

MAKING HOUSING AFFORDABLE

Dr. Suraya Ismail, Intan Nadia Jalil & Puteri Marjan Megat Muzafar
KHAZANAH RESEARCH INSTITUTE, KUALA LUMPUR

This paper is an extended version of the executive summary in the Making Housing Affordable report. Readers can download the full report at http://www.krinstitute.org/kris_publication_Making_Housing_Affordable.aspx

ABSTRACT

The provision of affordable homes remains a major problem facing policymakers around the world, with Malaysia being no exception. Malaysian policy initiatives which focus on ensuring affordable housing have typically involved the transfer of physical or financial resources to low-income households who cannot house themselves adequately. The scarcity of such resources then forces government housing agencies to focus on a small and limited housing agenda and stymies efforts to understand or manage the housing sector as a whole. As Malaysia becomes more urbanized, the demand for housing that is affordable will only increase. Trends in Malaysia indicate that both the bottom 40% and middle 40% of income earners are likely to require some form of social housing if the relevant interventions are not made urgently.

Interventions in the housing market have largely been on the demand side, by making housing financing cheaper or providing subsidies for home-buyers. 'Sophisticated/innovative' financing packages and cash transfers are provided to home-buyers to buy houses they could not afford. The supply side interventions have been by direct provision of low-cost houses or subsidising housing costs. These measures are unsustainable as they can drive price increases, result in more household debt, and incur opportunity costs on government finances that potentially could be used more productively.

This paper considers the problem of supplying affordable houses from the perspectives of both an institutional arrangement (national business system) and the firms (industry value chain analysis and the economics of governance). Current policies have focused on controlling house prices once the consumer receives it at the end of the production process. This paper proceeds differently because the evidence seems to suggest that it is far more efficient to enhance capacity in the supply side to develop a sustainable and responsive housing sector that caters for all sections of the population.

Keywords: Housing, public policy, supply-side strategies, national business system

1. INTRODUCTION

This paper examines the issue of housing affordability in Malaysia, viewing it within the context of housing as an economic sector rather than simply as a social welfare concern. Housing interventions have focused primarily on demand, and in doing so, subsidizes a non-responsive supply sector. We examine housing affordability with the view of ensuring that supply is able to meet effective demand, thus improving the affordability of housing in general.

The provision of affordable homes remains a major problem facing policymakers around the world, with Malaysia being no exception. Malaysian policy initiatives which focus on ensuring affordable housing have typically involved the transfer of physical or financial resources to low-income households who cannot house themselves adequately. The scarcity of such resources then forces government housing agencies to focus on a small and limited housing agenda and stymies efforts to understand or manage the housing sector as a whole.

Therefore, it is important to move towards a broader agenda of guiding and managing the housing sector as a whole. The sector must also be viewed as one that is important and productive, where policies have serious repercussions for overall economic performance and not, as is commonly viewed (especially for low-cost housing) as a sector which is a drain on productive resources.

2. CHALLENGES OF MAKING HOUSING GENERALLY AFFORDABLE

Gaps are beginning to appear in the provision of housing, 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 challenge is particularly prevalent in urban areas: while Malaysian home ownership as a whole stood at 72.5% in 2010 (the year of the latest Population and Housing Census), urban home ownership was 69.1%. In Kuala Lumpur, it was 53.5%. Demographic factors will make the problem more acute: our population is growing at around 2% per year and will reach 38.6 million by 2040; urbanisation is increasing; and households are getting smaller – in 1970 there were 182 households for every 1,000 people, by 2020 there will be 250 households for every 1,000.

Housing affordability is a function of both house prices and income. At the national level, median house prices were 4.4 times median annual household income in 2014. According to global standards, this signifies a 'seriously unaffordable' housing market. An 'affordable' market should have a 'median multiple' (median house prices as a multiple of median annual household income of 3.0x).

However, house prices are also heavily dependent on location, and so some states in Malaysia have more affordable housing markets than others. Melaka for instance is 'affordable', with a median multiple of 3.0x whereas Kuala Lumpur (5.4x) and Pulau Pinang (5.2x) are both 'severely unaffordable'

Although DoS' household income statistics measure both informal and formal income, there is a significant amount of housing units that are not accounted for in NAPIC's calculations for housing stock. This means that the median all-house price calculated by NAPIC does not comprise the entire number of housing units. To adjust for this potential shortfall, we have assumed that house prices in states where 60% or more of housing stock is accounted for by NAPIC are representative of the overall housing market (Table 1). Given this cut-off, our analysis of median-multiple affordability of each state's housing market focused on Kuala Lumpur, Pulau Pinang, Johor, Selangor, Negeri Sembilan, and Melaka, with the other states being deemed as having insufficient house price data for the assessment.

