

# Soft system methodology for maintenance and treatment budgeting for public-rented flats

Maintenance  
and treatment  
budgeting

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## Abstract

**Purpose** – Public-rented flats in Jakarta Province operated by the Management Unit of Public-Rented Flats (MUPRF) experienced budget cuts for the maintenance and treatment activities during the COVID-19 pandemic that hit Indonesia in the early 2020. Currently, the budgeting scheme of the MUPRF uses the local government's budget in determining the expenditures of public-rented flat. This papers aims to propose an alternative budgeting scheme for the MUPRF.

**Design/methodology/approach** – Soft system methodology (SSM) was adopted to understand the public-rented flats as a whole system, so an alternative budgeting scheme for the MUPRF can be identified and developed. Interviews with an employee of the Department of Community Housing and Settlement of Daerah Khusus Ibukota Jakarta Province were conducted. A rich picture, customer, action, transformation, worldview, owner and environment analyses, conceptual model and a proposed model were developed during the process.

**Findings** – Based on the SSM, it is found that becoming a local public service agency, the MUPRF can be more independent and flexible in managing their budget. The income generated by the public-rented flats can be used directly for their expenditure.

**Research limitations/implications** – Through the SSM, only a conceptual model is developed, which has not yet been implemented in practice. Future studies need to be carried out to evaluate the feasibility of the conceptual model.

**Originality/value** – This research analyses the public-rented flat as a whole system through SSM to identify factors and parties that are involved in the daily activities in public-rented flats to propose a suitable alternative for its budgeting scheme.

**Keywords** Building, Treatment, Maintenance, Budget, Public-rented flat, Soft system methodology, SSM

**Paper type** Conceptual paper

## Introduction

Public housing or social housing is housing intended for low-income society. In Indonesia, social housing comes in form of flats. Public flats are multistorey buildings located in a region that are equipped with a common area, common object and common land (Republic of Indonesia, 2011). In Indonesia, there are two types of public flats, public-rented flats and public-owned flats. Both types are managed differently. Although the public can only rent the units in public-rented flats, in public-owned flats, the public can own the units.



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Public-rented flats in Indonesia are managed by several agencies such as the Central Government by the Ministry of Public Work and Settlement, the local government and the state-owned enterprise. Most of the public-rented flats in Daerah Khusus Ibukota (DKI) Jakarta Province are operated by the Management Unit of Public-Rented Flat (MUPRF) under the Department of Community Housing and Settlement (DCHS) of DKI Jakarta Province. There are a total of 28 public-rented flats operated by the DCHS that are divided under the management of eight MUPRF. All the activities such as building new flats, maintenance, treatment and operational expenditure use the budget of the DCHS, which is from the local government's budgeting scheme.

As the COVID-19 pandemic hits South East Asia in early January 2020, there has been declining demand and supply of good and services because of the lock down policies. Most countries that are impacted by the COVID-19 pandemic have lower level of gross domestic product (GDP), rising unemployment, higher level of impoverishment and increasing income inequality. Some countries with fiscal weakness experience low tax revenue and struggling to implement countercyclical mitigation fiscal and monetary policies. The declining of economic activities and government's revenue, and the increasing of government's borrowing are projected to increase the public debt level significantly, which likely will imply fiscal tightening for the following years (Tandon *et al.*, 2020).

In Indonesia, the COVID-19 pandemic has impacted the national and local government budget of the Indonesian Government; one of them is the Jakarta Capital City Government's local government budget. Through some efficiency of the local government budget of 2020, there were some budget cuts that were done. Budget cuts were done in the Jakarta Capital City Government to accelerate the handling of COVID-19 (Jakarta Capital City Government, 2020). In the DCHS, the budget of 2020 was revised through Local Government Budget-Revision, and the budget for building maintenance and treatment in public-rented flats in 2020 were eliminated.

Budget cuts on social housing were also experienced in The Netherlands. Social housing in The Netherlands is owned mostly by the housing associations. Housing associations are organizations in The Netherlands that let or sell accommodation and provide homes for older people and people with a disability (Government of The Netherlands, 2021). In 2008 when the credit crunch hits The Netherlands, housing associations were impacted as well. Budgets were also cut in 2012 from the national government, as the government needed extra income to lower the government deficit. A heavy tax was announced to housing associations forcing them to introduce new rent increase for households with higher income in the social rented sector. Households with income between €34.000 and about €50.000 are no longer the target group for social housing, which is mentioned in the Revised Housing Act (2012) (Boelhouwer and Priemus, 2013).

