of Housing and the Built Environment 29(3), 455–472

Awuah, K.G.B, Hammond, F.N., Lamond, J.E. and Booth, C. (2014) *Benefits of urban land use planning in Ghana*. Geoforum, 51, 37-46

Avis, W.R. (2016). *Urban Governance* (Topic Guide). Birmingham, UK: GSDRC, University of Birmingham. Accessed on 12 Feb 2018  
[http://www.gsdr.org/wp-content/uploads/2016/11/UrbanGov\\_GSDRC.pdf](http://www.gsdr.org/wp-content/uploads/2016/11/UrbanGov_GSDRC.pdf)

Ayoade, O. and Ahmed, V. (2014) *An assessment of land use sources of barriers and the community-based housing model in the UK*. International Journal of Housing Markets and Analysis, 7(4), 539-558

Aziz, A. (2017) Focus on affordable housing may hurt private developers. *The Edge Financial Daily*. November 10, 2017.  
<http://www.theedgemarkets.com/article/focus-affordable-housing-may-hurt-private-developers>

Bajat, B., Kilibarda, M., Pejović, M. and Petrović, M.S. (2018) *Spatial Hedonic Modeling of Housing Prices Using Auxiliary Maps*. In: Thill JC. (eds) *Spatial Analysis and Location Modeling in Urban and Regional Systems*. Advances in Geographic Information Science. Springer, Berlin, Heidelberg. doi:10.1007/978-3-642-37896-6\_5

Bajunida, A.F.I and Ghazali, M. (2012) *Affordable Mosaic Housing: Rethinking Low-Cost Housing*. Procedia - Social and Behavioral Sciences 49(2012), 245 – 256. doi:10.1016/j.sbspro.2012.07.023

Baker, J.L. (ed.) (2012) *Climate change, disaster risk, and the urban poor: Cities building resilience for a changing world*. Washington D.C.: The World Bank.

Ballesteros, M.M. (2002) *The Dynamics of Housing Demand in the Philippines: Income and Lifecycle Effects*. Philippine Institute for Development Studies. Research paper 2002-01. ISBN 971-564-043-5

Ballobh, K. (2012) *Affordable housing in Thailand*. Asia-Pacific Housing Journal, 6(21), 32-43

Ban, Y. (2009) ESA advanced training course on land remote sensing, 28 June-3 July 2009, Prague. <https://earth.esa.int/landtraining09/D3L2.pdf>  
Accessed on 26 May 2015

Bank of Canada (2012). *Household Finances and Financial Stability*. Bank of Canada Review: Winter 2011–2012: Special Issue. Available online at: [https://www.bankofcanada.ca/wp-content/uploads/2012/02/review\\_winter11-12.pdf](https://www.bankofcanada.ca/wp-content/uploads/2012/02/review_winter11-12.pdf). Accessed on 11<sup>th</sup> April, 2016

- Baqutayan, S. (2014). *The Affordable Housing Stress among Middle-Income Group*. Journal of Humanities and Social Science. 19(7), 82-90. doi:10.9790/0837-19748290.
- Baqutayan, S.M.S. (2016). Is affordable housing an Issue? A case study of housing stress among middle-income group in Malaysia. International and Multidisciplinary Journal of Social Sciences, 5(1), 26-50. doi: 10.17583/rimcis.2016.1871
- Belal, A.A. and Moghanm, F.S. (2011) *Detecting Urban Growth Using Remote Sensing and GIS Techniques in Al Gharbiya Governorate, Egypt*. The Egyptian Journal of Remote Sensing and Space Science, 14(2), 73-79.
- Berke, P., Smith, G. and Lyles, W. (2012). *Planning for resiliency: Evaluation of state hazard mitigation plans under the Disaster Mitigation Act*. Natural Hazards Review, 13, 139-149. doi: 10.1061/(ASCE)NH.1527-6996.0000063
- Berke, P. and French, S.P. (1994) *The Influence of State Planning Mandates on Local Plan Quality*. Journal of Planning Education and Research, 13(4), 237-250. doi:10.1177/0739456X9401300401
- Beltrão, G. (2013) *India: Promoting Inclusive Urban Development in Indian Cities*. Asian Development Bank Technical Assistance Report 7148-IND. Accessed on 2 June 2017  
<https://www.adb.org/sites/default/files/project-document/81205/41609-012-tacr-01.pdf>
- Berry, M. (2003) *Why is it important to boost the supply of affordable housing in Australia and how can we do it?* Urban Policy and Research, 1476-7244, 21(4), 413-435
- Bhatta, B. (2010) *Analysis of urban growth and sprawl from remote sensing data*. Springer-Verlag, ISBN: 978-3-642- 05298-9, 172 p
- BIMB (2016) Bank Islam internal publication. Accessed on 30 November 2017. <http://www.bankislam.com.my/home/assets/uploads/Sector-Update Residential-Property Jun-2016.pdf>
- BNM (2015) Assessing Demand-Supply Conditions in the Malaysian Property Market. Annual Report Bank Negara Malaysia 2015, 33-43.  
[https://www.bnm.gov.my/files/publication/ar/en/2015/cp01\\_002\\_box.pdf](https://www.bnm.gov.my/files/publication/ar/en/2015/cp01_002_box.pdf)
- BNM (2017) Housing Affordability. Bank Negara Malaysia. Accessed on 12 Nov 2017.  
[http://www.housingwatch.my/02\\_market\\_03\\_affordability.html](http://www.housingwatch.my/02_market_03_affordability.html)
- Boeing, G., Church, D., Hubbard, H., Mickens, J. and Rudis, L. (2014) *LEED-ND and Livability Revisited*. The Berkeley Planning Journal, 27(1), 31-55

- Boori, M.S., Choudhary, K. and Kovelskiy, V. (2015) *Kuala Lumpur City Growth Study through Remote Sensing and GIS*. Journal of Remote Sensing & GIS 4(2): e112. doi:10.4172/jrsg.1000e112
- Bowen, G. A. (2009). *Document analysis as a qualitative research method*. Qualitative Research Journal, 9(2), 27-40. doi:10.3316/QRJ0902027
- Bramley, G. (1994) *An affordability crisis in British housing: dimensions, causes and policy impact*. Housing Studies, 9(1), 103-124.
- Brouwer, F.M., Thomas, A.J. and Chadwick, M.J. (2012) *Land Use Changes in Europe: Processes of Change, Environmental Transformations and Future Patterns*. Springer Science & Business Media. ISBN 9401132909
- BSP (2018) *Personal Remittances Exceed 4.0 Percent Growth Projection for 2017*. Media release Bangko Sentral ng Pilipinas (Philippines Central bank). <http://www.bsp.gov.ph/publications/media.asp?id=4615>
- Budhiarta, I., Siwar, C. and Basri, H. (2012) *Current Status of Municipal Solid Waste Generation in Malaysia*. International Journal on Advanced Science Engineering and Information Technology 2(2), 16-21
- Bujang, A.A., Abu Zarin, H. and Jumadi, N. (2010) *The relationship between demographic factors and housing affordability*. Malaysian Journal of Real Estate, 5(1), 49-58
- Bujang, A.A., Jiram, W.R.A., Abu Zarin, H. and Md Anuar, F.H. (2015) *Measuring the Gen Y housing affordability problem*. International Journal of Trade, Economics and Finance, 6(1), 22-26
- Bunnell, G. and Jepson Jr., E.J. (2011). *The effect of mandated planning on plan quality*. Journal of the American Planning Association, 77(4), 338-353.
- Burgess, E.W. (1924). *The growth of the city: An introduction to a research project*. Publication of the American Sociological Society, Vol XVIII.
- Burgess, G., Monk, S. & Whitehead, C. (2010). *How can the planning system deliver more housing?*. Joseph Rowntree Foundation. 1-8.
- Burke, T. (2004) *Governance and social housing: Can good governance be bad practice?* Parity, 17(10), 11-12. ISSN: 1032-6170.
- Cabrera-Barona, P., Wei, C. and Hagenlocher, M. (2016) *Multiscale evaluation of an urban deprivation index: Implications for quality of life and healthcare accessibility planning*. Applied Geography. 70, 1-10
- Cagamas Berhad. (2013). *Housing the Nation: Policies, Issues and Prospects*. Cagamas Holdings Berhad.

- Cahill, N. (2018) *International Approaches to Land Use, Housing and Urban Development*. NESC Secretariat Papers Paper No. 14 April 2018
- Calder, V. (2017) *Zoning, Land-Use Planning, and Housing Affordability*. Cato Institute Policy Analysis No. 823. <https://ssrn.com/abstract=3112830> Accessed on 7 Dec 2018
- Carmona, MP; Carmona, S; Gallent, N; (2003) *Delivering New Homes: Processes, Planners and Providers*. Routledge: London. ISBN: 0415279240
- Cayer, N.J. and Weschler, L.F. (1988) *Public Administration: Social Change and Adaptive Management*. St. Martin Press, New York.
- Chohan, A.H., Che-Ani, A.I., Shar, B.K., Awad, J., Jawaidd, A. and Mohd Tawil, N. (2015). *A Model of Housing Quality Determinants (HQD) for Affordable Housing*. Journal of Construction in Developing Countries, 20(1), 117–136
- Chang, S.B.K and Chun, B.M. (1970) *The Land Use Law Revisited: Land Uses Other Than Urban* University of Hawaii, 1970, p. 2, <http://lrhbhawaii.info/lrbrpts/70/landuse.pdf>.
- Cheah, S. L., and Stefanie, J. A. (2016). *Demystifying the Affordable Housing Issue in Malaysia*. BNM Annual Report 2016. [http://www.bnm.gov.my/files/publication/ar/en/2016/cp04\\_002\\_box.pdf](http://www.bnm.gov.my/files/publication/ar/en/2016/cp04_002_box.pdf)
- Chen, M., Liu, W. and Tao, X (2013) Evolution and assessment on China's urbanization 1960e2010: Under-urbanization or over-urbanization? Habitat International, 38 (2013), 25-33
- Chen, Y. and Zhao, M. (2012) *Critical review and reflections on urban housing system reform and policy control in China based on comprehensive perspective of economic social and spatial development*. City Planning Review, 12, 19-27.
- Chen, J. and Deng, L. (2014) *Financing Affordable Housing Through Compulsory Saving: The Two-Decade Experience of Housing Provident Fund in China*. Housing Studies, 29(7), 937-958
- Chiali, K. C., & Choon, A., (2014). *People's perception of affordable housing*. Retrieved from: <http://www.starproperty.my/index.php/articles/property-news/peoples-perception-of-affordable-housing/>. Accessed on 3<sup>rd</sup> February 2015.
- Chiu, R.L.H. (2007) Planning, Land and Affordable Housing in Hong Kong. *Housing Studies* 22(1):63-81
- Chong, P.K. (2017) *Here's Why Malaysians Can't Afford a House*. <https://www.bloomberg.com/news/articles/2018-02-11/traders-brace-for-more-turmoil-after-recent-rout-markets-wrap> Accessed 11 Feb 2018



