COMPARING THE PROPERTY MANAGEMENT MODELS OF PUBLIC RENTAL HOUSING AND SOCIAL HOUSING IN TAIPEI CITY

KUNG-JEN TU and SHAU-YU CHANG

National Taiwan University of Science and Technology

ABSTRACT

This paper compares the property management (PM) models of Taipei's public rental housing (PRH) and social housing (SH). In response to escalating housing prices, governments have developed affordable rental housing, yet managing these assets effectively remains a key challenge. Drawing on content analysis of government's website contents and procurement records, case studies of three PRH and three SH estates, and interviews with government officials and on-site staff, this study examines PM service outsourcing models, PM service levels, staffing, and costs of PRH and SH. Results show that PRH adopts a regional joint procurement and specialized subcontracting model, delivering cost efficiency and standardized services but with fragmented responsibilities and limited responsiveness. In contrast, SH employs a single-estate integrated outsourcing model, offering comprehensive tenant-oriented services through professional PM firms, but at much higher manpower intensity and costs. The findings underscore trade-offs between efficiency and service quality, and suggest hybrid models, stronger oversight, and long-term financing to enhance sustainability.

Keywords: PM services, specialized subcontract, integrated outsourcing, PM organization, manpower, cost

1. INTRODUCTION

1.1. Background

In recent years, Taiwan has faced a severe housing affordability crisis. Escalating housing prices have made homeownership unattainable for many households, particularly younger generations and disadvantaged groups. To address this issue and promote the pursuit of housing justice, the government enacted the *Housing Act* in 2011 and launched the national Social Housing Development Program (Ministry of Interior, 2017), which mandates publicly funded rental housing and aims to construct 120,000 social housing units between 2017 and 2024. Social housing has emerged as a critical policy instrument to ensure equitable access to adequate housing.

However, Taiwan's experience with publicly funded rental housing is not entirely new. As early as 1975, the *Public Housing Act* provided the legal foundation for the development of public rental housing, primarily targeted at low- and middle-income households. While these estates initially played an important social role, their buildings have aged considerably, with most now exceeding 30 years. Deteriorating physical conditions and negative stereotypes have led to public perception as "not-in-my-backyard" facilities (Huang, 2019).

In response, the government has sought to transform public perception of social housing by adopting the integrated outsourcing model of property management (PM), commonly employed in private condominium management (Kao and Hsieh, 2018). Under this model, professional PM companies are contracted to deliver comprehensive on-site services, ranging from tenant affairs and security to cleaning and technical maintenance. While this professionalization elevates service standards, it also increases staffing requirements and management costs. Consequently, beyond the heavy fiscal burden new social housing construction, governments must also bear the ongoing financial pressure of routine PM, and occasional repair and renewal.

1.2. Research Objectives

This study addresses the key research question: How should governments manage publicly funded rental housing, and which PM models are more efficient? Taipei City offers a unique context, as it has successively developed both PRH and SH, adopting different PM models in each. The objectives of this research are: (1) to examine the PM model and cases of PRH in Taipei, (2) to analyze the PM model and cases of SH in Taipei, and (3) to conduct a comparative analysis on six PRH and SH estates under the two PM models.

1.3. Research Methods

This study adopts three research methods to provide a comprehensive understanding of the evolving PM models in Taipei's PRH and SH: (1) Content analyses of policy materials from the Department of Urban Development as well as tender documents of PM related projects published on the Government e-Procurement System were conducted to reveal the PM organizations and the outsourcing models of PM services adopted in PRH and SH. (2) Case studies of three PRH estates and three SH estates provide in-depth examination of on-site manpower required and PM costs in both PM models. (3) Semi-structured interviews with government officials and on-site staff offer qualitative insights into PM practices and challenges.

2. LITERATURE REVIEW

The property management (PM) of publicly funded rental housing has become an important research field as governments seek to balance affordability, quality, and fiscal sustainability. A central debate concerns whether such assets should be managed directly by public agencies or outsourced to private service providers.

2.1. Government roles and property management approaches

International practice shows diverse governance models. In Hong Kong, the Housing Authority's Property Services Agent (PSA) scheme outsources about 60% of estates to private PM firms, while retaining some in-house management for benchmarking (Lam, 2012). Singapore combines public ownership and local accountability: the Housing and Development Board (HDB) owns the stock, but local Town Councils contract private PM companies to manage public housing estates (Phang, 2018). In continental Europe, Dutch housing associations, regulated but operating at arm's length from the state, use asset management models that link long-term investment, life-cycle costing, and performance indicators to balance social goals with financial sustainability (Priemus & Gruis, 2011; Gruis & Nieboer, 2004). In Japan, public housing is primarily developed and managed by a three-tiered system involving national, prefectural, and municipal governments, as well as an independent administrative agency called the Urban Renaissance Agency (UR)**,** functioning as a quasi-public landlord with professional management capacity (Sorensen, 2011). These examples illustrate varying balances of state oversight and professionalized outsourcing.

2.2. Outsourcing and theoretical foundations

Transaction cost economics and principal-agent theory provide the main theoretical foundations for understanding why governments outsource certain PM functions. When PM services are highly contractible and performance can be specified in clear, observable indicators, such as cleaning, security, or elevator maintenance, outsourcing allows public agencies to exploit competition among private providers, thereby reducing transaction and production costs while maintaining or even improving service quality. In such settings, detailed contracts and performance-based payment schemes help align the incentives of PM service providers with the objectives of the public client, mitigating information asymmetries that are central to principal-agent problems. Empirical research supports these expectations. Lam (2012), for example, shows that competitive tendering of PSA contracts in Hong Kong's public housing estates significantly reduced per-unit management costs without detectable declines in service outcomes. More broadly, Andersson (2019) argues that outsourcing public services yields efficiency gains particularly when contractibility is high, monitoring systems are robust, and sanctions for underperformance are credible.

2.3. Case studies and best practices

International studies provide valuable insights into effective social housing management. In Vienna, *Wiener Wohnen* shows how a city-run agency can deliver affordable housing at scale while maintaining service quality, though administrative rigidity remains a concern (Matznetter, 2006). Singapore's Town Councils are known for emphasizing preventive maintenance and giving local districts clear responsibilities, promoting localized accountability (Phang, 2018). In the Netherlands, researchers stress the importance of transparent procurement strategies and the professionalization of nonprofit housing providers (Gruis & Nieboer, 2004; Van Mossel, 2008). Australian studies also contribute: Kenley et al. (2009) proposed best practices for housing asset management, while Sharam (2023) suggested treating social housing as part of broader long-term asset strategies. In the UK, Pawson et al. (2015) linked management costs to tenant outcomes, showing that more than half of total expenditures go to tenancy and property services. Cost modeling is another key area: Fulcher

et al. (2022) developed tools to forecast repair costs, and Walker and Van der Zon (2000) compared performance metrics in England and the Netherlands. Recently, digital innovation like BIM has been promoted to enhance long-term sustainability in social housing management (Castellano-Román et al., 2022).

