



Low-cost housing leakages in Malaysia: the unexplored dimension

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ABSTRACT

Over the years, the Malaysian Government and private housing developers have been providing low-cost housing (LCH) yet the demand-supply gap is on the increase. Hence, this paper investigates the LCH leakages in Malaysia in an unexplored dimension. This was done sequentially, first, findings from the qualitatively explored phase was further tested and analysed via a questionnaire survey. The “quantised findings” were validated by the Malaysian LCH policymakers. Findings confirm a severe shortage of LCH. The study found under-declared income by house-buyers (frequent in states with lax enforcement), auction of LCH in open bidding, sales of LCH within the moratorium period by house owners for profiteering among others as the root causes of LCH leakage. The paper concludes that the government should engrave the land title deed such that only low-income earners (LIEs) are eligible to possess LCH. Second, implement the cumulative ruling (construction of LCH by a developer not based on the conventional but reach an agreed threshold target irrespective of the numbers of projects) for LCH provision. Also, states should set-up joint task force that comprises of land, planning, and housing department to monitor and ensure compliance, among others, were recommended.

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Introduction

Provision of housing for the masses is a social responsibility, thus, housing the masses is an agenda for nations all over the world. This is one of the reasons Abraham H. Maslow (1908–1970), one of the founders of humanistic psychology, opines that shelter is categorised under physiological needs in the pyramid of needs. Food first, followed by the shelter in that first category of need (Maslow, 1943). The United Nations (UN) Habitat 11 (1996), Jeevan and Michael (2016), Abdul-Aziz, Tah, Olanrewaju, and Ahmed (2017), Ebekozién, Abdul-Aziz, and Jaafar (2017) corroborate the submission of Maslow that the right to housing as a basic need cannot be overemphasised. However, UN-Habitat (2011) reports that the estimated one billion of the world’s population currently live in uninhabitable homes. The worst hit is the low-income earners (LIEs) are high in the developing countries. In Malaysia, past and present governments have attempted to address this issue of insufficient housing for the LIEs. Sallah and Meng (1997), Sulaiman, Baldry, and Ruddock (2005), Hamzah and Murphy (2014), Ebekozién et al. (2017) report that

beginning from 1982, during the fourth Malaysia Plan (MP) the government co-opted housing developers in the provision of low-cost housing (LCH), yet indication of LCH shortage abounds from scholars (Abdul-Aziz et al., 2017; Bahare, 2017; Hamzah & Murphy, 2014; Shuid, 2016) and news media (Alan, 2017; Yee, 2017).

Several scholars have researched on LCH in Malaysia with a view to suggesting feasible panacea to bridging the demand-supply gap but none from the possible leakage perspective. For example, Tan (2008) worked on homeownership; Asek (2007), Ubale, Martin, and Wee (2012), Abdullahi (2013), Bakhtyar, Zaharim, Sopian, and Moghimi (2013), Samad, Zainon, Rahim, Lou, and Karim (2016), Shuid (2016), and Bahare (2017) worked on LCH policy. While Sufian and Mohamad (2009), Goh and Ahmad (2011), Hamzah and Murphy (2014), Salleh and Okinono (2016), and Jzen and Chim (2016) researched on construction and development cost-related area; and Sufian and Ibrahim (2011), Tan (2012), Abdul-Aziz et al. (2017) worked on distribution channels and related areas. Although the government and private housing developers have been involved in the construction of LCH since 1982 as earlier discussed but the effect of these policies and efforts by the parties is yet to bridge the LCH housing demand-supply gap (Abdul-Aziz et al., 2017). This is an indication of possible leakage of LCH within the system. This paper addresses this issue based on the following research questions. Is there any leakage before the completion of the construction of LCH? What this implies is that, are there cunning housing developers who attempt to avoid the construction of LCH? Is there any leakage after completion to non-eligible owners? This is possible as evidence in news media indicates that political influence could affect the allocation of LCH to political supporters irrespective of eligibility of the supporters and disregards for the eligible waiting list. Is there leakage to second-hand buyers? This can happen during moratorium or after the moratorium. This is possible via auction due to default to the creditor (bank) or divorce. For the purpose of this paper, LCH leakage is an act that enhances or causes the LCH units to end up in the hands of non-eligible persons or non-construction of LCH by housing developers. Hence, the need to investigate LCH leakages using the sequential exploratory mixed methods (MM) approach with emphasis on the quantitative phase is the purpose of this paper. The aim of this paper will be achieved through the following objectives:

- (i) To examine the root causes of LCH leakages in Malaysia.
- (ii) To suggest feasible solutions to mitigate each cause of LCH leakages.

