

Analysis of Cost Budget Plans in Disaster Logistics Warehouse Planning of the Badan Penanggulangan Bencana Daerah (BPBD) Bantul Regency, D.I. Yogyakarta

Alfinur Insaniyati Umi Sa'adah^{1✉}, Sely Novita Sari², Rizal Maulana³

^{1, 2, 3} Civil Engineering Study Program, Faculty of Engineering and Planning, Institut Teknologi Nasional Yogyakarta, Indonesia

✉Corresponding Author : Alfinur Insaniyati Umi Sa'adah (e-mail: 1100210033@students.itny.ac.id)

Article Information	ABSTRACT
Article History Received : December 04, 2024 Revised : December 21, 2024 Published : January 06, 2025	From the various roles of the Bantul Regency BPBD in managing disaster preparedness and response in the Bantul area, which is known to be prone to disasters, the construction of a disaster logistics warehouse is needed to support the implementation of disaster management. To ensure the effectiveness and efficiency of the construction of the warehouse, an analysis of the Cost Budget Plan (CBP) is needed. The purpose of this study is to analyze the costs needed to complete the construction of the Bantul Regency BPBD logistics warehouse. The types and sources of data used are secondary data in the form of floor plan drawings, cut drawings, and detailed drawings. The method carried out is by analyzing the price of the unit of work using the applicable units of goods and services. CBP is obtained from the product of the volume of work multiplied by the result of the unit price of work. CBP analysis on the Bantul BPBD Logistics Warehouse Planning was obtained of Rp 20,026,590,027. The results of this study help to ensure appropriate budget allocation, prevent cost overruns, and become the main guideline in project implementation to support effective disaster response by BPBD.
Keywords: <i>Budget; Cost; Warehouse; Logistics.</i>	

INTRODUCTION

The Regional Disaster Management Agency (BPBD) of Bantul Regency plays a very important role in managing disaster preparedness and response in the Bantul area, which is known to be prone to disasters. As a local government institution, BPBD has a role to establish guidelines and directions related to disaster management efforts, which include disaster prevention, emergency handling, rehabilitation, and reconstruction in a fair and equitable manner, as well as coordinating the implementation of disaster management activities in a planned, integrated, and comprehensive manner (Rahmah & Ikhsan, 2022). BPBD is tasked with planning and providing facilities in the form of strategic logistics warehouses for the safe and easy distribution of aid goods. In addition to storage facilities, BPBD also coordinates the aid distribution process, including the use of optimal transportation routes as well as distribution monitoring to ensure that aid reaches all areas in need (Wijanarko, 2022). With good logistics management, adequate storage capacity, and strong coordination, BPBD Bantul can accelerate the post-disaster recovery process. From the various roles of BPBD Bantul in disaster management, the construction of a disaster logistics warehouse is needed to support the implementation of effective, efficient, and coordinated disaster management.

Disaster logistics warehouses are one of the important assets for BPBD Bantul Regency in an effort to accelerate disaster response and handling. To ensure the effectiveness and efficiency of

the construction of the warehouse, an analysis of the Cost Budget Plan (CBP) is needed. The CBP is one of the important aspects in the implementation of the project, as it serves as a guideline for drafting the financing system offerings as well as the budget framework to be used (Alami et al., 2021). The guidelines provide an overview for the implementers of activities in managing and estimating the material needs to be used, the necessary labor, and the supporting tools needed during the implementation process (Malaiholo et al., 2020). In the planning of the Bantul BPBD disaster logistics warehouse, CBP is needed to map all costs that will be incurred, starting from the initial stage of physical construction of the warehouse, the procurement of supporting infrastructure to logistics equipment such as storage racks, transportation equipment, and inventory management systems (Sukardi et al., 2020). All aspects need to be carefully taken into account in the preparation of the CBP so that warehouse facilities can meet the storage needs of auxiliary goods with adequate standards. The importance of preparing a detailed and realistic CBP lies in its ability to minimize financial risks, such as cost overruns or budget shortfalls that can hamper logistics warehouse operations. A well-drafted CBP will ensure that all important components in the project are accurately and proportionately accounted for (Dewi et al., 2016). This allows project management to allocate budgets effectively to different areas of need (Nawal et al., 2022). Thus, logistics warehouses can function properly when needed, especially in emergency situations; thus, the preparation of a good CBP will ensure the smooth running of the project and maximize the readiness of the warehouse in supporting disaster management.