The elimination of building maintenance budget in buildings can cause several problems. Such problem are the absence of maintenance and treatment activities, decaying quality of building and expenditure backlog that needs to be covered in the future (Arumsari and Rarasati, 2017; Hopland and Kvamsdal, 2018). Weakness on the distribution of maintenance fund can be the cause of failure in maintaining the life cycle of the building and the purpose of building maintenance itself (Mohd-Noor *et al.*, 2011). Building maintenance has the purpose to ensure the safe condition of the building and their associated services, to ensure that the building is fit for use, to ensure the statutory requirements are met, to maintain the value of physical asset of the building and to carry out necessary work to maintain the quality of the building (Aler and Fellos, 1990).

There are five elements considered as critical elements in sustaining the practice of public housing maintenance in Malaysia; one of them is the resource allocation, which

includes the maintenance budget. In 2015, the Kuala Lumpur City Hall allocated MYR128.49m specifically for its Public Housing Maintenance Program (Abdullah *et al.*, 2016); this is approximately Rp443bn. The budget was allocated for contracts regarding the maintenance and repair of structural, electrical and mechanical, and lift-related works as well as cleaning service, whereas in DKI Jakarta Province, the maintenance and repair budget allocated in 2016 is Rp 149bn (Pemerinta Provinsi DKI Jakarta, 2021), which is a third of the budget allocated for the maintenance program in Kuala Lumpur.

Problems such as the limited operational budget available, the long road of bureaucracy for disbursement process and the management of financial rules that hinder the public service are also experienced by public hospitals in Indonesia. Public hospitals are required to serve the community, develop and be independent, and also be able to compete and provide quality public services which are affordable for the community. The form of public service agency system is felt to be a suitable system for public hospital to implement (Rondonuwu and Trisnantoro, 2013). The same problems are experienced by the public-rented flats, where the process of disbursement for maintenance budgeting can take up to six months. Most of the time, the tenants prefer to fix the defects by themselves (Arumsari and Rarasati, 2017).

Some problems mentioned earlier affecting the public-rented flats because of the local government's budget cuts, the importance of maintenance budget and the government's policy in other countries on public housing need to be addressed and analysed for the situation in public-rented flats in DKI Jakarta Province. The main research question that needs to be answered through this research is "how public-rented flats can be independent in managing their financial and being unaffected by the local government budget to fulfil their responsibility to provide public service and their need for maintenance and treatment activities?"

One of the approaches in solving a complex problem is through soft system methodology (SSM). Many past studies uses SSM to address their complex problem such in solving the tuna fishery management in the Indian Ocean (Nurani *et al.*, 2018), evaluating policies and incentive actions in the electricity sector (Antunes *et al.*, 2016) and solving problem in assigning classes of students to appropriate faculty member, suitable classrooms and available timeslots (Mehregan *et al.*, 2012). Therefore, the purpose of this research is to address and analyse all of the problems mention using the approach of SSM.

## Method

### *Soft System Methodology*

Problem structuring method (PSM) is a method in structuring a complex decision situation. One of the PSM methods is the SSM. The SSM was first developed by Peter Checkland in 1970s, which is a methodology that sees a problem as a whole rather than apart. As a system-based methodology, SSM enables the analyst and the participants to see different perspectives on the problem situation. The SSM model consists of seven steps, which can be seen in Figure 1 (Checkland, 1989). The development of the SSM model in this research was through interview conducted with one of the employee in the DCHS of DKI Jakarta Province. Based on the interview, a rich picture, customer, action, transformation, worldview, owner and environment (CATWOE) analysis, conceptual model and a proposed changed model were developed, which is explained in detail in the next subsections.