Literature review

A LCH for the purpose of this paper has three components, they are selling price not exceed RM42,000 (Ministry of Housing Local Government (MHLG), 1998; Asek, 2007; Goh and Ahmad, 2011; Ebekoziens et al., 2017); household maximum income of LIEs not exceed RM2,500 to be qualified for LCH (Abdul-Aziz et al., 2017; MHLG, 1998); and LCH size is minimum of 678 square feet in line with the new guideline as amended in 2002 (Goh & Ahmad, 2011; Ministry of Urban Wellbeing, Housing and Local Government (MUWH&LG), 2013). LCH is also known as “affordable housing Type A.” Abdul-Aziz et al. (2017) affirm that the states were tasked to implement the programme with funding not enough from a federal source. This is one of the reasons some

States Economic Development Corporation (SEDC) decided to venture into profit-making housing construction as against provision of LCH. This has been a long-time encumbrance faced at the state level, most especially the financially disadvantaged states.

Bank Negara Malaysia's (BNM) Annual Report (2015) asserts that the gap between the housing stock and the households widened to 2.5 million units in 2015 from 2.1 million units in 2005. Hamzah and Murphy (2014) affirm that at 2010 (9th MP), the LCH gap was 561,919 units; according to the authors, the total planned and built LCH was 1,509,410 and 947,491, respectively. Shortage of LCH is already a source of concern among Malaysians (Yee, 2017). Several studies (Abdul-Aziz et al., 2017; Jzen & Chim, 2016; Sufian & Ibrahim, 2011; Sufian & Mohamad, 2009; Tan, 2011; Bahare, 2017) in Malaysia shows a severe shortage in supply of LCH. BNM Annual Report (2015) avers an average shortage of 85,911 housing per year between 2011 and 2015 while Hamzah and Murphy (2014) report LCH shortage of 561,919 units as of 2010. The Sultan Ibrahim Ibui Almarhum Sultan Iskandar of Johor is apprehensive about the dearth of affordable housing in the state and the country at large. The Sultan pleads with the housing developers and governments to find a workable solution that would result in a win-win situation for all (Yee, 2017). This is because the possibility of meeting the future projection of 240,000 units in the 11th Malaysia Plan (MP) (2016–2020) can only be achieved if only the major stakeholders cooperate to do the needful (11th MP, 2016). While Alan (2017) avers that Malaysia is in need of 3.3 million houses in addition to the existing 5.3 million. This is to accommodate an estimated population of 32.92 million by the year 2019 (Statisita, 2018).

Malaysian Governments over the years have rolled out various LCH programmes and policies, yet there seem to be increasing LCH demand-supply gap. Many factors would have contributed to the increase in the LCH demand-supply gap, from population increase to inability to access house-loan to purchase home. Records show that from 1960 to 1970, the population of Malaysia increase with 27% from 8.2 million to 10.4 million, from 1980 to 1991, 34% increase from 13.7 million to 18.4 million, while from 2010 to 2016, 12% increase from 28.3 million to 31.7 million (Department of Statistics Malaysia, 2017). The increase in population was not reflected in the various 5-year MP for LCH provision as available records show that from the 2nd MP (1971–1975) to 10th MP (2011–2015), the gap between the actual and planned is large. For example, in the 10th MP, planned LCH was 158,000 units but actual was 44,973 units (11th MP, 2016). Many factors can be attributed to the planned and actual LCH gap. This paper would be addressing one of the factors, that is, "LCH leakages." Sufian and Mohamad (2009) aver allegation of leakage of LCH to non-eligible persons but was mentioned inexpressive. LCH leakages as earlier explained is when LCH units end up in the hands of non-eligible persons or non-construction of LCH by the housing developers. News Straits Times (2014) identified sales (within the moratorium period) or rental by house owners, and Abdul-Aziz et al. (2017) identified non-construction of LCH by housing developers. FMT News (2016) identified under-declaration of income by house-buyers but impassive, and auction within the moratorium, while Sufian and Ibrahim (2011) identified political party members patronage but impassive. Shuuld (2008) and Nadeswaran, Fernandex, and Phang (2010) claim that some unethical state government officials are involved in the allocation of LCH to themselves. Kaur (2017) claims that governments (state and federal) are directly involved by the diversion of LCH budget and fund for other tasks while the state government is involved in the allocation of LCH to ineligible persons. These issues

(LCH leakages) contribute significantly to the increase in LCH demand-supply gap in Malaysia. Hence, the need for this study is to investigate the LCH demand-supply gap from the possible leakage perspective. Apart from proffering panaceas to address the problem, the study would generate empirical evidence to show that LCH leakage has done damage to both governments and sincere housing developers' effort over these years, hence, the need for this study is to proffer panaceas that would mitigate LCH leakages in the Malaysian LCH sector.