The Bantul Regency BPBD faces several challenges in planning the construction of disaster logistics warehouses. One of the main problems is the limited financial resources, which makes it difficult for the Bantul Regency BPBD to meet all the needs identified in the CBP. In addition, the disbursement of funds from the central and regional governments is often not on time, causing delays in the development process. BPBD also does not have sufficient technical capabilities to design building structures independently and determine the cost budget. In fact, the planned logistics warehouse must be able to store disaster management goods on a large scale, with a design that meets disaster mitigation standards, such as earthquake and flood resistance. The facility must also be equipped with supporting facilities to ensure fast, safe, and efficient logistics distribution. For this reason, the availability of an adequate budget from the beginning to the operational stage is very important, including the cost of land acquisition, warehouse construction, and the provision of supporting facilities. This analysis aims to find out the total budget needed to support the realization of a more efficient disaster logistics warehouse.

CBP is an estimate of the cost required for a job, including the cost of wages and materials (Sari et al., 2022). Previous research on performing CBP calculations before starting construction work can reduce the risk of cost overruns and labor use, thus enabling the achievement of optimal results at an efficient cost (Jacobus et al., 2022). CBP is a projected cost required for each activity in a project, so the total cost to complete the project can be calculated (Toea, 2023). A construction project is considered successful if the realization of its implementation costs is lower than the costs that have been planned in the CBP (Lengkong et al., 2021). CBP must be carefully calculated in order to increase efficiency and effectiveness in the implementation of construction projects (Sumartini & Sanjaya, 2023). With the calculation of the CBP, a forecast was also obtained regarding the possibilities that would occur during the construction process and how to complete it (Sinambela & Djaelani, 2021).

The purpose of this study is to analyze the costs needed in completing the construction of the BPBD logistics warehouse in Bantul Regency, which includes material costs and labor wages. The development to be carried out can be carried out efficiently and effectively if all costs related to the project are identified and accounted for from the beginning; this will minimize the risk of delays and budget overruns so that the project can be completed on time and in accordance with the planned budget (Sumantri et al., 2022).

RESEARCH METHODS

The object of this research is the planning of logistics warehouses managed by the Bantul Regency BPBD. This planning includes spatial design, floor plan drawings, cut drawings, visible drawings, and calculation of cost budget plans. The focus of this study is the analysis of the cost

budget plan in the planning of the disaster logistics warehouse of the Bantul Regency BPBD. The sampling focused on CBP analysis aims to clarify this research so that it can concentrate more on the management and planning of the cost budget needed in realizing the construction of the Bantul Regency BPBD disaster logistics warehouse.

