

The Problem of Unsold Units and Elderly Housing Management: Applying the Japanese Experience to Thailand

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Abstract

The market mechanism is not functioning well for low-cost public housing; therefore, a government housing intervention policy is needed in order to solve the problem of unsold units and create a sustainable society. The possible policy for solving the existing problem of unsold units and enhancing effective elderly housing management consists of improving the transportation system, and creating a good social environment and security system. In addition, the government should offer to sell or rent houses to elderly households. The government should allocate the first and second floor of buildings for elderly households. However, the rental and purchase rates should vary depending on the conditions of elderly households, housing size, facilities and services. Moreover, providing home remodeling and Reverse Mortgage loan will help elderly households who are asset rich and cash poor.

Keywords: housing, elderly, planning policy

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1. Introduction

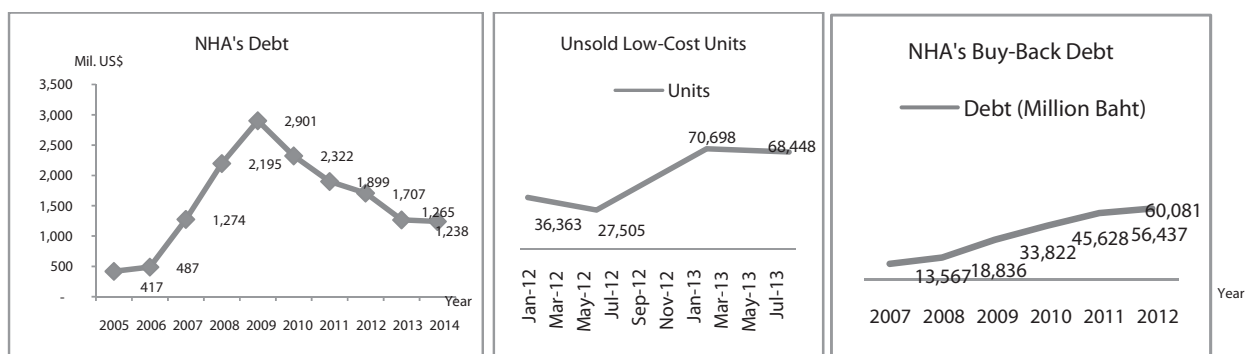
1.1 Unsold units and the fiscal problem

Housing is one of the most essential inputs to national development. It creates opportunities in economic, social, political, and civic development. Residential construction stimulates the economy not only directly by generating jobs, wages, and tax revenues, but also indirectly through increasing demand for goods and services and reducing poverty.

The National Housing Authority (NHA) operated by the Thai government subsidizes low-cost housing projects for low-income households called “Baan Eur Artorn (BEA)” since 2003. NHA offers only a purchase option, which means people cannot rent BEA. The selling price is around 390,000 Baht (US\$ 13,000) per unit. The government refuses to reduce the price of BEA because the

selling price is already subsidized by around 80,000 Baht (US\$ 2,700) per unit.

According to the NHA’s strategic plan for 2012–2016, the body plans to build 100,000 low-cost houses and sell around 97% to low-income households. NHA keeps building low-cost houses while many units are still unsold, so the stock of unsold units continues growing. Low-income households still need houses, but the low-cost public houses do not meet their expectation in terms of location, access to the transportation system, and affordability. In addition, unstable financial status is the main problem for low-income households repayment default. Moreover, NHA has to buy some of the sold units back because buyer’s repayment default amounts to around 500 units per month (NHA, 2013). Therefore, it causes a huge fiscal cost (Figure 1).



Source: Public Debt Management Office, 2014 and NHA’s annual report 2007–2012

Figure 1 NHA’s Debt, Unsold Low-Cost Units and Buy-Back Debt

1.2 Ageing and Housing

The speed of ageing is increasing rapidly and it takes only a short time to become an aged society. In Asia, Japan became an ageing society¹ in 1970 and an aged society in 1995, taking approximately 25 years to move from an ageing to aged society. Hong Kong became an ageing society in 1982, Taipei in 1992 and Singapore, Korea, China and Thailand in early 2000. In 2010, 23% of people in Japan were aged 65 or over and 8.9% in Thailand. Most of the Asian countries will take around 20–25 years to reach aged society, that is, at a faster rate than Japan. Ageing transition will become a serious situation in the future.

Many developed countries such as Japan face the problem of elderly housing. Japan became an ageing society in 1970, but the Japanese government initiated a response to the increasing needs of the aged in housing in 1986. During that time, Japan faced the serious problem of having to provide buildings and dwellings that would be suitable for use by elderly people in a very short time (Satoshi, 1997). Eventually, the Japanese government overcomes this problem with less of a budget. How did the Japanese government overcome the elderly housing problem and take care of elderly households?