Figure 1 presents the proposed conceptual framework of this paper. The essence is to investigate the root causes of the LCH leakages that have enhanced the demand-supply gap via sequential exploratory mixed methods and proffer multifaceted solutions to mitigate the emerged root causes so that low-income house-buyers can gain access to homes in Malaysia. It is obvious that one of the theories supporting this framework is the Machiavellianism Theory. Kessler et al. (2010) assert that Machiavellianism leaders are persons whose action is geared towards self-interest. This was displayed in this present study, cunning housing developers not wanting to construct LCH (Abdul-Aziz et al., 2017), LIEs selling their LCH for profiteering within the moratorium (News Straits Times, 2014), some state government housing department officials allocate LCH to themselves even when they are not LIEs (Nadeswaran et al., 2010) among others. Also supported in this framework (Figure 1) is the Institutional Theory (IT). Scott (2005) reports that IT deals with how regulatory framework is formulated, implemented to ensure compliance. This theory is anchored on accountability, transparency, fairness, and equity. All these can only be achieved when successful compliance is obeyed. Application of IT would mitigate LCH leakage to the minimal in Malaysia. The independent variable is the root causes of the LCH leakages while the dependent variable is the LCH demand-supply gap. The following section presents the methodology adopted for this paper.

Research method

This research adopted a sequential exploratory mixed method (MM) approach. It was stirred by the aspiration to better understand LCH leakages in Malaysia, hence the need for this pragmatic world view. Creswell (2014) affirms that pragmatic world view emerges out of actions, situations and consequences rather than predecessor circumstances. This

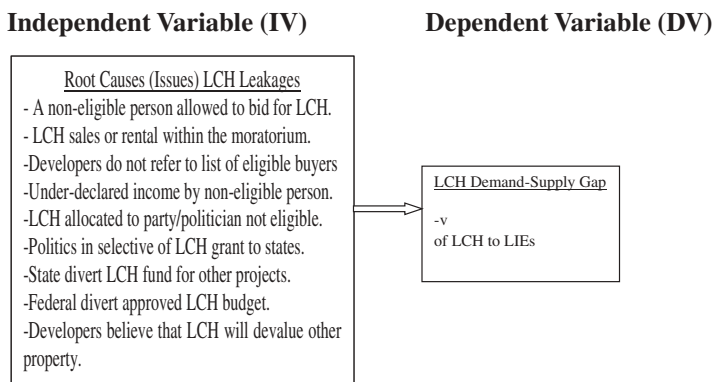


Figure 1. Conceptual framework of the root causes of LCH leakages in Malaysia.

approach is characterised by an initial phase of qualitative data collection and analysis, sequentially followed by postal questionnaire survey. The quantitative findings were used to confirm and clarify the qualitative data findings, and also to seek amplification, with the aim of increasing generalisability of the findings. Many scholars, for example, Abdul-Aziz and Kassim (2011), Abdullahi (2013), Ali (2011), Khalid (2010), Tan (2012) on Malaysian housing matters preferred explanatory sequentially MM approach. This is a mixed research between the extremes Plato (quantitative) and the Sophists (qualitative). Johnson, Onwuegbuzie, and Turner (2007), Creswell (2014) believe that attempting to join the wisdom of both viewpoints would assist the researcher to address any problems of interest, hence adopted in this paper. The methodological preference for this present study was qualitatively dominant because this is a real-life problem that demands pragmatic solutions (Yeasman & Rahman, 2012). The findings of this study were validated by the Malaysian LCH policymakers (Ministry of Urban Wellbeing, Housing and Local Government) during the discussion session and presentation of findings to the ministry's top five management staff, chaired by the Director-General, represented by the Deputy Director-General.