## Result

### *Steps 1 and 2 problem situation and structuring*

The first step in SSM is to identify the problem situation. As mention earlier, the problems such as budget cuts in the local government's budget and elimination of building

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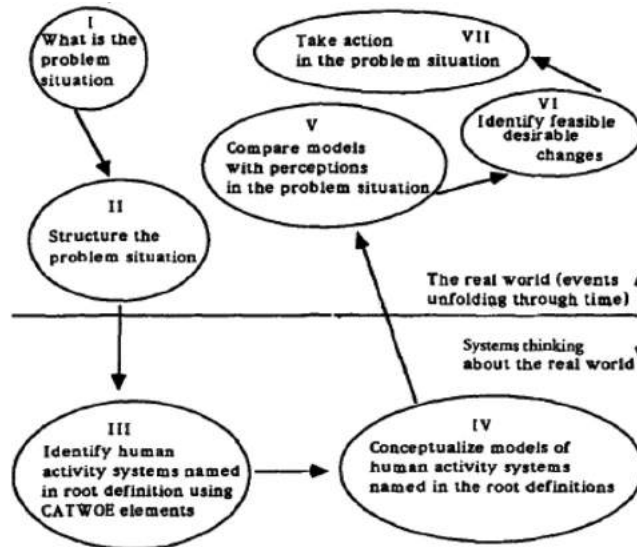


Figure 1.  
SSM

maintenance activity in public-rented flats are the results of the COVID-19 pandemic. A rich picture was made to structure the problem situation as a whole system, which can be seen in Figure 2.

Based on the rich picture developed in Figure 2, the real-world problems arising from the complex and ill-defined contexts can be identified. It is necessary to identify the characteristic of the situation, establish the scope and boundaries of the analysis, recognize the stakeholders involved and understand the action that can be carried out (Antunes *et al.*, 2016).

In the rich picture in Figure 2, it can be explained that the expenditures of the public-rented flats are under the budget of both MUPRF and Housing Unit in the DCHS of DKI Jakarta Province. These expenditures use the local government budget to allocate their expenditure. When formulating the DCHS budget using the local government budget, there are several stages that need to be done.

Firstly, a budget work plan needs to be developed consisting all of the expenditures needed in the upcoming year. This budget work plan will then need to be communicated through some forums with the Bureau of Development and Environment, the Development Planning Agency at Sub-National Level, the Regional Financial and Asset Management Agency, the Local Inspectorate and the Technical Departments in DKI Jakarta Province. After the budget work plan has been communicated and approved, it is then final checked by the Ministry of Internal Affairs before the Budget Execution Document for the upcoming year is released and can be used.

The income generated from the public-rented flats such as the rent of residential units, kiosk and common hall goes directly into the Local Treasury. As public-rented flats are intended for low income society, they often can cause problem such as rent arrears (Aprilia *et al.*, 2015). However, as the expenditure of public-rented flats such as over-head, operational, maintenance and treatment costs comes from the local government's budget, this problem does not really affect the cash flow of the public-rented flats. However, this can of course affect the local government's income generated in general as their revenue will decrease (Tandon *et al.*, 2020). The total rent arrears experiences by the MUPRF up to June

