

The management strategy for government building disposal process in Jakarta

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Abstract. The feasibility of government buildings, especially offices and schools as public service and social infrastructures, must be well maintained. When the building needs to be majorly rehabilitated, the government sometimes has to combine building demolition and deconstruction processes. In the government asset management cycle, the process starts with erasing the asset from the accountancy system, by selecting a building demolition contractor, then producing a new asset by selecting another builder contractor. In the past few years, the duration of this actual process acquired longer than the planned time. Therefore, this research aims to develop a management strategy in order to improve the government building disposal process. The process of the research started with obtaining the dominant factors that influence the demolition and deconstruction process, and then it is continued by developing the strategy.

1 Introduction

The increasing activities and economic growth of Jakarta turn into challenges and it needs distinctive attention from Jakarta Provincial Government to improve service performance to society. The feasibility of facilities and infrastructures, such as office buildings, schools, and other buildings as supporting activities, must be maintained by conducting regular maintenance every year. A building condition is not feasible based on these following conditions [1]:

1. Buildings are not safe nor meet the building requirements' regulation, such as not having a fire safety standard;
2. High-priced operational costs that can be seen from huge lighting and air conditioning needs during working hours; and
3. Ineffective maintenance, routine building reparations are ineffective because building's damages are re-emerge in a short time.

Building asset disposal plays an important role in the government building construction in Jakarta, because the process takes several months, starting from the proposed disposal process, the procurement of a demolition contractor, the building demolition process and then the new building construction. Within the last five years, the implementation of asset disposal process was confronted by several problems, including a longer time required for

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valuing asset disposal, recurrent asset disposal procurement process, and delay of existing building demolition process.

Based on an interview conducted during initial research, it was identified that within the last four years, asset demolition process for administrative village building is averagely delayed for 30-75 days of the 90 days' realisation planned. The duration of building demolition is delayed for 10 days of 20 days on contract. Therefore, it disrupts the new building construction that is targeted to be completed by the end of the year.

Therefore, this study aims to determine the factors that affect the process of asset disposal in the Provincial Government of Jakarta and develop asset management strategies for the asset disposal that can be used by stakeholders to speed up implementation time. This paper discusses the internal processes within the Provincial Government of Jakarta and the external process within the Ministry of Finance for asset valuation and bidding. The changes within the organizational structure of asset management in Jakarta is becoming one of the challenges to conduct this research and it is also beneficial for Jakarta or other regions.

2 Factors in asset management disposal

2.1 Asset disposal preparation

Within the administration preparation prior to removing an asset, consideration of the corresponding administrative completeness of the asset includes the asset registration [2], which is compiling and maintaining a list of assets and other important information needed to be included. From a pilot study, there is no authority indicating that proposed to review each asset. This is the preliminary data required prior to the proposal for asset removal.

Assessment of assets on a regular basis is very important to determine whether there is consistency of assessment in the local government [2]. Most local authorities assess the asset for financial reporting purposes that occur each year, the regularity of the assessment will show how up to date the figures indicated in this report are. Assessment of this asset will be useful as one of the factors in determining the lowest limit value of the offer in the asset auction.

Asset eligibility is a motivation in asset deletion, and the criteria used to decide which property is ready to be removed can vary. The success of asset management requires a sophisticated and professional asset evaluation [3]. Prior to the implementation of the removal of building assets in the form of demolition, each activity should be planned to meet the project objectives. The planning needs to consider the characteristics of the removal process that need to be considered because of the uniqueness of any asset removal project, such as the type of building (e.g. housing, commercial, industrial or infrastructure) or asset age differences (e.g. new, existing or inherited). In addition, it is also necessary to consider the legal regulations on health and safety including border impact and protection. The need for adopting different asset removal methods will greatly affect the outcome of the project [4].

2.2 Demolition services auction

In realizing effective procurement, there are five key elements needed, one of which is people's capabilities [5], without having the right skills and competencies, the procurement department cannot participate in key activities of the organization and meet the needs of users/customers. Therefore, the quality of human resources will greatly impact the procurement operations effectively in the long run. This means that the effectiveness of the

procurement process within an organization will be influenced by personal capabilities and competencies appropriate to its human resources to meet the needs of its stakeholders, especially customers.