- Chowdhury, M. Z. S. (2013). *The housing affordability problems of the middle-income groups in Dhaka: a policy environment analysis*. PhD Thesis University of Hong Kong. Retrieved from [http://dx.doi.org/10.5353/th\\_b5108652](http://dx.doi.org/10.5353/th_b5108652)
- Christophers, B. (2014) *Wild Dragons in the City: Urban Political Economy, Affordable Housing Development and the Performative World-making of Economic Models*. International Journal of Urban and Regional Research, 38(1), 79-97 doi:10.1111/1468-2427.12037
- Chua, R.S., & Deguchi, A. (2008). Implementation issues on planning control according to the provision of Town and Country Planning Act 1976 in Malaysia. Journal of Architecture and Urban Design, 14, 47-58
- CMHC (2011) *Affordable Housing: What is the common definition of affordability?* Canada Mortgage and Housing Corporation. Government of Canada. 28 September 2011. Available at [http://www.cmhc-schl.gc.ca/en/corp/faq/faq\\_002.cfm](http://www.cmhc-schl.gc.ca/en/corp/faq/faq_002.cfm). Accessed on 5<sup>th</sup> June 2017
- CMHC (2017) *About Affordable Housing in Canada*. Canada Mortgage and Housing Corporation. Available at [https://www.cmhc-schl.gc.ca/en/inpr/afhoce/afhoce\\_021.cfm](https://www.cmhc-schl.gc.ca/en/inpr/afhoce/afhoce_021.cfm). Accessed on 5<sup>th</sup> June 2017
- CoB (2016) *Middle Income Housing Strategy*. Boulder, Colorado 2016 to 2030. City of Boulder. Accessed on 23 Mar 2018 [https://www-static.bouldercolorado.gov/docs/Middle\\_Income\\_Housing\\_Strategy\\_October\\_2016-1-201611221422.pdf](https://www-static.bouldercolorado.gov/docs/Middle_Income_Housing_Strategy_October_2016-1-201611221422.pdf)
- COA (2011) *Our Cities, Our Future: A national urban policy for a productive, sustainable and liveable future*. Commonwealth of Australia 2011. ISBN 978-1-921769-26-9
- COH (2017) *Housing Policy*. Canadian Observatory on Homelessness. Accessed on 23 Feb 2018 <http://homelesshub.ca/solutions/affordable-housing/housing-policy>
- Concord (2017) *2030 General plan: Chapter 4 – Growth Management*. <http://www.cityofconcord.org/pdf/dept/planning/generalplan/ch4-growthmgmt.pdf>
- Cox, W. and He, A. (2016) *Canada's middle income housing affordability crisis* Frontier Centre for Public Policy, June 2016. ISSN: 1491-78 <https://fcpp.org/wp-content/uploads/2016/06/Cox-He-Middle-Income-Housing-Crisis.pdf>
- Cox, W. and Pavletich, H. (2013) 10th Annual Demographia International Housing Affordability Survey: 2014 - Ratings for Metropolitan Markets.

- Cox, W. (2015) *A question of values: Middle-income housing affordability and urban containment policy*. Frontier Centre for Public Policy. ISSN 1491-78
- Creswell, J. (2012). *Educational research: Planning, conducting, and Evaluating Quantitative and Qualitative Research*. 4<sup>th</sup> ed. Boston: Pearson Education Inc.
- Crook, T. and Monk, S. (2011) *Planning Gains, Providing Homes*. *Housing Studies*, 26(7-8), 997-1018
- Cruz, P.C.R. (2008) *Transaction Costs and Housing Affordability in Asia*. *International Real Estate Review*, 11(1), 128-150
- Cruz, J.F. and Imperial, F.A. (2014) The finance inequality linkage: The effect of financial development to income distribution in the Philippines. The 52nd Annual Meeting of the Philippine Economic Society, Hotel Intercontinental Manila, Makati City, November 14.  
<http://www.pes.org.ph/files/ImperialFranco.pdf>
- CTOD (2014) *Creating Connected Communities: A Guidebook for Improving Transportation Connections for Low- and Moderate-Income Households in Small and Mid-Sized Cities*. Center for Transit-Oriented Development, U.S. Department of Housing and Urban Development. Accessed on 7 Dec 2017  
[https://www.huduser.gov/portal/publications/pdf/Creating\\_Cnnted\\_Comm.pdf](https://www.huduser.gov/portal/publications/pdf/Creating_Cnnted_Comm.pdf)
- Cui, L. and Shi, J. (2012) *Urbanization and its environmental effects in Shanghai, China*. *Urban Climate*, 2,1-15
- Davison, G., Gurrán,N., Nouwelant,R., Pinnegar,S. and Randolph,B. (2012) *Affordable Housing, Urban Renewal and Planning: Emerging Practice in Queensland, South Australia and New South Wales*. Australian Housing and Urban Research Institute Final Report Series No. 195. Available at: <https://www.ahuri.edu.au/research/final-reports/195>
- DBKL (2003) *Kuala Lumpur Structure Plan 2020*. Kuala Lumpur City Hall.  
<http://www.dbkl.gov.my/pskl2020/english/index.htm>
- DBKL (2008) *Kuala Lumpur 2020 City Plan (Draft)*. Dewan Bandaraya Kuala Lumpur.
- DCLG (2006) *Delivering Affordable Housing*. Department for Communities and Local Government, United Kingdom. Office of Public Sector Information, Norwich. Product Code: 06HC04260
- DCLG (2012) *National Planning Policy Framework*. Department for Communities and Local Government, United Kingdom. ISBN: 978-1-4098-3413-7



- DEE (2015) *Environment Protection and Biodiversity Conservation Act 1999*. Department of Environment and Energy.  
<http://www.environment.gov.au/epbc/about>
- de Voorde, T.V., der Kwast, J., Poelmans, L., Canters, F., Binard, M., Cornet, Y. Engelen, G., Uljee, I., Shahumyan, H., Williams, B., Convery, S. and Lavalley C. (2016) *Projecting alternative urban growth patterns: The development and application of a remote sensing assisted calibration framework for the Greater Dublin Area*. Ecological Indicators 60(2016), 1056-1069. doi:10.1016/j.ecolind.2015.08.035
- del Pero, A.S. et al. (2016). *Policies to Promote Access to Good-Quality Affordable Housing in OECD Countries*. OECD Social, Employment and Migration Working Papers, No. 176, OECD Publishing, Paris.
- Delmelle, E.C., Zhou, Y. and Thill, J.C. (2014) *Densification without Growth Management? Evidence from Local Land Development and Housing Trends in Charlotte, North Carolina, USA*. Sustainability 6(6), 3975-3990. doi:10.3390/su6063975
- Demographia (2013) 9<sup>th</sup> Annual International Housing Affordability Survey: Ratings for Metropolitan Markets.  
<http://www.demographia.com/dhi2013/pdf>
- Demographia (2017) Housing Affordability: A Social Imperative. 13<sup>th</sup> Annual International Housing Affordability Survey.
- Demographia (2018) Demographia World Urban Areas – 14<sup>th</sup> Annual Edition.  
<http://www.demographia.com/db-worldua.pdf>
- Dempsey, J. and Plantinga, A. (2013). *How well do urban growth boundaries contain development? Results for Oregon using a difference-in-difference estimator*. *Regional Science and Urban Economics* 43(6), 996-1007. doi:10.1016/j.regsciurbeco.2013.10.002
- Denpaiboon, C., Horayangkura, V. and Takada, M. (2010) *Public sector versus civil society: An approach to affordable housing development in Thailand*. Journal of Humanities Regular 13(1), 1-15
- Dewilde, C. and Lancee, B. (2013) *Income Inequality and Access to Housing in Europe*. European Sociological Review, 29(6), 1189–1200. Oxford Academic
- DFCS (2013) *NSW Affordable Housing Guidelines*. Department of Family and Community Services, July 2013, 16p.
- Dietrich, M. and Credo, J. (2013) *Urban house construction at the base of the pyramid in Metro Manila*. Publication by Asian Social Enterprise Incubator Inc. as part of the BCI Fellowship funded by BCI Asia.  
<http://123.100.241.143/fairbuilding/wp-content/uploads/BCI->

[Fellowship-2013-Urban-House-Construction-at-the-Base-of-the-Pyramid.pdf](#)

- Dominick, D. Juahir, H., Latif, M.T., Zain, S and Aris, A.Z. (2012). *Spatial assessment of air quality patterns in Malaysia using multivariate analysis*. Atmospheric Environment 60 (2012), 172-181
- Dola, K. and Mijan, D. (2006) *Public Participation in Planning for Sustainable Development: Operational Questions and Issues*. International Journal on Sustainable Tropical Design Research & Practice 1(1), 1-8
- DOSM (2010) Malaysia Demographic Report 2010. Department of Statistic Malaysia, Kuala Lumpur. [www.dosm.gov.my](http://www.dosm.gov.my)
- DOSM (2017) Employment and Salaries & Wages Statistics 2016. Department of Statistics Malaysia. [www.dosm.gov.my](http://www.dosm.gov.my)
- DOSM (2017a) Report on household expenditure survey 2016. Department of Statistics Malaysia, October 2017. [www.dosm.gov.my](http://www.dosm.gov.my)
- DTCP (2006) *National Urbanisation Policy*. Department of Town and Country Planning Available at <http://www.pmo.gov.my/dokumenattached/Dasar/dpn-engx.pdf>
- DTCP (2010) *National Physical Plan*. Department of Town and Country Planning Available at [http://www.kpkt.gov.my/kpkt\\_2013/fileupload/dasar/NPP.pdf](http://www.kpkt.gov.my/kpkt_2013/fileupload/dasar/NPP.pdf)
- DTCP (2016) *National Urbanisation Policy 2*. Department of Town and Country Planning Available at <http://www.townplan.gov.my/download/dpn2.zip>
- Du, P., Liu, P., Xia, J., Feng, L., Liu, S., Tan, K. and Cheng, L. (2014) *Remote Sensing Image Interpretation for Urban Environment Analysis: Methods, System and Examples*. Remote Sensing, 6(10), 9458-9474.
- Dunse, N., Thanos, S. & Bramley, G. (2013). Planning policy, housing density and consumer preferences. Journal of Property Research.30 (3), 221 - 238.
- Dutkiewicz, C., Fleming, J. and Zaidan, J. (2016) *GIS for Affordable Housing Development*. [http://gis.depaul.edu/shwang/teaching/GEO442\\_Win2016/GEO442\\_Win2016\\_LUCHA\\_FinalReport.pdf](http://gis.depaul.edu/shwang/teaching/GEO442_Win2016/GEO442_Win2016_LUCHA_FinalReport.pdf)
- Easterly, W. (2001) *The Middle Class Consensus and Economic Development*. World Bank. [https://williameasterly.files.wordpress.com/2010/08/34\\_easterly\\_middleclassconsensus\\_prp.pdf](https://williameasterly.files.wordpress.com/2010/08/34_easterly_middleclassconsensus_prp.pdf)