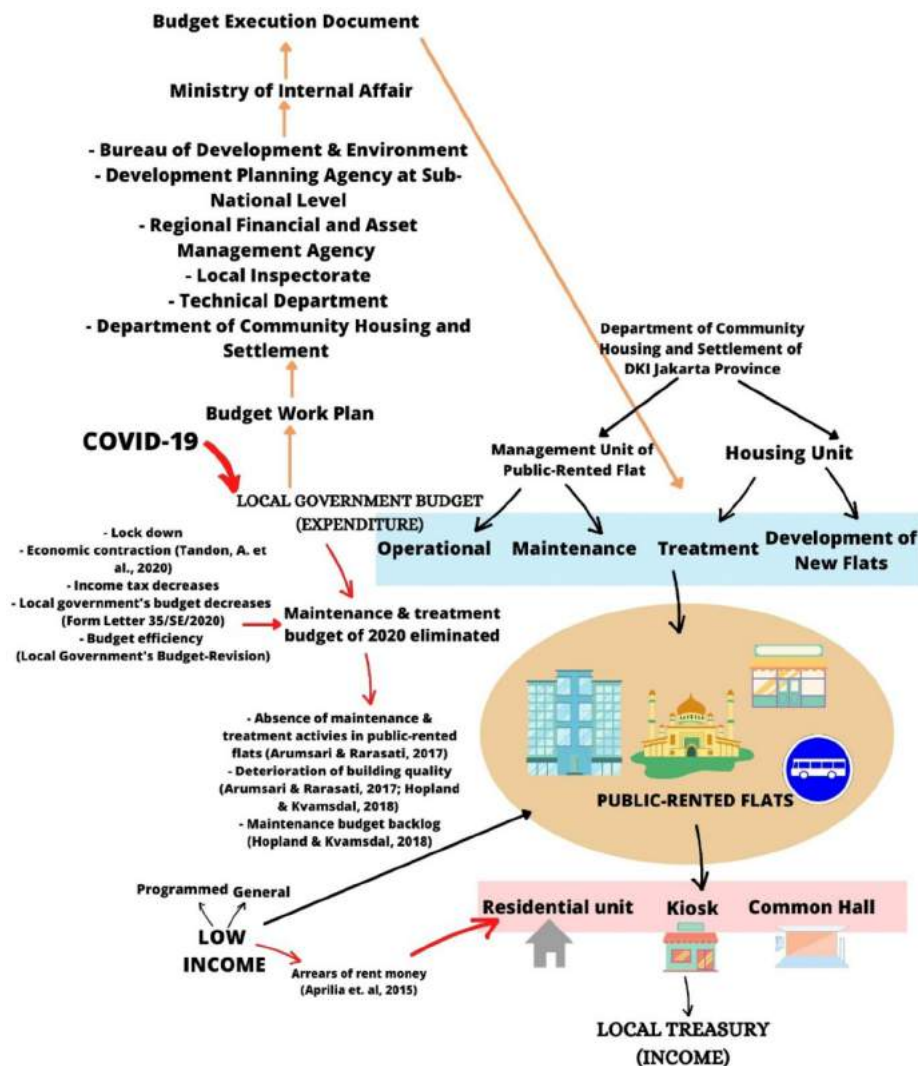


Figure 2. Rich picture of public-rented flats

2017 was Rp 32bn. One of the local government's program to improve the tenants in public-rented flats is through One Kecamatan – One Centre for Entrepreneurship (OK-OCE) Program to provide counselling, guidance and workshop (Pusat Pelayanan Statistik, 2017). Feasibility study regarding the capability of MUPRF to sustain over-head, operational, maintenance and treatment cost of the public-rented flats is intended for further studies.

*Step 3 root definition (CATWOE analysis)*

The next step is to identify human activity system named in root definition using CATWOE elements. Through the CATWOE analysis, the whole human activity system starting from

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the customers, actors, transformation, worldwide view, ownership and environmental constraint in a public-rented flats' system is identified to view the system as a whole. The CATWOE analysis of the public-rented flats can be seen in [Table 1](#).

*Step 4 conceptual model*

Conceptual model was structured through the CATWOE elements identified in [Table 1](#) that can be seen in [Figure 2](#). The conceptual model was mainly developed based on the "Transformation" element in the CATWOE analysis that stated that the public-rented flats need to be independent in managing their cash flow. Hence, the conceptual model proposed was to change the items on the expenditure and income of the public-rented flats, so the public-rented flats can operate their cash flow on their own ([Figure 3](#)).

The source of incomes of public-rented flats can be from rents of residential units, kiosk and common hall, billboard advertisements and also grants and/or loans provided by other parties. Short-term loan is allowed for local public service agency ([Yayasan Penabulu and Kemitraan Pemerintah Australia-Indonesia, 2017](#)). Having the ability to use short-term loan for new local public service agency, especially for the MUPRF, can help them in the starting to overcome the over-head, operational, maintenance and treatment cost.

This income will be stored directly to the public-rented flats for their own expenditure. All of the expenditure regarding the operational of maintaining the building of public-rented flats will be under the MUPRF. These expenditures are debt instalment, operational, maintenance and treatment activities and the availability of petty cash for emergency issues ([Kementerian Keuangan Republik Indonesia and Australian Government, 2017](#)).

*Step 5 compare model with perceptions in the problem situation*

The conceptual model is then compared to the real problem situation. There are six items from the model that was analysed to compare them with the real condition. These items can be seen in [Table 2](#).