2.4. Synthesis and research gaps

The literature indicates outsourcing enhances efficiency for routine tasks, while hybrid or direct models better support tenant engagement. Institutional innovations, such as Hong Kong's PSAs and Singapore's Town Councils, reflect efforts to balance efficiency, accountability, and social goals. Yet gaps remain: few cross-country comparative studies, limited longitudinal analysis of costs and staffing, and insufficient attention to tenant services such as household visits or welfare linkages. Moreover, while asset management models and cost studies are growing, the integration of new technologies into PM governance is underexplored.

3. PROPERTY MANAGEMENT MODEL IN PUBLIC RENTAL HOUSING

3.1. Research Methods

The following research methods were employed to reveal the PM model and practices of PRH in this section:

1. Content analyses: Policy papers and online materials issued by the DUD of the Taipei City Government were inspected to reconstruct the evolution of PRH, covering housing policy and legislation, the scale and age profile of estates, and the volume of completed rental units (Section 3.2). Tender documents for PRH-related PM contracts on the Government e-Procurement System were also examined to map the patterns of outsourcing adopted for PRH (Section 3.4).
2. Interview: One director and three on-site staff assigned to regional management stations were interviewed to provide qualitative insights into the PM organisations within DUD (including the organisational structure and staffing of regional management stations) responsible for PRH (Section 3.3), as well as the outsourcing model and practices of PM services (types and scope of outsourced services, tendering processes, and types of specialised subcontractors) in Taipei's PRH (Section 3.4).
3. Case studies: Three PRH estates were selected for in-depth case studies to illustrate detailed PM practices in PRH. PM-service tender documents relating to these three estates, published on the Government e-Procurement System, were examined to investigate on-site manpower requirements and PM costs in the selected PRH estates (Section 3.5).

3.2. Public Rental Housing (PRH) in Taipei City

The origins of Taipei's public housing can be traced to the central government's national housing policy, launched by the Ministry of the Interior in 1975 under the *Public Housing Act*. The Act aimed to relieve housing shortages and improve living conditions for middle- and lower-income households by expanding the supply of affordable dwellings.

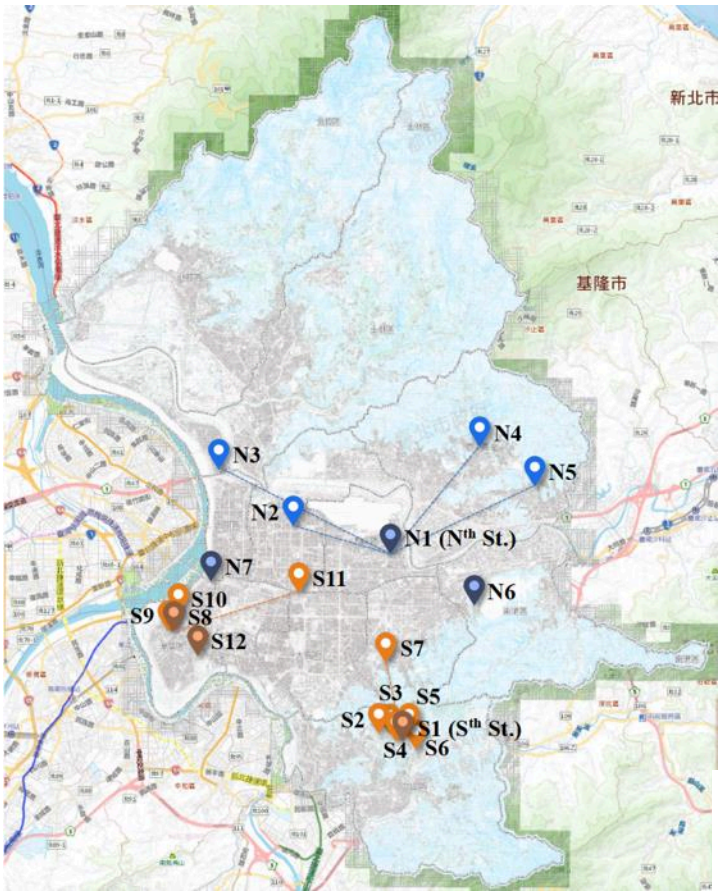
Two types of public housing were developed by central and local governments: 'sale-type' public housing, enabling qualified families to purchase units at subsidized prices, and 'rental-type' public housing, providing affordable rental accommodation for households unable to buy. Taipei City Government became a key participant in the development of PRH in Taiwan, particularly between the 1980s and late 1990s. Since 2000, however, the Taipei City Government has stopped the development of PRH projects, and the *Public Housing Act* was officially abolished in 2015.

By the program's end, Taipei City Government had developed a total of 19 PRH estates and 3 transitional housing estates (for relocation and emergency relief households), providing 3,896 rental units in total (Tzow and Tu, 2017), which contributed much-needed affordable housing during a period of rapid urbanization and rising housing costs. As of December 2023, all 19 PRH estates remain in operation, offering a total of 3,460 units (Table 1). These estates are located in the central and southern districts of Taipei City, with seven in the northern area and twelve in the southern area (Figure 1). Their building ages range from 24 to 44 years (average 31 years), and the number of units per estate varies from 10 to 523 (average 182 units), as shown in Table 1.

Table 1. The 19 public rental housing estates in operation and their property management organization

Taipei City Government	Regional Management Unit	PM On-site Staff [a]	PRH Name	Building Age	Rental units
Dept. of Urban Development / Housing Service Division / **Public Housing Management Section**	Northern Station @PRH-N1	Director*1 Assistant Engineer*1 Junior Engineer*2 Admin. Assistant*5 Technician*1 Technical Worker*1	**PRH-N1**	**25**	**99**
			PRH-N2	25	34
			PRH-N3	24	42
			PRH-N4 [b]	41	114
			PRH-N5	29	88
	Nan-Gang Office	Admin.*1, Tech.*1	PRH-N6	26	287
	Xi-Ning Office	Admin.*1, Tech.*1	PRH-N7	44	476
	Southern Station @PRH-S1	Director*1 Junior Engineer*1 Admin. Assistant*7 Technician*3	PRH-S1	25	310
			PRH-S2	40	192
			PRH-S3	25	228
			PRH-S4	37	224
			PRH-S5 [b]	27	10
			PRH-S6 [b]	41	33
			PRH-S7 [b]	29	30
	Da-Li Office @PRH-S8	Admin. Assistant*3 Technician*3	PRH-S	26	35
			PRH-S	41	490
			PRH-S10	27	40
			PRH-S11	**27**	**205**
	Zhong-Zheng Office	Admin.*1, Tech.*1	**PRH-S12**	**42**	**523**
Notes: (a) Appointed by Taipei City Government; (b) PRH rental units located within 'for-sale' public housing estates, occupying only a portion of the building(s).		**Total**	**19 estates**		**3,460**
		Average		**31**	**182**

Figure 1. The locations of the 19 public rental housing estates in Taipei City



(Pins with darker colors indicate the locations of regional management stations or local offices)

3.3. Property Management Organization of Public Rental Housing in Taipei City

The property management of public rental housing in Taipei is organized under the Department of Urban Development, Taipei City Government, specifically through the Housing Service Division and its Public Housing Management Section (Table 1). This section is responsible for policy execution, contract supervision, and the overall coordination of PM operations.