The change of demography impacts the socio-economic system, economic

growth, well-being and fiscal development. The swing or cycle in the population leads to the swing in housing (Campbell et al., 1993). These days, the single population and nuclear families are increasing. Moreover, the life expectancy of Thai people will increase from 74 years in 2012 to 78 years in 2025. Hence, the study of housing for the elderly is important for Thailand, not only to prepare before the population reaches old age, but also to take care of the elderly today, although currently, elderly housing is not a serious issue for Thai society. Therefore, to reduce unsold units, fiscal costs and create an effective elderly housing management system, it is necessary for Thailand to learn elderly housing development and management policy from the Japanese experience, which has a long history of development and successful management, although the respective countries have economic and social status differences. Additional details will be explained in the fourth section.

According to a Thai survey in 2007 of elderly households, 21% of the people age 60 and over said their income was insufficient and 28% said they were not satisfied with their financial situation. The main income source came from their children and tends to decrease because of a decline in economic activity or fewer children (John E. K. et al., 2011).

¹ “Ageing society” is where the share of the people age 60 and over become over 7% of the total population, and an “aged society” is one with over 14%.

How can elderly households help to solve the problem of existing unsold units? What kind of elderly housing policy should be implemented to create sustainable housing development? The objectives of this study are to (1) identify the factors affecting elderly households' housing decisions; (2) compare and analyze Thailand's elderly housing policy with Japan's; (3) solve the problem of unsold units; and (4) recommend a housing option for elderly households. The assumption of the study is elderly households can help to solve the problem of unsold units.

The next part is a literature review of market failure, the decision for government intervention in housing, elderly housing and home ownership. The third section shows the data and methodology. The fourth section shows results of housing decisions and policy comparison. The final section presents the conclusion and policy implications.

2. Literature review

There is little research focused on elderly housing policy management in Thailand because it is a newly ageing society. It became an ageing society in 2005 and is in the beginning stage. According to Thai society, children are encouraged to take care of their elderly parents and other relatives. However, the situation is now changing. The nuclear or single family is becoming more important while the extended family is declining. In addition, people delay marrying and

the average children per family are less than two. Therefore, the average household size decreased gradually from 5.6 people in 1960 to 3.2 people in 2010 (National Statistics Office, 2012).

2.1 Market failure and government intervention

The concept of perfect market allocation of resources came from Baumol & Oates (1988). They believed that economic models relied upon the concept of the invisible hand first discussed by Adam Smith. In these models, the perfectly competitive economy was able to allocate resources efficiently, without the need for market intervention by outside agents, including governments. If the marketplace was to function efficiently, several conditions needed to exist, for instance, freedom of choice and certainty of demand. In addition to these prerequisites, the perfect market required perfect consumer and supplier information, no rent seeking behavior and no moral hazard. If these conditions were not met, market mechanisms would fail to produce the efficient allocation of resources.

Groenewegen et al. (1990) argued that governments intervened in the marketplace, with the public sector being engaged in providing services (and in some cases goods) whose scope and varieties are determined not by the direct wishes of the consumers, but by the decisions of government bodies. This view implies that governments intervene for many

reasons, including redistribution and stabilization functions. While market failure is one reason for intervention, other considerations, including questions of equity and social justice, determine the nature and the extent of government intervention. In addition, he argued that a distinction needed to be made between the public provision and the public production of goods, if government intervention in the economy is to be understood. Goods may be produced in the public sector and sold in the market place, while privately produced goods may be provided by the public sector.

Groenewegen argued that why some goods were supplied by the private sector and others by the public sector was a complex issue whose answer was not solely determined by political imperatives. One of the primary reasons for government intervention was the absence of the perfect market for many socially important groups.

J. S. Thomas et al. (2002) said that governmental support for social and public housing will always have an important influence on the credit quality of the social housing sector. Nevertheless, the level and type of government support varies over time and from country to country with some social housing providers benefiting much more than others.

Furthermore, economists such as Milton Friedman from the Chicago school and others from the Public Choice school argued that government should not necessarily attempt to solve market failures, because the costs of government failure might be worse than those of the market failure it attempts to fix. Rosen (2002) supported the position that government subsidizing the housing supply by building houses or rooms and lending at lower than the market price may create high costs and sometimes has more cost than benefit.

2.2 Housing decision

According to the literature survey, buying and renting have pros and cons, as summarized in Table 1. However, housing decision depends on each household's characteristics, economic situation, and future expectations.