2.3 Disassembly process

The process of disassembling the building can be grouped into two types, namely (1) progressive disassembly, where dismantling is performed on key structural parts for successive and predictable collapse of buildings, and (2) disassembly by accidental collapse mechanism, where dismantling of key structures to undermine the structure of the building is done in a single process. At the demolition site, there is a high risk of workplace accidents, such as the uncontrolled collapse of buildings, risks from hazardous materials, vibrations, noise and fire [6]. To control the incidence of accidents, safety considerations should be given, such as providing safety training for workers and equipment, regular testing of equipment and proper maintenance of equipment, the selection and storage of hazardous materials with greater caution. Before undertaking demolition work, building surveys should be carried out with care, so that this process does not cause severe damage to the environment, communities, and property surrounding the building to be destroyed. Demolition of controlled buildings is necessary to ensure the safety of workers and the environment so as to minimise injuries and accidents [7].

Successful project implementation can be seen from the performance of project managers to complete projects on time, within budget and within scope [8]. Projects that are late in implementation in accordance with the contract may be subject to penalties. However, the small penalty of late fees for work on building asset removal may be a consideration for not applying it [9].

3 Research methodologies

This research uses mixed research methods that use primary and secondary data collection. Research begins with surveys as primary data sources of research. A literature review was conducted to help build the rationale of research questions and to establish the level and depth of knowledge related to the elimination of building assets within the province of DKI Jakarta. The next process is to develop strategies to facilitate the continuity of activities in asset management. The process of elimination of building assets that go according to plan will support the success of building rehabilitation activities to build good quality buildings.

The survey, using questionnaires, and structured interviews was conducted to identify the existing condition of asset deletion and the opinions and expectations of stakeholders to facilitate asset deletion activities. Stakeholders involved in building asset removal activities (such as users, managers, assessment teams and demolition contractors) are required to assess their condition in carrying out the building asset removal cycle. They are also asked to provide opinions on strategies to overcome obstacles and speed up the process of eliminating building assets, taking into account the availability of supporting facilities and infrastructure. Pilot surveys are also undertaken to evaluate instruments that are made easy to understand. The data collected from the questionnaire survey was recorded and analysed as the basis for the development of the building asset removal strategy.

4 Results

The survey was conducted during the second and third weeks of March 2018. Respondents who participated in the study came from various genders, ages, education and employment

backgrounds that are still related to the building asset removal activities, i.e. officials and staff in the asset user's work unit, Regional Asset Management Agency of DKI Jakarta Province as asset manager, Assessment Team from the Ministry of Finance of Jakarta Region, and building demolition contractors. Researchers managed to achieve 32 responses through the distribution of questionnaires and structured interviews.

After using a mixed method of survey research questionnaires and structured interviews, the results were processed using validity and reliability tests. For the validity test, the 0.05 significance level (5%), or 95% confidence level, was conducted by using factor analysis. Measurement of validity was done by performing factor analysis on a number of respondents to see the value of Kaiser meyer-olkin (KMO) measure of sampling adequacy, significance (SIG), anti -image matrices (MSA), and the loading factor of component matrix has a value above 0.5. Then it can be concluded that the variable used in this research is valid. Reliability test is performed to measure consistency and reliability of indicator questions in each questionnaire to the variables. By looking at the limit value of Cronbach's alpha ≥ 0.60 , then the statement indicator in the questionnaire is stated reliable, consistent, and relevant to the variable [10].

4.1 Preparation phase

Based on questionnaires and structured interviews, the reason for the elimination of building assets by majority goods users was based on visual observation of building feasibility of 59.38%. While if it was based on the age of the building it was approved by respondents by 35.48%. Buildings that have been rehabilitated heavily but still require maintenance in a short time can be categorized as not feasible. To strengthen the reason for the elimination of building assets, a feasibility study should be conducted by the competent party, based on the feasibility study survey, it should be done by the relevant technical work unit (53.8%) and consultant (25.6%). In the proposed demolition by the user, there is still a lack of data requirements, this is because the assets registers are not managed properly.

In the assessment of building assets for the determination of the lowest bid limit value in the auction, in the last three years this process was conducted by the assessment team of state assets under the Ministry of Finance of Jakarta Region, based on a survey of regulations related to the assessment of state or regional assets has been adequate (66.67%) and the rest answered that there needs to be a revision to clarify in relation to the assessment of the assets belonging to the region, the current rules only explain for the assessment of state assets or those under central government management. Based on this survey the results of this assessment have accuracy with the calculation of contractors: always accurate by 12.5% and sometimes accurate by 71.88%. The accuracy of this value is based on the last five-years data, where the experience of the limit value before being calculated by the asset assessment team of the Ministry of Finance of Jakarta Region, the value that is generated is far above the prediction of the demolition contractor so that there is often a re-auction because there is no interest.