For the qualitative phase, phenomenology, a type of qualitative research designs was adopted. This is because it focuses on the experience of the central phenomenon, collected data from participants who have the experience of the subject matter and analysed the meaning via describing themes about the essence of the experience (Plano-Clark & Creswell, 2015). The oral interview was based on past literature, a pilot oral interview test, and the researchers' experience. A total of 40 oral interviews were conducted between May 2017 and November 2017 in eight states/federal territories. The study participants were housing developers, state government housing department staff, bankers, property managers and estate agents, auctioneers, house-owners and tenants across the states covered. In total, 40 oral interviews were conducted because of the need to cut across the broad spectrum, achieve saturation and validation of findings that emerged during the oral interviews. Purposive sampling technique was adopted. Thematic analysis, a method for identifying, analysing and reporting themes within data was adopted (Stysko-Kunkowska, 2014). From the 120 codes generated, 22 categories emerged and produced three themes (LCH scenario, root causes and possible solutions).

The qualitative findings were used to generate variables and instruments (Creswell, 2014). Survey research design was adopted for the quantitative phase because it focuses on describing patterns in a larger group of respondents rather than relating constructs or testing an intervention (Plano-Clark & Creswell, 2015). The study populations were housing developers, state government housing department staff, bankers, property managers and estate agents and auctioneers across the country. The distributed questionnaires were based on qualitative findings and pilot test. A sample size of 361 was derived from the sample size by adopting the Krejcie and Morgan's (1970) Thumb Rule of the Table in selecting sample size in relation to a given population. Sekaran and Bougie (2016) acknowledged Krejcie and Morgan's (1970) rule as one of the few leading authors in this regard. The study adopted disproportionate stratification, a type of stratified random probability sampling techniques (Davern, 2011). From the 361 questionnaires administered across the country via post office and Google Forms, 149 questionnaires were certified usable for the analysis as presented in Table 1. This represents 41.3% response rate (RR).

Table 1. Summary of background information on respondents.

Category	Classification	Frequency	%
Organisation	Housing Developers	34	22.8
	Government Housing Department Staff	18	12.1
	Bankers in Loan Section	32	21.5
	Estate Managers and Valuers	35	23.5
	Auctioneers	30	20.1
	Total		149
State/Territory	Kuala Lumpur	11	7.4
	Penang	15	10.1
	Johor	12	8.1
	Selangor	10	6.7
	Sarawak	8	5.4
	Perak	7	4.7
	Kelantan	9	6.0
	Kedah	9	6.0
	Sabah	9	6.0
	Malacca	9	6.0
	Pahang	9	6.0
	Terengganu	9	6.0
	Negari Sembilan	9	6.0
	Perlis	9	6.0
	Labuan	5	3.4
	Putrajaya	9	6.0
Total		149	100
Work experience	0–5 years	0	0
	6–10 years	8	5.4
	11–15 years	24	16.1
	16–20 years	36	24.2
	Above 20 years	81	54.4
	Total		149

This is considered adequate in line with Akintoye and Fitzgerald (2000) submission that 20–30% benchmarks with questionnaire surveys of the construction industry were considered adequate.

Data analyses were conducted using the Statistical Package for the Social Sciences (SPSS) (Version 22) for the issues and possible solutions, mainly with the ranking of the variables based on their mean values. There was a comparison of mean values for the groups and one-way analysis of variance (ANOVA) using post-hoc via the Tukey HSD test, while the relationship of the root causes and possible solutions of some variables were tested via Pearson correlation coefficient (Pallant, 2016). The reliability of the 5-point Likert scale measurement (Tables 3 and 4, respectively) was determined using Cronbach's alpha coefficient. The range of internal consistency results among the items on each factor was 0.612–0.745. This is considered adequate and higher than the meek reliability in the range 0.50–0.60 as suggested by Nunnally (1978) as sufficient for this type of study and confirmed by Akintoye and Fitzgerald (2000).

Results and discussion

Findings of the qualitative research that emerged from the oral interview were subjected to questionnaire survey. The respondents were presented with the issues (root causes) and possible solutions to LCH leakages in Malaysia that emerged from the oral interviews. This study “quantised” the qualitative findings obtained from the oral interviews (Tashakkori & Teddie, 1998). Table 2 presents the respondents' perception of LCH

Table 2. Respondents perception of LCH shortage severity.

