

ANALYSIS OF OCCUPATIONAL SAFETY AND HEALTH COST PLAN CONSTRUCTION ON THE PROJECT "PRESERVASI JALAN DAN JEMBATAN SURABAYA - SIDOARJO" BASED ON MINISTER FOR PUBLIC WORKS AND HOUSING REGULATION NUMBER 10 OF 2021

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Abstract.

Indonesia is one of the developing countries which currently has a lot of development underway. With problems related to occupational health and safety which are still often ignored, especially in East Java province, this is demonstrated by the still high number of construction work accidents in 2021 in East Java province, namely 26% of the total construction work accident cases in Indonesia. This research was carried out on the project "Preservasi Jalan dan Jembatan Surabaya – Sidoarjo". The method of this research is quantitative descriptive. The results of this research show that the amount of occupational health and safety costs is based on the owner's estimate which is guided by Minister for Public Works and Housing Regulation Number 10 of 2021 concerning Construction Safety Management Systems is IDR. 664.677.000,00 where this fee is 4.04% compared to the contract value.

Keywords: *Work Accidents, Occupational Health and Safety costs*

INTRODUCTION

Indonesia is one of the developing countries which currently has a lot of development underway. The development that is taking place is also quite significant development in the construction sector (Hasan, 2019)

Every year thousands of accidents occur in the workplace which can cause loss of life, material damage and production disruption. According to the International Labor Organization (ILO), there are 337 million work accidents in various countries which result in around 3 million workers losing their lives every year (Soehatman Ramli, 2013). Based on data from the Employment Social Security Administering Agency (taken from www.bpjsketenagakerjaan.go.id), the number of work accidents in 2019 was 182,835 cases, in 2020 there were 221,740 cases, and 234,270 cases throughout 2021. Work accidents on construction projects in 2021, namely 26% in East Java,

22% in Sumatra, 11% in West Java, 11% in Jakarta, 11% in Banten, 5% in Sulawesi, 5% in Central Java, 1% in Yogyakarta, 4% in Kalimantan, 3% in Bali, NTT and NTB and 1% in Papua. Based on this data, it proves that work accidents, especially in the construction sector in the East Java area, are still considered very high, so various efforts are made by contractors as service providers to avoid or reduce risks so that effective results can be achieved (Nasarkhan Yasin, 2006)

However, the legal basis that is used as a reference is law of the Republic Indonesia, Government Regulation, and Ministerial Regulation. In the development of construction projects in Indonesia, the implementation of occupational safety and health is still not optimal. Many construction workers experience work accidents every year, material damage, production failures and construction worker delays which cause many companies to suffer losses (Kurniawan, 2019)

Other research shows that the cost of OSH has met the ideal standards of the People's Construction Safety Committee, namely between 1.5% - 2.5% of the total project value. This research was carried out on the project Pembangunan Gedung Lt. II SDN 13 Kesiman. Where, OSH costs on the project. Pembangunan Gedung Lt. II SDN 13 Kesiman according to circular letter number 66/SE/M/2015 is Rp 24.375.767,00 (Twenty Four Million Three Hundred Seventy Five Thousand Seven Hundred Sixty Seven Rupiah) or around 1.68% of the contract value, while OSH costs based on shop price surveys are equal to Rp. 26.768.128,00 (Twenty Six Million Seven Hundred Sixty Eight Thousand One Hundred Twenty Eight Rupiah) or around 1.85% (Atyatistha, 2019).

Other research also shows that the OSH cost value meets ideal standards. The Construction Safety Committee is between 1.5% - 2.5% of the total project value. This research was carried out on the Sanur Tennis League development project, the amount of OSH costs based on a shop price survey guided by circular letter number 11/SE/M/2019 of 2019 regarding Technical Instructions The cost of implementing a Construction Safety Management System is equal to Rp. 116.914.000,00 (One Hundred and Sixteen Million Nine Hundred and Fourteen Thousand Rupiah) or approximately 1.57% of the contract value (I Wayan Wijaya Dharma, 2021).