At the estate level, two regional management stations have been established: the Northern Management Station (set up in PRH-N1 estate) and the Southern Management Station (set up in PRH-S1 estate). The Northern Station oversees seven public rental housing estates, while the Southern Station supervises twelve estates. Each station is staffed with a director, several administrative assistants, and multiple engineers/technicians, who jointly supervise the daily administration and technical maintenance of the estates (Table 1 and Figure 1).

For estates farther from the two management stations (PRH-N6, N7, and S12), local on-site offices have been established. Each of these offices is staffed with one administrative assistant and one technician, who provide day-to-day supervision and maintenance support. A special case is the Da-Li Office at PRH-S8, which has three assistants and three technicians responsible not only for PRH-S8 but also for supervising the neighbouring PRH-S9, S10, and S11 (Table 1 and Figure 1).

3.4. Regional Joint Procurement and Specialized Subcontracting Model of PM Services

In general, the property management (PM) tasks for each PRH or SH estate in Taipei City mainly include four domains: (1) administrative affairs and tenant services, (2) security services, (3) cleaning and landscaping services, and (4) mechanical, electrical and plumbing (MEP) systems maintenance services.

To provide PM services to PRH estates, Taipei City Government adopted a hybrid outsourcing model that combines regional joint procurement with specialized subcontracting. Under this PM outsourcing model, the Northern and Southern Regional Management Stations consolidate the service needs of the multiple estates under their jurisdiction. For each category of service, one or several specialized contractors are selected through joint tendering. In this way, PM service packages are aggregated across estates.

The property management services of public rental housing are assigned as follows (Table 2):

1. Administrative affairs and tenant services across multiple estates within each region are directly managed by government officials (administrative assistants and engineers/technicians) stationed at the regional management stations or local offices. These personnel are dispatched from the Public Housing Management Section and serve as the government's frontline representatives. As shown in Table 2, the Northern Station is staffed with five administrative assistants and five engineers/technicians, providing services to five estates (PRH-N1 to N5). Similarly, the Southern Station is staffed with seven administrative assistants and four engineers/ technicians, who are responsible for seven estates (PRH-S1 to S7).
2. Security services of certain estates within each region are outsourced to professional security companies, which provide personnel for 24-hour community patrol, access control, and emergency response. As shown in Table 2, Company A is contracted to provide security service to PRH-N1 and PRH-N6 estates, and Company B and Company C contracted to provide security service to PRH-S1, S2, S3, S4, S11, and S12.
3. Cleaning, landscaping, and water tank cleaning services across Taipei's PRH estates are subcontracted to specialized firms to ensure proper upkeep of common areas, green spaces, and water facilities. As shown in Table 2, Company D is contracted to provide cleaning services for all seven estates in the northern region, while Companies E and F are responsible for cleaning nine estates in the southern region. Landscaping is handled separately by Company G for the northern estates and Company H for the southern estates. In addition, Company I is commissioned to provide water tank cleaning services for all estates in both regions.
4. MEP systems maintenance services across Taipei's PRH estates are subcontracted to licensed vendors, including elevator companies, MEP contractors, fire safety providers, and generator specialists. As summarized in Table 2, five elevator companies (J–N) are contracted to maintain elevators in 15 estates, while Company O and Company P are responsible for general MEP maintenance in the northern and southern regions, respectively. In addition, Company Q is contracted to maintain fire safety systems, and Company R provides generator maintenance for all estates.

Table 2. Allocation of On-Site Staff and Outsourced PM Services in Public Rental Housing

Regional Management Unit	PRH name	Rental units	On-site admin + tech.	Security company	Cleaning company	Landscaping company	Water tank company	Elevator company	MEP company	Fire safety company	Generator company
North Station @PRH-N1	**PRH-N1**	**99**	5+5	A	D	G	I	J	O	Q	R
	PRH-N2	34		-				K			
	PRH-N3	42									
	PRH-N4 [a]	114						J			
	PRH-N5	88									
Nan-Gang Office	PRH-N6	287	1+1	A							
Xi-Ning Office	PRH-N7	476	1+1					L			
South Station @PRH-S1	PRH-S1	310	7+4	B	E	H	I	M	P	Q	R
	PRH-S2	192		C				N			
	PRH-S3	228		B				N			
	PRH-S4	224									
	PRH-S5 [a]	10		-	-	-	-	-	-	-	-
	PRH-S6 [a]	33									
	PRH-S7 [a]	30			E	H	I		P	Q	R
Da-Li Office @PRH-S8	PRH-S8	35	2+2	-	F			K			
	PRH-S9	490						-			
	PRH-S10	40						K			
	PRH-S11	**205**		C							
Zhong-Zheng Office	**PRH-S12**	**523**	1+1					J			

Notes: (a) PRH rental units located within a 'for-sale' public housing estate, occupying only a portion of the building(s).

This PM outsourcing model allows each domain of property management to be delivered by companies with relevant expertise, while the regional management stations act as the supervisory authority. The model ensures that services are standardized across estates, that contractors are accountable under municipal supervision, and that tenants receive necessary support and services.

3.5. PM Practices in the Three Public Rental Housing Cases

To illustrate how property management is implemented in practice, three representative PRH estates in Taipei were selected and examined to represent different scales of public rental housing in terms of household numbers: PRH-N1 as a small-sized estate (99 units), PRH-S11 a medium-sized estate (205 units), and PRH-S12 as a large-sized estate (523 units), as shown in Figure 2. Together, they highlight how differences in size, age, and building configuration affect management practices, staffing intensity, and cost efficiency.