Table 1: Comparison of housing affordability based on annual household median income and median all-house price across states in Malaysia, 2014

Area	Monthly Median Income	Annual Median Income	Market Median-3 Price	Median All-House Price	Multiple Median affordability	Affordability	Accounted Living Quarters by Naptic, 2010
Terengganu	3,777	45,324	135,972	250,000	5.5	5.1 and over Severely unaffordable	22% 
K. Lumpur	7,620	91,440	274,320	490,000	5.4		88% 
P. Pinang	4,702	56,424	169,272	295,000	5.2		74% 
Sabah	3,734	44,940	134,820	230,000	5.1		24% 
Pahang	3,389	40,668	122,004	200,000	4.9	4.1 to 5.0 Seriously unaffordable	58% 
Kelantan	2,716	32,592	97,776	157,740	4.8		16% 
MALAYSIA	4,585	55,020	165,060	242,000	4.4		60% 
Perak	3,451	41,412	124,236	180,000	4.3		57% 
Perlis	3,500	42,000	126,000	181,000	4.3		34% 
Johor	5,197	62,364	187,092	260,000	4.2		73% 
Selangor	6,214	74,568	223,704	300,000	4.0	3.1 to 4.0 Moderately unaffordable	81% 
N. Sembilan	4,128	49,536	148,608	188,888	3.8		74% 
Sarawak	3,778	45,336	136,008	164,667	3.6		32% 
Kedah	3,451	41,412	124,236	140,000	3.4		50% 
Melaka	5,029	60,348	181,044	180,000	3.0	3.0 & Under Affordable	64% 

The 3.0x median multiple signals that the market provides a distribution of housing and house prices that are subject to minimal distortions – housing supply is responsive and able to meet effective demand. Unaffordable housing markets are ones in which supply either falls far below demand, or is too inelastic to changes in demand. It is a measure of how affordable the housing market as a whole is performing. It is not a measure of what any particular household can afford as that would depend on that particular household's circumstances.

Another measure of affordability is down-market penetration. An overview of Malaysia's residential market reveals that in aggregate, new launches within the lowest-price range has dropped from 36.4% out of total launches in 2004 to only 19.7% in 2014 (Figure 1 and Figure 2). Since publicly-available house price data for Malaysia is only in the form of price ranges, the data depicted in Figure 1 is used to estimate the range of down-market penetration for the Malaysian housing market. In 2014, the down-market penetration for the lowest-priced dwelling unit ranged from 0.9 to 1.8 times, quite significantly below the 3.4 global value previously estimated. Relatively low down-market penetration ratios also held in the six state housing markets analysed in the previous section, even for the 'severely unaffordable' markets of Kuala Lumpur and Pulau Pinang (Table 2).

Table 2: Range of down-market penetration ratios for selected states, 2014

AREA	DOWN-MARKET PENETRATION RANGE
Kuala Lumpur	2.7 - 3.2
Pulau Pinang	0.9 - 1.8
Johor	< 0.8
Selangor	0.7 - 1.3
Negeri Sembilan	< 1.0
Melaka	< 0.8

Source: KRI calculations

An important caveat when assessing down-market penetration ratios for Malaysia is that while the house price data supplied by NAPIC only includes prices for houses supplied by the private sector, NAPIC cannot certify whether these houses were built without the benefit of subsidies, including land-swap arrangements with the government. Hence, the down-market penetration ratio estimated from this data may be an underestimation of actual values.

Nonetheless, the available data signal that nationally and within these markets, privately supplied housing does reach some below-median households, although without more disaggregated and detailed data, it is unclear whether the allocation of such housing is adequate.

For the last five years, 60,000 houses have been launched on average.