*Steps 6 and 7 identify feasible desirable changes and take action in the problem situation*

Public-rented flats, such as public hospitals, are also required to serve the community in providing well-deserved living for the low-income community to improve their standard way of living. The building of public-rented flats needs to be well maintained. It is felt that public service agency system is suitable for public-rented flats; therefore, changes towards those desirable changes need to be pointed out. In [Figure 4](#), the proposed changed model of

**Table 1.**  
CATWOE analysis

CATWOE	
Customers	Public-rented flat society
Actors	MUPRF, public-rented flat society, Development Planning Agency at Sub-National Level, Regional Financial and Asset Management Agency, Local Inspectorate, Technical Departments and DCHS of DKI Jakarta Province
Transformation	The MUPRF need to be independent in managing their cash flow to improve the quality of life of public-rented flats rather than to be dependent solely on to the local government's budget
Worldwide view	Building maintenance is needed to maintain the quality of the building and also to provide the welfare of the occupants
Ownership	DCHS of DKI Jakarta Province
Environmental constraint	The limitation of building maintenance budget for public-rented flats in DKI Jakarta Province through the local government's budget



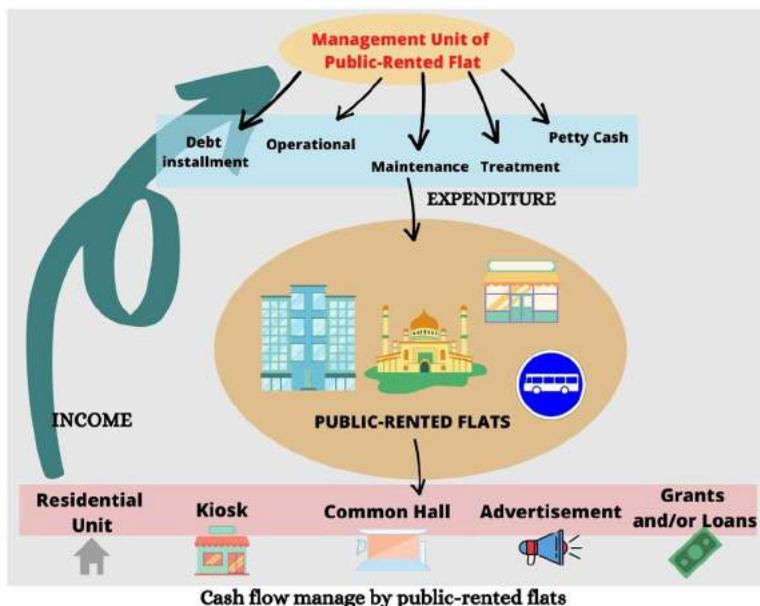


Figure 3. Conceptual model on public-rented flat budgeting scheme

the budgeting scheme of public service agency for the MUPRF can be seen. In the case of the MUPRF, it becomes a local public service agency as it will be under the jurisdiction of the DKI Jakarta Province Government.

A local public service agency is a system implemented by the governing body, in this case the MUPRF, in providing a service to the society that has a flexible financial management as an exception to the provision of the local management in general. Local public service agency will have the freedom to manage their financial by applying healthy business activities to improve the public service and the welfare of the public society without looking for profit (Kementerian Dalam Negeri Republik Indonesia, 2018).

As public-rented flats operated by the MUPRF of the DCHS of DKI Jakarta Province become a local public service agency, the MUPRF can be independent in managing their cash flow. However, MUPRF will still have to prepare a business plan and budget to propose their budgeting for the following year, and the process will be the same for budgeting that uses the local government's budget. The different is that being a local public service agency, MUPRF have the ability to manage their budget more flexible.

To become a local public service agency, the MUPRF need to fulfil some requirements to be able to make the change. The requirements consist of three aspects; substantive, technical and administrative. Based on the Regulation of the Ministry of Internal Affair Number 79 of 2018, these are the details of the requirements:

- (1) Substantive aspect
  - provision of good and/or public services;
  - the management of specific fund to improve the economy and/or the public service; and
  - the management of specific area to improve the community's economy or public service.

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Model	Real-problem situation
Treatment budget should be under the Management Unit of Public-Rented Flat (MUPRF)	Repair budget is under the Housing Unit in the Department of Community Housing and Settlement of DKI Jakarta Province (DPRKP Provinsi DKI Jakarta, 2020)
Cash flow (expenditure and income) of the public-rented flats should be managed by themselves	Expenditure is based on the local government's budget and the income generated is stored directly to the local treasury
Billboard advertisement can be one of the income source for public-rented flats	The approval process of advertising billboard in public-rented flats have to go through the Local Asset Management Agency first
Public-rented flats can receive grants from other parties and/or loans from the local government through the local government's budget as sources of income	The MUPRF does not need income as the budget is controlled by the local government's budget
Petty cash available for operational used when needed	No available petty cash in the management of public-rented flats
Debt instalment will be one of the expenditure in public-rented flats when receiving loans as a source of income	No debt instalment is needed, as there are no loans received for public-rented flats

**Table 2.**  
Comparing model  
with real problem

(2) Technical aspect

- the characteristic of tasks and functions of the Technical Unit in providing a more feasible service when becoming a Local Public Service Agency, therefore improving the achievement of success target; and
- able to improve the service towards the community and financial performance when becoming a Local Public Service Agency.