- EC (2004) Handbook on promoting good governance in EC Development and Cooperation.  
[http://ec.europa.eu/europeaid/what/governance-democracy/documents/final\\_draft\\_handbook\\_gg\\_en.pdf](http://ec.europa.eu/europeaid/what/governance-democracy/documents/final_draft_handbook_gg_en.pdf)
- Edge (2018) *PR1MA to launch LRT-linked TOD projects worth more than RM1b in 4Q18*. <http://www.theedgemarkets.com> 2 April, 2018.
- EPU (2010), Tenth Malaysia Plan 2006-2010, The Economic Planning Unit, Prime Minister's Department, Putrajaya, Malaysia.
- EPU (2015), Eleventh Malaysia Plan 2016-2020, The Economic Planning Unit, Prime Minister's Department, Putrajaya, Malaysia.
- EPU (2015a), Strategic Paper 6: Providing Adequate and Quality Affordable House Economic Planning Unit, Prime Minister's Department, Putrajaya, Malaysia.
- EPU (2016). Eleventh Malaysia Plan. Economic Planning Unit.
- El Garouani, A., Mulla D.J., El Garouani S. and Knight, J. (2017) *Analysis of urban growth and sprawl from remote sensing data: Case of Fez, Morocco*. International Journal of Sustainable Built Environment. 6(1), 160-169
- Elsayed, I.S.M (2012) *Mitigation of the Urban Heat Island of the City of Kuala Lumpur, Malaysia*. Middle-East Journal of Scientific Research 11(11), 1602-1613
- Ellis, P. and Mark, R. (2016). *Leveraging Urbanization in South Asia: Managing Spatial Transformation for Prosperity and Livability*. Washington, DC: World Bank.  
<https://openknowledge.worldbank.org/handle/10986/22549>
- ESRI (2018) Point-in-polygon overlay. Esri Support documentation. Support.esri.com
- FAO/UNEP (1999) *The Future of Our Land: Facing the Challenge. Guidelines for Integrated Planning for Sustainable Management of Land Resources*. FAO (Rome) ISBN 9251043663
- Farthing, S. (2015) *Research Design in Urban Planning: A Student's Guide*. SAGE Publications, ISBN 1446294455
- Feldman, R. (2002) *The Affordable Housing Shortage: Considering the Problem, Causes and Solutions*. Banking and Policy Working Paper 02-2. Federal Reserve Bank of Minneapolis.  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.194.4810&rep=rep1&type=pdf>. Accessed on 12 Feb 2015

- Ferguson, B., Smets, P. and Mason, D. (2014) *The new political economy of affordable housing finance and urban development* in *Affordable Housing in the Urban Global South: Seeking Sustainable Solutions* ed Bredenoord, J., Lindert, P.V., and Smets, P., 40-54, ISBN 978-0-415-62242-4 Routledge, New York.
- Fertner, C., Jørgensen, G., Nielsen, T. and Nilsson, K. (2016). *Urban sprawl and growth management – drivers, impacts and responses in selected European and US cities*. *Future Cities and Environment*. 2, p.9. doi: 10.1186/s40984-016-0022-2
- Financial Times (2007) *Housing need is different to housing demand*. December 2. 2017. <https://www.ft.com/content/f0bc36c6-d6d6-11e7-8c9a-d9c0a5c8d5c9>
- Freeman, L. and Schuetz, J. (2017) *Producing Affordable Housing in Rising Markets: What Works?* *Cityscape: A Journal of Policy Development and Research* 19(1), 217-236
- Franci, F., Mandanici, E. and Bitelli, G. (2015) *Remote sensing analysis for flood risk management in urban sprawl contexts*, *Geomatics, Natural Hazards and Risk*, 6(5-7), 583-599, doi: [10.1080/19475705.2014.913695](https://doi.org/10.1080/19475705.2014.913695)
- Gabbe, C.J. (2017) *How Do Developers Respond to Land Use Regulations? An Analysis of New Housing in Los Angeles*. *Housing Policy Debate*, 28 (3), 411-427
- Gambero, D. (2013) *Kuala Lumpur & Greater KL: The Growing Corridors of Affordability* [http://www.reigroup.com.my/wp-content/uploads/pdf/2015/april/Mapex\\_Greater\\_KL\\_and\\_Klang\\_Valley\\_1\\_sharing-libre.pdf](http://www.reigroup.com.my/wp-content/uploads/pdf/2015/april/Mapex_Greater_KL_and_Klang_Valley_1_sharing-libre.pdf) Accessed on 23 Feb 2017
- Gan, Q. and Hill, R.J. (2009) *Measuring Housing Affordability: Looking Beyond the Median*. School of Economics Discussion Paper: 2008/09. Australian School of Business, University of New South Wales. Available online at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.573.9526&rep=rep1&type=pdf>.
- Gandhi, S. (2012) *Economics of Affordable Housing in Indian Cities: The Case of Mumbai*. *Environment and Urbanization Asia*. 3(1), 221–235
- Gehander, M. and Mörnhed, E. (2008) *From Slum to Adequate Homes - A Study on Housing Solutions for the Urban Poor in Manila, Philippines*. Bachelor's thesis Lund University Sweden
- George, J., Baby, L., Arickal, A.P. and Vattoly, J.D. (2016) *Land Use/ Land Cover Mapping With Change Detection Analysis of Aluva Taluk Using Remote Sensing and GIS*. *International Journal of Science, Engineering and Technology*, 4(2), 383-389

- Ghent, A.C., Hernández-Murillo, R. and Owyang, M.T. (2012) *Did Affordable Housing Legislation Contribute to the Subprime Securities Boom?* Federal Reserve Bank of St. Louis Working Paper Series 2012-005D. <http://research.stlouisfed.org/wp/2012/2012-005.pdf>
- Greenhalgh, E. and Bosman, C. (2016) *Planning for the supply of more affordable housing: the case of the Queensland Urban Land Development Authority*. Australian Planner 53(3), 211-220
- Gurstein, P. (2012) *Affordable Housing as a Sustainability Strategy: Policy Implications for Canadian Cities* in S. Gill and R.K. Dhawan (eds.), Volume on Canadian Studies. Brisbane, Australia: PANCS. 26 pp
- Giusti, A. and Maggini, M. (2016) *SWOT analysis of policies and programs on prevention and management of diabetes across Europe*. European Journal of Public Health, 26(1), [doi:10.1093/eurpub/ckw168.030](https://doi.org/10.1093/eurpub/ckw168.030)
- GLA (2017) *Mayor of London: London Housing Strategy*. Greater London Authority (GLA). ISBN 978-1-84781-663-4
- GPG (2015) Global Property Guide. <http://www.globalpropertyguide.com/Asia/Malaysia/price-change-10-years>
- GPG (2018) The Philippines is now in its 7th year of a house price boom. Updated April 18 2018. <https://www.globalpropertyguide.com/Asia/Philippines/Price-History>
- GPG (2018a) House price change 10 year in Asia. <https://www.globalpropertyguide.com/Asia/price-change-10-years>
- Griffiths, A., Haigh, N. and Rassias, J. (2007) *A Framework for Understanding Institutional Governance Systems and Climate Change. The Case of Australia*. European Management Journal, 25(6), 415-427. doi:10.1016/j.emj.2007.08.001
- GOC (2018) Canada's National Housing Strategy. Government of Canada. <https://www.placetocalhome.ca/pdfs/Canada-National-Housing-Strategy.pdf>
- Goodfellow, T. (2013) *Planning and development regulation amid rapid urban growth: explaining divergent trajectories in Africa*. Geoforum, 48, 83-93. ISSN 0016-7185
- Gopalan, K. and Venkataraman, M. (2015) Affordable housing: Policy and practice in India. IIMB Management Review, 27(2), 129-140. doi:10.1016/j.iimb.2015.03.003
- Gurran, N., Milligan, V., Baker, D.C., Bugg, L. B. and Christensen, S.A. (2008) *New directions in planning for affordable housing: Australian and*



- international evidence and implications*. The Australian Housing and Urban Research Institute (AHURI). Final Report: No. 120
- Gurran, N., & Whitehead, C. (2011). Planning and affordable housing in Australia and the UK: a comparative perspective. *Housing Studies*. 26 (7-8), 1193- 1214.
- Gurran, N., Gilbert, C. & Phibbs, P. (2013). *Planning and the housing market: measuring regulatory difference and implications for explaining supply and affordability trends*. 7th Australasian Housing Researchers' Conference. 6th-8th February 2013
- Halinen, A. and Törnroos, J. (2005), *Using Case Methods in the Study of Contemporary Business Networks*, *Journal of Business Research*, 58 (9), 1285-1297.
- Hall, P. (1998) *Cities in Civilization*. Pantheon, New York, p. 239. ISBN-10: 0394587324
- Halleux, J.M., Marcinczak, S. and van der Krabben, E. (2012) *The adaptive efficiency of land use planning measured by the control of urban sprawl. The cases of the Netherlands, Belgium and Poland*. *Land Use Policy*, 29(4), 887-898
- Hamid, A.J. (2017) *Housing: (un)affordability is key issue*. New Straits Time November 26, 2017.  
<https://www.nst.com.my/opinion/columnists/2017/11/307562/housing-unaffordability-key-issue>
- Han S.S. (2015) *The Giant City-Regions in China's New Urbanization*. In: Wong TC., Han S., Zhang H. (eds) *Population Mobility, Urban Planning and Management in China*. Springer. doi: [10.1007/978-3-319-15257-8\\_9](https://doi.org/10.1007/978-3-319-15257-8_9)
- Hartwich, O. (2017) *Housing Affordability: A Social Imperative* in 13th Annual Demographia International Housing Affordability Survey: 2017.
- Harvard (2017) *The State of the Nation's Housing 2017*. Harvard University Joint Centre for Housing Studies, Cambridge, MA: Harvard University.  
[http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/harvard\\_jchs\\_state\\_of\\_the\\_nations\\_housing\\_2017.pdf](http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/harvard_jchs_state_of_the_nations_housing_2017.pdf)
- Haque, M.I and Basak, R. (2017) *Land cover change detection using GIS and remote sensing techniques: A spatio-temporal study on Tanguar Haor, Sunamganj, Bangladesh*. [The Egyptian Journal of Remote Sensing and Space Science](https://doi.org/10.1016/j.jrs.2017.05.003), 20(2), 251-263
- Henman, P. and Jones, A. (2012) *Exploring the use of residual measures of housing affordability in Australia: methodologies and concepts*. Australian Housing and Urban Research Institute Final Report 180. ISSN: 1834-7223