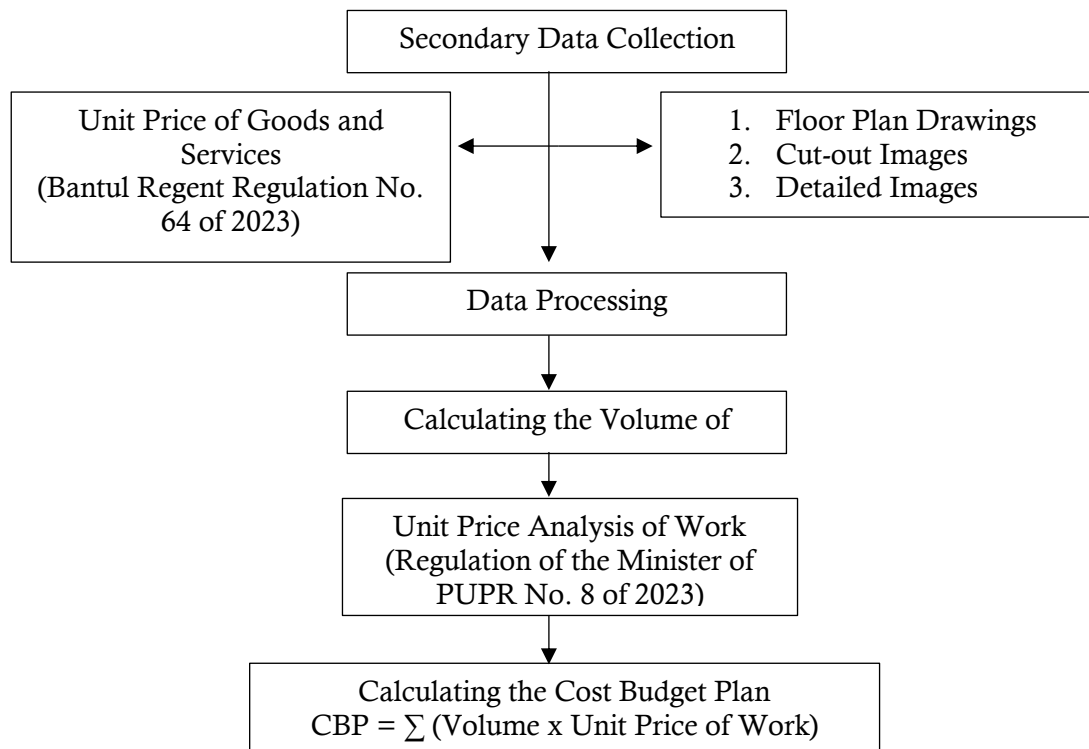


Figure 1. CBP Analysis Flow Chart

The type and source of data used in this study is secondary data, namely data collected from various pre-existing sources and used as research support. In this study, secondary data was obtained from the results of the Independent Learning Independent Campus internship activities that have been carried out by researchers at BPBD Bantul Regency in the Even Semester of the Academic Year. 2023/2024. This approach uses a combination of secondary data in the form of drawings of plans, cuts, details, and analysis of unit prices of work based on the Goods and Services Price Standards (GSPS) that apply at the local level. This sets it apart from similar methods that often rely on generic estimation without considering the local context. Another peculiarity of this approach is its integration with detailed technical data from the structural design, which allows for more accurate and proportional cost calculations for each element of the project. The data obtained was used by the researcher in the data collection stage, which consisted of:

1. Floor Plan Drawings

Floor plan drawings show a horizontal view of a building viewed from above and are usually cut 1 meter high above the floor to give a clear view of the layout of the room, the position of the doors and windows, and the walls of the building. Floor plan drawings have an important role in calculating the volume of work, because by using floor plan drawings, dimensional measurements such as the length, width, and height of each building can be made accurately.

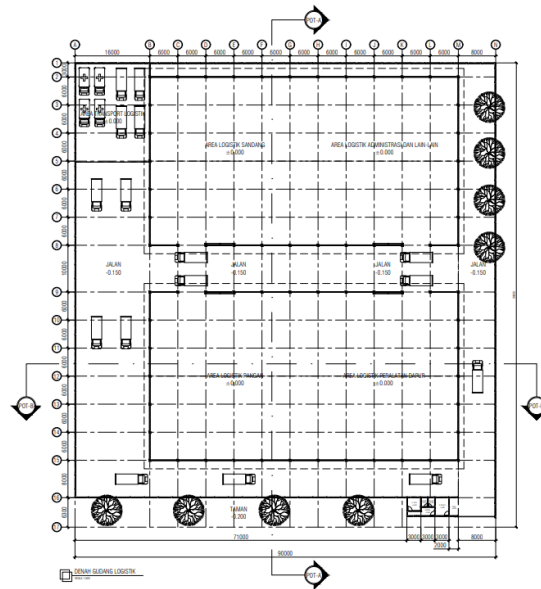


Figure 2. Bantul Regency BPBD Logistics Warehouse Plan

2. Cut-out Images

Cut drawings feature a vertical cross-section of a building that shows the connections between floors, walls, ceilings, and other structural elements that are not visible from the floor plan drawings such as columns, beams, and foundations. With the cut drawings, vertical dimensions such as wall height, floor thickness, and foundation depth can be accurately measured, which is indispensable for the calculation of the volume of work involving these elements.

