Lowland Technology International; Volume 23 (Issue No. 4): 21-27
International Association of Lowland Technology (IALT): ISSN 1344-9656

Research Paper

Identification of the Implementation Level of the Covid-19 Protocol in Service Providers Building (Case Study of Palu City Area)

A. Asnudin [1], A. Dwi Syafira [2]

ARTICLE INFORMATION

Article history:

Received: 21 November, 2021
Received in revised form: 18 March, 2022
Accepted: 31 March, 2022
Publish on: 12 April, 2022

Keywords:

protocol
implementation
covid-19
contractors

ABSTRACT

Construction projects themselves are one of the aspects affected by Covid-19. Therefore, a rule is required to be used as a protocol in the implementation of work in the field of construction which in this case is the Instruction of the Minister of PUPR No.2 of 2020. This study aims to find out the level of Implementation of Covid Protocol in Construction Service Providers located in Palu City. Technical research uses questionnaires based on samples from several contractors who are running projects in Palu City. Questionnaires that have been distributed are then analyzed using percentage and RRI methods. The results showed that the level of implementation of the Covid-19 protocol on construction projects based on sub-indicators with the application rate is "Highly Applied" and the highest RRI value is 0.870 to the lowest RRI value of 0.711. Some of these indicators are (1) allocating costs for cleaning facilities (0.870), (2) dividing work locations by type of work (0.863), (3) preparing facilities and infrastructure for washing hands, keeping distance, and avoiding crowds for employees (0.859), (4) providing handwashing facilities with soap, disinfectant, hand sanitizer, tissue, and masks in the office and project field. (0.859), (5) forbidding someone who is sick with an indication of a temperature > 38 degrees Celsius to go to the project site (0.856), (6) establishing a Covid Prevention Task Force (0.856), (7) reporting to PPK if positive workers are found and/Patients Under Supervision (PDP), and provide advice to temporarily suspend project activities (0.852), (8) conducting socialization and education on the Covid protocol (0.844), (9) conducting socialization related to the Covid 19 prevention protocol in construction projects (0.833), and (10) implementing regulations related to Covid prevention protocols on construction projects (0.833).

1. Introduction

Construction services is a high-hazard industrial sector that has a wide range of activities involving construction, alteration, and/or repair. Examples include housing construction, bridge construction, paving roads, excavation, demolition, and large-scale painting work. For this reason, the implementation of the OHS Management System in the construction service industry is very important.

[1] Lecturer, Department of Civil Engineering, Faculty of Engineering, Tadulako University, Palu 94148, INDONESIA, a.asnudin@gmail.com
[2] Student, Department of Civil Engineering, Faculty of Engineering, Tadulako University, Palu 94148, INDONESIA

Construction projects are one of the activities affected by the Covid-19 outbreak. In order to create a safe work environment, a rule is needed to be used as a protocol in the implementation of work in the construction sector. Therefore, several regulations have been issued, among others, INMEN PUPR No. 2/IN/M/2020 concerning the Protocol to Prevent the Spread of Corona Virus Disease 2019 (Covid-19) in the Implementation of Construction Services as a security standard in the implementation of construction projects.

Based on this, the authors conducted a study to determine the level of application of the covid-19 protocol on building construction service providers in the Palu City area.

2. Literature Review

2.1 Project

According to Nirmala et. Al (2013) A project is an activity that takes place in a limited period of time, with the allocation of certain resources and is carried out in order to obtain certain goals and objectives, which are bound by various requirements.

2.2 Building

Based on Law no. 28 of 2002 concerning the building of the building. Building is a physical form resulting from construction work that is integrated with its domicile, partially or wholly located above and/or in the land and/or water, which functions as a place for humans to carry out their activities, either for housing or residence, religious activities, business, social, cultural and special activities.