- HDB (2017) *Public Housing – A Singapore Icon*. Housing Development Board. Available online at: <http://www.hdb.gov.sg/cs/infoweb/about-us/our-role/public-housing--a-singapore-icon>. Accessed 23<sup>rd</sup> June 2017.
- Hong, T.T. (2012) *Housing satisfaction in medium- and high-cost housing: The case of Greater Kuala Lumpur, Malaysia*. *Habitat International* 36(1), 108-116. doi: 10.1016/j.habitatint.2011.06.003
- Hong Y., Adhikari P. and Gourley J.J. (2013) Flash Flood. In: Bobrowsky P.T. (eds) *Encyclopedia of Natural Hazards*. Encyclopedia of Earth Sciences Series. Springer, Dordrecht
- Horn, A. (2012) *Urban Growth Management Best Practices: Towards Implications for the Developing World*. *International Planning Studies* 20 (1), 131-145
- Horn, A. (2014). *Urban Growth Management Best Practices: Towards Implications for the Developing World*. *International Planning Studies*. 20 (1-2), 1-15. Doi: 10.1080/13563475.2014.942513.
- Hickey, R. and Sturtevant, L. (2015) *Public Land & Affordable Housing in the Washington DC Region: Best practices and recommendations*. National Housing Conference Prepared for ULI Washington February 2015. [http://washington.uli.org/wp-content/uploads/sites/56/2015/02/ULI\\_PublicLandReport\\_Final020615.pdf](http://washington.uli.org/wp-content/uploads/sites/56/2015/02/ULI_PublicLandReport_Final020615.pdf)
- Hilber, Christian (2015) *UK Housing and Planning Policies: the evidence from economic research*. Paper EA03. London School of Economics and Political Science
- HUD (2009) *Revitalizing Foreclosed Properties with Land Banks*. Department of Housing and Urban Development. Sage Computing, Inc. Reston, VA <https://www.huduser.gov/portal/publications/landbanks.pdf>
- HUD (2015) *Affordable housing programs*. US Department of Housing and Urban Development. <https://www.hudexchange.info/affordable-housing> Accessed on 25th Sept 2015
- HUD (2017) Glossary. U.S. Department of Housing and Urban Development. [https://www.huduser.gov/portal/glossary/glossary\\_a.html](https://www.huduser.gov/portal/glossary/glossary_a.html)
- Hui, E.C., Leung, B.Y. and Yu, K. (2014). *The impact of different land-supplying channels on the supply of housing*. *Land Use Policy*, 39, 244-253
- Hurmerinta-Peltomaki, L. and Nummela, N. (2004), *Mixing Methods in International Business Research*, Editors, Marschan-Piekkari, R. and Welch, C., *Handbook of Qualitative Research Methods for International Business*, Edward Elgar Publishing Limited, UK, 162-180



Husin, N.M.A., Malek, and Gapor, S.A., (2011), *Trends Problems and Needs of Urban Housing in Malaysia*. World Academy of Science, Engineering and Technology. 74, 1103-1107

Idecon (2016) *A Study to Examine the Affordability of Irish Housing*. Prepared by Idecon International Consultants for the National Competitiveness Council.  
<http://www.competitiveness.ie/Publications/2016/Study-to-examine-the-affordability-of-Irish-housing.pdf>

Ioan-Franc, V., Risteab, A. and Popescu, C. (2015) *Integrated Urban Governance: A New Paradigm of Urban Economy*. Procedia Economics and Finance 22 (2015) 699 – 705

Ikeda, S. and Washington, E. (2015) *How Land-Use Regulation Undermines Affordable Housing*. Mercatus Center, George Mason University, Arlington

Infrastructure (2018) *Enabling City Growth: Lessons from the USA*. Infrastructure New Zealand.  
<https://infrastructure.org.nz/resources/Documents/Reports/Infrastructure%20NZ%20USA%20Report.pdf>

Infrastructure Australia (2016). *Australian Infrastructure Plan*, Australian Government, Canberra.

ISIS (2013) *ISIS Roundtable: Providing Public and Affordable Housing for Malaysia*. Institute of Strategic and International Studies (ISIS) Malaysia, Retrieved from  
[http://www.isis.org.my/files/IF\\_2013/IF3\\_2013.pdf](http://www.isis.org.my/files/IF_2013/IF3_2013.pdf) (2013)

Islam, M. (2008) *The Impact of Growth Management Policies on Urban Form: Evidence from U.S. Metropolitan Areas with Growth Management Policies*. University of New Orleans Theses and Dissertations. Paper 874.

Jae, H.K. (2011). *Linking land use planning and regulation to economic development: a literature review*. Journal of Planning Literature. 26 (1). 35-47

JCHS (2014) *The state of nation housing 2014*. Joint Center for Housing Studies at Harvard University. Available online at:  
<http://www.jchs.harvard.edu/research/publications/state-nations-housing-2014>

Jedwab, R. and Vollrath, D. (2015) *Urbanization without Growth in Historical Perspective*. Discussion paper George Washington University  
[http://home.gwu.edu/~jedwab/UwoG\\_March2015.pdf](http://home.gwu.edu/~jedwab/UwoG_March2015.pdf)

- Jewkes, M.D. and Delgadillo, L.M. (2010). *Weaknesses of housing affordability indices used by practitioners*. Journal of Financial Counselling and Planning, 21(1), 43-52.
- Jhawar, M., Tyagi, N. and Dasgupta, V. (2012) *Urban planning using remote sensing*. International Journal of Innovative Research in Science, Engineering and Technology 1(1), 42-57
- Jia, K., Wei, X., Gu, X., Yao, Y., Xie, X. and Li, B. (2014). *Land cover classification using Landsat 8 operational Land Imager data in Beijing, China*. Geocarto International. 29(8), 941-951. doi: 10.1080/10106049.2014.894586.
- Jiboye, A.D. (2011) *Sustainable Urbanization: Issues and Challenges for Effective Urban Governance in Nigeria*. Journal of Sustainable Development, 4(6), 211-224
- Jobstreet (2017) 2017 Salary report. Jobstreet.com  
<https://www.jobstreet.com.my/announcement/FTP/salary-report-mctf17.pdf>
- JPPH (1997) Malaysian house price index, a technical summary. Valuation and Property Services Department. Ministry of Finance Malaysia.
- JPPH (2014) Annual Property market report 2013. National Property Information Centre (NAPIC) [www.napic.jp-ph.gov.my](http://www.napic.jp-ph.gov.my)
- JPPH (2017) Malaysia price house index. Department of Valuation and Property Services. <http://napic.jp-ph.gov.my/portal/web/guest/main-page>
- Ju, S.R., Zaki, S. and Choi, Y.K. (2011) *Contextual Modernization: New Town Planning in Petaling Jaya, of Malaysia*. Journal of Asian Architecture and Building Engineering, 10(1), 93-100
- Jun, H.J. (2017) *The Link Between Local Comprehensive Plans and Housing Affordability: A Comparative Study of the Atlanta and Detroit Metropolitan Areas*. Journal of the American Planning Association, 83(3), 249-261
- Junaidi, A.B., Rosmadi, F., Amer, S.G. (2012) *Penilaian awal impak peraksanaan Dasar Perumahan Negara terhadap sector perumahan di Kuala Lumpur*. Geografia-Malaysian Journal of Society and Space, 8 (6), 90-108.
- Kamaruddin, R., Osmana, I. and Che Pei, C.A. (2012) *Public Transport Services in Klang Valley: Customer Expectations and Its Relationship Using SEM*. Procedia - Social and Behavioral Sciences 36 (2012), 431 – 438

- Keivani, R., Mattingly, M., & Majedi, H. (2008). Public Management of Urban Land, Enabling Markets and Low-income Housing Provision: The Overlooked Experience of Iran. *Urban Studies*, 45(9), 1825–1853. doi:[10.1177/0042098008093380](https://doi.org/10.1177/0042098008093380)
- KF (2016) Global House Price Index. Knight Frank research report <https://kfcontent.blob.core.windows.net/research/84/documents/en/q4-2016-4506.pdf>
- Kim, K.H., and S.Y. Phang (2013) *Singapore's Housing Policies: 1960–2013*. In *Frontiers in Development Policy: Innovative Development Case Studies* pp 123-153. Seoul: KDI School and World Bank Institute. Available at: [http://ink.library.smu.edu.sg/soe\\_research/1544](http://ink.library.smu.edu.sg/soe_research/1544)
- Klemas, V. (2015) *Remote Sensing of Floods and Flood-Prone Areas: An Overview*. *Journal of Coastal Research*. 31(4), 1005 – 1013.
- Kottke, T., Abariotes A. and Spoonheim, JB (2017). *Access to affordable housing promotes health and well-being and reduces hospital visits*. *The Permanente Journal* 22:17-079. doi: 10.7812/TPP/17-079
- KRI (2015) Making housing affordable, Khazanah Research Institute. ISBN 978-967-12929-2-1. [http://www.krinstitute.org/assets/contentMS/img/template/editor/FINAL\\_Full\\_Draft\\_KRI\\_-\\_Making\\_Housing\\_Affordable\\_with\\_hyperlink\\_220815%20\(1\).pdf](http://www.krinstitute.org/assets/contentMS/img/template/editor/FINAL_Full_Draft_KRI_-_Making_Housing_Affordable_with_hyperlink_220815%20(1).pdf)
- Konvitz, J. (2011) *Housing and governance: Why regulatory reform is part of the problem and part of the solution*. University of Glasgow, Adam Smith Research Foundation working paper 2011:06. [https://www.gla.ac.uk/media/media\\_219983\\_en.pdf](https://www.gla.ac.uk/media/media_219983_en.pdf)
- Kotken, J. and Cox, W. (2012) *America's emerging housing crisis*. Report. [http://www.newgeography.com/files/5\\_NAT\\_HousingCrisis-Report.pdf](http://www.newgeography.com/files/5_NAT_HousingCrisis-Report.pdf)
- KPKT (2011) *National Housing Policy*. Ministry of Housing and Local Government [http://www.kpkt.gov.my/resources/index/user\\_1/Dasar/DRN1\\_BM.pdf](http://www.kpkt.gov.my/resources/index/user_1/Dasar/DRN1_BM.pdf)
- KPMG (2016) *Housing Affordability: What can be done about the Great Australian Dream?* <https://assets.kpmg.com/content/dam/kpmg/au/pdf/2016/housing-affordability-great-australian-dream.pdf>
- KPMG India (2012). Bridging the urban housing shortage in India. Available online at [kpmg.com/in: http://www.indiaenvironmentportal.org.in/files/file/Urban-housing-shortage-in-India.pdf](http://www.indiaenvironmentportal.org.in/files/file/Urban-housing-shortage-in-India.pdf). Accessed on 3<sup>rd</sup> June 2014