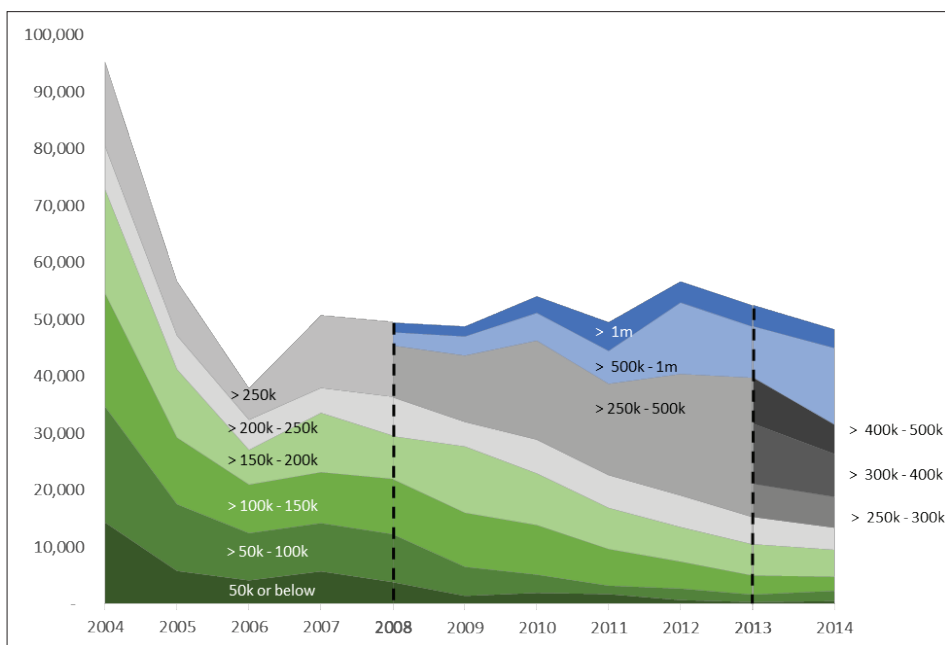


Figure 1: Number of launched residential units by price range, 2004 – 2014¹

Source: NAPIC (various years),
KRI calculations k = thousand
m = million

1. The type of properties included are: Single storey terrace, 2-3 storey terrace, Single storey semi-detached, Detached, Town-house, Cluster, Low-cost flat, Low-cost house, Flat, and Condominium.
2. NAPIC uses different house price ranges from 2004 to 2007, 2008 to 2012 and 2013 to 2014, therefore the charts are divided according to the respective range.

¹ NAPIC data for new launches according to price range is only available from 2004 onwards.

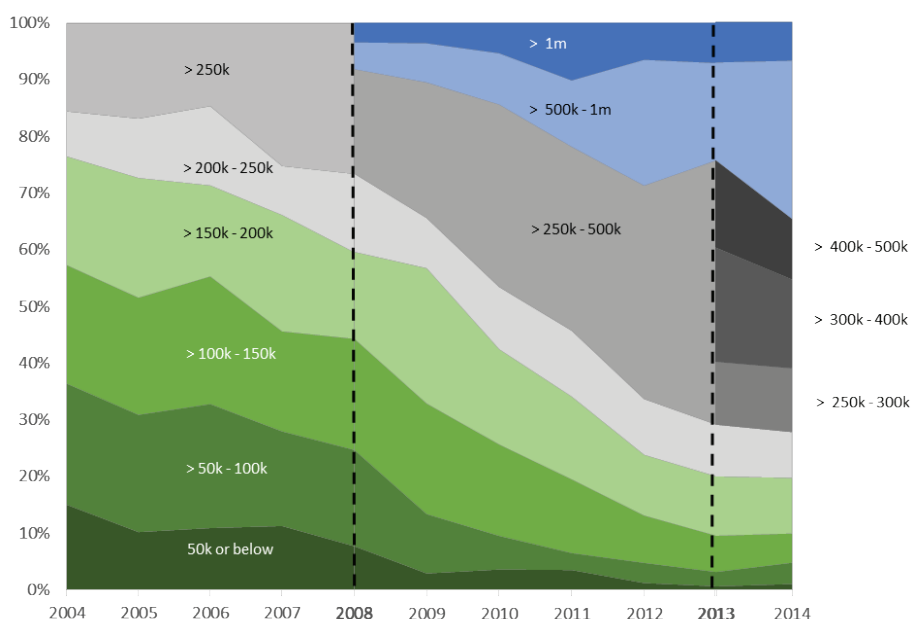


Figure 2: Composition of residential units launched by price range, 2004 – 2014

Source: NAPIC (various years),

KRI calculations k = thousand

m = million

1. The type of properties included are: Single storey terrace, 2-3 storey terrace, Single storey semi-detached, Detached, Town-house, Cluster, Low-cost flat, Low-cost house, Flat, and Condominium.
2. NAPIC uses different house price ranges from 2004 to 2007, 2008 to 2012 and 2013 to 2014, therefore the charts are divided according to the respective range.

Interventions in the housing market have largely been on the demand side, by making housing financing cheaper or providing subsidies for home-buyers. The supply side interventions have been by direct provision of low-cost houses or subsidising housing costs. These measures are unsustainable as they can drive price increases, result in more household debt, and also incur opportunity costs on government finances that potentially could be used more productively.

Housing supply is driven by land costs and use, planning policy, and construction costs. High housing prices are often blamed on land costs, but the causality actually runs in the opposite direction; rising house prices result in rising land prices as the price a developer is willing to pay for new land rises as the market price for housing increases. As for construction costs, in Malaysia these have been falling with no attendant drop in house price.