Figure 2. Appearance of the three public rental housing cases

(a) PRH-N1 (99 units) (b) PRH-S11 (205 units) (c) PRH-S12 (523 units)

Table 3 reveals the comparative analyses on several property management aspects of the three PRH cases:

1. **On-site manpower**: The scale of the estates seems to influence the on-site manpower required (dispatched by the government and service providers). PRH-N1 employs the equivalent of 5.3 full-time staff, PRH-S11 has 6 staff, and PRH-S12 employs 8.1 staff. However, when normalized per 100 units, manpower intensity differs dramatically: 5.3 staff/100-unit in PRH-N1, 2.9 staff/100-unit in PRH-S11, and only 1.5 staff/100-unit in PRH-S12. This pattern indicates that smaller estates are more manpower-intensive and therefore less efficient, while larger estates benefit from economies of scale in staffing.
2. **Annual PM costs**: The estimated annual costs vary considerably across the three PRH estates. PRH-N1 spends NTD 3.13 million, PRH-S11 NTD 3.92 million, and PRH-S12 the highest at NTD 5.42 million. When adjusted for floor area, however, PRH-N1 is the most expensive at 24.6 NTD/m²-month, followed by PRH-S11 at 22.7, while PRH-S12 proves the most cost-efficient at 13.3 NTD/m²-month. The breakdown further indicates that security and cleaning remain the largest recurrent expenses, while personnel costs for on-site staff are substantial, accounting for 83.7% at PRH-N1, 73.4% at PRH-S11, and 61.1% at PRH-S12.

Table 3. Comparative Profile on the PM Practices of the Three Public Rental Housing Cases

Public Rental Housing	PRH-N1	PRH-S11	PRH-S12
Public rental housing characteristics			
Property management unit	Northern Station	Da-Li Office	Zhong-Zheng Office
Building age	25	27	42
Rental unit	99	205	523
Number of floor	12F / B1	13F / B2	12F / B1
Total floor area	10,593 m²	14,385 m²	33,906 m²
Dwelling size (m²/unit)	66~80	40	33
Monthly rental fee (NTD/unit-mth)	10,200	5,400~5,900	2,700~3,000
Management fee (NTD/unit-mth)	1,100	450~550	550~650
Property management on-site manpower (person)			
Administrative staff [a] 09:00~18:00 Mon~Fri	0.5	0.5	1
Technical staff [a] 09:00~18:00 Mon~Fri	0.5	0.5	1
Security staff [b] 08:00~20:00, 20:00~08:00 Mon~Sun	3	3	3
Cleaning staff [b] 08:00~17:00 Mon~Fri	1.3	2	3.1
Total	**5.3**	**6**	**8.1**
PM on-site manpower (person/100 unit)	**5.3**	**2.9**	**1.5**
Estimated annual property management cost [c] (staffing and outsourcing cost)			
Administrative staff [a]	331,500	331,500	663,000
Technical staff [a]	331,500	331,500	663,000
Security staff [b]	1,387,000	1,387,000	1,387,000
Cleaning staff [b]	569,000	825,000	1,263,000
Plant maintenance	22,000	51,000	131,000
Water tank cleaning	13,000	26,000	67,000
Elevator maintenance	111,000	493,000	221,000
MEP maintenance	215,000	160,000	409,000
Generator maintenance	17,000	34,000	87,000
Fire safety equipment maintenance	96,000	197,000	504,000
Annual total (NTD/yr)	**3,130,000**	**3,918,000**	**5,423,000**
Monthly average (NTD/month)	**260,866**	**326,516**	**451,881**
PM cost (NTD/m²-month)	**24.6**	**22.7**	**13.3**

a. Employed by the Public Housing Management Section, Taipei City Government.
b. Employed and dispatched by the contracted service providers.
c. In New Taiwan Dollar (NTD), as of December 2023.

The three PRH cases reveal a PM model in which the Taipei City Government is more directly involved, since government staff are dispatched to management stations or local offices to oversee administrative affairs and tenant services. Other services, including security, cleaning, landscaping, and MEP maintenance, are then procured through regional joint tendering and specialized subcontracting. The overall service level is considered basic, focusing on essential upkeep and daily operations. Staffing intensity is relatively low, with only limited on-site manpower allocated per estate. Annual PM costs are modest, reflecting the model's emphasis on cost control and standardized service delivery rather than comprehensive tenant-oriented support.

4. PROPERTY MANAGEMENT MODEL IN SOCIAL HOUSING

4.1. Research Methods

The following research methods were used to identify the PM model and practices of SH in this section:

1. Content analyses: Policy documents and website materials from the DUD of Taipei City Government were reviewed to uncover the historical development of SH, including housing policies and legal frameworks, numbers of SH estates, building ages, and completed rental units (Section 4.2.). In addition, tender documents for SH-related PM projects published on the Government e-Procurement System were analyzed to identify the outsourcing models of PM services adopted for SH (Section 4.4.).
2. Interview: Two DUD officials responsible for managing Taipei's SH were interviewed to provide qualitative insights into the PM organisations within DUD (including organisational structure and staffing) in charge of SH (Section 4.3), as well as the outsourcing model and practices of PM services (types and scope of outsourced services, tendering processes, and types of PM contractors) in Taipei's SH (Section 4.4).
3. Case studies: Three SH estates were selected for in-depth case studies to illustrate detailed PM practices in SH. PM-service tender documents for the three PRH estates, published on the Government e-Procurement System, were examined to investigate on-site manpower requirements and PM costs in these SH estates (Section 4.5).

4.2. Social Housing (SH) in Taipei City

The development of social housing in Taipei City reflects a new phase of Taiwan's housing policy following the abolition of the *Public Housing Act* in 2015. Under the new *Housing Act* (2011), social housing was introduced with the objective of providing long-term affordable rental housing for disadvantaged groups, young households, and individuals with urgent housing needs.

At the national level, the central government launched an ambitious program to construct 120,000 social housing units during the eight-year period from 2017 to 2024 (Ministry of Interior, 2017). In line with this policy, the Taipei City Government implemented its own social housing investment plan, targeting 48 estates with 15,651 units during the eight-year period. As of December 2023, 18 estates with 6,131 units had been completed and were in operation (Table 4), making Taipei the leading municipality in Taiwan in terms of social housing provision. Most of these estates are located in the eastern, southern, and western areas of Taipei City (Figure 3). Their building ages range from 1 to 13 years (average 4.4 years), and the number of units per estate varies from 97 to 700 (average 340.6 units), as shown in Table 4.