There are many studies focusing on housing decision, but they do not separate renting or buying decisions or age level. The results showed that location, transportation, environment and income are important for housing decision as summarized and presented in Table 2. Beamish & Johnson (1994) found elderly households make housing decisions based on awareness, interest, evaluation, and adoption.

Table 1
Pros and Cons of renting and buying house

Items	Renting		Buying	
	Pros	Cons	Pros	Cons
1) Price	Fixed price	-	-	Fluctuating price
2) Equity	-	No equity build up	Equity build up	Fluctuating equity
3) Movement	Move easily	-	-	Difficult and complicated
4) Maintenance	Less payment	-	-	Large payment
5) Up-front cash	Small	-	-	Large down payment
6) Fix payment	-	Fluctuating payment	Fixed payment	-
7) Remodel	-	Cannot	Can	-
8) Right	-	No selling right	Selling right	-
9) Tax advantage	-	No tax advantage	Gain tax advantage	-
10) Ownership	-	No	Yes	-
11) Community	-	Less community relationship	Close community relationship	-

Source: Author's compilation, 2014

Table 2
Housing decision

Factors	Authors	Results
1. Location	Cupchik et al. (2003) and Danke et al. (1990)	Buying decision
	Kauko (2007)	Factors determining of the success or failure of housing development project
	Wachs et al. (1993) and Kevine (1998)	Housing decision making
2. Transportation	Wand and Li (2000)	The most important factors for housing decision
3. Environment	Dokmeci et al. (1996)	Every income group decided to live close to relatives, clean place and quiet neighborhood
4. Income	Al-Momani (2003)	Housing space, good neighborhood
	Thailand Development and Research Institute (2009)	Permanent household's income and household head's age have a positive effect on buying decision.

Source: Author's summarization, 2014

2.3 Elderly housing

In advanced countries, around 80% of elderly people live in urban areas. By 2050, approximately a quarter of the urban population in less developed countries is expected to be over 60 years old (UNFPA, 2007). The aged population is increasing rapidly in terms of number and percentage in Thai society in accordance with the lowering of population increase rate and death ratio. The Thai government accordingly has started to carry out a campaign on family planning to increase the birth rate and to pay more attention to protecting the rights of the aged population and enhance their welfare.

With this policy, the Thai government established laws and regulations regarding building facilities to cater for disabled and aged people. The regulation includes design standards and regulations such as ramps, lifts, doors and toilets. Meanwhile, guidelines of universal design for aged, disabled, children and pregnant woman were developed in 2009, which set out the policy and direction of urban design, architectural design, interior design and landscape architecture in the future. Based on the guidelines, the government is now considering the implementation of a universal design concept to both new and existing buildings. The necessary step toward implementation of universal design would be to develop a prototype house using the universal design concept (NHA, 2013).

Traditional practice in Thai society has been for children to look after elderly parents in their family house. A large number of elderly Thai households are not prepared to live separately from their children in old age. Therefore, they are not prepared to face the hardship of housing maintenance and repair of their deteriorating older houses. Elderly Thai households need assistance in planning for life after retirement and coping with housing problems.

Most elderly Thai people stay in two-story detached houses which are not appropriate for their daily life. Elderly people have physical problems, for instance, they have more difficulty moving things and climbing stairs. Moreover, falling is the main problem that the elderly face. In addition, Buasri et al. (2005) conducted research on innovative retirement housing in Thailand by interviewing pre-retirees from universities in Bangkok and Chonburi. The result showed that the universal designed single family detached house was the most acceptable, followed by continuing care retirement housing.

2.4 Home ownership

Most developed and developing countries encourage home ownership. For instance, as of 2012, the Korean home ownership rate was more than 50% while Japan was 61%, Singapore 71%, and Thailand 80% (World Bank, 2012). Home ownership is a source of happiness and important for

a country's development because it can be used for a family's living security, as asset accumulation, loan collateral and inheritance for the following generation (Roberts, 2012).

Thai people wish to buy a house before getting old. Having their own house, especially a detached house, is a source of

happiness and demonstrates their well-being and status. Because of the uncertainty of economic growth, many people work in urban areas and search for better salaries. Therefore, people postpone buying houses, so the home ownership rate in the city decreases (Table 3).