RESEARCH METHODOLOGY

The location of this research is the Surabaya - Sidoarjo Road and Bridge Preservation Project which will be carried out from March 13 2023 to October 31 2023. This research uses quantitative descriptive methods. The types of data

collected include primary and secondary data. Primary data is data obtained directly when making observations in the field and the data needed in this research, namely the construction safety plan files for the project, unit prices based on owner estimates, OS completeness cost plans, and OSH cost percentages. Meanwhile, secondary data is data that already exists, namely plan drawings, cost budget plans, and OSH items, based on Minister for Public Works and Housing Regulation number 10 of 2021 concerning Construction Safety Management Systems.

RESULT AND DISCUSSION

The construction project used as the object of this research is a project Preservasi Jalan dan Jembatan Surabaya – Sidoarjo. Data collected in the form of secondary data, namely OSH items based on Minister for Public Works and Housing Regulation number 10 of 2021, budget plan, detail engineering design (DED), , and primary data, namely Construction Safety Plan, OSH equipment cost planning, and OSH cost percentage. After data collection, data processing is then carried out, first carried out by researchers to determine the identification of hazard risks in order to determine the personal protective equipment to be used. The second is planning the OSH cost budget and the last is calculating the percentage of the influence of OSH costs on the contract value. Data processing does not only involve analyzing Personal Protective Equipment and Work Protective Equipment but refers accordingly Minister for Public Works and Housing Regulation number 10 of 2021. In the project Preservasi Jalan dan Jembatan Surabaya – Sidoarjo with the work being studied, namely Excavation Work, Asphalt Pavement Excavation Work with a Cold Milling Machine, Emulsion Spreading Work, Hotmix Spreading Work, Formwork Installation Work, Pavement Casting Work, Formwork Dismantling Work, Grouting Work, and Guard Rail Work.

Risk Identification

The risk identification stage is to look for existing risks and then determine the potential and causes, through a survey program and investigation of existing problems such as work locations, work processes or sequences, machines or equipment and power sources and dangerous materials. This risk identification is to find out, recognize and estimate the existence of risks in an operating system, equipment, procedures, work units. Risk identification is an important step in the risk control process.

OSH Cost Budget Planning

In planning the OSH project cost budget Preservasi Jalan dan Jembatan Surabaya – Sidoarjo total workers is nineteen people, five technical staff, two HSE staff, two managers, one general supervisor, and one director, then determine the OSH completeness items based on Minister for Public Works and Housing Regulation number 10 of 2021 regarding the Construction Safety Management System with unit prices obtained from the owner's estimate which is based on the basic unit price of activities in the East Java region, and also the basic unit price determined by the National Road Implementation Center using the formula: $\text{Volume} = \text{Volume of Equipment Used} \times \text{Unit Price of Equipment}$ OSH.

Table 1. Description of OSH Cost Budget Plan

NUMBER OF PAYMENT POINTS	WORK ITEM	UNIT	IMPLEMENTATION PLAN		
			UNIT PRICE (Rp)	QUANTITY	TOTAL PRICE (Rp)
	Construction Safety Personnel:				
SKh-1.1.22.(5a)	Construction OSH expert/construction safety expert (as head of Work Safety Unit)	Person	7.200.000,00	1,00	7.200.000,00
SKh-1.1.22.(5c)	Construction Safety Officer, Construction OSH Officer	Person	5.400.000,00	1,00	5.400.000,00
SKh-1.1.22.(5d)	Environmental Management Officer	Person	5.400.000,00	1,00	5.400.000,00
SKh-1.1.22.(5e)	Emergency responders/firefighters	Person	4.500.000,00	1,00	4.500.000,00
SKh-1.1.22.(5f)	OSH Officer	Person	4.500.000,00	1,00	4.500.000,00
SKh-1.1.22.(5g)	Medical and/or health personnel (Doctor or paramedic)	Person	5.650.000,00	1,00	5.650.000,00