Pieces A-A and B-B of BPBD Logistics Warehouse Bantul Regency

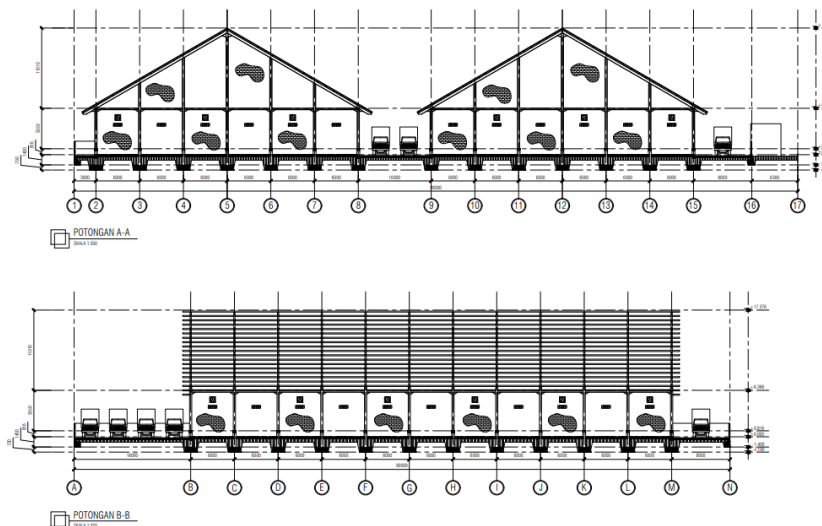


Figure 3. Pieces A-A and B-B of BPBD Logistics Warehouse Bantul Regency

3. Detailed Images

Detail drawings typically show smaller, more complex components or elements, such as joints between materials, structural profiles, or special architectural details, which may not be clearly visible in a drawing of a plan or cutout. With detailed drawings, the calculation of the volume of work can be done more accurately for small elements that require special attention, such as concrete slabs, beams, columns, stairs, or architectural ornaments.

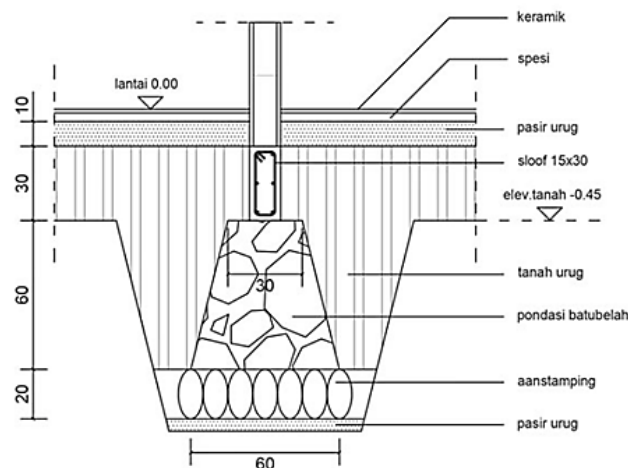


Figure 4. Example of a Detailed Image of a Kali Stone Foundation

4. Goods and Services Price Standards (GSPS)

GSPU is used as a reference to determine the standard price of goods and services in the implementation of government projects, especially in the preparation of CBP. GSPS is usually prepared by the local government and updated periodically according to changes in market prices. Each region has different GSPS depending on local economic conditions, availability of goods, and other factors.

From the results of data collection, raw data is obtained, which is then used as information to obtain accurate results through data processing or analysis to be carried out. In this study, there are several stages of data processing that are carried out as follows:

1. Employment Unit Price Analysis (EUPA)

The EUPA consists of a description of the price, coefficient, and price for wages, materials, and tools, as well as a product between the coefficient and the unit price, the sum of which will result in the unit price of work (Sembiring, 2020). The unit price of work is the total price of materials and labor wages, or the amount that must be paid to complete construction work based on analytical calculations.

$$\text{Unit Price of Work} = \text{H.S. Wages} + \text{H.S. Materials} + \text{H.S. Goods} \quad (1)$$

In the calculation of EUPA, it is usually added with indirect costs consisting of overhead costs and profits (Mokolensang et al., 2021).

Table 1. Job Unit Price Analysis Format

It	Description	Code	Unit	Coefficient	Unit Price	Total Price
A	POWER					
					Total Labor Price	Rp-
B	MATERIAL					
					Total Price of Goods	Rp-
C	EQUIPMENT					
					Total Tool Price	Rp-
D	Number (A+B+C)					Rp-
E	Overhead & Profit			15%	x D	Rp-
F	Price per Job (D+E)					Rp-

Source : Minister of PUPR Regulation No. 8 of 2023

2. Calculating the Volume of Work

Calculating the volume of work can be done with a variety of different calculation methods for each work item that has different units, such as area (m^2), cubication (m^3), length (m), and also wholesale (ls, units, fruits). By knowing the amount of work volume, it will be possible to determine how much cost is needed.

$$\text{Area (m}^2\text{)} = \text{Length} \times \text{Width} \quad (2)$$

$$\text{Cubic (m}^3\text{)} = \text{Length} \times \text{Width} \times \text{Height} \quad (3)$$

3. Calculating the Cost Budget Plan

Once the volume of work and the unit price of the work are obtained, the next step is to multiply the two values to determine the amount of cost of each job so that CBP can be generated.

$$CBP = \sum (\text{Volume} \times \text{Unit Price of Work}) \quad (4)$$

RESULTS AND DISCUSSION

In this article, volume calculations, unit price analysis, and cost estimates are discussed briefly, for detailed calculations are discussed outside this article.