The answer to making housing more affordable then, lies in improving the elasticity of housing supply or, in other words, in making the supply of housing more responsive to the needs of all sections of population. In this report, we examined the national business and procurement systems for housing through five case studies of Malaysian property developers. The findings were then compared to a case study in the Philippines housing sector – 8990 Holdings, Inc.– which is a mass housing market developer that has managed to supply affordable homes by marrying cost and time-saving building technology with highly integrated procurement and business systems.

3. RESEARCH METHOD AND FINDINGS

In this report, we consider the problem of supplying affordable houses to the general public from the perspectives of both an institutional arrangement (national business system) and the firms (industry value chain analysis and the economics of governance). This is based on the premise that improvements are needed at the level of construction projects and firms in order to increase the affordability of houses at the national level.

Six case studies were conducted in order to examine the mechanisms adopted by firms to implement good order and workable arrangements in their construction projects. Five case studies were of firms from Selangor, Johor Bahru and Pulau Pinang in Malaysia², and one case study was of a firm from the Philippines. Six criteria were devised to identify eligible participants for the case studies in Malaysia. These criteria suggest that the companies selected have had experience and are successful in building houses and therefore can provide the “highest resolution” in terms of giving their perspectives on the subject matter being investigated.

The criteria were:

1. Housing development companies that are listed in Bursa Saham Kuala Lumpur.
2. Housing development companies that have received acknowledgement for the good quality and/or design of houses through being granted the country’s prestigious awards.
3. Housing development companies that were among the top 20 largest firms on Bursa Malaysia in terms of market capitalisation during the year of analysis.

² Deemed moderately unaffordable, seriously unaffordable and severely unaffordable markets respectively, as at 2014.

4. Housing development companies that have a good reputation in the country for delivering houses on time and that are perceived to offer value for money.
5. Housing development companies that have been in business for more than 15 years.
6. Housing development companies that have undertaken at least five housing projects within the past 15 years.

A group of experienced developers were selected to provide insights as to how their organisations performed within the institutional framework as well as instituting economic governance³ in the multi-organisation created for the selected projects⁴.

The selection of the construction projects was also based on predetermined criteria to provide consistency in the types of development under analysis in order to produce the high resolution needed in describing the patterns and themes observed. These criteria were:

1. The type of development, ie housing.
2. The procurement route, ie TGC with PAM 98 Standard Agreement and Conditions of Building Contract.
3. Projects must have been completed within the past five years.
4. Developments must be large-scale, ie more than 80 units for each project.

4. WHAT ARE OUR LIMITATIONS IN PRODUCING AFFORDABLE HOMES BASED ON CURRENT INSTITUTIONAL CONTEXT?

Table 3: Comparison between 8990 Holdings and Malaysian property developers

	8990 Holdings, Inc.	Malaysian property developers
Framework agreement with key materials suppliers	8990 Holdings has an agreement with the material supply-sector, and therefore negotiated the contractor's services as a cost- plus item in the bills of quantities.	Property developers give this role to the construction company, and this is covered in the existing construction contracts (fluctuation clauses are normally eliminated)
Integration of design and construction	8990 Holdings has an integrated design and construct group that permits improvements to the production processes from design to installation on site.	Improvements in design and buildability on site are done in different firms and there are limited opportunities to improve since design changes are executed through variation orders, which makes innovation non-existent. Which party would want to bear the costs of faulty design or installation?

³ See Appendix 4 in the Making Housing Affordable report for an explanation of economic governance.

⁴Bryman (1996) and Chan et al. (2001)

Investment in production technology and innovation	8990 invests financially in their own product and process innovations. Product innovation (eg IBS) is done internally and is tailored to the specificities of the construction site. For example, if the site is in a dense city-area with limited access, they bring the moulding process on site. Process innovation is needed in situating product innovation. For example, in IBS technology, the Mechanical and Engineering (M&E) design input must be given before moulding is done. 8990 will have internal discussion with both the design and construction teams in one conducive environment.	Property developers in Malaysia rely on their construction firms to innovate, without investing financially. Contractors will depend on external IBS or proprietary systems for product innovations, therefore it is an out-sourced facility. The design team might not be familiar with the design and installation of such technology. Training is generally not provided by the contractors, design team, or IBS manufacturer on how the components are connected with other parts of the building. Hence construction workers will not be able to assemble the design on site.
Skills training	8990 provides training for all construction workers/operatives so that the product innovation designed by the design team is able to be executed on site. The construction workers are also encouraged to give feedback on problems with executing the design on site.	Training of construction workers are not done due to the transient nature of the work force.
	8990 Holdings, Inc.	Malaysian property developers
Management and maintenance of amenities	8990 maintains the shared services (amenities) within their facilities management unit. The general public will need to pay for the services but the unit owners within the complex can use the facilities for free. This to ensure that the facilities are well- kept and is in good workable order at all time.	The public amenities managed and maintained by the management Committee

These conclusions (Table 3) suggest that the consolidation of the supply chain follows best practices as exemplified by 8990, whereby firms themselves invest in adopting new technologies as well as in training site operatives to execute the newly introduced technology. The recommendation for institutionalising reforms and restructuring the procurement system is important since it will improve the overall efficacy of the firms that are involved in the production process in terms of time, costs and quality at the construction project level. This will lead to cost efficiencies for the housebuilding industry.