As a reference to the work of demolition executioner and supervision by the user, the survey results describe the need for the Term of Reference (TOR) of demolition work made by the user. The contents of the TOR are the period of work, safety planning, and minimal work equipment.

4.2 Auction phase

Auction plans for asset disposals are focused on combining similar demolition activities or packing activities. Based on the survey, packaging activities are still at the level of pretty good (59.38%). This shows the need for improved analytical skills in the manufacture of

work packages by considering several types of classification factors. Based on the survey of the classification consideration of the package is the distance between buildings (40.91%), building type (38.64%) and the rest is based on the number of buildings in every package, the maximum combined limit value of every package and other combinations such as location access consideration.

Based on survey results, the auction duration is sufficient (56.25%) and sometimes adequate by about 28.13%. From this data, it is expected to calculate the auction duration more accurately in accordance with the optimal needs for the calculation of value by bidders.

The condition of personnel involved in the auction of this asset is seen from the aspect of competence and the number of personnel has been sufficient which is about 66.67%. This auction at the Ministry of Finance will prioritize the activities of ministry or central government work units. At the time of many activities to be auctioned, there will be a queue for the auction process. So the adequacy of personnel at a given moment will depend on the number of incoming auctions, which are not constant throughout the year.

The asset auction system, based on the survey, is easy to use 68.75% while the difficult answer is only 6.25%. Some respondents argue the need for improvement of this system such as the existence of better auction participants filter in order to obtain executors who are able to carry out the demolition of the building in a timely manner.

4.3 Demolition phase

Implementation of safety standards and environmental impact mitigation need to be improved, as seen from the results of the survey on compliance with safety standards, only 10% meet the standards, 65% sometimes, and 25% do not meet the standards. For environmental impact minimization indicators, always implemented 23.81%, sometimes executed 57.14% and not executed equals to 19.05%. This can be seen from the selection of auctions that do not require a certificate as the executor of the demolition of the building. One effort to raise awareness of risk and safety factors is with routine inspections by competent supervisors. The evaluation of the building demolition process is reviewed for the duration of implementation based on the survey, 16% completed on time, 76% occasionally, and 8% late from the specified time period. It is also seen that the duration of the delay is 28.12% at 3-5 days, 21.87% in duration > 10 days and the smallest 12.5% with duration < 3%.

For job completion scope indicator, it is seen that the level of completion of work completion is 29.17%, sometimes 66.67% and not in-scope of 4.17%. Delays in completion and appropriateness of the scope of work are indicated by less accommodative employment ties. Based on the survey there are still about 28.12% which assess the current work bond represents only a few major points in the standard work contract. Work-related late-work delays will be fined, based on a 56.52% survey of fines are always in effect and 43.48% occasionally penalties imposed. This requires firmness in the work bond and the commitment of stakeholders to carry out this work bond.

5 Building disposal strategy

From the survey results, to evaluate the timing of the implementation of all activities in the phase of the removal of assets, it is seen that the issuance of the Governor's Decree on the Elimination of Regional Property is 12.75%, Asset Appraisal, Asset Assessment and Issuance of Governor's Decree on Limit Value is a frequent activity of delays. Issuance of Governor Decision is a long bureaucratic activity with the study and reviewed by several work units. Assessment process of assets implemented by the external party of DKI Jakarta

Provincial Government becomes one of the indicators of delay. Based on Table 1, the policy strategy should be implemented by DKI Jakarta Government and the operational strategy to assist in the elimination of building assets. This strategy has also been partially portrayed in the questionnaire survey. There are several things that can disrupt the smoothness of the process of elimination of building assets, especially those carried out by the external parties of DKI Jakarta Provincial Government, for this a special strategy to minimize the impact that can arise needs to be applied.

Table 1. The strategy for government building asset disposal.