Table 3
Home ownership by region

	1990	2000	2010
Household (%)			
1. Bangkok	61	56	50
2. Vicinity	78	63	59
3. Central (exclude 1 and 2)	87	80	74
4. North	93	90	88
5. Northeast	94	93	92
6. South	87	82	83
Whole Kingdom	87	82	77

Source: National Statistics Office, Thailand (1990, 2000 and 2010)

The uniqueness of this study is, first, considering both elderly renters and buyers in order to identify the factors influencing housing decision. Second, it compares elderly housing policy for solving the issue of unsold units. The results of the study will have benefits for reducing the budget deficit and enhancing the well-being of elderly households.

3. Methodology and data

To complete the analysis, it was necessary to collect secondary data from government research documents and related research and primary data from a field survey. The target group of the field survey was 80 people aged 60 or over living in the greater Bangkok area or attend Home Buyers Expo 2013. The data was collected by purposive sampling from an in-depth interview, followed by a questionnaire which was guided by NHA

and TDRI. The Statistical Package for Social Science (SPSS) was used for computation of statistics: frequencies, ANOVA *t*-test and descriptive statistics.

4. Results

4.1 Housing decision

The survey was conducted with 80 elderly people, with four of the 80 considered as low-income elderly. Of the 80, 50 were buyers and 30 were renters. Chi-Square sta-

tistic, $\chi^2 = 5$ and $p < 0.05$ means respondents have different housing decisions. Most of them stay in detached houses an average of 3.24 km away from the frequently visiting area. The average household size was four people, of whom an average of three was in the labor force. Around 70% of renters and 40% of buyers were business owners. The average monthly incomes of renter and buyer households were 136,570 Baht and 98,100 Baht, respectively.

Table 4
Respondents' Information

	Buyer	Renter	Total
Subjects	50	30	80
Average monthly income (Baht)	98,100	136,570	112,526
Average transportation cost (Baht)	128	91	114
Average transportation time (one-way) (minute)	37	44	40
Distance from home to frequently visiting area(km.)	3.26	3.20	3.24
Member (people)	3.48	4.60	4.03
Labor force (people)	2.76	3.43	3.01
Stay in single house (%)	52	53	53
Business owner (%)	40	70	51
Period of stay in current residence (years)	17.2	18.4	17.7

Source: Author's survey, 2013

Respondents were categorized as buyers and renters. According to Table 5, using *t*-test, renters had higher mean score than buyers on housing price/renting rate with significant difference ($p < 0.01$). There was no difference in mean scores of Utility and

facility with significant ($p < 0.05$), which conforms to Dokmeci et al. and Al Monami's results, security system and credit. Both buyers and renters emphasized the important of location, corresponding with the results of Cophik et al., Danke et al., and Kauko. In addition,

buyers focused on construction material of the transportation system, as in Wand and quality. Renters emphasized the importance Li's results, and also credit.

Table 5
Factors Affecting Housing Decision

Factors	Average Score			T-test
	Total (80)	Rent (30)	Buy (50)	
1. Housing price/renting rate	4.64	4.80	4.54	2.435**
2. Location (Near main road, relatively easy for commerce)	4.51	4.50	4.52	-0.145
3. Construction material quality	4.48	4.37	4.54	-1.183
4. Security system (guard and CCTV)	4.43	4.43	4.42	0.086
5. Housing type	4.34	4.50	4.24	1.600
6. Transportation system (Toll way, mass transit and public transportation)	4.33	4.40	4.28	0.879
7. Utility and facility (Convenience store, market, hospital and government service center)	4.24	4.40	4.14	1.725*
8. Pollution (Air, water, noise and garbage)	4.16	4.33	4.06	1.403
9. Social environment (Security, neighbor and friendship)	4.14	4.20	4.10	0.610*
10. Credit	4.10	4.10	4.10	0.000
11. Infrastructure (Public space and park)	3.88	3.77	3.94	-0.936

Remark: 5 = extremely important and 1= not at all important

** = significant at 5%

* = significant at 10%

Source: Author's survey, 2013

4.2 Elderly housing policy

Thailand

As Thailand became an ageing society in 2005, the Thai government still does not have many housing policies. However, the government has started to focus on the Old-Age Security system in terms of pension, private sector provident funds and retirement mutual funds systems.

The central government of Thailand emphasizes old age financial security coverage, self-preparation and the Elderly Fund. At the local level, the crucial program for older people is the Tambon Administration Office: TAO is primarily interested in elderly health care and provides medical services such as regular medical check and consultation (Foundation of Thai Gerontology Research and Development Institute, 2012)

There are not many houses for the elderly in Thailand, but the government and private entrepreneurs are currently involved in the following systems;

- *Foster homes*: The Department of Social Development and Welfare provides 12 elderly foster homes in 12 provinces. The objective is to take care of elderly who have been abandoned or cannot stay with family members.
- The *Elderly Home Remodeling* is operated by NHA. It assists low-income elderly households as NHA's social activity. Since 2010, NHA has already constructed and

improved housing for 20 low-income elderly households.