4.3. Property Management Organization of Social Housing in Taipei City

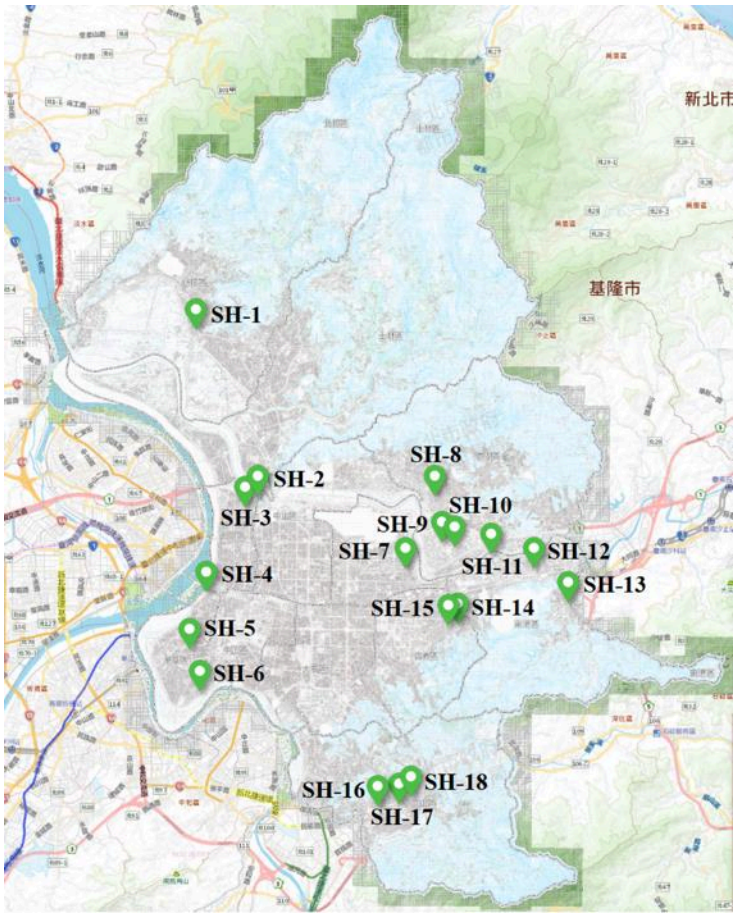
The PM of SH in Taipei City is centrally administered by the Social Housing Management Section under the Housing Service Division of the Department of Urban Development, Taipei City Government. This section is responsible for planning, tendering, supervision, and contract management of PM services across all SH estates.

Unlike the Public Housing Management Section, which operates through regional management stations and dispatches administrative/technical personnel to individual stations/offices, the Social Housing Management Section does not adopt a decentralized, on-site staffing model. Instead, social housing estates are primarily managed through outsourcing contracts awarded to professional PM companies. These contractors are responsible for daily operations, including tenant services, security, cleaning, as well as periodical operations, such as landscaping, water tank cleaning, elevator and various MEP systems maintenance and inspections.

Table 4. The 18 social housing estates in operation and their property management organization

Taipei City Government	SH Name [a]	Building Age [b]	Rental units [a]
Dept. of Urban Development / Housing Service Division / **Social Housing Management Section**	SH-1	4	288
	SH-2	4	380
	SH-3	**13**	**110**
	SH-4	1	255
	SH-5	2	201
	SH-6	**6**	**273**
	SH-7	**7**	**507**
	SH-8	4	389
	SH-9	1	97
	SH-10	3	526
	SH-11	3	341
	SH-12	5	700
	SH-13	4	119
	SH-14	2	522
	SH-15	2	522
	SH-16	9	272
	SH-17	6	510
	SH-18	4	119
Notes: a. https://hms.udd.gov.taipei/#!/ b. As of December, 2023.	**Total rental units**		**6,131**
	Average	**4.4**	**340.6**

Figure 3. The locations of the 18 social housing estates in Taipei City



The Social Housing Management Section maintains oversight by monitoring contractor performance and ensuring compliance with service specifications through periodic inspections, reporting requirements, and performance evaluations. This PM organization allows the city to efficiently manage a growing portfolio of SH estates while ensuring quality and consistency across diverse projects.

4.4. Integrated Outsourcing Model of PM Services

Unlike PRH, employing a regional joint procurement and specialized subcontracting model, Taipei City Government adopts a single-estate, integrated outsourcing model to provide PM services to its SH estates. All PM services within one SH estate are contracted to a single professional PM company through public tendering.

The contracted company establishes an on-site management office and dispatches staff to provide daily PM services. Administrative personnel include a property management director, who serves as the on-site superviser and main liaison with the Social Housing Management Section, and several administrative assistants. In addition, the company deploys security guards, cleaning staff, and MEP technicians to handle routine safety, hygiene, and facility operations (Table 5).

Table 5. Allocation of On-Site Staff and Subcontracted PM Services in Social Housing Estates

SH name	Rental units	Administrative personnel	Security guard	Cleaner	Technician	Landscaping subcontractor	Waste disposal subcontractor	Water tank subcontractor	Elevator subcontractor	MEP subcontractor	Fire safety subcontractor	Generator subcontractor	Telecommunication subcontractor
SH-1	288	PM Contractor A				3 subcontractors			5 subcontractors				
SH-2	380	PM Contractor B				3 subcontractors			5 subcontractors				
SH-3	**110**	PM Contractor C				3 subcontractors			5 subcontractors				
SH-4	255	PM Contractor D				3 subcontractors			5 subcontractors				
SH-5	201	PM Contractor E				3 subcontractors			5 subcontractors				
SH-6	**273**	PM Contractor F				3 subcontractors			5 subcontractors				
SH-7	**507**	PM Contractor G				3 subcontractors			5 subcontractors				
SH-8	389	PM Contractor H				3 subcontractors			5 subcontractors				
SH-9	97	PM Contractor I				3 subcontractors			5 subcontractors				
SH-10	526	PM Contractor J				3 subcontractors			5 subcontractors				
SH-11	341	PM Contractor K				3 subcontractors			5 subcontractors				
SH-12	700	PM Contractor L				3 subcontractors			5 subcontractors				
SH-13	119	PM Contractor M				3 subcontractors			5 subcontractors				
SH-14	522	PM Contractor N				3 subcontractors			5 subcontractors				
SH-15	522	PM Contractor O				3 subcontractors			5 subcontractors				
SH-16	272	PM Contractor P				3 subcontractors			5 subcontractors				
SH-17	510	PM Contractor Q				3 subcontractors			5 subcontractors				
SH-18	119	PM Contractor R				3 subcontractors			5 subcontractors				

For periodic and specialized services, such as waste disposal, water tank cleaning, landscaping, and the inspection and maintenance of MEP, fire safety, elevator, and telecommunication systems, the PM company typically subcontracts tasks to certified professional firms (Table 5). While the PM company remains contractually responsible, its subcontractors ensure that technical services meet regulatory and safety standards.

In summary, Taipei City Government adopted an integrated outsourcing model for SH, contracting a single PM company to provide more comprehensive services. This approach serves several purposes: (1) to reverse the negative image of aging PRH often stigmatized as NIMBY facilities; (2) to deliver higher-quality, tenant-

oriented services; (3) to establish clear accountability by assigning full responsibility to one contractor; and (4) to leverage private expertise and innovation through open competition. Although more costly, the model simplifies SH administration work and allows the government to focus on long-term policy and oversight.

