# ACCOUNTING APPLICATION FOR CONSTRUCTION GOODS PROCUREMENT RECORDING (CASE STUDY PT. PLN (PERSERO) UPT CIREBON)

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*Abstract*— *PT. PLN (Persero) UPT Cirebon is a state-owned company that takes care of the electricity aspects in ULTG Cirebon, Garut, Ciamis, and Jatibarang. Inventories of existing materials in this is not for resale. Inventories of existing materials at PT. PLN (Persero) UPT Cirebon is shown to support in carrying out operational programs and investment programs to generate or generate electricity. In this electricity company, there are problems and obstacles in recording the procurement of construction goods, because there are some activities that still use the manual system. To assist the power company in managing information in recording the procurement of construction goods so that it can be searched more quickly and accurately, it must have a system that can be used to help solve existing problems. This research produces a Construction Goods Procurement Recording Application that can manage any required information. The reports generated from this application are Material Mutation Data, Contract Letters for Routine SPPL and Non-routine SPPL, Proof of Cash Out and Cash Disbursement Journal. System procedures that apply in PT. PLN UPT Cirebon includes related parts, internal control system, and documents used. The analysis and system design stages are described manually using a flowchart accompanied by an explanatory narration, then computerized into context diagrams, relationship diagrams between entities, and relationships between tables used. After this stage is complete, the next stage is the design of the software system. The design uses Visual Basic 6.0 as the programming language and Microsoft Access 2003 as the database.*

*Keywords: Applications, Records, Construction Goods, PLN.*

**Abstrak**— PT. PLN (Persero) UPT Cirebon perusahaan milik negara yang mengurusi aspek kelistrikan yang ada di ULTG Cirebon, Garut, Ciamis, dan Jatibarang. Persediaan material yang ada pada PT. PLN UPT Cirebon bukan untuk dijual kembali. Persediaan material yang ada pada PT. PLN (persero) UPT Cirebon ditunjukan untuk mendukung dalam melaksanakan program operasi dan program investasi guna menghasilkan atau membangkitkan tenaga listrik. Di dalam perusahaan listrik ini terdapat permasalahan dan kendala dalam mencatat pengadaan barang konstruksi, karena ada beberapa kegiatan yang masih menggunakan sistem manual. Untuk membantu perusahaan listrik dalam mengelola informasi dalam pencatatan pengadaan barang konstruksi agar lebih cepat di cari dan akurat maka harus memiliki suatu sistem yang dapat digunakan untuk membantu menyelesaikan permasalahan yang ada. Pada penelitian ini menghasilkan Aplikasi Pencatatan Pengadaan Barang Konstruksi yang dapat mengelola setiap informasi yang dibutuhkan. Laporan yang dihasilkan dari aplikasi ini adalah Data Mutasi Material, Surat Kontrak SPPL Rutin dan SPPL Non Rutin, Bukti Kas Keluar dan Jurnal Pengeluaran Kas. Prosedur sistem yang berlaku dalam PT. PLN UPT Cirebon mencakup bagian-bagian yang terkait, sistem pengendalian internal, dan dokumen-dokumen yang digunakan. Tahap analisa dan perancangan sistem digambarkan secara manual menggunakan *flowchart* disertai dengan narasi penjelasan, kemudian dibuat secara komputerisasi ke dalam diagram konteks, diagram hubungan antar entitas, dan relasi antar tabel-tabel yang digunakan. Setelah tahap ini selesai, tahap selanjutnya adalah perancangan sistem perangkat lunak. Perancangan tersebut menggunakan *VB (Visual Basic)* 6.0 sebagai bahasa pemrograman dan *Microsoft Access* 2003 sebagai *database*.

*Kata Kunci: Aplikasi, Pencatatan,Barang Kontruksi, PLN.*

## INTRODUCTION

PT. The State Electricity Company (Persero) is a state/state-owned company that deals with all aspects of electricity in Indonesia. In 1972, in accordance with Government Regulation [1] NO. 17, the status of the State Electricity Company (PLN) is set as a State Electricity General Company and as the Holder of the Electricity Business Authority (PKUK) with the task of providing electricity for the public interest.