- Kumar, U. and Vupru, V. (2017) *Location and neighbourhood conditions for housing choice and its rental value: Empirical examination in an urban area of North-East India*, International Journal of Housing Markets and Analysis, 10(4), 519-538
- KWP (2013) *Dasar Rumah Mampu Milik Wilayah Persekutuan (RUMAWIP)*. Ministry of Federal Territory.  
[http://www.kwp.gov.my/images/docs/2013/dasar/dasar\\_rumah\\_mampu\\_milik.pdf](http://www.kwp.gov.my/images/docs/2013/dasar/dasar_rumah_mampu_milik.pdf)
- LADP (2016) *2015 Growth & infrastructure report*. Los Angeles Department of City Planning.  
<http://planning.lacity.org/policyinitiatives/GrowthandInfrastructure/2015Rpt.pdf>
- Larsson, S. (2013). On Legal Complexity: Between Law in Books and Planning in Practice. In M. Baier (Ed.), *Social and Legal Norms: towards a socio-legal understanding of normativity* (pp. 285-307). Ashgate.
- Lanrewaju, A.F. (2012) *Urbanization, housing quality and environmental degeneration in Nigeria*. Journal of Geography and Regional Planning, 5(16), 422-429.
- Leh, O.L.H, Mansor, N.A., Musthafa, S.N.A (2016) The housing preference of young people in Malaysian urban areas: A case study Subang Jaya, Selangor. *Geografia-Malaysian Journal of Society and Space*, 12(7), 60-74
- Lerman, B.R. (2006), *Mandatory inclusionary zoning - The answer to the affordable housing problem*. Boston College Environmental Affairs Law Review, Vol. 33 Issue2, Article 5.  
<http://lawdigitalcommons.bc.edu/ealr/vol33/iss2/5>.
- Levin, E., Montagnoli, A. and Wright, R.E. (2009) *Demographic Change and the Housing Market: Evidence from a Comparison of Scotland and England*. Urban Studies, 46(1), 27-43.  
doi: 10.1177/0042098008098635
- Li, J. (2014). Recent trends on housing affordability research: where are we up to? Urban Research Group, CityU on Cities Working Paper Series, WP No.5/2014.  
<http://www.cityu.edu.hk/cityuoncities/upload/file/original/705520150126143516.pdf>
- Li, Y. (2014) *Urban planning support systems in Japan: evolutions and implications*. International Journal of Society Systems Science, 6(1), 4-17. doi:10.1504/IJSSS.2014.059922
- Ling, C.S, Almeida, S.J and Wei, H.S. (2017a) Affordable Housing: Challenges and the Way Forward. BNM Quarterly Bulletin, 4<sup>th</sup> Quarter 2017

- Ling, O.H.L., Ting, K.H., Shaharuddin, A., Kadaruddin, A. and Yaakob, M. J. (2010) *Urban Growth and Air Quality in Kuala Lumpur City, Malaysia*. Environment Asia 3(2), 123-128
- Ling, C.S., Almeida, S.J., Shukri, M. and Sze, L.L. (2017) Imbalances in the Property Market. BNM Quarterly Bulletin, 3<sup>rd</sup> Quarter 2017. [https://www.bnm.gov.my/files/publication/qb/2017/Q3/p3\\_ba2.pdf](https://www.bnm.gov.my/files/publication/qb/2017/Q3/p3_ba2.pdf)
- Ling, C.S. and Almeida, S.J (2017) *Demystifying the Affordable Housing Issue in Malaysia* in Central Bank of Malaysia Annual Report 2016, pp90-99.
- Long, Y., Han, H. Tu, Y. and Shu, X. (2015) *Evaluating the effectiveness of urban growth boundaries using human mobility and activity records*. Cities 46 (2015) 76–84. doi: 10.1016/j.cities.2015.05.001
- LPHS (2018) *Dasar Perumahan Mampu Milik Negeri Selangor (Rumah Selangorku 2.0)*. Lembaga Perumahan dan Hartanah Selangor. Available at <http://tinyurl.com/yd9pykgf>
- Mafi, E., Naghdi, A, Fakhrani, H. and Adibikhah, M. (2015). *Analysis of the urban land use with an emphasis on sustainable development using swot model (The case of Faruj City)* Cumhuriyet University Faculty of Science Science Journal (CSJ), 36(3), 4001-4010. ISSN: 1300-1949
- Manaf, A. (2013) Government's effort in providing affordable homes for Malaysians. PAM Housing Forum 2013. 19-20 October 2013. Kuala Lumpur
- Manotham, P. (2010) *Bangkok Urban Dynamics and Housing Market*. Master of Science thesis no 54. Department of Real Estate and Construction Management, KTH Royal Institute of Technology, Stockholm.
- Marom, N. and Carmon, N. (2015) *Affordable Housing Plans in London and New York: Between Marketplace and Social Mix*. Housing Studies, 30(7), 993-1015. Doi:10.1080/02673037.2014.1000832
- Mattingly, K. and Morrissey, J. (2014) Housing and transport expenditure: Socio-spatial indicators of affordability in Auckland. *Cities*, 38 (June), 69-83. <https://doi.org/10.1016/j.cities.2014.01.004>
- Maybank (2017) HouzKEY. Rent-to-Own Solution. Maybank2own. <https://www.maybank2own.com/portal/>
- MBIE (2017) *MBIE releases new Housing Affordability Measure*. Ministry of Business, Innovation and Employment New Zealand. Available at: <http://www.mbie.govt.nz/info-services/housing-property/sector-information-and-statistics/housing-affordability-measure>
- McKee, K., Muir, J. and Moore, T. (2016) *Housing policy in the UK: the importance of spatial nuance*. Housing Studies, 32 (1), 60-72.



- McKinsey (2014) *A blueprint for addressing the global affordable housing challenge*. McKinsey Global Institute. Retrieved from <http://www.mckinsey.com/global-themes/urbanization/tackling-the-worlds-affordable-housing-challenge>
- Md Sani, N. (2015) Price to Income Ratio Approach in Housing Affordability. *Journal of Economics, Business and Management*, 3(12), 1190-1193
- Md Sani, N. and Rahim, A. (2012) Affordable housing in Kuala Lumpur, Malaysia. *International Journal of Academic Research*, 4(3), 75-82
- Md Yusof, A., Saar, C.C and Johan, J. (2014). An analysis of housing affordability among potential house buyers in the city of Kuala Lumpur. *Proceedings of the 19th International Symposium on Advancement of Construction Management and Real Estate*, 547-555.
- Meen (2011) A long-run model of housing affordability. *Housing Studies* 26(7/8), 1081-1103
- Meierdiercks, K. L., Smith, J. A., Baek, M. L. and Miller, A. J. (2010), *Analyses of Urban Drainage Network Structure and its Impact on Hydrologic Response*. *Journal of the American Water Resources Association*, 46, 932-943
- Mekawy, H.S. (2014), *Role of planning mechanisms in affordable housing delivery: Inclusionary zoning*. *International Journal of Development and Sustainability*, 3(9), 1927-1945.
- Merican, M.I. (2015) *A closer look at the greater Kuala Lumpur property market*. <http://www.expatgo.com/my/2015/04/03/a-closer-look-at-the-greater-kuala-lumpur-property-market/>
- Metternicht, G. (2017) *Land use planning. Global land outlook working paper*. United Nations Convention to Combat Desertification (UNCCD). Available at: [https://static1.squarespace.com/static/5694c48bd82d5e9597570999/t/593a42d7197aea88458703df/1496990441721/Land+Use+Planning+\\_G\\_Metternicht.pdf](https://static1.squarespace.com/static/5694c48bd82d5e9597570999/t/593a42d7197aea88458703df/1496990441721/Land+Use+Planning+_G_Metternicht.pdf)
- MIER (2018) Malaysian Economic Outlook. 23rd corporate economic briefing. Malaysia Institute of Economic Research. <https://www.mier.org.my/presentations/archives/pdf-restore/presentations/archives/pdf/CEB23.pdf>
- Mingxing Chen, Hua Zhang, Weidong Liu, Wenzhong Zhang (2014) *The Global Pattern of Urbanization and Economic Growth: Evidence from the Last Three Decades*. 9(8) PLOS ONE, www.plosone.org, August 2014.

- Mishra, A. and Foundation, R. (2016) *Land use Planning in Cities: Making Affordable Housing and Prosperous Cities – Case Study of Satellite Towns of Delhi (Noida and Gurgaon), India*. International Research Journal of Social Sciences. 5(3), 67-73.
- Mohd Ali, S.N., Mohd Noor, A.H., Johari, N., Fauzi, N.S., Chuweni, N.Z. and Ismail, N.R.P. (2016). *Hungry for housing: waqf real estate development - a social welfare alternative*. MATEC Web of Conferences 66, 00068 (2016). doi:10.1051/mateconf/20166 IBCC 2016 600068
- Mohd Lizam, Afiqah, N., Omar, A.J. and Burhan, B. (2014) Comparison of empirical models in Malaysia House Price Index Construction. 20 th Annual Pacific RIM Real Estate Society Conference, Christchurch, New Zealand, 19-22 January 2014.
- Mohd. Noor, N. and Hashim, M. (2011) *Land use sprawl evolution using remote sensing high resolution data based on cellular automata concepts*. Malaysia Journal of Remote Sensing & GIS, 2(1), 30-39
- Monkkonen, P. (2013). *Urban land use regulations and housing markets in developing countries: evidence from Indonesia on the importance of enforcement*. Land Use Policy Journal. 34. 255-264
- Monsod, T.C. (2016) *Rethinking Urban Housing Policy: A Policy Paper for the National Housing Summit in closing the gap in affordable housing in the Philippines*: Policy paper for the National summit on housing and urban development. Office of the Publisher, The World Bank and Australian Aid. Available online at:  
<http://documents.worldbank.org/curated/en/547171468059364837/pdf/AUS13470-REVISED-PUBLIC-WBNationalHousingSummitFinalReport.pdf>
- Monsod, T.C. (2011) *Is government really solving the housing problem?* University of the Philippines School of Economics (UPSE) Discussion Paper, No. 2011-04. <http://hdl.handle.net/10419/93567>
- MRDH (2017) *Framework overview of Metropolitan Region Rotterdam The Hague* (MRDH).  
[https://mrdh.nl/sites/mrdh.nl/files/files/MDRH\\_kadernota\\_OV\\_def.pdf](https://mrdh.nl/sites/mrdh.nl/files/files/MDRH_kadernota_OV_def.pdf)
- Mubarak, FA (2004). *Urban growth boundary policy and residential suburbanization: Riyadh, Saudi Arabia*. Habitat International, 28(4), 567–591
- Naeem, M.A., Shamsuddin, S. and Sulaiman, A.B. (2016) *Policies and issues concerning urban sprawl and compact development paradigm adoption in greater Kuala Lumpur*. MIT-UTM Malaysia Sustainable Cities Program, Working Paper Series.  
<https://malaysiacities.mit.edu/papernaem>