4.5. PM Practices in the Three Social Housing Cases

To illustrate how PM is implemented in practice in Taipei's SH, three representative SH estates are selected and examined to represent different scales of SH in terms of household numbers: SH-3 as a small-sized estate (110 units), SH-6 as a medium-sized estate (273 units), and SH-7 as a large-sized estate (507 units), as shown in Figure 4. Together, they provide insights into how differences in size, age, and building configuration affect PM practices, staffing intensity, and cost efficiency under the integrated outsourcing model.

Figure 4. Appearance of the three social housing cases

(a) SH-3 (110 units) (b) SH-6 (273 units) (c) SH-7 (507 units)

Table 6 reveals the comparative analyses on several property management aspects of the three SH cases:

1. **On-site manpower:** Staffing levels are closely tied to estate size. SH-3 has 12 staff (10.9 per 100 units), SH-6 employs 14 staff (5.1 per 100 units), and SH-7 the most with 24.5 staff (4.8 per 100 units). While the absolute number of staff increases with estate size, the manpower per 100 units decreases, reflecting economies of scale. Each estate maintains a full-time property management director and administrative assistants (on duty daily from 09:00–20:00), as well as security guards (two shifts covering 24 hours), cleaners (daily shifts), and technicians (weekday duty).
2. **Annual property management costs**: Estimated annual PM costs reveal further contrasts. SH-3 incurs NTD 8.58 million per year, SH-6 about NTD 11.73 million, and SH-7 the highest at NTD 18.18 million. However, when measured per square meter, SH-3 is the most expensive at 43.6 NTD/m²-month, SH-6 slightly lower at 40.8 NTD/m²-month, while SH-7 is the most cost-efficient at 33.8 NTD/m²-month. This again demonstrates how larger estates spread costs more efficiently across greater floor areas, despite higher total expenditures. The further analyses indicate that personnel costs for on-site staff in SH are substantial and higher than PRH, accounting for 85.7% at SH-3, 74.2% at SH-6, and 80.4% at SH-7.

The three SH cases illustrate a PM organization in which the Taipei City Government does not dispatch staff on-site, but supervises outsourced PM service contracts. Comprehensive PM services for each SH estate, including administration, tenant support, security, cleaning, and MEP maintenance, are delivered under an integrated outsourcing model, with a single PM company contracted to provide all services. The service scope also extends beyond PRH's routine upkeep to include tenant support, household visits, care for disadvantaged residents, within-unit repair services, garbage storage and disposal, and telecommunication systems maintenance. As a result, social housing demonstrates higher staffing intensity and wider service coverage, but also incurs substantially higher annual property management costs, reflecting its emphasis on professionalism, resident care, and social responsibility.

5. COMPARING THE PM MODELS ADOPTED IN PRH AND SH

5.1. Property Management Services Outsourcing Models

The comparison between PRH and SH in Taipei City shows two different outsourcing approaches. PRH adopts a regional joint procurement and specialized subcontracting model, under which the Northern and Southern

Regional Management Stations consolidate the service needs of multiple estates, and each category of service (e.g., cleaning, security, MEP maintenance) is contracted out to specialized service providers. This allows the government to achieve economies of scale and maintain standardized service levels across dispersed estates.

By contrast, SH employs an integrated outsourcing model, in which each estate serves as a single procurement unit. A single property management company is contracted to deliver a comprehensive package of services, including administration, tenant support, security, cleaning, landscaping, and MEP maintenance. While specialized services such as elevator or fire safety maintenance are often sub-subcontracted, the general contractor retains overall accountability. This model reduces the administrative burden on government agencies and enhances professionalization at the estate level.

Table 6. Comparative Profile on the PM Practices of the Three Social Housing Cases

Social Housing	SH-3	SH-6	SH-7
Social housing characteristics			
Property management unit	Social Housing Management Section		
Building age	13	6	5
Rental unit	110	273	507
Number of floor	11F / B3	14,18F / B2	14F / B3
Total floor area (m^2)	16,421	23,989	44,775
Dwelling size (m^2)	74 / 136	40 / 50 70 / 97	43/57/77/93/103/113
Monthly rental fee (NTD/unit-mth) Including management fee	12,400~23,100	9,400~2,2800	12,100~31,500
PM service on-site manpower (person)			
PM Director/Administrative assistant 09:00~20:00 Mon~Sun	3	4	5
Security guard 08:00~20:00, 20:00~08:00 Mon~Sun	6	6	12
Cleaner 08:00~17:00 Mon~Sun	2	3	6
Technician 09:00~18:00 Mon~Fri	1	1	1.5
Total	**12**	**14**	**24.5**
PM on-site manpower (person/100-unit)	**10.9**	**5.1**	**4.8**
Estimated annual property management cost (outsourcing cost; NTD/yr as of 2023.12)			
PM Director/Administrative assistant	On-site personnel dispatched by PM Contractor C	On-site personnel dispatched by PM Contractor F	On-site personnel dispatched by PM Contractor G
Security guard			
Cleaner			
Technician			
Landscaping	Various subcontractors by PM Contractor C	Various subcontractors by PM Contractor F	Various subcontractors by PM Contractor G
Waste disposal			
Water tank cleaning			
Elevator maintenance	Various subcontractors by PM Contractor C	Various subcontractors by PM Contractor F	Various subcontractors by PM Contractor G
MEP maintenance			
Generator maintenance			
Fire safety equipment maintenance			
Telecommunication maintenance			
Annual total (NTD/yr)	**8,584,000**	**11,734,000**	**18,177,000**
Monthly average (NTD/month)	**715,303**	**977,871**	**1,514,727**
PM cost (NTD/m^2-month)	**43.6**	**40.8**	**33.8**

5.2. Property Management Service Level

The PM service level provided in SH is clearly higher than in PRH. PRH receives 'basic' level of PM services, with on-site staff mainly handling basic administrative and technical services, supplemented by outsourced contractors for cleaning, security, and periodic MEP systems maintenance. In contrast, SH obtains 'comprehensive' level of PM services: PM directors and administrative assistants deliver tenant-centered services (tenant support, household visits, care for disadvantaged residents), while technicians provide estate-level MEP maintenance and within-unit repair services. Moreover, SH contracts cover diverse specialized services, including waste disposal and telecommunication system maintenance, generally absent in PRH.