Volume of Work

Based on the scope of work that has been prepared and the volume calculation carried out, each type of work will have a different volume in terms of number and units. Figure 5 is an example of calculating the volume of work.

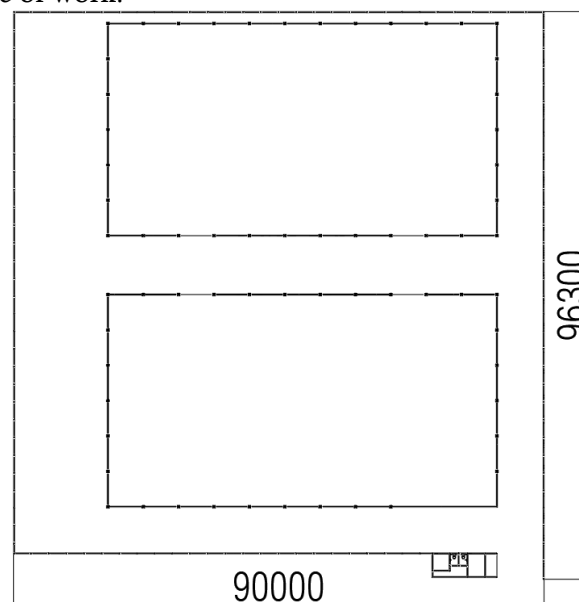


Figure 5. Area of Land Clearing and Equitable Work Volume

$$\begin{aligned} \text{Broad} &= \text{Length} \times \text{Width} \\ &= 90 \text{ m} \times 96.3 \text{ m} \\ &= 8,937 \text{ m}^2 \end{aligned}$$

From the results of the calculation above, it is known that the volume for land clearing and equitable work is 8,937 m². Table 2 shows the results of the recapitulation of the volume of work that has been analyzed.

Table 2. Example of Work Volume Recapitulation

No	Job Description	Volume	Unit
1	Field cleaning and equalization	8,937	m ²
2	Measurement and installation of bouwplank	440	m
3	Excavation of 1 m ³ of common soil 2 m deep	265.30	m ³
4	Soil re-excavation 1 m ³	2,608.96	m ³
5	Compaction of 1 m ³ of soil	2,608.96	m ³
6	Urugan 1 m ³ of sand under the foundation/construction floor	487.44	m ³

Source : Processed Researcher, 2024

Unit Price of Goods and Services

The Goods and Services Price Unit used in this study is guided by Bantul Regent Regulation Number 64 of 2023 concerning the Standardization of Prices of Goods and Services. Based on the results of the data collection that has been carried out, the following list is obtained:

Table 3. Example of a List of Goods and Services Price Units

No	Description	Unit	Unit Price (Rp)
I	Tenaga		
1	Worker	OH	Rp 11,200
2	Builder	OH	Rp 145,860
3	Head Builder	OH	Rp 168,300
4	Foreman	OH	Rp 168,300
II	Tools and Materials		
1	5/7 cm	m ³	Rp 54,900
2	3/20 cm board	kg	Rp 100,000
3	Mixed Nails 2 cm and 5 cm	m ³	Rp 27,500
4	Backfill Sand	m ³	Rp 215,500
5	Wire mesh M6	kg	Rp 24,425
6	Bendrat Wire	kg	Rp 30,000
7	Portland Cement	kg	Rp 1,300
8	Concrete Sand	kg	Rp 344
9	Pebbles/Aggregates	kg	Rp 468

Source : Bantul Bandage Number 64 of 2023

Unit Price Analysis of Work

The EUPA calculation method is carried out by multiplying the value of the analysis coefficient with the unit price of materials and labor wages, which can be seen in Table 3. Here is an example of EUPA calculations for field cleaning and equalization work.