S/N	Classification	Frequency	Percent	Rank
1	Very severe	14	9.4	2nd
2	Severe	108	72.5	1st
3	Undecided	14	9.4	2nd
4	Fairly severe	12	8.1	4th
5	Not severe	1	0.7	5th
	Total	149	100.0	

shortage severity in the country. Table 2 shows that at least 122 (81.9%) respondents agree that Malaysian LCH demand-supply gap is severe. While findings from the state government housing department participants show “very pressing” (S1), “quite serious” (S2), “very critical” (S3), “not that critical” (S4) yet have not less than 40,000 on the waiting eligible list. This finding validates the qualitative findings of the study, an indication of a mismatch between demand and supply of LCH. Hence, confirms the findings of BNM Annual Report (2015), Hamzah and Murphy (2014), Abdul-Aziz et al. (2017) that affordable housing shortage is severe in Malaysia.

Table 3 presents the root causes (issues) from the qualitative findings to explore and compare mean of the various sub-group levels of agreement in regards to LCH leakages. The results show an overall mean range of 4.38 to 3.20, an indication that most respondents agree with the findings from the oral interviews, with the exception of Q9 (3.20). For Q9, one should expect this because fund for public housing programmes comes from the federal government and a template for auditing is in place, erring states would definitely receive a sanction. From the nine major issues tested, under-declaration of income by a non-eligible person (Q1) was ranked high. Under-declared income is one of the contributions of this paper. This is a new concept and applies to countries that use minimum household income as one of the conditions to be eligible for LCH. In Malaysia, the maximum household income for one to be eligible for LCH is RM2,500. Many persons, a majority from the informal sector with household income above RM2,500, declare a household income of less than RM2,500 to make them eligible to possess the LCH. This type of leakage is rampant in states where lax registration system and weak eligibility clearance are in place, thus, some states are efficient whereas others are not. Under-declared income is easy in some states because all it needs is the local politicians to endorse that the income is low. And the state government does not do any checking thereafter. For example in State D, the state government issues certificates to the eligible persons without confirmation of household income via EPF and CCRIS (Participant S4). A few possible solutions came from the state with good LCH governance as discussed in the possible solutions section of this paper. Also emerged from this study with a paucity of literature from scholars is the “non-eligible person allowed to bid for LCH (Q5).” The study findings show that default to house-loan, divorces, unemployment, financial mismanagement are some of the reasons LCH enter the auction market and the increase in trend is common with low-cost high-rise units with few exceptions to landed property. The finding from the study shows that every LCH unit has been subsidised directly or indirectly, thus, should not go into the hands of those that would want to use them as a means of profiteering. NGO1 says “...allocation of LCH to a non-eligible person is an avenue or machine to make money...” Allowing auction of LCH to open bidding is anti-homeownership for the LIEs.



Table 3. Root cause (issues) of LCH leakages.

Code	Issues (Abridged)	Govt			Est.			F Stat.	Sig	Eta Squared	
		Overall	Developers	Staff	Bankers	Valuers	Auctioneers				S.D
Q1	Under-declared income by a non-eligible person	4.38	4.26	4.06	4.53	4.54	4.37	0.553	3.507	0.009	0.09
Q2	Non-construction of LCH by developers because it will devalue other property	4.32	4.32	4.17	4.31	4.29	4.43	0.605	0.573	0.683	0.02
Q3	LCH sales or rental within the moratorium to a non-eligible person	4.19	4.32	4.11	4.09	4.29	4.07	0.562	1.435	0.225	0.04
Q4	LCH allocated to party/politician not eligible	4.15	4.12	4.33	4.25	4.03	4.10	0.550	1.292	0.276	0.04
Q5	A non-eligible person allowed to bid for LCH	4.06	4.44	4.11	4.56	4.46	2.60	0.981	49.587	0.000	0.58
Q6	Federal government divert approved LCH budget	3.62	3.97	3.67	3.53	3.57	3.37	0.740	3.130	0.017	0.08
Q7	Politics in selective of LCH grant to states	3.59	3.88	3.56	3.50	3.63	3.33	0.735	2.509	0.044	0.07
Q8	Developers do not refer to list of eligible house-buyers	3.58	2.88	2.39	4.25	4.03	4.10	1.021	41.759	0.000	0.54
Q9	State government divert LCH fund for other projects	3.20	2.94	2.56	3.38	3.49	3.37	0.937	4.494	0.002	0.11

Reliability coefficient (Cronbach's alpha) = 0.745

The mean difference is significant at the 0.05 level.

Table 4. Possible solutions to mitigate LCH leakages.