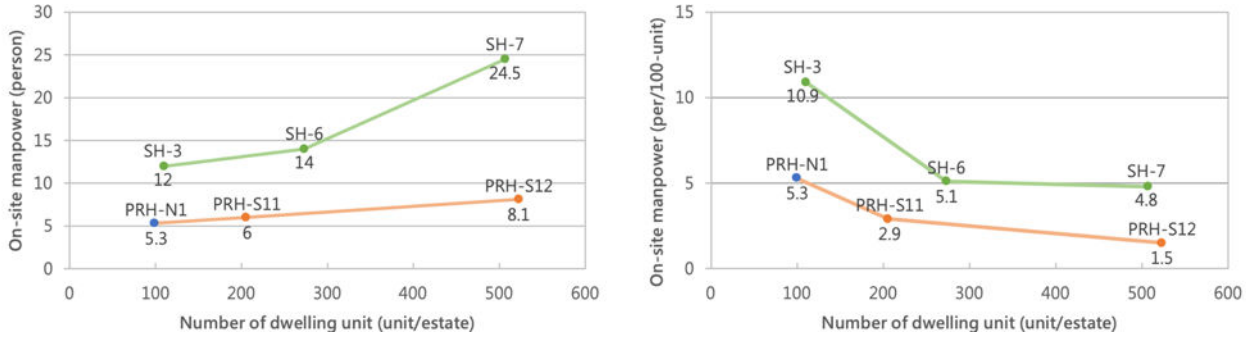
5.3. On-site Manpower

In PRH, the Public Housing Management Section dispatches government-employed administrative assistants and engineers/technicians to regional management stations and local offices, while other frontline staff (security guards and cleaners) are provided by subcontractors. In the three PRH cases, total on-site manpower ranged from 5.3 to 8.1 persons, with manpower intensity between 1.5 and 5.3 staff/100-unit (Figure 5).

In SH, the Social Housing Management Section does not dispatch any on-site government staff. Instead, all on-site personnel (administrative staff, security, cleaners, and technicians) are employed directly by the contracted PM companies. Staffing levels are significantly higher: the three SH cases employed 12 to 24.5 on-site staff, with manpower intensity between 4.8 and 10.9 staff/100-unit (Figure 5). The higher staff ratios reflect the needs to simply PM administrative burden and to deliver higher-quality, tenant-oriented PM services.

The significant difference in on-site manpower between PRH and SH can be attributed to several factors. In PRH, a regional joint procurement system is adopted, where only limited administrative staff and technicians are dispatched by the government to management stations, while most services are delivered by subcontractors on a rotational basis. As a result, the number of on-site staff within each estate remains relatively low. By contrast, SH employs an integrated outsourcing model, under which each estate is managed by a single property management company that must establish an on-site office and provide full-time administrative, security, cleaning, and technical staff. Moreover, SH estates are generally larger, newer, and policy-oriented toward tenant services and community building, which therefore require more intensive manpower.

Figure 5. Comparison of the On-site manpower in the three PRH cases and three SH cases



(a) On-site manpower (person) (b) On-site manpower (person/100-unit)

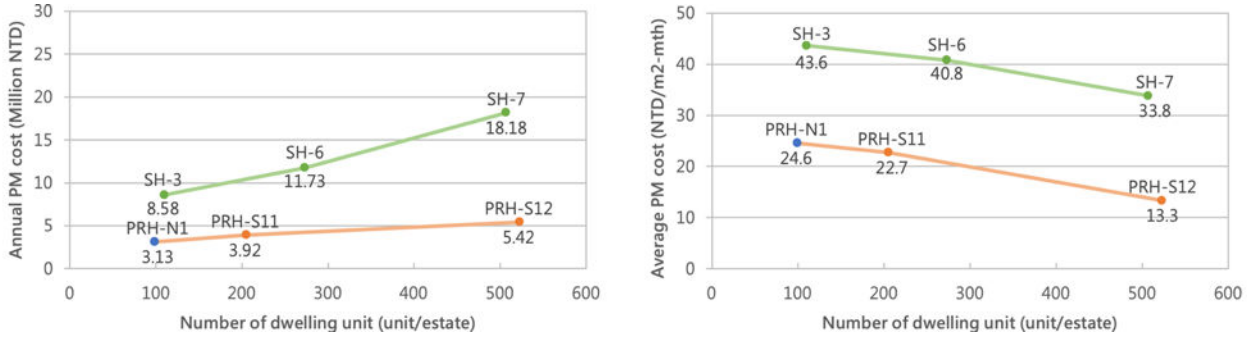
5.4. Property Management Cost

Cost comparisons reveal the financial implications of two PM models. In PRH, the annual PM costs for the three cases ranged from NTD 3.1 million to 5.4 million, with average costs between 13.3 and 24.6 NTD/m²-month (Figure 6). In SH, costs are significantly higher: annual PM costs in the three cases ranged from NTD 8.6 million to 18.2 million, with average costs of 33.8 to 43.6 NTD/m²-month (Figure 6). While SH shows greater service intensity and quality, this comes at a much higher cost per unit area compared with PRH.

The disparity in PM costs between PRH and SH reflects their different PM models, staffing intensity, and policy positioning. PRH estates, many of which are smaller and older, are managed through regional joint procurement with specialized subcontractors, resulting in basic PM service level and relatively modest costs per unit area. In contrast, SH estates adopt an integrated outsourcing model, requiring contractors to provide on-site offices and full-time staff across multiple functions, while also delivering more comprehensive PM

service level, such as tenant support, community programs, and advanced facility maintenance. These factors, combined with the higher technical complexity of new SH buildings, lead to significantly higher PM costs.

Figure 6. Comparison of the PM costs in the three PRH cases and three SH cases



(a) Annual PM cost (million NTD) (b) Average PM cost (NTD/m2-month)

5.5. Discussions and Implications

The comparison between public rental housing (PRH) and social housing (SH) demonstrates two distinct approaches to PM outsourcing. PRH, managed through regional joint procurement and specialized subcontracting, emphasizes cost efficiency and standardized service delivery across multiple estates. SH, managed through a single-estate integrated outsourcing model, provides more comprehensive and professionalized services with greater staffing intensity, but at much higher costs.

The advantages and limitations of both models are summarized in Table 7. PRH's model is economical and effective for dispersed, aging housing stock, but offers only basic PM service level and limited tenant engagement. In contrast, SH's model delivers higher quality and resident-focused services through professional management companies, yet requires greater financial resources and careful government oversight.

Table 7. Advantages and Limitations of the Two Outsourcing Models

PM Model	Advantages	Limitations
Public Rental Housing (PRH): Regional Joint Procurement + Specialized Subcontracting	● Achieves economies of scale by aggregating procurement for multiple estates. ● Service standards are uniform across dispersed estates. ● Allows specialized contractors to focus on their domain (e.g., MEP, elevators, cleaning, security). ● Lower overall and per m² costs compared to SH.	● Fragmented responsibilities across multiple contractors make coordination difficult. ● Relatively low staffing intensity, limiting service responsiveness. ● Provides only basic PM service level (e.g., routine maintenance, minimal tenant support). ● Aging PRH estates may face service gaps due to limited contract scope.
Social Housing (SH): Single-Estate Integrated Outsourcing	● One contractor per estate ensures clear accountability. ● Comprehensive PM service level, including tenant-centered services and other diverse PM services. ● On-site offices provide direct, resident-focused management. ● Higher professionalization of PM companies. ● Flexible use of subcontractors for cleaning and maintenance services.	● Higher costs per unit and per m² (33.8~43.6 vs. 13.3~24.6 NTD/m²-month). ● Reliance on a single contractor reduces competition and flexibility. ● Risk of service disruption if the contractor underperforms. ● More complex oversight required from government to monitor contract execution.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

This study compared the property management (PM) models adopted in the public rental housing (PRH) and social housing (SH) in Taipei City, focusing on outsourcing arrangements, PM service level, staffing, and costs. The findings highlight fundamental differences.