If the restructuring of the procurement system is not made to reflect the new production value-chain, then firms will not have the opportunities to innovate or invest in technological advancements. This is the primary recommendation of this report: the creation of a conducive institutional and governance structure for firms to anchor their new production methods.

We propose that the relevant government agencies work with a select group of committed and experienced companies who will have a framework agreement with the material supply section in order to improve the overall efficacy of the delivery of housing units.

The economics of governance is an effort to implement the study of good order and workable arrangements⁵. Therefore, the alliances of firms will need to be anchored within a new designated national procurement system. This entails a move away from using the TGC procurement route towards a design-and-build or turnkey governance structure.

The new structure is designed to change attitudes and alter the way in which members of the professions and contractors work with one another, with a view to creating a fully motivated and cooperative building team and removing the duplication of effort between designers, quantity surveyors and contractors, which is prevalent under the TGC governance structure.

⁵ See Appendix 5 in the Making Housing Affordable report

The nature of the integrated approach should promote the creation of designer– contractor–supplier clusters. Figure 3 shows the difference between the existing and the new proposed governance structure.

The suggested structure has the characteristics listed below:

- The integrated approach will provide a single-point responsibility for the contractor, designer, and developer in the event of building failure, thereby safeguarding home purchasers' and the government's interest.
- It will provide a comprehensive package comprising site-seeking and purchase, obtaining planning permission and building regulations approval, financing facilities, and other associated development components, with the support of the government.
- It may use a proprietary building system or modular building form which reduces design time and the time required for the approval of the building components within a partnering agreement with the materials supply sector.
- These building components (such as IBS) are often readily available so that manufacturing time is minimal and construction time may be correspondingly reduced because manufacture of components and work on site can proceed concurrently. In most countries that have the enabling institutional arrangements, the cost savings range between 10%-30% .
- The government will develop mandatory standard building specifications/ plans in order to facilitate the adoption of IBS and other off- the-shelf proprietary systems for the construction of affordable homes.
- The integrated nature of design, construct and assembly on site will produce product innovation since faulty designs will be filtered back to the design team and the manufacturer of the building components. Collaboration at the design stages is critical especially for the design of structural building systems and mechanical and electrical services
- Constant communication between all parties will encourage process and product innovations as well as a reduction of the construction period, enabling early occupation of the houses and a reduction in overall financing costs for the builders.
- The contractor's knowledge and experience of the cost implications and buildability of design variables may be utilised to good effect because he or she contributes to the design.
- The use of both fixed-price and incentive contracts will provide financial incentives which encourage contractors and suppliers (proprietary systems, IBS, modular systems) to undertake design detailing economical to construct.
- It is also designed to redefine risks and re-establish awareness of real costs among all members of the design and construction team and to eliminate practices that absorb unnecessary effort and time and obstruct progress towards completion of the project.

- Competition between proposals based on competitive tendering should ensure economical tenders and alternative design concepts. It is suggested that an open-book system is adopted, whereby the construction firm will disclose its costs of production after the tender has been awarded, and the percentage margin would then be agreed mutually with the developer