Table 4. Example of EUPA Calculation of Field Cleaning and Equity/m2

No	Description	Code	Unit	Coefficient	Unit Price	Total Price
A	TENAGA					
1	Worker	L,01	OH	0,1000	Rp 112.200	Rp 11.220
2	Foreman	L,O4	OH	0,0050	Rp 168.300	Rp 842
					Total Labor Price	Rp 12.062
B	MATERIAL				Total Price of Goods	Rp -
C	EQUIPMENT				Total Tool Price	Rp -
D	Number (A+B+C)					Rp 12.062
E	Overhead & Profit			15%	x D	Rp 1.809
F	Price per Job (D+E)					Rp 13.871

Source : Processed Researcher, 2024

From Table 4, it is known that the price for 1 m² of field cleaning and equitable work is Rp. 13,871. Table 5 is a recapitulation of the calculation of EUPA based on the results of the study.

Table 5. Example of Recapitulation of Work Unit Price Analysis

No	Job Description	Analyzes	Unit Price (Rp)
1	Field cleaning and equalization	EUPA PU U.3.1a. (C)	Rp 13,871
2	Bouwplank measurement and installation	EUPA PU U.1.2.1.d (a)	Rp 32,761
3	Excavation 1 m ³ Ordinary soil 2 m deep	EUPA PU U.3.4.1.a.4 (a)	Rp 124,837
4	Soil re-excavation 1 m ³ Excavated soil	EUPA PU U.3.5.1.a (c)	Rp 69,354
5	Compaction 1 m ³ Soil	EUPA PU U.3.5.2.a (c)	Rp 69,354
6	Urugan 1 m ³ Sand under the foundation/construction floor	EUPA PU U.3.5.1.b (c)	Rp 366,744

Source : Processed Researcher, 2024

Cost Budget Plan

To get the value of the cost budget plan is to multiply the volume of work in Table 2 with the unit price of work in Table 5. For example, the calculation of CBP on land clearing and equitable work.

$$\begin{aligned}
 \text{Volume} &= 8,937 \text{ m}^2 \\
 \text{H.S. Jobs} &= \text{Rp. } 13,871 \text{ per m}^2 \\
 \text{CBP} &= \sum (\text{Volume} \times \text{Unit Price of Work}) \\
 &= \sum (8,937 \text{ m}^2 \times \text{Rp. } 13,871) \\
 &= \text{Rp. } 123,962,669
 \end{aligned}$$

From the results of the calculation above, it is known that the CBP for land clearing and equitable work amounted to Rp. 123,962,669. For other activities, it can be seen in Table 6 in the form of CBP of all logistics warehouse work in BPBD Bantul Regency based on the results of the analysis.

Table 6. Cost Budget Plan

No	Job Description	Volume	Unit	Unit Price (Rp)	Total Price (Rp)
1	Field cleaning and equalization	8,937	m ²	Rp 13,871	Rp 123,962,669
2	Bouwplank measurement and installation	440	m	Rp 32,761	Rp 14,415,029
3	Excavation 1 m ³ Ordinary soil 2 m deep	265.30	m ³	Rp 124,837	Rp 33,119,380
4	Soil re-excavation 1 m ³ Excavated soil	2,608.96	m ³	Rp 69,354	Rp 180,940,546
5	Compaction 1 m ³ Soil	2,608.96	m ³	Rp 69,354	Rp 180,940,546
6	Urugan 1 m ³ Sand under the foundation/construction floor	487.44	m ³	Rp 366,744	Rp 178,767,163
7	Work 1 m ³ Concrete Footplate Foundation quality f _c = 19.3 Mpa, uk. 150x150 cm, t= 35 cm, tul. Φ 16 mm - 15 cm	53.55	m ³	Rp 4,116,200	Rp 220,122,510
8	Work 1 m ³ Tie Beam quality f _c = 19.3 Mpa, uk. 25x50 cm, tul. 12 Φ 16 mm, begel Φ 10 - 12.5 cm	47.60	m ³	Rp 7,775,500	Rp 370,113,800
9	Work 1 m ³ Concrete Floor Work, Concrete f _c =26.4 Mpa, Wire mesh M6	566.57	m ³	Rp 3,539,548	Rp 2,005,413,479
10	Work 1 m ³ Concrete column quality f _c = 19.3 Mpa, uk. 40x40 cm, tul. 16 Φ 16 mm, begel Φ 10 - 15 cm	25.02	m ³	Rp 6556,000	Rp 164,057,344
11	Work 1 m ² Hebel Wall 60x15x20 mm + Acian	2,907.14	m ²	Rp 256,943	Rp 746,971,144
12	Work 1 kg Thick Steel Plate = 8 mm	0.18	kg	Rp 111,656	Rp 20,199
13	Work 1 kg IWF Steel Iron 200 x 100 x 5.5 x 8.0mm	455.11	kg	Rp 313,349	Rp 142,608,773
14	Work 1 kg IWF Steel Iron 250 x 125 x 6.0 x 9.0mm	7,778.88	kg	Rp 109,620	Rp 852,718,642
15	Work 1 kg IWF Steel Iron 350 x 175 x 7 x 11 mm	53,419.10	kg	Rp 114,875	Rp 6,136,528,060
16	Work 1 kg HB Steel Iron 300 x 300 x 10 x 15 mm	24,575.36	kg	Rp 235,516	Rp 5,787,896,937
17	1 m Work CNP Iron 150 x 50 x 2.30mm	5,454	m	Rp 157,377	Rp 858,335,003
18	Work 1 m ² Spandex Roof t=0.3	6,277.01	m ²	Rp 254,705	Rp 1,598,786,856