- NAHC (2015) National Affordable Housing Consortium, Australia. Accessed on 7 Jan 2015. <http://www.qahc.asn.au/>
- Nattawut, U. (2012) *Successful Approaches to National Slum Upgrading and Prevention, Thailand*. Working paper series No 17 June 2012. Center for Integrated Socio-Spatial Research. [https://www.spu.ac.th/architecture/files/2012/10/Working-paper-series-No\\_71.pdf](https://www.spu.ac.th/architecture/files/2012/10/Working-paper-series-No_71.pdf)
- Nawi, NM Hamid, NA and Zainun, NY (2012) *A New Modified Back-Propagation Algorithm for Forecasting Malaysian Housing Demand*. Applied Mechanics and Materials 232(1), 908-912. DOI: 0.4028/www.scientific.net
- Newton, P., Newman, P., Glackin, S. and Trubka, R. (2012) *Greening the Greyfields: Unlocking the Redevelopment Potential of the Middle Suburbs in Australian Cities*. International Journal of Humanities and Social Sciences 6(11), 2870-2889
- Ng, S.T., Skitmore, M. and Wong, K.F. (2008) *Using Genetic Algorithms and Linear Regression Analysis for Private Housing Demand Forecast*. Building and Environment 43(6), 1171-1184.
- Nee, E.A. (2018) *No much improvement in Malaysia's housing affordability despite soft property market*. The Sun daily. 12 February 2018. <http://www.thesundaily.my/news/2018/02/12/no-much-improvement-malysias-housing-affordability-despite-soft-property-market>
- Nelson, A.C.,Pendall, R.,Dawkins, C.J. and Knaap,G.J. (2002) *The link between growth management and housing affordability: The academic evidence*. The Brookings Institution Center on Urban and Metropolitan Policy.<https://www.brookings.edu/wp-content/uploads/2016/06/growthmang.pdf>
- Ngah,I.(1994) *Pendekatan Perancangan Strategik Dalam Perancangan Pembangunan Negara*, Minda Perancang, Bil. 3, 29-43.
- Nguyen,M.T., Basolo,V. and Tiwari,A. (2013) *Opposition to Affordable Housing in the USA: Debate Framing and the Responses of Local Actors*. Housing, Theory and Society. 30(2), 107-130
- NHD (2013) National Housing Policy. Department of National Housing. Accessible via: <http://ehome.kpkt.gov.my/index.php/pages/view/208>
- NLIHC (2018) *The U.S. Has National Shortage of More Than 7.2 Million Affordable & Available Rental Homes for Families Most in Need*. National Low Income Housing Coalition (NLIHC), March 13, 2018. <http://NLIHC.org/press/releases/9493>.

- Nordin, R. (2013) *Urban Planning and affordable housing: experience from Malaysia*. High level symposium on sustainable cities and sustainable urbanization. Yangzhou, China, 18 December 2013.  
<https://sustainabledevelopment.un.org/content/documents/6843HighLevelSymposium-RamliNordin.pdf>
- NSO (2014) *2012 Family Income and Expenditure Survey (FIES)*. National Statistics Office. ISSN 0119-5336
- Numbeo (2017) Methodology and motivation for Numbeo.com. Accessed on 2 July 2018  
[https://www.numbeo.com/common/motivation\\_and\\_methodology.jsp](https://www.numbeo.com/common/motivation_and_methodology.jsp)
- Nurdiani, N. (2012) *Adjustment and Self-help Approach for Improving Housing Unit Quality in Multi-Storey Housing*. Applied Mechanics and Materials Vols 174-177 (2012), 3463-3466.  
 doi:10.4028/www.scientific.net/AMM.174-177.3463
- Nuruddin, A.R, Abu Bakar, S.P and Jaafar, M. (2015) *Unveiling the Challenges Faced By Malaysian Housing Developers through Government Policy Changes*. Journal of Construction in Developing Countries, 20(2), 37–52
- NZPC (2012) *Housing affordability inquiry*. New Zealand Productivity Commission. ISBN: 978-0-478-3950. 6-8.
- NZPC (2014) *Using land for housing. Issues paper – November 2014*. The New Zealand Productivity Commission. ISBN: 978-0-478-44008-9 (online)
- OECD (2010) *Overview of OECD economic surveys: Indonesia*. Accessed on 2 July 2018. <http://www.oecd.org/eco/46266398.pdf>
- OECD (2014) Affordable Housing Database. Accessed on 2 July 2018  
<http://www.oecd.org/social/affordable-housing-database.htm>
- OECD (2017) *The Governance of Land Use in OECD Countries: Policy Analysis and Recommendations*, OECD Publishing, Paris  
[doi:10.1787/9789264268609-en](https://doi.org/10.1787/9789264268609-en).
- OECD (2016) *Key Characteristics of social rental housing. Organisation for Economic Co-operation and Development (OECD)*. Accessed on 2 July 2018  
<https://www.oecd.org/els/family/PH4-3-Characteristics-of-social-rental-housing.pdf>
- OECD (2017), *Land-use Planning Systems in the OECD: Country Fact Sheets*, OECD Publishing, Paris. doi: 10.1787/9789264268579-en.

- OECD (2015) *The Metropolitan Century: Understanding Urbanisation and its Consequences*. OECD Publishing, Paris.  
doi:10.1787/9789264228733-en
- Olanrewaju, A., Tan, S.Y. and Lee, K.F. (2017) *Developing a business case for housing governance*. *Procedia Engineering* 196(2017), 195 – 202. doi: 10.1016/j.proeng.2017.07.191
- Omar, I. and Ismail, N.A. (2017) *Synergizing cash waqf into property – the case of housing inaffordability in Iskandar Malaysia*. *Journal of Technology Management and Business*, 4(1), 18-24.
- Omelchuk, V.O. (2018) *Effectiveness of the Housing Policy: A Comparative Analysis*. *European Research Studies Journal*, XXI(1), 383-392
- Oxford (2009) *Oxford English Dictionary Version 4.0*. Oxford University Press
- ONS (2017) *Housing affordability in England and Wales: 1997 to 2016*. Office for National Statistics. Available online at:  
<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingaffordabilityinenglandandwales/1997to2016>. Accessed on 17<sup>th</sup> July 2017
- Ooi, G. (2005). *Housing in Southeast Asian capital cities*. Southeast Asia Background Series, No. 4. Institute of Southeast Asian Studies Publications: Singapore. E-ISBN-13: 9789812307002
- Osman, M, Bachok, S, Bakri, N.I, & Harun, N. (2014). *Government delivery system: effectiveness of local authorities in Perak, Malaysia*. *Procedia Social and Behavioural Sciences*. 153. 452-462.
- Papagiannaki, K., Kotroni, V., Lagouvardos, K. and Bezes, A. (2017) *Flash Flood Risk and Vulnerability Analysis in Urban Areas: The Case of October 22, 2015, in Attica, Greece*. In: Karacostas T., Bais A., Nastos P. (eds) *Perspectives on Atmospheric Sciences*. Springer Atmospheric Sciences.
- Parliament (2018) Official statement from lower house of the Parliament of Malaysia (Dewan Rakyat).  
<https://www.parlimen.gov.my/files/hindex/pdf/DR-06032018.pdf>
- Patra, S., Sahoo, S., Mishra, P. and Mahapatra, S.C. (2018) *Impacts of urbanization on land use /cover changes and its probable implications on local climate and groundwater level*, *Journal of Urban Management*, 7(2), 70-84, doi: 10.1016/j.jum.2018.04.006
- Payscale (2018) <https://www.payscale.com/research/MY>
- PIA (2007). *Urban growth management. National Position Statement*. Planning Institute Australia.  
<https://www.planning.org.au/documents/item/254>

- PEMANDU (2015) GTP Annual Report 2014. Government Transformation Programme · Raising Living Standards of Low-Income Households. Accessed on 25<sup>th</sup> May 2015  
[http://gtp.pemandu.gov.my/gtp/sub\\_page.aspx?id=528f85cb-c98b-459f-9276-5512bef594ff&pid=c15618a7-ccc2-4b13-a9fe-934a28d6dc96](http://gtp.pemandu.gov.my/gtp/sub_page.aspx?id=528f85cb-c98b-459f-9276-5512bef594ff&pid=c15618a7-ccc2-4b13-a9fe-934a28d6dc96)
- Pettini, A. and Laino, E. (2011) *Housing Europe Review 2012 - The nuts and bolts of European social housing systems*. CECODHAS Housing Europe. Available online at:  
<http://www.housingeurope.eu/resource-105/the-housing-europe-review-2012>. Accessed on 14<sup>th</sup> May, 2016
- Phang, S.Y. and Helble, M. (2016) *Housing Policies in Singapore*. Working Paper Series No. 559. Asian Development Bank Institute
- PNMB (2012) Perumahan Rakyat 1Malaysia Act 2012. Act 739.  
[https://www.pr1ma.my/uploads/pr1ma\\_act/akta\\_pr1ma\\_2012\\_en.pdf](https://www.pr1ma.my/uploads/pr1ma_act/akta_pr1ma_2012_en.pdf)
- Pravitasari, A.E., Saizen, I., Tsutsumida, N., Rustiadi, E. and Pribadi, D.O. (2015) *Local Spatially Dependent Driving Forces of Urban Expansion in an Emerging Asian Megacity: The Case of Greater Jakarta (Jabodetabek)*. Journal of Sustainable Development 8(1), 108-119
- PR1MA (2015) PR1MA progress report 2012-2014. When dreams become reality. Perbadanan PR1MA Malaysia.  
[https://www.pr1ma.my/download/PR1MA\\_progress\\_report\\_2012\\_2014\\_en.pdf](https://www.pr1ma.my/download/PR1MA_progress_report_2012_2014_en.pdf)
- Rahnama, M.R. et al. (2012) *Principles of New Urbanism Approach in Designing Sustainable Urban Spaces*. International Journal of Applied Science and Technology, 2(7), 2012, pp. 195-203.
- Rameli, A. (2009) *Land use planning system and housing development process in Malaysia*. PhD thesis, Faculty of Built Environment, Universiti Teknologi Malaysia.
- Rameli, A. & Aman, R. (2011). *Ineffectiveness of planning control and its implications to housing oversupply*. Journal of Civil Engineering and Architecture. 1-15
- Rameli, A., Johar, F. and Siong, H.C. (2007). *Responsiveness to the Market Mechanisms: A Way to Strengthen the Malaysian Housing Planning Process*. Proceedings of the International Conference on Sustainable Development and Planning Issues in Developing Countries 2007. April 5. Faculty of Built Environment, Universiti Teknologi Malaysia.
- Rameli, N., Salleh, D. and Ismail, M. (2016) *Homeownership Affordability: An Analysis of Socioeconomic Factors*. Research on Humanities and Social Sciences, 6 (6), 56-59