Phase	Results	Policy Strategy	Operational Strategy
Preparation	Building is disposed based on the age of the building and visual observation	Local regulation revisions related to government buildings	<ul style="list-style-type: none"> - Require feasibility study before proposing removal of building asset - For building 1-4 storeys can be done by the Related Technical Service - For building more than 4 storeys conducted consultant
	Asset registration data was not filed/well documented	-	Simplification of system to assets register for easy to use
	There is no regulation related to the assessment of assets owned by local government	Proposed rules on the assessment of assets owned by the region	-
	Assessment of building assets is currently implemented by the Central Government Assessment Team	Establishment of an asset valuation work unit in local government	<ul style="list-style-type: none"> - Socialization of asset valuation regulation - Increase the competence of human resources to be an asset assessor - Asset valuation process begins earlier (simultaneously with the proposed construction budget)
	Some asset limit values for auctions are still below the demolition contractor's estimate	-	<ul style="list-style-type: none"> - Preparation of annual journals as a reference value of reusable used goods - Preparation of the standard calculation of the value of goods to be auctioned
	In proposing asset deletion, the existence of TOR has not been required	Require TOR in proposing assets	The TOR explanation should minimally related to the implementation schedule, human resources and equipment needed
Bidding	Packaging activities have not been well prepared		<ul style="list-style-type: none"> - Preferred combination of distance between building and building type - Buildings that have difficult access in order not to be incorporated in one auction package to anticipate the absence of interest
	The auction duration is still considered insufficient		The auction duration takes into consideration the time for the survey and an adequate price calculation (10-14 days)
	Lack of information about online asset auction systems		Socialization related to online auction system to stakeholder asset deletion

Phase	Results	Policy Strategy	Operational Strategy
Demolition	The lack of attention of contractors in risk identification and implementation of safety standards	Require the demolition service provider to have a certification of the appropriate business entity	- TOR also describes safety standards that must be met - Field inspections by supervisors
	The contractor does not complete the work according the scope of work and is late		- Preparation of contractual standards for building demolition work - Preparation of the technique of calculating the duration of demolition based on area, storey and access to the location. - Enforcement of late penalties

6 Conclusion

This study is to examine the process of implementing the elimination of building assets that combine demolition with deconstruction based on indicators affecting the period of implementation of each stage. The results indicate that there are several factors that influence the smoothness of asset removal in Jakarta Provincial Government, the accuracy level of asset valuation as lower limit of offer value is expected to be further improved so that in accordance with the expectation of the executor, packing of similar activities to be auctioned should consider the distance aspect more, accessibility of the building in order to obtain the winner through one auction process. This illustrates the need to improve the building asset removal system in order to perform better and faster. Therefore, an alternative strategy is developed in the form of regulatory reform of local government asset removal and operational strategies that can determine the direction in making a decision consistently.

References

1. M.C. Dejaco, F.R. Cecconi, S. Maltese. Key Performance Indicators for Building Condition Assessment. *Journal of Building Engineering*, **9**, pp. 17-28 (2016)
2. P. Dent. Managing Public Sector Property Assets: The Valuation Issues. *Property Management*, **15**, 4, pp. 226-233 (1997)
3. R.J. MacCowan, A.M. Orr, A Behavioural Study of the Decision Processes Underpinning Disposals by Property Fund Managers, *Journal of Property Investment & Finance*, **26**, 4, pp. 342 – 361 (2008)
4. F. Hübner, R. Volk, A. Kühlen, Anna., F. Schultmann, Review of project planning methods for deconstruction projects of buildings, *Built Environment Project and Asset Management*, **7**, 2, pp.212-226 (2017)
5. G.L. Harris, Five Steps to Effective Procurement, 83rd Annual International Conference Proceedings (1998)
6. P.D. Jadhav, A.W. Dhawale, Controlled Execution of Demolition Work for Residential Building, *International Journal of Engineering Technology, Management and Applied Sciences*, **4**, 4, (2016)

7. S.O. Rathi, P.V. Khandve, Demolition of Buildings - An Overview, International Journal of Advance Engineering and Research Development, **1**, 6 (2014)
8. M. Albert, P. Balve, K. Spang, Evaluation of project success: a structured literature review, International Journal of Managing Project in Business, **10**, 4 (2017)
9. G. Bergantinos, L. Lorenzo, How to apply penalties to avoid delays in projects, Ecobas Working Papers (2016)
10. N. K. Malhotra, *Marketing Research: An Applied Orientation*, Upper Saddle River: Prentice Hal (2010)