Code	Possible solutions (Abridged)	Overall	Developers	Govt Staff	Bankers	Est. Valuers	Auctioneers	S.D	F Stat.	Sig	Eta Squared
Q12	Government/politicians need to separate politics from LCH	4.34	4.26	4.11	4.38	4.40	4.43	0.528	1.415	0.232	0.04
Q13	Second-hand buyer should be on the state registry list	4.32	4.29	4.22	4.38	4.34	4.30	0.571	0.240	0.915	0.01
Q14	There should be legal provision for eviction of defaulters	4.32	4.35	4.17	4.06	4.49	4.47	0.523	4.147	0.003	0.10
Q15	The developer involved in unethical act referred to Malaysia Anti-Corruption Commission (MACC)	4.30	4.26	4.28	4.25	4.34	4.33	0.500	0.221	0.926	0.01
Q16	Sellers of LCH should show evidence of another home	4.28	4.24	4.22	4.34	4.34	4.20	0.556	0.467	0.760	0.01
Q17	There should be a joint task force to ensure compliance	4.26	4.21	4.22	4.28	4.31	4.27	0.538	0.206	0.935	0.01
Q18	There should be strict enforcement by the state during eligibility of persons via CCRIS and ORS	4.20	4.03	4.22	4.16	4.26	4.37	0.626	1.291	0.276	0.03
Q19	LCH land title deed should be engraved for only LIEs	4.19	3.94	4.22	4.34	4.20	4.27	0.562	2.522	0.044	0.07
Q20	Construction of LCH should be concurrent with others	4.17	3.62	4.22	4.41	4.34	4.30	0.888	4.807	0.001	0.12
Q21	Buyers of LCH in auction should be from the registry list	4.11	4.35	4.28	4.50	4.40	3.00	4.11	24.396	0.000	0.40
Q22	The government should ensure cumulative ruling for developers to construct LCH	4.03	2.68	4.17	4.50	4.43	4.50	1.033	38.779	0.000	0.52

Reliability coefficient (Cronbach's alpha) = 0.612
 The mean difference is significant at the 0.05 level.

The study findings corroborate News Straits Times (2014) and Kaur's (2017) findings. The latter author reports how 2016 Auditor-General Report indicted Penang State Government, which was confirmed by the state that the allocation was to squatters but earns above RM2,500 household income per month. While the previous author alleged sales within moratorium period, an allegation confirmed in this study. Also, findings from this paper agree with Abdul-Aziz et al. (2017). The authors assert that developers do not want to construct LCH, while this study shows that one of the reasons is because the developers believe that LCH would devalue other property types in the same area. The LIEs are evaluated as low-status in the society and the perception that this category of persons is prone to crime and other unethical social activities cannot be over-emphasised. While Participant 7 says "... my developer's friend constructed 300 units of LCH in location AB in State XYZ. The people there were happy as they were keen to purchase the houses, earning about RM1,500 per month, yet not qualified to get the loans. In the end, the developer cried and so did the intended purchasers. ..." This study agrees with Nadeswaran et al. (2010) because the authors' findings show that government officials from Petaling Jaya City Council allocated LCH to themselves. While findings from this paper show that some state government housing department officials are "... fantastically unethical for self-interest..." (Participant 5). This set of state government housing department staffers are kleptocrats. Similarly, Participant 10 says "... some government officials in State C own some of the LCH units rented out to foreigners. ...go everywhere in State C, you will see Filipinos staying in government LCH, are Filipinos now Malaysians?" State C government officials denied the allegation (Participant S3)

The post hoc using the Tukey HSD test indicates that Q8 mean score for housing developers, and government housing department staff are significantly different from the bankers, valuers and auctioneers. We can see that the housing developers and government housing department staff with a low mean score (Q8) indicates that their level of agreement to the variable is negative but ranked the possible solutions to the particular variable high. The question is, "... why the high rank of possible solutions to a problem if such a problem does not exist as alleged?" This is a defensive mechanism approach because findings show the absence of a functional and updated register in the majority of the states covered. This is pronounced in lax LCH policy states. Also, for Q5, mean score for auctioneers is significantly different from housing developers, government housing department staff, bankers and valuers. The findings (Q5) show that the auctioneers disagree with the finding from the oral interview that auctioning of LCH to the general public should not be seen as one of the root causes of LCH leakages since it is within the law of the land as today except otherwise in future. From the findings, Participants (A2 and A3) suggest that the state government housing department official should ensure proper verification before issuing a letter of consent to the highest bidder. While the other sub-groups agree that auctioning of LCH in an auction market to non-eligible LIEs is a form of leakage. This is because, for every one unit of LCH, someone somewhere has paid the price of subsidy. For Q9, the mean score for government housing department staff is significantly different from the bankers, valuers and auctioneers. The finding (Q9) indicates that majority of the respondents who were government housing department staff disagree that state government divert fund meant for LCH to other projects in the state but strongly agree that the federal government is selective in the disbursement of LCH fund, and same time divert approved LCH project meant for the states for other purposes.

