

Development of Standard Operating Procedures of Reserve Goods Inventory on Risk Basis for Maintenance and Repair Activity in Government Building

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Abstract

To support the maintenance and repair of building, it requires reserve goods inventory that usually stored in warehouse. Reserve goods inventory becomes very important because it determines the amount of investment to create a effective management. The absence of of rules to govern the reserve goods inventory risks slow down the duration of work and also enlarge the cost of work. Several delayed occurred in maintenance and repair work in government building caused by unavailability of reserve goods needed. As a consequence, it interferes worker activity. The purpose of this study is to establish Standard Operating Procedures on risk basis in processing of reserve goods inventory on government building. The method used in this research is Delphi Method and respondent survey. The result of this research is the compilation of ten standard operating procedure on risk basis of reserve goods inventory for maintenance and repair on government building.

Keywords

Risk Management, inventory, reserve goods, maintenance and repair, government building

1. Introduction

Government building requires maintenance and repair to extend the life of building so that service to the community can be fulfilled indirectly (Ministry of Public of Works Decree No 24, 2008). It requires a warehouse to store reserve goods inventory to support the maintenance and repair. According to John Warman (2010), warehouse is a building that is used to store goods. Reserve goods inventory related to maintenance and repair stored in the warehouse are lights, cables, locks, door handles, screwdrivers, nails, braso, wood chisels and lubricants. One of the government building in Jakarta had blackout in several times at the employer meeting (Tribunnews.com, 2017). Consequently, the working activities could be disturbed. The speed of handling during the event of blackout beside dependent on the officer, also depends on the reserve goods inventory in the warehouse. Therefore, if the reserve goods inventory is not done well, it will risk to disrupt the activities of employees. This requires a technical guideline in the form of standard operating procedures on risk basis to govern the inventory process of the reserve. Technical guidance on reserve goods inventory is expected to be the basis and guidance so that the implementation of reserve goods inventory to support the maintenance and repair of the building has clear and measurable purpose. It is expected there will no be complaints resulting from the user's dissatisfaction of the building maintenance and repair work.

2. Literature Review

2.1 Standard Operating Procedure

As a body or government agency, Standard Operating Procedures (SOP) required to support the acceleration of management of working unit due to alteration in implementation to improve performance. SOP is a set of standard operating procedures used to guidance in the company to ensure steps of each member work has been effective and consistent, and meet the standard and systematic (Tambunan, 2013). According to Puspitasari and Rosmawati (2012), some of the objectives of SOP are:

- a) Maintaining consistency of employees' work
- b) Knowing the role and function of work in each part
- c) Clarify the duty, authority and responsibility
- d) Avoiding administrative errors
- e) Avoiding errors, doubts, duplications, and inefficiency

Thus, the objective of Standard Operating Procedures (SOP) is to ease and equate the perceptions of all those who use it or those concerned, to better understand about each step of the activities to be performed (Stup, 2001). Every good quality management system is always based on SOP (Wikipedia).

2.2 Goods Inventory

The reserve goods inventory or so-called inventory is an idle resource whose existence awaits a further process (Bahagia, 2006). Inventory needs to be managed in a such way so that consumer needs is guaranteed, at a lowest cost as possible. Goods inventory is a portion of state property which is a certain unit which can be assessed or calculated or measured or weighed and valued exceeding value and securities. Goods inventory as one part of the State Property (BMN) is all inventory goods purchased or obtained at the expense of state expenditure budget (APBN) or derived from the other legitimate acquisition (Book of SOP Inventory Management and Administration of the Supreme Court of Republic of Indonesia, 2011).

Buchan and Koenigsberg (1977) in Bahagia (2006) dividen the reasons the need of inventory within systems in the following three motives:

- 1) Motive of transaction
- 2) Motive of reserve
- 3) Motive of speculate

2.3 Risk Factor

Risk can be defined as a measure of the probability of a consequence, its magnitude, or a combination of both (Merna and Al-Thani, 2008). In the same literature it is also mentioned that risk is defined as the probability and severity of the occurrence of an adverse effect. Kendrick, (2009), mentions that risk is the result or combination of predicted impacts may occur from an event, with the probability of the event occurring.

To cope with the risks that may occur in a job required risk management. Risk management is a set of actions undertaken by individuals and corporations in an effort to change the risks arising from their business (Merna and Smith 1996, in Merna and Al-Thani, 2008). Based on the AS / NZS 4360:2004 framework, risk management is a culture, process, or structure directed towards realizing the opportunities while managing adverse impact.

3. Research Methodology

This study begins with a preliminary study that includes understanding the object of study by performing archival analysis and literature studies, Then the data collection in this research is conducted by doing interviews and also surveys to experts and non-experts whose work is related to the process of inventory reserve on the maintenance and repair building. In addition, benchmarking of inventory reserves in several building, interview with expert, and questionnaires distributed to 35 respondents. This study also used statistical analysis using SPSS version 25 to obtain data validation. There are several statistical analyzes used in this study such as homogeneity test, validity and reliability test, and descriptive analysis.

4. Data Analysis

After conduction interviews and benchmarking of inventory backup process, four business processes are available:

- 1) Planning
- 2) Implementation
- 3) Maintenance
- 4) Monitoring

Then after conducting a survey to the expert obtained 10 related jobs to four business processes and their activities, responsibility, output, and duration. For more details, 10 jobs with details are included in table 1.