- Ramlan, H. and Zahari, E.E. (2016) *Review the Issue Of Housing among Urban Dwellers in Malaysia with Special Reference towards Affordability to Home Ownership*. *Procedia Economics and Finance*, 35 (2016), 216 – 223
- Rana, M.P. (2011) *Urbanization and sustainability: challenges and strategies for sustainable urban development in Bangladesh*. *Environment, Development and Sustainability* 13(1), 237–256
- Rangel, G.R., Ng, J.W.J, Murugasu, M.T and Poon, W.C. (2017) *A Micro-level View of Housing Affordability in Malaysia Using an Age Cohort-housing Type Analysis*. doi:10.2139/ssrn.3080212
- Rathod, P.S. and Padhya, H.J. (2017) *SWOT analysis for alternative proposals of affordable housing in Navsari urban area*. *International Journal of Advance Research in Engineering, Science and Management*, 3(7) ISSN: 2394 - 1766
- Rebolj, B. (2013). *The case study as a type of qualitative research*. *Journal of Contemporary Educational Studies*. 28–43.
- Rimmer, P.J. and Dick, H. (2009). *The City in Southeast Asia – Patterns, Processes and Policy*. University of Hawaii Press, Honolulu.
- Rizkiya, P. (2011) *Contemporary Urban Setting in Jakarta and Indonesia*. Master of Urban Agglomerations, University of Applied Sciences, Fachhochschule Frankfurt am Main
- Rizzo, A. (2014) *Rapid urban development and national master planning in Arab Gulf countries. Qatar as a case study*. *Cities* 39 (2014) 50–57  
doi:10.1016/j.cities.2014.02.005
- Rosly, D. and Abdul Rashid, A. (2013), *Revitalizing urban development in Malaysia through the implementation of urban regeneration programme*. 43rd Annual conference of the urban affairs association, 3-6 April 2013, San Francisco.
- Rowley, S., Ong, R. and Haffner, M. (2015), *Bridging the Gap between Housing Stress and Financial Stress: The Case of Australia*. *Housing Studies*, 30(3), 473-490
- Salvi del Pero, A., Adema, W., Ferraro, V. and Frey, V. (2016), *Policies to promote access to good-quality affordable housing in OECD countries*, OECD Social, Employment and Migration Working Papers, No. 176, OECD Publishing, Paris. doi:10.1787/5jm3p5gl4djd-en
- Salvati, L., Sateriano, A. and Bajocco, S. (2013) *To grow or to sprawl? Land Cover Relationships in a Mediterranean City Region and implications for land use management*. *Cities*, 30(2013), 113-121



- Samad, D., Zainon, N., Rahim, F., Lou, E. and Karim, SBA (2016) *Malaysian Affordability Housing Policies Revisited*. The 4th International Building Control Conference 2016 (IBCC 2016), 07 March 2016 - 08 March 2016, Kuala Lumpur, Malaysia. doi:10.1051/mateconf/20166600010
- Samsudin, M.D.M and Mat Don, M. (2013) *Municipal Solid Waste Management in Malaysia: Current Practices, Challenges and Prospect*. Jurnal Teknologi 62(1), 95–101
- Santos, C.L. (2013) *The new trends in urban lifestyle in Manila*. Japan-Asia collaborative research project, Ateneo de Manila University.  
<http://www.hilife.or.jp/asia2012/Manila4eng.pdf>
- Sciara, G.C. (2015) *Measuring land use performance: Policy, plan and outcome*. National Center for Sustainable Transportation (NCST), Department of Transport.  
[http://www.dot.ca.gov/research/researchreports/reports/2015/CA16-2828\\_FinalReport.pdf](http://www.dot.ca.gov/research/researchreports/reports/2015/CA16-2828_FinalReport.pdf)
- Scott, A. J. and Storper, M. (2015), *The Nature of Cities: The Scope and Limits of Urban Theory*. International Journal of Urban and Regional Research, 39(1), 1–15.
- Senate (2015) *Out of reach? The Australian housing affordability challenge*. Senate Economics References Committee. Senate Printing Unit, Canberra ISBN 978-1-76010-208-1
- Shahbaz, M., Sbia, R., Nanthakumar, R. and Afza, T. (2015). *The Effect of Urbanization, Affluence and Trade Openness on Energy Consumption: A Time Series Analysis in Malaysia*. MPRA Paper No. 62743.  
<http://mpra.ub.uni-muenchen.de/62743/>
- Shanmugam, T. (2017) *Minimum wages policy: A game changer for Malaysia*. National Economic Outlook Conference 2018-2019: Labour Market and inclusive growth 21-22 November 2017, Kuala Lumpur.
- Shatar, S., Othman, N., Mohd Yusof, N.A. and Mohamed, Z. (2017) *Preliminary review on housing policy and its implementation in Malaysia*. Journal of Science, Technology and Innovation Policy 3(1), 30-33
- Shokri-Ghasabeh, M. and Chileshe, N. (2014). *Knowledge management: Barriers to capturing lessons learned from Australian contractors' perspective*. Construction Innovation 14, 108-134. Doi: 10.1108/CI-06-2013-0026.
- Shrivastava, R. and Sharma, A. (2011) *Smart Growth: A Modern Urban Principle*. Architecture Research 2011; 1(1): 8-11  
[DOI: 10.5923/j.arch.20110101.02](https://doi.org/10.5923/j.arch.20110101.02)

- Shuid, S. (2004) *Urbanization and housing in Kuala Lumpur city centre: Issues and future challenges*. 19<sup>th</sup> EAROPH World Planning and Housing Congress 2004, Melbourne Australia.  
<http://irep.iium.edu.my/4159/1/earoph2004.pdf>
- Shuid, S. (2016) *The housing provision system in Malaysia*. Habitat International 54(3), 210-223
- Sidi, N.S.S., Zulkifli, M., Omar, M.H. and Rahim, H. (2012). *A realistic model to determine housing needs in Malaysia: A study of Johor bahru, Kuala Lumpur and Penang*. 6<sup>th</sup>. International Real Estate Research Symposium (IRERS 2012), National Institute of Valuation Malaysia (INSPEN), Kajang, Selangor 24-25<sup>th</sup> April, 2012.
- Silverman, R., Li, Y. and Kelly, L.P. (2017). *Siting Affordable Housing in Opportunity Neighborhoods: An Assessment of HUD's Affirmatively Furthering Fair Housing Mapping Tool*. Journal of Community Practice. 25, 1-16. Doi: 10.1080/10705422.2017.1306818.
- Steinberg, F. (2007) *Jakarta: Environmental problems and sustainability*. Habitat International 31, 354–365
- Suhaida, M.S., Tawil, N.M., Hamzah, N., Che-Ani, A.I. Basri, H. and Yuzainee, M.Y. (2011) *Housing Affordability: A Conceptual Overview for House Price Index*. The 2nd International Building Control Conference 2011. Procedia Engineering 20 (2011) 346 – 353. Elsevier
- Surjono, D.W. and Fadly, U. (2010) *Engagement of urban upgrading and urban renewal in Jakarta*. International Journal of Academic Research, 2(5), 296-301
- Susantono, B. (1998) Transportation Land Use Dynamics in Metropolitan Jakarta. Berkeley Planning Journal, 12(1), 126-144.  
<https://escholarship.org/uc/item/2g41499w>
- Spicker, P (2018), Housing and Urban Policy. *An introduction to Social Policy*,  
<http://spicker.uk/social-policy/housing.htm>
- Stone, M., Burke, T. and Ralston, L. (2011) *The residual income approach to housing affordability: the theory and the practice*. Australian Housing and Urban Research Institute Final Report 139. ISSN: 1834-9250
- SPAD (2011) Greater Kuala Lumpur/ Klang Valley Land Public Transport Master Plan. Land Public Transport Commission.  
<http://www.spad.gov.my/sites/default/files/new-land-public-transport-master-plan.pdf>



- Sze, L.L. (2017) Debunking the Myth: Property Measures Have Led to Higher Loan Rejection Rates. Central Bank of Malaysia (BNM) Quarterly Bulletin.  
[https://www.bnm.gov.my/files/publication/qb/2017/Q1/1Q2017\\_fullbook\\_en.pdf](https://www.bnm.gov.my/files/publication/qb/2017/Q1/1Q2017_fullbook_en.pdf)
- Tan, T.H. (2013). *Affordable Housing for First-Time Homebuyers: Issues and Implications from the Malaysian Experience*. Pacific Rim Property Research Journal. 19(2), 199-210.
- Tan, T.H. (2012). *Meeting first-time buyers housing needs and preferences in greater Kuala Lumpur*. Cities, 29(6), 389-396. Available at:  
<http://eprints.sunway.edu.my/id/eprint/142>
- Tan, Y.K. (2011) An Hedonic Model for House Prices in Malaysia. *International Real Estate Society Conference*, 15(1), 12-15.
- Taylor, N. (1998) *Urban planning theory since 1945*; Sage: London, UK. ISBN 978-0-7619-6093-5.
- Tayyebi, A., Pijanowski, B.C. and Tayyebi, A.H. (2011) *An urban growth boundary model using neural networks, GIS and radial parameterization: An application to Tehran, Iran*. Landscape and Urban Planning, 100(1-2), 35-44
- Teriman, S., Yigitcanlar, T. and Mayere, S. (2009) *Urban growth management for sustainable urbanization : examples from Asia-Pacific city regions*. In: Proceedings of the International Postgraduate Conference, 5-6 June 2009, Hong Kong Polytechnic University, Hong Kong.
- Tey, N.P. (2012) *Internal Migration in the Klang Valley of Malaysia: Issues and Implications*. Malaysian Journal of Chinese Studies, 1: 40-59
- Uddin, K., Gurung, D.J., Giriraj, A. and Shrestha, B. (2013) *Application of Remote Sensing and GIS for Flood Hazard Management: A Case Study from Sindh Province, Pakistan*. American Journal of Geographic Information System. 2(1), 1-5
- Ujang, N. and Muslim, Z. (2015) *Walkability and Attachment to Tourism Places in the City of Kuala Lumpur, Malaysia*. Athens Journal of Tourism 2(1), 55-67
- UN (1948) The Universal Declaration of Human Rights. United Nations General Assembly in Paris on 10 December 1948 (General Assembly resolution 217 A). Accessed 14 November 2016  
<http://www.un.org/en/universal-declaration-human-rights/>
- UN (2015) United Nation Resolution 70/1. Accessed on 12 Dec 2016.  
[http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E)