Table 4 presents the 11 possible solutions from the qualitative findings and compare mean of the various sub-group levels of agreement in regards to LCH leakages. A few possible solutions came from the state with good LCH governance, for example, joint task force, evidence of homes before sales of LCH, second-hand house-buyers should be from eligible waiting list among others. The results show an overall mean range of 4.34 to 4.03, an indication that most respondents agree with the findings of the oral interviews. From the 11 possible solutions tested, new contributions that emerged with a paucity of literature from scholars to the best knowledge of this paper are the cumulative ruling, engraved on land titled deed, joint task force, evidence of another home before consenting of transfer approval among others. This significantly contributes to the body of knowledge, both practically and theoretically. The cumulative ruling is a term used to describe a process whereby construction of LCH by housing developers is not based on per project but once the developer reaches the target threshold, irrespective of the number of projects, will have to construct LCH. Presently, the construction of LCH by housing developers is based on per project. This has enhanced project-splitting for cunning developers, for example, a developer (participant) for over 30 years have not constructed LCH because of project-splitting yet successful in the industry. Another unique contribution that emerged from this paper is the land title deed to be engraved such that only LIEs are eligible to possess LCH. This will mitigate many sources of leakage, for example, leakage via auction, and one would be confident that every transaction in LCH would be for only eligible persons, whether within or after moratorium period. Third, the joint task force is a concept that emerged and already in practice in one of the states, yet to be explored by scholars, thus, a novelty to this paper. This is a task force comprises of land office, planning office and state government housing department office that monitors and ensures compliance. This would checkmate housing developers who want to be smarter than the state policy on concurrent development to be checked at the early stage, among other functions.

Also, findings from this paper have activated the importance of the list of eligible house-buyers as findings show that second-hand house-buyers and buyers of LCH in the auction should be from the registry list. While seller of LCH should be ready to show evidence of another home before approval can be granted. The existing literature lacked these findings, thus, these are some of the new contributions to the body of knowledge. The finding of this paper agrees with Sufian and Ibrahim's (2011) suggestion that politicians should stay away from LCH allocation matters to enable rightful applicants to have access to them is confirmed in this study. Also, this study finding agrees with Abdul-Aziz et al.'s (2017) findings on the concurrent construction of LCH and eligibility clearance via CCRIS from the ORS. The post hoc using the Tukey HSD test indicates that Q19 mean score for housing developers is significantly different from the bankers. The Q14 mean score for bankers is significantly different from valuers, and auctioneers. Furthermore, Q20 mean score for housing developers is significantly different from bankers, valuers and auctioneers. This finding (Q20) indicates that the housing developers are sceptical of the proposed possible solution of "concurrent construction," due to the funding capability to float the LCH concurrent with other building projects, hence, the resultant effect is to disagree with that particular possible solution. Also, Q21 mean score for auctioneers is significantly different from housing developers, government housing department staff, bankers and valuers. The finding (Q21) shows that the majority of the auctioneers disagree with the proposed possible solution that says "... house-buyers of LCH in auction market should be from the waiting eligible list..." but cheerfully

ranked warmly by majority of the respondents across the board, hence hit an overall mean of 4.11, an indication that auctioneers responses is more of personal interest.

Table 5 presents the feasible solutions to mitigate each cause of LCH leakages. This is derived from Table 3 and Table 4, respectively. The possible solutions are italic and highlighted in bold under each cause of the LCH leakages. This paper has succeeded to articulate possible panaceas to each root cause (issue) that causes LCH leakage either before, during or after construction stage of the LCH delivery process. Nine root causes (Q1–Q9) emerged from the oral interviews and were subjected to the questionnaire survey as previously discussed. The findings from this unexplored approach would add to the body of existing knowledge in Malaysian housing sector most especially the LCH sector.