In carrying out its business PT. PLN (Persero) UPT Cirebon is responsible for carrying out maintenance of power distribution installations in its working area which includes functions: meter maintenance and protection, distribution installation maintenance, ScadaTel maintenance (maintenance of power supply which is part of the support system for telecommunication equipment), operation supervision, logistics and environmental management and electricity safety to achieve performance targets, manage Administration and Finance to support installation operations and maintenance activities. At PT. PLN (Persero) UPT Cirebon, material inventory is not shown or for sale and re-production. Inventories of existing materials at PT. PLN (Persero) UPT Cirebon is shown to support in carrying out operational programs and investment programs to generate or generate electricity.

One of them in getting a maximum construction goods at PT. PLN (Persero) UPT Cirebon is through the procurement of goods by direct appointment. In construction projects, procurement of construction goods is a very important job. However, until now there are parties who do not have a structured system at PT. PLN (Persero) UPT Cirebon to carry out their duties in a computerized manner.

With the procurement through a contract letter, the company requires an application for recording the procurement of construction goods. In the problems faced by PT. PLN UPT Cirebon in the logistics section has problems and obstacles in recording the procurement of construction goods, because there are some activities that still use the manual system. In research [2], the proposed system for recording receipt data on the object of this research is also one of the things that facilitates the performance of the research object, while in research [3] also discusses how important the proposal is in the system of shipping and receiving goods in a systemized manner.

In research [4] also discusses the aim of knowing whether the existing accounting information system causes logistics recording on effective and efficient objects and research [5] which applies information systems, especially in terms of cash flow reporting, in recording and reporting, especially cash flow financial reports, should use computerization so that errors in recording or problems that are often faced can be resolved.

To assist the logistics department in managing information in recording the procurement of construction goods so that they are searched more quickly and accurately, a system must be created that can be used to help solve existing problems. Based on this, an application for recording the procurement of construction goods is made that can manage any required information. This study aims to produce a design application for procurement of construction goods carried out at PT. PLN (Persero) UPT Cirebon, and analyze the procedures for procurement of construction goods by direct appointment to PT. PLN (Persero) UPT Cirebon, also to find out what parts are involved. related in the application at PT. PLN (Persero) UPT Cirebon. And to test whether this system can be applied in internal control on the procurement system of construction goods directly.

Table 1 Research Literature

| No | Literature Support | Result |
|---|---|---|
| 1 | Performance Analysis Using Balanced Scorecard Based on Analytical Hierarchy Process (AHP) Calculation Method At the Astanagarib Health Center, Cirebon City[6] | From the calculation results, it can be concluded that the performance measurement at the Astanagarib Health Center using the Balanced Scorecard method and the Analytical Hierarchy Process (AHP) calculation method indicates that the performance at the Puskesmas is good, assessed from three perspectives measured with a weight of 0.39 for internal business processes, learning and growth 0.22. The results of the Puskesmas performance evaluation were quite good with a score of 0.99. 5 Volt DC voltage stabilizer |
| 2 | Accounting Applications For Recording Cash Expenditures In PT. Yala Githa Tama Cirebon Transportation Services[7] | The analysis and system design stages are described manually using flowcharts, then computerized into level 0 and level 1 data flow diagrams accompanied by diagrams of relationships between entities, and relationships between tables. After this stage is complete, the next stage is the design of the software system. The design uses the PHP programming language (Hypertext Preprocessor) and the MySQL database (My Structured Query Language). This application produces work planning reports, general journals and cash disbursements reports. |
| 3 | Internal Control System for | Applications made with the PHP programming language and |

| No | Literature Support | Result |
|---|---|---|
| | Receivables Using the Aging Schedule Method On CV. AGS'NIE[8] | MySQL database. There are 2 application users, namely the accounting section and the manager. Age analysis of receivables groups their age based on the due date of receivables, which are divided into classifications: not yet due, reserved for 5%, past due 1-14 days, reserved for 10%, past due 14-20 days, reserved for 15%, Maturities of 20-30 days are reserved for 20%, and those that are past 30 days are reserved for 25%. |

The table 1 is the basis for researchers to make applications needed by PLN, namely recording the procurement of construction goods that can manage any information needed. Because so far the logistics section of PLN UPT Cirebon does not yet have an application that can handle the problems faced. This application is to assist the logistics department in managing information in recording the procurement of construction goods so that they are searched more quickly and accurately.