- UN (2017) *2017 Revision of World Population Prospects*. United Nations Population Division. <https://population.un.org/wpp/> and <http://data.un.org/Search.aspx?q=Malaysia>
- UN-Habitat (2011) *Affordable Land and Housing in Asia*. UNON, Publishing Services Section, Nairobi. ISBN Number (Volume): 978-92-1-132369-6
- UN-Habitat (1988) *The Global Strategy for Shelter to the Year 2000*. United Nations Centre for Human Settlement. 83<sup>rd</sup> General Assembly resolution 43/181. Accessed 12 Dec 2016  
<http://www.nuigalway.ie/media/housinglawrightsandpolicy/files/undocs/UN-Global-Strategy-for-Shelter-to-the-Year-2000-.pdf>
- UNEP (2017) *Resilience and Resource Efficiency in Cities*. United Nations Environment Programme.  
<http://wedocs.unep.org/handle/20.500.11822/20629>  
ISBN No : 978-92-807-3648-9
- UNESCAP & UN-Habitat (2010). *The state of Asian cities 2010/11*. UN Economic and Social Commission for Asia and the Pacific & UN Human Settlements Programme. Nairobi: UN-Habitat/UNESCAP.
- URA (2011) *Concept Plan 2011 and MND Land Use Plan*. Urban Development Authority  
<https://www.ura.gov.sg/Corporate/Planning/Concept-Plan/Land-Use-Plan>
- USC (2016) *Organizing Your Social Sciences Research Paper: Types of Research Designs*. University of Southern California Libraries (2016).  
<http://libguides.usc.edu/content.php?pid=83009&sid=818072>
- Vaismoradi, M., Jones, J., Turunen, H. and Snelgrove, S. (2016) Theme development in qualitative content analysis and thematic analysis. *Journal of Nursing Education and Practice* 2016, 6(5), 100-110. Doi:10.5430/jnep.v6n5p100
- Van Gent, W. (2013) *Neoliberalization, Housing Institutions and Variegated Gentrification: How the 'Third Wave' Broke in Amsterdam*. *International Journal of Urban and Regional Research*. 37(2), 503-522. doi:10.1111/j.1468-2427.2012.01155.x
- Vidyattama, Y., Tanton, R. & Nepal, B. (2011). *Housing Stress or Transport Stress? Issues in Australian Housing Affordability*. Accessed on 14 June, 2015  
[http://www.natsem.canberra.edu.au/storage/Housing%20Stress%20or%20Transport%20Stress%20Issues%20in%20Australian%20Housing%20Affordability\\_final.pdf](http://www.natsem.canberra.edu.au/storage/Housing%20Stress%20or%20Transport%20Stress%20Issues%20in%20Australian%20Housing%20Affordability_final.pdf)
- VoB, W. (2014) *Is Affordable Housing still viable in metropolitan urban development?* XXV FIG Congress, 16-21 June 2014, Kuala Lumpur

- Wahi, N., Zin, R.M., Munikanan, V., Mohamad, I. and Junaini, S. (2018) Problems and Issues of High Rise Low Cost Housing in Malaysia. IOP Conf. Series: Materials Science and Engineering 341 (2018) 012027 doi:10.1088/1757-899X/341/1/012027
- Wallang, M. (2018) *Determinants that Influence Citizen's Usage of Different E-Government Services: A Malaysian Case Study*. PhD thesis, University of Queensland, Australia.
- Wallbaum, H., Ostermeyer, Y., Salzer, C. and Escamilla, E.Z. (2012) *Indicator based sustainability assessment tool for affordable housing construction technologies*. Ecological Indicators 18(2012), 353–364. doi:10.1016/j.ecolind.2011.12.005
- Wan, N.A., Hanif, N.R. & Singaravelloo, K. (2010). Affordable Housing for Middle Income Households in Malaysia. IRERS Conference, Kuala Lumpur, April 27-29.
- Wan Aziz, W.N.A, Hanif, N.R. and Singaravello, K. (2011) *Affordable housing within the middle income households in Malaysia: Challenge to enter homeownership*. Australian Journal of Basic and Applied Science. 5(8), 258-267
- Wan Aziz, W.N.A., Hanif, N.R. and Singaravello, K. (2010) *A study on affordable housing within the middle income households in the major cities and towns in Malaysia*. Retrieved March 30, 2015 from: <http://www.inspen.gov.my/inspen/v2/wp-content/uploads/2009/08/Affordable-housing.pdf>
- Wan Mohd Rani, W.N.M (2014) *Evaluating the impact of density on access to local facilities in urban neighbourhood*. Journal of the Malaysian Institute of Planners XII,1 - 18
- Wang, L., Li, C.C., Ying, Q., Cheng, X., Wang, X.Y., Li, X.Y., Hu, L.Y., Liang, L., Yu, L., Huang, H.B. and Gong, P. (2012) *China's urban expansion from 1990 to 2010 determined with satellite remote sensing*. Chinese Science Bulletin 57 (22), 2802–2812
- Welch, T.F. (2013) Equity in transport: *The distribution of transit access and connectivity among affordable housing units*. Transport Policy 30 (2013), 283–293. doi:10.1016/j.tranpol.2013.09.020
- Wentz, E.A., Anderson, S., Fragkias, M., Netzband, M., Mesev, V., Myint, S.W., Quattrochi, D., Rahman, A. and Seto, K.C. (2014) *Supporting Global Environmental Change Research: A Review of Trends and Knowledge Gaps in Urban Remote Sensing*. Remote Sensing, 6(5), 3879-3905
- Widiatmaka, Ambarwulan, W., Santoso, P.B.K, Sabiham, S., Machfud and Hikmat, M. (2016) *Remote Sensing and Land Suitability Analysis to*

*Establish Local Specific Inputs for Paddy Fields in Subang, West Java.*  
Procedia Environmental Sciences. 33, 94-107

Widoyoko, D. (2007) *Affordable Housing in DKI Jakarta, Indonesia. A case study.* Water, Engineering and Development Centre, Loughborough University. ISBN 978 184380 1160

Wilson, B. and Song, Y. (2011). *Do large residential subdivisions induce further development?* Journal of the American Planning Association. 77, 5-22. doi: 10.1080/01944363.2010.519315.

Winarso, H and Firman, T. (2002) Residential land development in Jabotabek, Indonesia: triggering economic crisis? Habitat International 26 (2002), 487–506

Winston, N. (2010) *Regeneration for Sustainable Communities? Barriers to Implementing Sustainable Housing in Urban Areas.* Sustainable Development 18(2010), 319–330. doi:10.1002/sd.399

Woetzel, J., Ram, S., Mischke, J., Garemo, N. and Sankhe, S. (2014) *A blueprint for addressing the global affordable housing challenge.* McKinsey Global Institute. Available at: [www.mckinsey.com/mgi](http://www.mckinsey.com/mgi)

Wolch, J.R., Byrne, J. and Newell, J.P (2014). *Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'.* Landscape and Urban Planning 125 (2014), 234–244. doi:10.1016/j.landurbplan.2014.01.01

World Bank (2015) *Malaysia among Most Urbanized Countries in East Asia.*  
<http://www.worldbank.org/en/news/feature/2015/01/26/malaysia-among-most-urbanized-countries-in-east-asia>

World Bank (2013) Philippine Economic Update. Accelerating Reforms to Meet the Jobs Challenge. May 2013.  
[http://www.worldbank.org/content/dam/Worldbank/document/EAP/Philippines/Philippine\\_Economic\\_Update\\_May2013.pdf](http://www.worldbank.org/content/dam/Worldbank/document/EAP/Philippines/Philippine_Economic_Update_May2013.pdf)

World Bank (2017) International Bank for Reconstruction and Development Project Appraisal Document on a Proposed Loan in the Amount of US\$450 Million to the Republic of Indonesia for the National Affordable Housing Program Project.  
<http://documents.worldbank.org/curated/en/121201489975262694/pdf/Indonesia-NAHP-PAD-PAD1788-P154948-02282017.pdf>

Wu, S.S., Wang, L. and Qiu, X. (2008) *Incorporating GIS Building Data and Census Housing Statistics for Sub-Block-Level Population Estimation.* The Professional Geographer 60(1), 121–135

- Yaakob, H., Yusof, F. and Hamdan, H. (2012), *Land Use Regulations towards a Sustainable Urban Housing: Klang Valley Conurbation*. *Procedia Social and Behavioral Sciences* 68, 578-589
- Yahya, K. and Majid, M.Z. (2002) *Forecasting of Low Cost Housing Demand In Urban Areas- Artificial Neural Network And ARIMA Model Approach*. 2nd International Conference on Systems Thinking in Management, Salford UK, 22-24 April, 2002.
- Yap, K.S., De Wandeler, K., Khanaiklang, A. and Amtapunth, P. (1993). Low-income rental housing of the national housing authority. In *Study on low-income rental housing in Bangkok*, Asian Institute of Technology.
- Yap, K.S. (2016) *The enabling strategy and its discontent: Low-income housing policies and practices in Asia*. *Habitat International*. 54, 166-172. doi:10.1016/j.habitatint.2015.11.026
- Yigitcanlar, T. and Kamruzzaman, M. (2015) *Planning, Development and Management of Sustainable Cities: A Commentary*. *Sustainability* 7, 14677-14688; doi: 10.3390/su71114677
- Yin, R.K. (2009). *Case study research: Design and methods* (4th Ed.). Thousand Oaks, CA: Sage.
- Yourong, W. (2014) *Urban Land Supply Policy, Urban Growth and Housing Prices in China*. PhD thesis. National University of Singapore. Accessed 20 Jan 2018  
<https://scholarbank.nus.edu.sg/bitstream/10635/77744/1/Thesis%20-%20Wang%20Yourong.pdf>
- Yusoff, S.M., Yusof, F. and Arshad, A.F. (2014) *An Analysis of Local Plan for Development Control at Local Planning Level in the State of Selangor*. *Procedia - Social and Behavioral Sciences* 153 (2014), 574 – 584
- Zainon, N., Mohd-Rahim, F.A., Sulaiman, S., Abd-Karim, S.B. and Hamzah, A. (2017) *Factors Affecting the Demand of Affordable Housing among the Middle-Income Groups in Klang Valley Malaysia*. *Journal of Design and Built Environment*, Special Issue 2017, 1-10.
- Zairul, M.N. (2017) *flexZhouse: New business model for affordable housing in Malaysia*. PhD thesis Delft University of Technology. ISBN 978-94-92516-398
- Zimmerman, S. and Fang, K. (2015) *Public transport service optimization and system integration*. China transport topics; no. 14. Washington, DC: World Bank Group.  
<http://documents.worldbank.org/curated/en/322961468019179668/Public-transport-service-optimization-and-system-integration>



Zyed, Z.S., Aziz, W.N.A. and Hanif, N.R. (2016) *Housing affordability problems among youth households*. Journal of Surveying, Construction and Property, 7(1), 1-18

Zhu, H. (2006). *The structure of housing finance markets and house prices in Asia*. Bank for International Settlements (BIS) Quarterly Review, 55–69.





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## LIST OF PUBLICATIONS

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- Intan Melati Che Hassan, Faziawati Abdul Aziz, Nor Azlina Abu Bakar, Noordin Ahmad. 2019. **The Efficacy of Local Plans in the Provision of Affordable Housing for the Middle-Income Households in Kuala Lumpur**. Journal of Design and Built Environment. (Under reviewing).





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