Table 6 presents the Pearson correlation coefficient associated with the issues (root cause) and possible solutions. Table 6 indicates correlations are positive from 0.309 to 0.735 in strength and statistically significant at $p < 0.01$. Based on Cohen's rule (Cohen, 1988, p. 284–287), it classifies 0.01 as a small effect, 0.06 as a medium effect, above 0.14 as a large effect, this was adopted for this paper. Thus, Q5 and Q21 belong to large “r” while Q2 and Q18, Q3 and Q19, and Q1 and Q21 belong to medium “r.” This shows that the suggested possible solutions would be able to address the issues that emerged.

Conclusion and recommendation

The study found that LCH leakage is one of the variables enhancing the Malaysian LCH demand-supply gap. This has significantly reduced the positive impact of government and private housing developers on LCH delivery that ought to have alleviated paucity of shelters over the years. The present study identified the root causes and multifaceted

Table 5. Feasible solutions to mitigate each cause of LCH leakages.

Code	Issues and <i>Possible Solutions</i>
Q1	Under-declared income by a non-eligible person <i>There should be strict enforcement by the state during eligibility of persons via CCRIS and ORS</i> <i>There should be legal provision for eviction of defaulters</i>
Q2	Non-construction of LCH by developers because it will devalue other property <i>The government should ensure cumulative ruling for developers to construct LCH</i> <i>The developer involved in unethical act referred to Malaysia Anti-Corruption Commission</i> <i>There should be a joint task force to ensure compliance</i> <i>Construction of LCH should be concurrent with others</i>
Q3	LCH sales or rental within the moratorium to a non-eligible person <i>There should be legal provision for eviction of defaulters</i> <i>Second-hand buyer should be on the state registry list</i> <i>Sellers of LCH should show evidence of another home</i> <i>LCH land title deed should be engraved for only LIEs</i>
Q4	LCH allocated to party/politician not eligible <i>There should be strict enforcement by the state during eligibility of persons via CCRIS and ORS</i>
Q5	A non-eligible person allowed to bid for LCH <i>Buyers of LCH in the auction should be from the registry list</i> <i>LCH land title deed should be engraved for only LIEs</i>
Q6	Federal government divert approved LCH budget <i>Government/politicians need to separate politics from LCH</i>
Q7	Politics in selective of LCH grant to states <i>Government/politicians need to separate politics from LCH</i>
Q8	Developers do not refer to list of eligible house-buyers <i>There should be strict enforcement by the state during eligibility of persons via CCRIS and ORS</i> <i>There should be a joint task force to ensure compliance</i>
Q9	State government divert LCH fund for other projects <i>Government/politicians need to separate politics from LCH</i>

Table 6. Correlation coefficients associated with the issues and possible solutions.

Code	Relationship	Pearson Correlation	Sig	N
5 & 21	There is a significant relationship between a non-eligible person allowed to bid for LCH and buyers of LCH in auction should be from the registry list.	0.735**	0.000	149
2 & 18	There is a significant relationship between the non-construction of LCH by housing developers because it will devalue other property and strict enforcement by the state during eligibility of persons via CCRIS and ORS.	0.349**	0.000	149
3 & 19	There is a significant relationship between LCH sales or rental within the moratorium to a non-eligible person and LCH land title deed should be engraved for only LIEs.	0.317**	0.000	149
1 & 21	There is a significant relationship between under-declaration of income by a non-eligible person and buyers of LCH in auction should be from the registry list.	0.309**	0.000	149

pragmatic ways to mitigate these issues. The “quantitised” findings were validated by the Malaysian LCH policymakers. The study shows that the under-declared income by a non-eligible person and non-eligible person allowed to bid for LCH are among the new causes that scholars have not discussed in Malaysia. While cumulative ruling, joint task force, engraved on LCH land title deed among others are some of the possible solutions proffer that emerged from this present paper with a paucity of literature in the past.

The findings of the present study have pragmatic significance. Therefore, the paper concludes that the land titled deed should be engraved for LIEs only. This is to prevent speculator using LCH for profiteering. The government should commence the enforcement of cumulative ruling for LCH provision by housing developers on any residential project irrespective of the units/acres as against the conventional per project. This would mitigate project-splitting by cunning housing developers. Also, states should set-up a joint task force to monitor and ensure compliance and report back to the executive every month/quarter-year. The state governments should maintain functional open registration system and a yearly update of the system. Also, the state governments should ensure that central credit reference information system (CCRIS) check is included in the eligibility clearance of the house-buyer at the state level.

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