(3) Administrative aspect

- an affidavit of commitment in improving its performance;
- governance pattern;
- strategic plan;
- minimum service standard;
- financial statement or financial projection; and
- audit report or statement of willingness to be audited by a government external auditor.

## Discussion

In Amsterdam, The Netherlands, after the Second World War, the government policy moved from welfare state to neoliberalism. This resulted in social housing being privatized under the ideology of neoliberal housing policy. It shows that the local government of Amsterdam regarded social housing as a burden to the government's budget and tried to promote the market as a main driven force. Whereas in Hong Kong, the government still intervenes with the public-rental housing and subsidies homeownership. However, also pursue a *laissez-faire* policy for the private housing market. The Chinese Government have introduced economic comfortable housing and public-rental housing through public-private partnership (Qian *et al.*, 2019).

The COVID-19 pandemic has brought adverse effects to the world in 2020. Various efforts were done to generate the economy in this pandemic era, especially in Indonesia. One of the



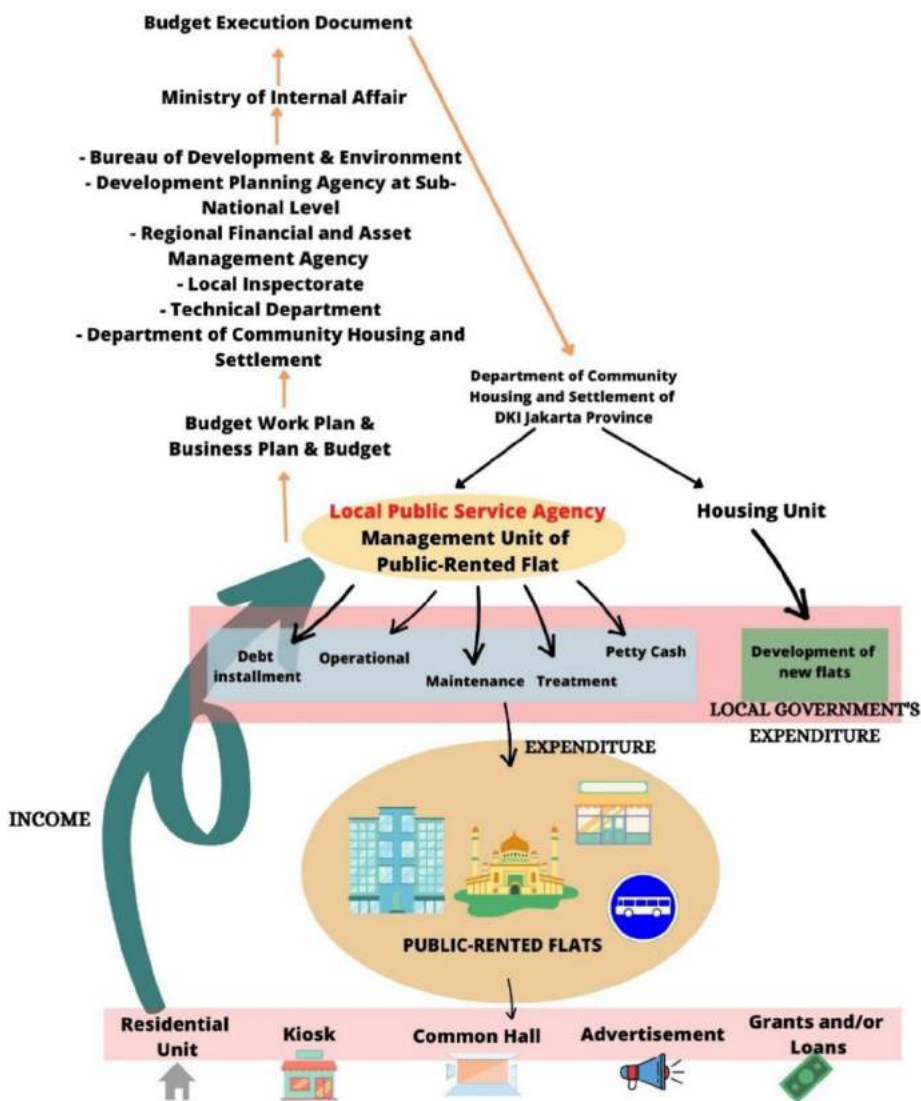


Figure 4. Proposed change model in public-rented flats' budgeting scheme

efforts is towards increasing government expenditure to promote the economic activities. Although the economic condition of Indonesia is struggling in 2020, the performance of public service agency is quite the opposite. The income generated by public service agencies reached up to Rp 62tn at the end of 2020. This income generation have exceeded by 150% from the target planned. This result shows that public service agencies have the ability to survive during this economic crisis and also to maximize their income generation (Arfiyansyah, 2021).

Through lesson learned from The Netherlands, Hong Kong and China, public/social housing cannot be solely dependent on the government's budget. An independent financial

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scheme needs to be figured out that meets the need of public-rented flats and also the low-income society. A propose change in budgeting scheme of the public-rented flats under the MUPRF from using local government’s budget to being a local public service agency is due to the rigid financial management of using the local government budget (Adam *et al.*, 2017). Based on the performance of public service agency during this pandemic era, it can be concluded that public service agency can still overcome the economic challenges. In being a local public service agency, the MUPRF can provide public service with flexibility in managing their financial statement within the boundaries stated by the local government’s provision. Local public service agency aims at providing public service in a more effective, efficient, economic, transparent and responsible way by using flexible budgeting scheme (Kementerian Dalam Negeri Republik Indonesia, 2018).