The objectives to be conveyed by the authors of the research that has been carried out are to produce an application design for the procurement of construction goods carried out at PT. PLN (Persero) UPT Cirebon, to analyze the procurement procedure of construction goods by direct appointment to PT. PLN (Persero) UPT Cirebon. to find out what parts are related to the application at PT. PLN (Persero) UPT Cirebon. to find out how the implementation of the internal control system in the procurement system for construction goods is carried out directly at PT. PLN (Persero) UPT Cirebon.

## MATERIALS AND METHODS

The method used in the development of this system is the waterfall method. The reason for using this method is because the waterfall method takes a systematic and sequential approach in building a system. The process of the waterfall method is that the workmanship of a system is carried out sequentially. The resulting system will be of good quality, because the implementation is gradual so that it is not focused on a certain stage. According to Pressman (2015: 42) [9][10], the waterfall model is a classic model that is systematic, sequential in building software. Name of this model is actually a "Linear Sequential Model". This model is often referred to as with the "classic life cycle" or the waterfall method. This model includes in the generic model of software engineering and the first introduced by Winston Royce around 1970 so often considered ancient, but is the most widely used model in Software Engineering (SE). This model takes a systematic approach and sequentially. It is called a waterfall because of the stages that are passed must wait for the completion of the previous stage and run sequentially.

This waterfall method is also implemented in several studies, including research [11] who conducted the application of waterfall methods for the design of inventory information systems at bintang terang ceramic shop with the results proving that the resulting information system facilitates the process of checking or searching for the required data related to sales transactions, and purchase transactions and their effect on stock. Then in [12]research related to the Application of the Waterfall Model to the Wage Payment Accounting Information System with the research results that by applying the waterfall model to the accounting information system for the payment of web-based sap tapping wages can help ease and speed up the work process of paying laborers' wages. Furthermore, in [13] research which uses the waterfall method in contractor accounting application building with php programming.
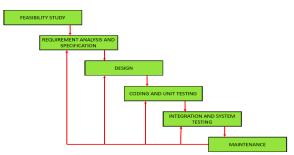


Figure 1. Waterfall Model (Pressman, 2015)[14]

Research methodology is very necessary in a study to assist the implementation of research in obtaining the necessary data. The research methodology that the authors use is as follows [15]:

1. Field Research (Field Research)
   Field research is a method of collecting data by observing directly the object being studied. In this case the author does:
   a. Observation
      That is by making direct observations of the object under study at PT. PLN (Persero) UPT Cirebon
   b. Interview
      That is done face to face and conduct questions and answers or discussions with people involved in the system.
2. Library Research (library study)
   Literature research is a method of collecting data by looking for information through books as a reference medium.

Research Time and Implementation : This observation began on August 12, 2019 until September 13, 2019. This Accounting Computerization Project was carried out by the compiler with the research location in the logistics section of PT. PLN (Persero) UPT Cirebon, which is located at JL. Brigjen Darsono No.198, Karyamulya Kec. Kesambi, Cirebon City, West Java 45131, Tel. 0231-481935, Fax. 0231-281940.

## RESULTS AND DISCUSSION

### A. Requirement Analysis

Hardware used in the implementation of the Application program for the Recording of the Procurement of Construction Goods.

Table 2. Minimum requirement Hardware Specification

| No | Hardware Type | Specification |
|----|---------------|---------------|
| 1 | Processor | Intel® Celeron® N4000 CPU @1.10GHz |
| 2 | Memory | 4.00 GB |
| 3 | Storage | 500 GB |
| 4 | Desktop Resolution | 1366 x 768 |

The software specifications used in the application of the Construction Goods Procurement Recording Application program are as follows:

Table 3. Minimum requirement Software Specification

| No | Software Type | Specification |
|----|---------------|---------------|
| 1 | Operating System | Windows 10 Home 64-bit |
| 2 | Processor | Intel® Celeron® N4000 |
| 3 | Web Server | Apache |
| 4 | Browser | Mozilla Firefox, Microsoft Edge, Google Chrome |