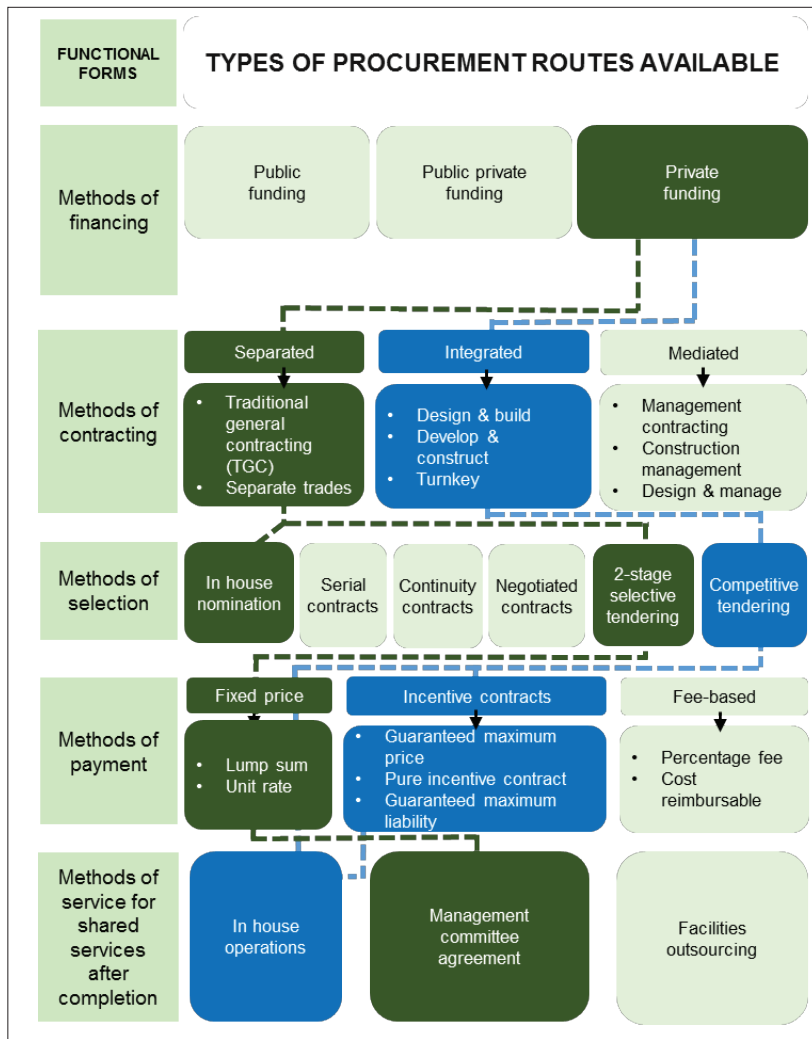


Figure 3: The functional form and the selected governance structure of the five case reports and the suggested new governance structure

1. The dark green coloured boxes represent the governance structure that was used in the five case reports.
2. The blue coloured boxes represent the suggested new governance structure

As demonstrated by 8990 Holdings, ***a willingness to participate in the wider concerns of building liveable cities and communities will ensure that these cost efficiencies will be passed to housing consumers.*** But more importantly, these measures have proven to be a sustainable business model and financially viable for the company and its allied industries in the long-term

5. POLICY RECOMMENDATIONS

The policy recommendations and the actions needed are the below interlinked supply-side interventions to the housing market:

- **Develop measures to improve the efficacy of the construction industry's delivery system to supply housing at affordable prices.**

The new production methods embedded within the new production system are intended to make housing supply more responsive to the purchasing power of populations at specific locations. The 11th Malaysian plan has in its Strategy D2⁸, a focus on driving productivity by increasing technology adoption, modernisation of construction methods and on reducing dependency on low-skilled labour.

It also encourages the adoption of the IBS by the industry through revision of the public procurement policy and Uniform Building By-Laws; as well as wanting to improve on existing regulations to ease construction-related business processes. The below policy recommendation and steps will attain the desired objectives of Strategy D2.

1. A new designated procurement delivery system that allows for the consolidation of the resources of firms within the supply chain. This entails a move from using the TGC procurement route towards a design-and-build or turnkey governance structure and forming framework agreements with the material supply section.
2. Extending the consolidation of the supply chain in the design-and-build approach into a clustering approach with key material supply firms under a framework agreement would enable a strong resilient housing supply cluster to be built.