- *Sawangkanives* is a condominium complex operated by the Thai Red Cross. There are full facilities such as a therapeutic swimming pool, exercise room, park, library, treatment room, and nurse unit. However, the right to live there cannot be inherited. This condominium was launched for Thai citizens' age 55 years and over only.

- *Hospi-house Bang-Sai* in Ayutthaya is a group home for the elderly project operated by private developers. The project is fully served with health services, facilities and infrastructure for elderly.

However, there is not sufficient public housing for Thailand's elderly population because private senior citizens homes are too expensive. The target of retirement home care is high-income elderly. Therefore, the government has to help people to prepare for old age, especially in finance and housing.

Japan

During the bubble period and economic recession, it was very difficult for Japanese people to own house. However, they continued to wish to own a house in order to secure their livelihoods in old age (Miyake, 1995; MLIT, 2008). In 2012, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) reformed the rental housing system for older people by emphasizing rental housing that meets older tenants' needs, such as being

barrier-free. However, the rental housing for older people has been established and managed by private sector organization (Institute of Elderly Housing Sciences, 2013).

Elderly Japanese people are on average not poor compared with the working generation. The government takes care of the basic services and social insurance and privatizes other services as much as possible in order to reduce government expenditure (Yashiro, 1997).

The Japanese government has a good management system for elderly housing, such as providing rental houses for the elderly and health education prior to old-age. Most of older people live in flats or condominiums with medical services or close to a medical center. They always attend social activities such as hiking in order to exercise, maintain good health and socialize with friends of the same age.

In terms of healthcare centers, older people always apply for medical insurance and have their health checked regularly. At the same time, the government and private sector also provide homecare and hospital care and long-term care services in general housing for disabled elderly. Therefore, elderly Japanese can live by themselves with full basic facilities.

Taking care of the older residents requires a huge budget, especially since Japan became an aged society in 1995. Therefore, the Japanese government tried to change from a

“welfare state” to a “welfare society” in order to reduce the government’s expenditure. The government assists family members and society to take care of each other, especially the elderly. This increases community participation, and fosters family and social relationships, which help to reduce the government expenditure (Forrest & Hirayama, 2009).

The Ministry of Land, Infrastructure, Transport and Tourism cooperates with the Ministry of Health, Labor and Welfare (MHLW) and designs policies which focus on:

- Policy relating to the establishment of targets for the supply of rental housing and homes for the elderly
- Policy relating to the promotion of the supply of rental housing and homes for the elderly, and
- Policy relating to the provision of residential support systems for the elderly

The government system consists of Owner Occupied Housing and Rental Housing which are summarized as;

• ***Public Housing and Loans for Cohabitation and Living Nearby***

In 1964, the Japanese government built public housing for low and middle-income people, allocated some units for rent, and reserved the first and second floors for the elderly. In addition, since 1972, the government, through the Housing Finance Corporation, started to provide loans for

people who want to remodel or extend houses in order to live with their elderly relatives or live nearby (Taishaku, 1998).

- Japanese Retirement Homes **“Silver Housing”** was established in 1987 and is operated by local government and Urban Residence: UR. They are public rental houses for single people over sixty, elderly couples where one or both members are over sixty, and disabled single people. The houses were designed especially to support elder needs such with features such as handrails, curb elimination and emergency call system, and to provide health consultation regularly. The rent rate varies depending on housing space, facilities and services (Foundation for Senior Citizens’ Housing, 2013).

- **“Senior House”** is elderly rental housing which is built considering the elder’s lifestyle and life support facilities and services. The Japanese government introduced the Senior House in October 2013. The objectives are to provide elderly life improvement and security and reduce the burden on public care insurance. Both government and the private sector run senior houses (Kamada, 2013).

- **“Superior Rental Housing for the Elderly”** is constructed to support low-income elderly residents. Private remodeling and construction or low-cost rent for the elderly will receive construction costs and rent subsidy from the government.

- **“House Remodeling Consultation”.**

Since 1993, MTIL and MHLW have worked as a home remodeling consultant group. The consulting group aims to help elders live in their own homes. The group visits each elderly house and advises about house remodeling taking into account individual physical conditions.