PRH adopts a regional joint procurement and specialized subcontracting model, whereby regional management stations coordinate multiple estates and contract specialized vendors for services such as cleaning, security, and MEP maintenance. This model ensures cost efficiency and standardized services but results in fragmented responsibilities and limited service responsiveness. By contrast, SH applies a single-estate integrated outsourcing model, recruiting one PM company to deliver a comprehensive package of services. This model provides professionalized and tenant-centered management, but requires much higher manpower and costs.

Staffing intensity reflects the two PM models. PRH relies on a small number of government-dispatched staff and external contractors, averaging 1.5~5.3 staff /100-unit. SH maintains on-site offices staffed with directors, administrative assistants, security guards, cleaners, and technicians, yielding 4.8~10.9 staff /100-unit.

Service levels and costs also diverge in both models. PRH delivers basic PM service level at 13.3~24.6 NTD/m²-month, while SH provides more comprehensive PM level, costing 33.8~43.6 NTD/m²-month. Overall, PRH emphasizes efficiency and affordability, while SH prioritizes quality and professionalism, reflecting distinct policy objectives within Taipei City Government's dual-track property management system.

6.2. Recommendations

Future property management of PRH or SH should balance efficiency and quality. PRH's cost-effective model remains suitable for older estates, while SH's integrated outsourcing offers higher service standards. A hybrid approach combining joint procurement for technical tasks with integrated contracts for daily operations may be an alternative. Stronger monitoring and performance evaluation are needed to ensure accountability. To address fiscal pressures, governments should adopt life-cycle maintenance funds and international best practices, while leveraging new technologies (such as property management software, smart monitoring systems, and service robots) to reduce manpower reliance and lower costs.

In conclusion, Taipei's experience illustrates how PM models evolve in response to changing policy objectives. By carefully balancing efficiency and quality, and by continuously refining outsourcing strategies, governments can ensure that publicly funded rental housing remains both sustainable and socially responsive.

ACKNOWLEDGEMENT

The authors thank the National Science and Technology Council of the Executive Yuan of Taiwan for sponsoring this research work (Project No. NSTC 112-2221-E-011 -062 -MY3).

REFERENCES

Andersson, F. (2019) 'Outsourcing Public Services: Contractibility, Cost, and Quality', *CESifo Economic Studies*, 65(4), pp. 349-372.

Castellano-Román, M., García-Valderrama, T. and Fernández-Sánchez, G. (2022) 'Social Housing Life Cycle Management: Workflow for the Enhancement of Digital Management Based on BIM', *Sustainability*, 14(12), pp. 7488.

Department of Housing and Urban Development (HUD) (2021) *Evaluation of HUD's Rental Assistance Demonstration (RAD), Final Report*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Fulcher, M., Edwards, D.J., Lai, H.K., Thwala, W.D. and Sue Hayhow, S. (2022) 'Analysis and Modelling of Social Housing Repair and Maintenance Costs: A UK Case Study', *Journal of Building Engineering*, Vol. 52, 104389.

Gruis, V. and Nieboer, N. (2004). Strategic Housing Management: An Asset Management Model for Social Landlords, *Property Management*, 22, pp. 201-213.

Huang, R.Y. (2019) *The NIMBY Effect of Public Housing in Taipei City*, Master's thesis, Graduate Institute of Public Affairs, National Taiwan University, Taipei, Taiwan.

Kao, P.Y. and Hsieh, B.M. (2018) 'Business Management Model and Strategy of Social Housing Property Management - A Case Study of Taipei City', *Journal of Property Management,* 9(1), pp. 71-87.

Kenley, R., Chiazor, M., Heywood, C. and McNelis, S. (2009). *Towards Best Practice of Public Housing Asset Management*. Australian Housing and Urban Research Institute.

Kurdi, M.K., Abdul-Tharim, A.H., Jaffar, N., Azli, M.S., Shuib, M.N. and Ab-Wahid, A.M. (2011) 'Outsourcing in Facilities Management - A Literature Review', *Procedia Engineering*, Vol. 20, pp. 445-457.

Lam, T.Y.M. (2012) 'Economic Perspective on Outsourcing of Property Management Services: The Case of Hong Kong Housing Authority', *Property Management*, 30(4), pp. 324-340.

Matznetter, W. (2006) 'Social Housing Policy in a Conservative Welfare State: Austria as an Example', *Urban Studies*, 43(9), pp. 1439-1458.

Ministry of Interior (2017) *Social Housing Development Program.* Taipei: Construction and Planning Agency, Ministry of the Interior, Executive Yuan, Taiwan.

Pawson, H, Milligan, V., Liu, E., Phibbs, P. and Rowley, S. (2015) *Assessing Management Costs and Tenant Outcomes in Social Housing: Recommended Methods and Future Directions*. AHURI Final Report No.257. Melbourne, Australia: Australian Housing and Urban Research Institute.

Phang, S.Y. (2018) *Policy Innovations for Affordable Housing in Singapore: From Colony to Global City*. Singapore: Palgrave Macmillan.

Priemus, H. and Gruis, V. (2011) 'Social Housing and Institutional Dynamics in the Netherlands: Challenges for Innovation', *Journal of Housing and the Built Environment,* 26(2), pp. 205-213.

Sharam, A. (2023) Introducing Social Housing Asset Management as a Comprehensive System. *Housing Studies*, 40(2), pp. 418-443.

Sorensen, A. (2011) 'Urban Renewal and Public Housing in Japan: From Postwar Reconstruction to the 21st Century', in Ronald, R. and Hirayama, Y. (eds.) *Housing and Social Transition in Japan*. London: Routledge, pp. 19-42.

Tzow, Y.H. and Tu, K.J. (2017) 'Investigation of Property Management Model of Public Housing in Taipei', *Journal of Property Management,* 8(2), pp. 57-70.

Van Mossel, H.J. (2008). *The Purchasing of Maintenance Service Delivery in the Dutch Social Housing Sector: Optimizing Commodity Strategies for Delivering Maintenance Services to Tenants*. PhD thesis, Delft University of Technology.

Walker, R. M., & Van der Zon, F. M. J. (2000). Measuring the Performance of Social Housing Organizations in England and The Netherlands: A Policy Review and Research Agenda. *Journal of Housing and the Built Environment*, 15(2), pp. 183-194.