SKh-1.1.22.(5h)	Traffic control officer	Person	4.050.000,00	1,00	4.050.000,00
SKh-1.1.22.(5e)	Traffic Management and Safety Coordinator	Person	5.850.000,00	1,00	5.850.000,00
	Facilities, infrastructure and health equipment:				
SKh-1.1.22.(6a)	First aid equipment	Set	2.698.000,00	7,00	18.886.000,00
SKh-1.1.22.(6b)	First Aid Room	Set	4.500.000,00	7,00	31.500.000,00
SKh-1.1.22.(6c)	Fogging Equipment (Medicine and Fogging machine)	Unit	2.410.000,00	7,00	16.870.000,00
SKh-1.1.22.(6d)	Costs of infectious outbreak health protocols (eg: hand washing facilities, swabs, vitamins during the Covid-1 pandemic)	Ls	10.000.000,00	1,00	10.000.000,00
	Required traffic signs and equipment or traffic management:				
SKh-1.1.22.(7a)	Guidance signs	Pieces	1.050.000,00	9,00	9.450.000,00
SKh-1.1.22.(7b)	Prohibition sign	Pieces	1.050.000,00	7,00	7.350.000,00
SKh-1.1.22.(7c)	Warning sign	Pieces	1.050.000,00	7,00	7.350.000,00
SKh-1.1.22.(7e)	Information sign	Pieces	1.050.000,00	9,00	9.450.000,00
SKh-1.1.22.(7f)	Temporary job sign	Pieces	1.050.000,00	9,00	9.450.000,00
SKh-1.1.22.(7h)	Traffic cone	Pieces	250.000,00	34,00	8.500.000,00
SKh-1.1.22.(7i)	Warning Lights Stick	Pieces	75.000,00	14,00	1.050.000,00

SKh-1.1.22.(7j)	Rotary lamp	Pieces	800.000,00	14,00	11.200.000,00
SKh-1.1.22.(7k)	Water tank barrier	m'	890.000,00	18,00	16.020.000,00
SKh-1.1.22.(7m)	Temporary lamps/lighting devices	Pieces	1.000.000,00	7,00	7.000.000,00
SKh-1.1.22.(7n)	Emergency Lamp	Pieces	500.000,00	4,00	2.000.000,00

NUMBER OF PAYMENT POINTS	WORK ITEM	UNIT	IMPLEMENTATION PLAN		
			UNIT PRICE (Rp)	QUANTITY	TOTAL PRICE (Rp)
	Activities and equipment related to Construction Safety Risk Control:				
	including environmental testing/inspection costs:				
SKh-1.1.22.(9a1)	Light Fire Extinguisher	Pieces	350.000,00	11,00	3.850.000,00
SKh-1.1.22.(9a7)	Internal audit	Activity	100.000,00	7,00	700.000,00
Total Contract Price				664.677.000,00	

OSH Cost Percentage

The estimated cost of Occupational Safety and Health on the Project is calculated from the costs of security equipment, security, including signs, health facilities, and other costs. Based on the total cost of occupational safety and health, it can be seen in the following table: The estimated cost of Occupational Safety and Health on the Project is calculated from the costs of security equipment, security, including signs, health facilities, and other costs. Based on the total cost of occupational safety and health, it can be seen in the following table:

Table 2. Percentage of Occupational Safety and Health Costs

CONTRACT VALUE (Rp)	OSH COST (Rp)	PERCENTAGE
16.437.243.769,00	664.677.000,00	4,04%

Based on table 2, it is known that the planned project cost according to the contract value is Rp. 16.437.243.769,00. From the analysis results, OSH costs are based on owner estimates guided by Minister for Public Works and Housing Regulation number 10 of 2021 on Construction Safety Management with Rp. 664.677.000,00 (Six Hundred and Sixty Four Million Six Hundred Seventy Seven Thousand Rupiah) or around 4.04%. The OSH cost value meets the ideal standards of Minister for Public Works and Housing Regulation number 10 of 2021, namely between 1.5% - 2.5% of the total project value.

CONCLUSION

Based on the results of data processing, the author can draw conclusions regarding the analysis of the proportion of OSH costs in Preservasi Jalan dan Jembatan Surabaya – Sidoarjo as follows are the components of OSH costs that are calculated in Preservasi Jalan dan Jembatan Surabaya – Sidoarjo namely preparation of construction safety plans, socialization, promotion and training, work protective equipment and personal protective equipment, insurance and licensing, facilities, health facilities and infrastructure, necessary signs, others related to controlling construction safety risks.

The value of occupational safety and health costs has met ideal standards Minister for Public Works and Housing Regulation number 10 of 2021, namely between 1.5% - 2.5% of the total project value. Namely Rp. 664.677.000,00 (Six Hundred and Sixty Four Million Six Hundred Seventy Seven Thousand Rupiah) or around 4.04% of the contract value.

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