- Providing **“Reverse Mortgages”²** for low-income elderly. The Ministry of Health, Labor and Welfare began providing reverse mortgages to elderly homeowners with low income in 2002. In addition, private banks and housing corporations began to operate reverse mortgage schemes in the early 2000s. Reverse Mortgage schemes are based on the assumption that many older people are “asset-rich and cash-poor” (Izuhara, 2007; Yamada, 2007). Mizuho was the first mega-bank to handle reverse mortgages. Sumitomo Mitsui Trust Bank and Tokyo Star Bank are among lenders already providing similar services. During the contract period, a Mizuho representative will visit a borrower at least once a year to check on his/her living conditions and loan collateral value. After the borrowers die, Mizuho Trust & Banking Co. will take care of the inheritance and disposal of the collateral land. Reverse Mortgage conditions are summarized in Table 6.

² Reverse mortgage means the home owner can borrow money against the value of the home, no repayment of the mortgage is required until the borrower dies or the home is sold.

Table 6
Japanese Reverse Mortgage

Provider	Eligibility of Borrower	Loan Conditions
Public and Private sector	<ul style="list-style-type: none"> • Must be over 55 years old 	<ul style="list-style-type: none"> • Target of mortgage is land and building.
	<ul style="list-style-type: none"> • Property must owned entirely or nearly by the borrower or by both the borrower and a partner. 	<ul style="list-style-type: none"> • Maximum amount of mortgage is around 70% of assessed value.
	<ul style="list-style-type: none"> • Must get approval from all presumed heirs. 	<ul style="list-style-type: none"> • Lower interest rate, either 3% or a long-term prime rate adopted by financing agencies
	<ul style="list-style-type: none"> • Occupy the house as their principal residence into the future. 	<ul style="list-style-type: none"> • No mortgage principal in lump sum
	<ul style="list-style-type: none"> • Owns a property having more than ¥40 million assessed value. 	<ul style="list-style-type: none"> • Amount of monthly payment is decided individually.

Source: National Housing Authority, 2013 and Mizuho Bank, 2014

5. Discussions

The Japanese government not only provides houses for elderly households, but also provides housing loans in the form of remodeling loans for the elderly or children who want to remodel the home to accommodate the life needs of the elderly. In addition, the government reserves the first and second floors of public housing for the elderly. This helps to create good relationships and participation among generations. Moreover, the government allows elderly home owners to apply for Reverse Mortgage loans. This

program helps elderly people who own homes but have financial problems.

The Thai government currently has to bear a huge fiscal cost from existing unsold units and buy some sold units back because of buyers' repayment default. The government tries to upgrade the standard of low-income households by providing low-cost housing. In addition, NHA plans to complete the construction of 100,000 low-cost housing units by 2016 and around 97% of completed units are to be sold to low-income people. It is very risky repeating the same problem of unsold

units and it may not be appropriate to offer only the option of buying. The government subsidizes the housing supply by building the houses or rooms and lends at a rate lower than the market price, and this may create high costs and sometimes has more cost than benefit (Rosen, 2002).

Government should invite the private sector to take care of elderly housing or business development within and around housing projects. The private sector has expertise and better managed than the public sector. Therefore, involving the private sector and creating efficient management will be beneficial for the government budget.

Elderly housing will become a serious issue in the future for Thailand if the government does not become concerned and prepare at the beginning stage of the ageing society. Many elderly households live in multi-story detached houses; most of them have difficulty to live in their current houses because features such as stairs and toilets are not appropriate for their ability. Moreover, the main income of most elderly households comes from their children, which is not enough. In addition, the income from their children tends to decrease because they have fewer children. If the government neglects to take care of elderly housing at the beginning stage of the ageing society, in the future it may cause an enormous cost to the government in terms of taking care of elderly housing, health care and finance.

Therefore, having good preparation and management for elderly housing will benefit elderly households and the government budget. Offering public rental houses or selling houses to elderly households may be a possible option to reduce the number of unsold units. In the on-going projects, NHA has to pay more attention especially to elderly-friendly living features such as handrails for stairs in the hallways leading to the rooms, ramps, shallower stair and curb cuts, and elimination of stairs from the street to the flat. The government has to pay more attention to the social environment, such as safety, because elderly households, especially renters, need to stay in a safe place.

Furthermore, government has to continue investing in a good transportation system. If the transportation system is well managed, it will help to eliminate the problem of location. Moreover, the land around the housing project will be developed and that will attract private sector investment. Land and business development will help to decrease crime and protect people from criminals. Moreover, it may be good for business creation and employment. People who live in the project would not necessary have to commute to the city to find work, which would decrease urban congestion.

Reverse Mortgage loans are good for elderly people who own homes but have little cash. Although the home ownership rate in the greater Bangkok area has decrease to

around 50%, in other regions the ownership rate is still high, around 70-90%. Therefore, providing a reverse mortgage loan to the elderly will be a possible option to take care of elderly who may have financial problems.