### B. Design



Figure 2. Flow map Design

Figure 2 describes the Dalkon section inputs and manages material mutation data based on the use of material mutations, then the Dalkon section displays material mutation data to provide material mutation information. Then the PBJ Section manages the SPPL data based on the SPPL letter and SPPL data, then the PBJ Section prints the Routine SPPL and Non Routine SPPL documents and displays the Routine SPPL and Non-Routine SPPL documents. Then the Finance Section inputs and manages payment data based on user payment data, then prints cash receipts. The finance section manages cash out receipts, then displays cash out receipts and manages cash disbursements journals, then the finance section prints cash disbursements journals.
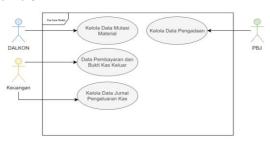


Figure 3. Use case Diagram Accounting Application Construction Goods procurement Recording

Figure 3 describes the 3 actors involved in the transaction. Application for recording the procurement of construction goods
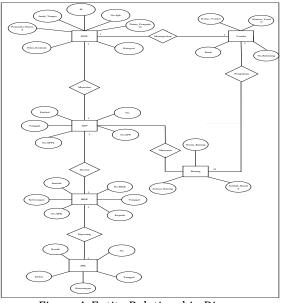


Figure 4. Entity Relationship Diagra

Figure 4 describes the relationship between tables is the relationship between one table and other tables that are interrelated in the database Application for recording the procurement of construction goods.

This research produced a list of daily mutations in Figure 6.



Figure 6. Daily mutation list

Figure 6 describes Mutation Data Input Form is a design to add material mutation data.
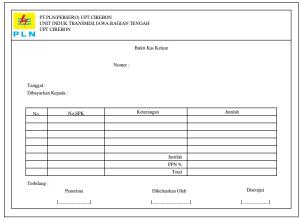
1. Cash Out



Figure 7. Cash out

Figure 7 describes the Cash Out Data Form is used to display the Cash Out Proof Data.

2. Cash out journal



Figure 8. Cash Out Journal

Figure 8 describes the Cash Expenditure Journal Data Form is used to display the Cash Expenditure Journal Data.

**C. Testing with Black Box**

Black box testing is a test that focuses more on the functionality of a system. This method is used to find functional errors, interface errors, data structure errors, and system performance errors.

1. Testing Daily Mutation List

Table 4 below describe result testing menu from daily mutation list.

Table 4. Result Testing daily Mutation list

| No | Test Type | Test Data | Expected results | Test Results Output | test results |
|---|---|---|---|---|---|
| 1 | Mutation menu | Click the daily Mutation menu | Display the Daily Mutation List page | page Show | valid |

2. Testing Cash Out

Table 5 below describe result testing from Cash Out.

Table 5. Result Testing Cash Out

| No | Test Type | Test Data | Expected results | Test Results Output | test results |
|---|---|---|---|---|---|
| 1 | Print Report Cash Out | Click print report menu | Display the cash out report page | page Show | valid |

3. Testing Cash out journal

Table 6 describe result testing cash out journal.

Table 6. Result Testing Cash out Journal

| No | Test Type | Test Data | Expected results | Test Results Output | test results |
|---|---|---|---|---|---|
| 1 | Print Report Cash out Journal | Click print cash out journal report menu | Display the cash out journal report page | page Show | valid |

**CONCLUSION**

Based on the description above which has been discussed regarding the Application for Recording the Procurement of Construction Goods

at PT. PT PLN (PERSERO) UPT CIREBON, the compilers can conclude, among others, this Construction Goods Procurement Recording application works by storing and processing data, so that it can simplify and speed up processing time, the procedures that will be discussed are the procurement of construction goods in the purchase of goods and receipt of goods , the application for Recording the Procurement of Construction Goods for the PBJ section is an improvement from the manual work system in the field, and the finance department will record into the Cash Out Evidence and Cash Expenditure Journal, the use of this computerized system can help the Procurement Section of PT. PLN (PERSERO) speed up the processes of data processing, report generation and printing so that deficiencies in the old system can be resolved.

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