In a flexible budget, there will be two kinds of costs: the variable costs and the fixed costs. The fixed cost of the public-rented flats will remain the same throughout the year; however, the variable cost will correlate based on the volume of work and also the total income generated in that current year (Radu and Giju, 2015). The budget of the local public service agency is said to be flexible, namely because the expenditure can be increased or decreased from the budget as long as the income generated is increased or decreased proportionately (Kementerian Keuangan Republik Indonesia and Australian Government, 2017).

Based on Lestari (2017), Haji Medan Public Hospital was granted to be a public service agency in 2013, and after three years of implementation, it has showed some improvement on the financial ratio condition of the hospital that can be seen in Table 3.

Based on Table 3, the financial ratio aspect of cash ratio, current ratio and income ratio before and after the implementation of public service agency have improved. The improvement of cash ratio of Haji Medan Public Hospital is due to the fact that since the implementation of public service agency budgeting system, the performance of the hospital is based on targets. The hospital is given targets that need to be achieved at the end of the year. If the targets are achieved, this in return will increase their cash ratio as the hospital can finance their spending.

The current ratio aspect indicates the ability of the hospital to fulfil its short-term debts using its current asset. The performance of the current ratio of Haji Medan Public Hospital has shown an increase of 118.66%. The income ratio of the hospital also indicates that Haji Medan Public Hospital is receiving income greater than its operational expenditure. The average income ratio increases by 118.69%.

On the first year of implementing the public service agency budgeting system, an agency still needs to adjust and make some internal changes. Based on Nasution (2014), the Riau University was granted the implementation of public service agency budgeting system in 2010. The human resources on the finance and treasurer department were given training on financial management. Strategy was also prepared in increasing the availability, affordability, quality, equity and assurance of educational services.

It can be concluded that the first few years of the implementation of public service agency budgeting system can be a struggling year for an agency; some changes need to be made such as stated by Nasution (2014). However, following the upcoming years,

**Table 3.**  
Financial ratio  
improvement of Haji  
Medan public  
hospital

Financial ratio aspect	2011–2013 (%)	2014–2016 (%)	Improvement (%)
Cash ratio	66.67	141.52	112.26
Current ratio	134.94	295.06	118.66
Income ratio	83.91	183.50	118.69

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improvements and independency can be achieved after three years of implementation and will still be improving.

## Conclusion

A local public service agency system has been suggested through SSM as the answer to the objective of this research. As the MUPRF becomes a local public service agency, it will have a more flexible budgeting scheme. The incomes generated will be managed independently to match the need of their expenditure. By being a local public service agency, the MUPRF is hoped to be able to provide a more efficient and effective public service and able to maintain the existence of the public-rented flats' building itself.

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