⁸ See Appendix 5 in the Making Housing Affordable report

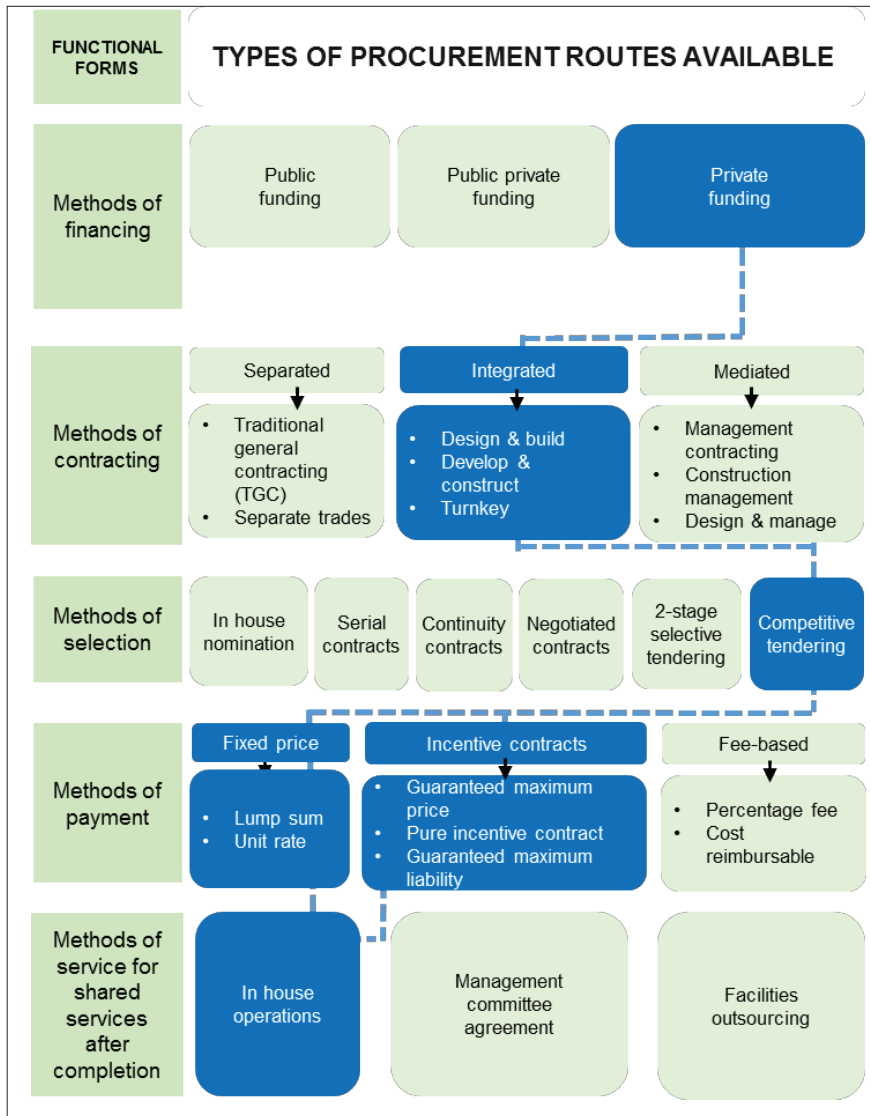


Figure 4: The functional form and the suggested new governance structure

1. This new procurement structure will create institutional arrangements with designers, contractors and material suppliers to encourage improvements in their factor productivities and efficacious management of building materials.
2. The cost-savings accrued as a result of lower construction costs based on construction innovation will be translated into higher floor areas for the newly constructed homes.
3. The creation of this new cluster of firms will improve the prices of new incoming stock of

houses (making them more affordable to the general public) as a result of:

- the lower costs of construction resulting from the use of proprietary building systems and the integration of design, construct and assembly processes
- the support of government in site-seeking and purchase, obtaining planning permission and building regulations approval, financing facilities and other associated development components
- the support of government for the development of mandatory standard building specifications for the newly constructed homes.

4. Rent-seeking activities will be discouraged through the introduction of a moratorium of five years for house buyers as well as the provision of data on new incoming stock of houses (refer to the policies discussed below).

- **Develop measures to reduce pressures leading to rapid house price escalation.**

It is recommended that the housing units built under the proposed new scheme be subject to a limited-period moratorium, sufficiently long enough for the next batch of housing stock to be supplied into the market at affordable prices as well.

1. The supply of new stock of houses produced through the newly-designed procurement route needs to be insulated from short-term speculative behaviour in order for the initiative to be successful.
2. For houses built through the new designated procurement route, a moratorium is needed to create a buffer period for new stock to come in at affordable prices as well. If the new stock is affordable and costs are lower than the speculative prices, this will evidently diminish the gains from speculative activities. A moratorium has the objective of curbing the rapid price escalation of houses. Therefore, if there is an urgent sale before the period of five years, then the unit can still be sold but based on nominal values.

- **Develop measures to plan for a steady supply of housing at affordable price.**

In order to match this steady supply to demand efficiently, detailed information leading to efficient planning is required. This in turn entails a national data repository on the conditions of demand and supply of housing at specific locations.

The 11th Malaysian Plan⁹ has highlighted the mismatch in demand and supply for affordable housing. The document highlighted the escalating House Prices in Major Cities (following the World Bank Affordability Index which is three times the annual household income) and cited the lack of integrated planning and implementation as one of the reasons for this problem. In Strategy B2: Strengthening planning and implementation for better management of public housing, the document recommends the establishment of an integrated database for all relevant stakeholders (to ensure housing supply matches demand according to locality, price and target groups). The policy option of creating a National Housing Survey as detailed below will have the desired outcome of Strategy B2.

1. A National Housing Survey will provide guidance to Federal and State governments and local authorities, enabling them to plan for a steady supply of housing at affordable prices through housing programmes at the mukim level, which are based on effective demand and land suitability.
2. If made public, information collected in the National Housing Survey will also provide the general public with the requisite knowledge to make better house-buying decisions. As housing consumes a significant proportion of their household incomes, the general public needs to be able to plan for the purchase and to choose between different types of houses at different prices, which in turn will lead to better financial planning on their part as well.
3. The proposed National Housing Survey should include:
 - demand-side analysis: covering the distinct demographic patterns between States at the mukim level (for example, whether mukims consist predominantly of young dependents and families, working populations or retirees) and incomes.
 - supply-side analysis: a land suitability assessment including the current land-use patterns and zones.