19	Work 1 m ² New Wall Painting (1 Plamir, 1 Layer of Base Paint, 2 Layers of Cover Paint)	5,814.29	m ²	Rp 40,621	Rp	236,179,539
20	Steel Sliding Door	96	m ²	Rp 1,500,000	Rp	144,000,000
21	Noble Glassblock Size 20x20 cm	816	pcs	Rp 2,000	Rp	22,032,000
22	Philips Mercury Lamp 250 Watt	13	point	Rp 185,000	Rp	2,405,000
23	18 Watt Fluorescent TL Lamp, 120 cm	48	pcs	Rp 33,500	Rp	1,608,000
24	Lampshade Diameter 38 cm	13	point	Rp 69,900	Rp	908,700
25	Lampshade TL 120 cm	24	point	Rp 175,000	Rp	4,200,000
26	Broco Outlet	8	point	Rp 12,276	Rp	98,208
27	Switch Ganda Broco	5	point	Rp 20,000	Rp	100,000
28	NYA Cable 10 mm	9	roll	Rp 1,925,000	Rp	16,978,500
29	Electricity 2200 VA	1	pcs	Rp 2,062,000	Rp	2,062,000
30	Exhaust Fans 48x46 24 in Blade	136	pcs	Rp 3,299,000	Rp	448,664,000
Total Warehouse Work Price Amount					Rp 20,026,590,027	

Source : Processed Researcher, 2024

CONCLUSIONS AND SUGGESTIONS

Conclusion

After an analysis of the Cost Budget Plan on the planning of the Bantul Regency BPBD logistics warehouse, based on the results of the calculation and analysis, it takes a cost to complete the planning for the construction of the Bantul Regency BPBD disaster logistics warehouse of Rp 20,026,590,027 (Twenty Billion Twenty-Six Million Five Hundred Ninety Thousand Twenty-Seven Rupiah).

Suggestion

Based on the results and discussions and conclusions in this analysis, the researcher provides suggestions in construction management planning. In addition to CBP calculations, discussions should be carried out on the method of work implementation and work scheduling in the next study.

ACKNOWLEDGMENTS

Thank you to the Badan Penanggulangan Bencana Daerah (BPBD) of Bantul Regency for providing opportunities for researchers to carry out MBKM internship activities, and the data obtained is very supportive in research, as well as to the National Institute of Technology Yogyakarta (ITNY) as an institution where researchers gain knowledge.

REFERENCE

- Alami, N., Aziz, U. A., & Margiarti, D. (2021). A comparative study of cost budget plans between the Work Unit Price Analysis Method (EUPA) and the Indonesian National Standard (SNI). *Surya Beton: Journal of Civil Engineering*, 5(1), 10-19. Retrieved from <https://core.ac.uk/download/pdf/480700507.pdf>
- Dewi, C. P., Esfianto, A., & Alwi, S. (2016). Calculation of the Budget Plan, Cost and Time for the Implementation of Work on the Construction of a Multipurpose Building on Jalan Tomo, Samarinda, East Kalimantan. *Journal of Inertia*, 8(1), 57-66. Retrieved from <https://ejurnal.polnes.ac.id/index.php/inersia/article/view/804>
- Jacobus, A. S., Arsjad, T. T., & Walangitan, D. R. O. (2022). Budget Plan for the Construction of the Isolation Building of Buluye Napoa'e Moutong Hospital, Central Sulawesi. *TEKNO*, 20(81), 409-418. <https://doi.org/10.35793/jts.v20i81.43683>
- Lengkong, S. C., Sabijono, H., & Tirayoh, V. Z. (2021). Analysis of Project Planning and Cost Control at PT. Marga Dwitaguna. *EMBA Journal: Journal of Economic Research*,