Table 1. Activities and Works for Reserve Goods Inventory

| No | Activities | Var. | Risk Event | Person in Charge | | | | Output | Duration |
|---------------------------|---|------|---|------------------|------------------|----------------------|---------------|---|------------|
| 1. PLANNING STAGE | | | | Head of Bureau | Head of Division | Head of Sub Division | Working Group | | |
| 1.1 Planning Needs | | | | | | | | | |
| X1 | Preparation of Supply Needs Plan for Reserve Goods Inventory | | | | | | | | |
| X1.1 | Order to prepare a reserve goods inventory needs plan | X1 | Late info orders to plan the needs of reserve goods inventory | √ | | | | Letter command | 10 minutes |
| X1.2 | Create draft for reserve goods inventory needs plan | X2 | Error in estimating the number of goods needs | | | | √ | Draft plan for the needs of the reserve stock | 1 hour |
| X1.3 | Inspect draft for reserve goods inventory needs plan | X3 | Error in recapitulating the amount of goods needs | | | √ | | Draft plan for the needs of the reserve stock | 1 hour |
| X1.4 | Revise draft for reserve goods inventory needs plan | X4 | Error in validating the amount of goods needs | | √ | | | Draft plan for the needs of the reserve stock | 1 hour |
| X1.5 | Approve draft for reserve goods inventory needs plan | X5 | Error in determining the amount of goods needs | √ | | | | Plan for the needs of the reserve stock | 1 hour |

The input used is the result of the respondent's filling of frequency rating and impact on each variable based on Estimate Costs process category in PMBOK® Guide 5th Edition. In performing risk level analysis, the Perform Qualitative Risk Analysis process is used in PMBOK® Guide 5th Edition as a guide. Known how to conduct a qualitative risk analysis is to use probability and impact matrix. Here are the impact and frequency scores for each risk factor variable in accordance with PMBOK® Guide 5th Edition:

Table 2. Value of Frequency Scale

| Frequency Criteria | 1 | 2 | 3 | 4 | 5 |
|--------------------|-------|--------|-----------|-------|--------|
| | Never | Rarely | Sometimes | Often | Always |
| Probability | 0.1 | 0.3 | 0.5 | 0.7 | 0.9 |

Table 3. Impact Scale Value

| Impact Criteria | 1 | 2 | 3 | 4 | 5 |
|-----------------|---------------|----------|--------|---------------|--------------|
| | Very accurate | Accurate | Medium | Less accurate | Not accurate |
| Dampak | 0.05 | 0.1 | 0.2 | 0.4 | 0.8 |

Next is to determine the value of risk factor (FR) by multiplying the average frequency value with the average impact value on each risk factor so that later it will get the risk rating from the inventory process of reserve goods. Used average or mean because this analysis is a ranking process in seeking risk priority.

Based on the above matrix, the range of values for determining risk ratings are:






- Low risk: 0.01 - 0.05
- Moderate risk: 0.06 - 0.14
- High risk: 0.15 - 0.72

Once processed, the risk ranking is ranked where the three highest risk ratings are:

Table 4. Risk Event Rank

| Peringkat | Variabel | Kategori | Peristiwa Risiko Tertinggi | Level |
|-----------|----------|--|---|-------|
| 1 | X3.1 | Receipt of goods | Supplier is late to deliver the goods | High |
| 2 | X6.7 | Implementation of stock opname | Error examining the results of the inventory | High |
| 3 | X1.2 | Preparation of Supply Needs Plan for Reserve Goods Inventory | Error in estimating the number of goods needs | High |

Then from each of the highest risks a risk response is made that will be developed into the operational standard of the reserve stock. Results of SOP development:

| No | Activity | Implementers | | | | Quality | | | Additional Information |
|----|---|---|---|---|---|--|--------------|------------------------|------------------------|
| | | Bureau Chief | Head of Division | Head of Subsection | Team Work | Completeness | Time | Output | |
| 1. | Ordered to draw up a plan for inventory needs |  | | | | Letters of Command | 10 minutes | Letters of Command | |
| 2. | Ordered to draw up a plan for inventory needs | |  | | | Letters of Command and disposition | 10 minutes | Disposition | |
| 3. | Ordered to prepare supporting data and draft plan for inventory needs | | |  | | Budget Documents, Inventory Reports | 10 work days | Budget Documents | |
| 4. | Create a draft plan for inventory needs of backup items | | | |  | Budget Documents, Inventory Data | 1 hour | Draft Requirement Plan | |
| 5. | Deliver the results to the supervisor for review and consultation | | | |  | Draft Requirement Plan, Inventory Data | 60 minutes | Draft Requirement Plan | |
| 6. | Deliver the results to the supervisor for review and consultation | | | | | Draft Requirement Plan | 1 hour | Draft Requirement Plan | |
| 7. | Checking and correcting the draft plan for the supply of reserves | | | | | Draft Requirement Plan | 1 hour | Draft Requirement Plan | |
| 8. | Discuss the plan for the need for inventory of the reserve and approve it | | | | | Draft Requirement Plan | 10 minutes | Requirement Plan | |

5. Conclusions

The conclusions of this study are:

- 1) There are three highest risk events in the inventory activity of the reserve items included in the risk response in SOP development.
- 2) In the development of SOP there are also responsible, duration and output of each activity so that in case of errors can be eased with case
- 3) This research resulted in risk-based SOP design on inventory process of reserve for government building
 - 1) SOP preparation of inventory requirement plan
 - 2) SOP inspection of goods
 - 3) SOP receipt of goods
 - 4) SOP storage of goods
 - 5) SOP removal of goods
 - 6) SOP implementation of stock opname
 - 7) SOP assessment of inventory items
 - 8) SOP removal of inventory items
 - 9) SOP maintenance of goods inventory
 - 10) SOP inventory of reporting

The SOP design is structured and detailed to be used as a guide, so anyone who reads the SOP will run the same procedure and can produce products according to standardization.

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Biographies

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