Reverse Mortgage has benefit in terms of helping elderly households stay in their home and have cash to use for living expenses, home repairs, deposits for elderly care facilities, and medical and nursing care costs, among other purposes. In addition, Reverse Mortgage also benefits the real estate market because of more liquidity. However, the house should be in a good location and have a high return.

On the other hand, Reverse Mortgage is a negative for the children. For instance, children may be disappointed that the elderly consume part of the home equity instead of passing the asset on as a bequest. However, the decline in Thai fertility implies that households will have fewer children, so it will be easy for elderly to unlock their home equity for consumption.

Establishing the Reverse Mortgage in Thailand will not be overly easy. The government has to pass new laws and regulations and coordinate with financial institutions which take time but it is necessary. A strong financial infrastructure is required to ensure the success of these products, including safeguards for borrowers against dishonest lenders; insurance to protect against inherently risk contracts; and a secondary market for the Reverse Mortgages.

6. Conclusions and Policy Implications

6.1 Conclusions

The most important factors for both buyers and renters are housing price or renting rate and location. In addition, both groups put more emphasis on social environment in terms of security, neighborhood and friendship as important factors in the elderly housing decision. Therefore, the government should adapt currently unsold units or on-going housing projects to respond to the needs of the elderly by providing a good and sufficient transportation system in order to solve the location problem. Furthermore, the government should consider how to create a good environment for elderly households.

The Japanese government takes care of elderly people by providing public housing, low interest rates for home remodeling or expands houses in order to live with or near the elderly. Moreover, the government coordinates private sector participation in order to supply sufficient elderly houses. Elderly Japanese households can rent or buy houses based on their conditions and preference. The Japanese government not only provides houses for elderly households, but also provides housing loans for remodeling for the elderly or children who want to remodel a home to respond to elderly life needs. Moreover, the government allows elderly home owners to apply for a Reverse Mortgage loan. This program helps elderly people own houses but have financial problems or limited income.

There is not sufficient public housing for Thailand's elderly because private elderly housing is too expensive. The government has to play the important role of encouraging private developers to invest in low- and

middle-income elderly housing by giving tax or financial incentives. On the other hand, the government should prepare financing and housing before Thailand becomes an aged society.

Table 9
Elderly Housing Policy

Topics	Thailand	Japan
Agency	Private sector plays a crucial role to take care of elderly housing. The main target is high-income elderly people.	Government and private sector coordinate to build and improve houses for elderly and enhance community participation to look after elder people.
Objective(s)	Protecting rights of aged population and enhancing their welfare	<ul style="list-style-type: none"> • Supply and promote rental houses for the elderly • Enact laws and regulations to support the housing for elderly.
Housing options and operations	<p>Government sector</p> <ul style="list-style-type: none"> • Public house: Foster home • Home remodeling: Elderly Home Remodeling <p>Private sector</p> <ul style="list-style-type: none"> • Home care: Sawangkanives and Hospi-House Bang-Sai 	<p>Government sector</p> <ul style="list-style-type: none"> • Public house for renting and selling • Rental public home care: Silver Housing • Home remodel consultation <p>Public and private sector</p> <ul style="list-style-type: none"> • Rental house: Senior House <p>Private sector</p> <ul style="list-style-type: none"> • Low-income elderly rental house: Superior Rental House for the Elderly
Finance	N/A	Home remodeling loan Reverse Mortgage loan

Source: Author's summarization, 2014

According to Table 9, in Thailand, the private sector plays the most important role in elderly housing. The target group of the private sector is high-income households. The Thai government takes care of elderly households by providing foster houses, which is not enough, and remodeling the homes of some elderly households. Moreover, elderly households do not feel comfortable living in their current houses because of their health condition and the housing facilities (Foundation of Thai Gerontology Research and Development Institution, 2002).

On the other hand, both the Japanese government and the private sector cooperate and try to overcome the elderly housing problem in terms of offering houses both to sell and to rent, and home care to elderly households in order to take care of elderly people and create a sustainable society, in contrast with Thailand. The renting and buying rates vary depending on housing space, facilities, and services. That means low-income elderly can rent public housing, while medium or high-income elderly households can rent or buy houses with full facilities, utilities and health care services.

In addition, the Japanese government offers the housing finance option to elderly households in terms of the Home Remodeling loan for the elderly or children who want to remodel the house to accommodate the lifestyle of the elderly. Moreover, the government offers the Reverse Mortgage loan to

the elderly people who are homeowners but have limited income.