- Management, *Business and Accounting*, 9(3), 1069-1076. <https://doi.org/10.35794/emba.v9i3.35292>
- Malaiholo, D., Kurniawan, M. A., & Wardani, H. (2021). Budget Plan for Planning the Construction of the Upper Structure of the Railway Bridge at PPI Madiun. *Bearing: Journal of Civil Engineering Research and Studies*, 6(4), 226-232. <https://doi.org/10.32502/jbearing.3217202064>
- Mokolensang, V. M., Arsjad, T. T., & Malingkas, G. Y. (2022). Analysis of the Cost Budget Plan on the Papua 1 Flats Construction Project in Muara Tami District, Jayapura City, Papua Province. *Static Civil Journal*, 9(4), 619-624. Retrieved from <https://ejournal.unsrat.ac.id/index.php/jss/article/view/38957>
- Nawal, C., Doloksaribu, B., & Paresa, J. (2022). Calculation of Cost Budget Plans and Implementation Methods in Replanning Steel Structure Buildings. *Musamus Journal of Civil Engineering*, 4(2), 95-104. <https://doi.org/10.35724/mjce.v4i02.4410>
- Rahmah, S., & Ikhsan, I. (2022). Disaster Management in Post-Disaster Handling of BPBD West Aceh Regency. *Journal of Social Politics and Governance (JSPG)*, 4(1), 24-37. <https://doi.org/10.24076/JSPG.2022v4i1.776>
- Sari, S. N., Triwuryanto, T., & Ramadhanti, A. T. (2022). Calculation of the Draft Budget for the Kalirejo Village Embankment, Kulon Progo DIY. Jompa Abdi: Journal of Community Service, 1(2), 32-40. <http://dx.doi.org/10.55784/jompaabdi.Vol1.Iss2.73>
- Sembiring, D. P. E. (2020). Design of a Cost Budget Plan (CBP) Calculation Application for House Construction Using the Burgerlijke Open Bare Werken (BOW) Method. *Pelita Informatics: Information and Informatics*, 5(3), 16-20. Retrieved from <https://www.stmik-budidarma.ac.id/ejurnal/index.php/pelita/article/view/249>
- Sinambela, E. A., & Djaelani, M. (2021). Analysis of Cost Planning Designs with Real Cost Calculation Methods in the Implementation of Simple Housing Projects. *Journal of Trends Economics and Accounting Research*, 2(2), 32-36. Retrieved from <https://journal.fkpt.org/index.php/jtear/article/view/229>
- Sukardi, N. I., Canra, D., Konoras, A., & Ridho, M. (2020). Disaster Logistics Management and Distribution System Case Study for Earthquake Disaster Management in South Halmahera. *Journal of Science and Engineering*, 3(1), 33-37. <https://doi.org/10.33387/josae.v3i1.3029>
- Sumantri, M. F., Arsjad, T. T., & Malingkas, G. Y. (2022). Calculation of the cost and implementation budget plan in the construction project of the Bolaang Mongondow Regional Inspectorate Office Building. *Techno*, 20(82), 607-619. <https://doi.org/10.35793/jts.v20i82.44154>
- Sumartini, W. O., & Sanjaya, F. (2023). Comparative Analysis of the Budget Plan for the Construction of Residential House Foundation Floors from an Economic Perspective (Case Study: Palm Spring Housing Batam City). *Journal of Civil Engineering*, 12(2), 83-91. <https://doi.org/10.36546/tekniksipil.v12i2.830>
- Toea, J. Y. (2023). Calculation of Cost Budget Plans and Implementation Methods for Time Efficiency with the Critical Path Method in the Elim Kolaka Church Building Construction Project. Doctoral dissertation, Sintuwu Maroso University. Retrieved from <http://repository.unsimar.ac.id/id/eprint/1800>
- Wijanarko, R. (2022). The Effectiveness of the Role of Regional Disaster Management Agencies in Distributing Logistics Assistance to Flood Disaster Victims in Tanjungpinang City, Riau Islands Province. Doctoral dissertation, Institute of Domestic Government. Accessed from <http://eprints.ipdn.ac.id/8333/>