The demand- and supply-side survey and analysis performed for each state could be repeated every five years to reflect the dynamic and organic nature of housing programmes.

⁹ Focus area B: Providing adequate and quality affordable housing in Chapter 4: Improving wellbeing for all (EPU 2015)

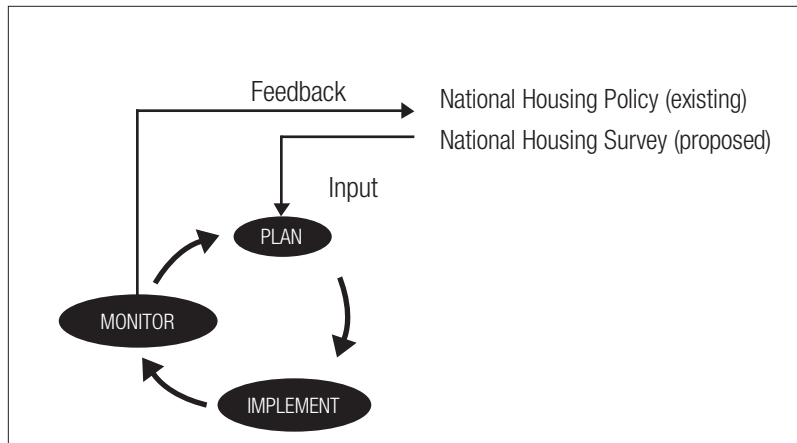


Figure 5: Planning and implementation of a National Housing Survey

As shown in Figure 5, the National Housing Survey will provide input to each State to enable it to plan for adequate and suitable housing stock to meet the different needs of the general population at strategic locations. The state and local councils would be required to monitor the quality and quantity of these new housing stocks and provide more information (input) for the next National Housing Survey.

4. Currently, there is data available to undertake a supply-side housing land and suitability model. However, the demand-side data is limited, hence the need to undertake a National Housing Survey. Both sets of demand and supply conditions could then be analysed to determine the need and policy appropriate at each state and district level.

The National Housing Survey will enable the development of various models with greater resolution and accuracy. This will provide information on the different solutions needed for each state. Among the possible outputs are:

- population forecasts
- housing demand range
- migration patterns
- household size by housing type
- social housing against social economic variables
- land suitability for different housing types

5. The National Housing Survey would be best undertaken by both the Federal Town and Country Planning Department (JPBD) and the National Housing Department (JPN).

6. CONCLUSIONS

Available evidence suggests that the provision of social housing for the majority of the population will exert unnecessary financial pressures on government spending. While the problem in Malaysia may not be as acute at the present moment, as Malaysia becomes more urbanized, the demand for affordable housing will only increase. Trends in Malaysia indicate that both the bottom 40% and middle 40% of income earners are likely to require social housing if the relevant interventions are not made urgently. We have to reform the supply-side for housing and strengthen market efficiency in the sector.

REFERENCES

- Abdul Rashid, K. [Kamaluddin]. (2009). Industrialised Building Systems: The JKR Perspectives. *Malaysian Construction Research Journal*, 4(1), 1–9.
- Bryman, A. (1996). *Quantity and Quality in Social Research*. London: Routledge.
- Chan, A.P.C., Yung, E.H.K., Lam, P.T.I., Tam, C.M. & Cheung, S.O. (2001). Application of Delphi method in selection of procurement systems for construction projects. *Construction Management and Economics*, 19, 699–718.
- Department of Statistic. (2015). *Household Income and Basic Amenities Survey Report 2014*. Putrajaya: Department of Statistics.
- Economic Planning Unit. (2015). *Eleventh Malaysia Plan 2016-2020: Anchoring Growth on People*. Retrieved from <http://rmkll.epu.gov.my/index.php/en/>
- Haron, N. A., Abdul Rahman, H., & Hanid, M. (2009). A Literature Review of the Advantages and Barriers to the Implementation of Industrialised Building System (IBS) in Construction Industry. *Malaysian Construction Research Journal*, 4(1), 10–14.
- Haron, N.A., Hassim, S., Abd. Kadir, M. R., Jaafar, M. S. (2005). Building Cost Comparison between Conventional and Formwork System. *Jurnal Teknologi*, 43(B), 1–11.
- National Property Information Centre. (various years). *Annual Property Market Report*. Retrieved from <http://napic.jpph.gov.my/portal/web/guest/publication>
- National Property Information Centre. (2015). *Property Market Status Report, 2015*. Retrieved from <http://napic.jpph.gov.my/portal/web/guest/publication>