Although Thailand is in the first stage of the ageing society and elderly housing has not become a serious, the government has to play an important role for elderly housing management in order to prevent future problems.

6.2 Policy Implications

The market mechanism is not functioning well for low-cost public housing; therefore, a government housing intervention policy is needed in order to solve the problem of unsold units and create a sustainable society, as suggested by Groenewegen. In addition, there is not sufficient public housing for low-income elderly Thais. According to the housing study of elderly Japanese, there are many options for solving the problem of unsold units and to encourage housing security for elderly households.

1) Transportation system management

Renter and buyer households emphasize location and transportation. Therefore, to reduce congestion in the city or solve the problem of location, the government has to provide effective transportation management in terms of routes, systems, facilities and utilities to respond to residents' needs, although it may create more cost than benefit (Rosen, 2002). It is not necessary to live in the city if the transportation system is well operated

from sub-urban areas to the city. People can commute from home to work in the city easily. Good transportation management is not only positive for sub-urban development and solving the problem of unsold units, but also helps to prevent the problem of housing location. Moreover, it will benefit land development around housing projects.

2) Social environment and security system

Elderly households want to stay in safe and good environments. Therefore, the government should allocate unsold flats which are renovated for elderly-friendly living, such as the ramps, lifts, doors, toilets, custodial and health care services. Governments can take care of elderly households easily because they live in the same building. In addition, it would help to save on investment costs because all necessary facilities and utilities are installed only one time. Elderly households will have a chance to share their life and participate with other elderly households who live in the same place. The emphasis on welfare society and introducing privately managed healthcare systems to create care service business will benefit for government management and fiscal costs.

3) Housing options

The government can solve the problem of unsold units and reduce the budget deficit by;

- **Selling**

The Government should improve

or adapt the on-going housing projects or existing unsold units with good construction material to match with elderly needs, such as walking supportive appliances, handles and slopes. It should give priority to elderly people to buy units on the first and second floor of a building. It is possible for the government to sell the public houses to the elderly households because the average life expectancy of Thai people is projected to increase from 74 years in 2012 to 78 years in 2025.

Therefore, elderly households can buy houses which are suitable for their needs after retirement, and stay in the new house at least around 15 years until they pass away. The housing project may not necessary to be located in the city but within and around the project there should be good and sufficient transportation system and security. However, the selling price should reasonable and not above their ability to afford it.

- **Renting**

The government should provide rental public housing for the elderly at a special rate. Especially for low-income elderly, they do not have the capacity to find suitable houses to stay when they are old. Give priority to elderly people to rent the units on the first or second floor of a building. However, the renting rate may vary based on an elderly household's income or the facilities and utilities in the housing project. Moreover, the typical single or married elderly households may want to stay in housing for the elderly

because then they do not need to remodel their houses, which may be costly. However, the renting rate should not be more than they can afford and should vary depending on the elderly household's income. Within and surrounding the housing project there should be enough utilities and facilities such as markets, hospitals and convenience stores, and a good transportation system.

Renting may be a good option because currently Thai people often change jobs to get higher salaries; therefore, they hesitate to buy houses. In addition, it is appropriate for elderly people who cannot stay with their children or who have insufficient income (John E.K. et al., 2011). Revenue from rent can be used to pay loan interest and current project management.

4) Reverse Mortgage Loan

Utilization of existing homes would bring many benefits. The government should give more consideration to Reverse Mortgage because it will help to build home equity for elderly. Moreover, it will help to stimulate more competition in the housing market when the housing market is underdeveloped.

5) Home Remodeling Loan

The government should provide remodeling consultation and loans for people who want to remodel houses in order to live with the elderly. It will help good family relationships and create a social connection not only within family but also among elderly in the community

The state has to enhance private sector participation in housing and related development. The private sector has more efficient management than government, which is the most important for creating sustainable housing and social development. Lastly, the government should work as the housing regulator when the market is stable.

Limitations

To be specific, the reverse mortgage plan is complicated because it involves many financial benefits and risks. This study focuses only on solving the problem of unsold units by introducing elderly participation in low-cost housing through government intervention and recommends housing options for elderly households. Therefore, the willingness to consider the establishment of Reverse Mortgage is overestimated in this study.

Future research

Future research should focus on, first, the affordability of elderly housing. The information about housing affordability will help the government to set a selling price and renting rate which matches buyer's and renter's affordability. Second, the secondary market for reverse mortgages needs research. A Reverse Mortgage program will be reliable and popular when the secondary housing market functions well. Finally, the comparative study of reverse home loans with other countries should be explored in order to compare and find a suitable design for Thailand.

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