2.3 Construction

Construction is the meaning contained in linguistic construction. Construction can also be discussed as an interrelated meaning contained in a sentence or group of words in a word in a linguistic study. (Suwandi, 2008)

2.4 Occupational Health and Safety

In Government Regulation Number 50 of 2012, Occupational Health and Safety (OHS) is an effort to protect and guarantee occupational safety and health by preventing accidents and occupational diseases.

According to Asnudin (2007), OHS Management is an effort to prevent accidents and health problems in the implementation of construction projects. In practice, OHS includes (1) company management system, (2) safety policy (safety polices), (3) safety organization, and (4) a supportive environment (safety representatives).

2.5 Regulations for the Implementation of the Covid-19 Protocol

Construction projects are one of the aspects affected by Covid-19 and also a means of spreading Covid-19. Therefore, to create a safe job field, the government issues instructions, to regulations that aim to prevent and/or minimize the spread of Covid-19 in the workplace, especially in the implementation of construction projects. The regulations governing the implementation of the Covid-19 protocol refer to:

- Presidential Instruction of the Republic of Indonesia Number 4 of 2020 regarding the understanding of Covid-19, namely (1) budget allocation, (2) process of procurement of goods and services, and (3) granting of registration of medical devices and medical devices for handling Covid-19).
- Instruction of the Minister of Public Works and Public Housing Number 2 of 2020 concerning general guidelines for owners or users, or providers of construction services.
- Central Sulawesi Governor Regulation Number 32 of 2020

3. Research Method

3.1 Research Sites

The research locations are in 5 (five), namely: (1) New Mall Tatura Palu Project, (2) Construction of a New Police Headquarters, (3) Construction of the BRI Palu Branch Office, (4) Rehabilitation and Reconstruction Project of the Palu BPKP Building, (5) PIP2B Palu Building Rehabilitation and Reconstruction Project.

3.2 Type and Research Approach

In this study used descriptive and nonparametric methods using a quantitative approach.

3.3 Population dan Sample

This study takes service providers who are working on building projects in Palu City as the population. As for the determination of the sample, the author uses the "Snow Ball Sampling" method in which each population can potentially be a sample. The number of samples is determined at the level of saturation of answers to the questions asked. Then, obtained the number of samples as many as 54 respondents.

3.4 Collecting Data

Data collection techniques used consist of:

- Primary Data, Data collection techniques by submitting or sending a construction service provider questionnaire
- Secondary Data, in the form of documents obtained from service providers and related agencies.

3.5 Data Processing

Data management is carried out using 2 methods, namely Descriptive Statistical Methods and nonparametric statistical methods (Relative Rank Index, Reliability Test, and Spearman's Rho Correlation Test).

4. Results and Discussion

4.1 Characteristics of Respondent

Table 1. Gender of Respondents

		Frequency	Percent	Valid Percent
Valid	Male	45	83.3	83.3
	Female	9	16.7	16.7
	Total	54	100	100

The results showed that male respondents were far more dominant than female respondents, with a frequency of 45 people. This illustrates that construction service providers are dominated by men and women's participation in the construction service sector is still very low.

Table 2. Respondent's Educational Background

		Frequency	Percent	Valid Percent
Valid	SMA	10	18.5	18.5
	D3	4	7.4	7.4
	S1	32	59.3	59.3
	S2	4	7.4	7.4
	N/A	4	7.4	7.4
	Total	54	100	100

Based on the results of the study, it can be concluded that the last education of the most dominant respondents was Bachelor (S1) as many as 32 people. Education is one aspect related to one's knowledge, supported by one's education, can support one's knowledge and abilities to be better and more advanced.

Table 3. Project Position

		Frequency	Percent	Valid Percent
Valid	Head/Directors	7	13	13
	HSE Officer	10	18.5	18.5
	Contractors Officer	27	50	50
	Consultant	10	18.5	18.5
	Total	54	100	100

Based on the results of the study, it is known that the most dominant respondents are respondents who serve as contractor staff with a total of 27 people. The positions of respondents in this study were leaders, K3 officers, contractor staff, and consultants.

4.2 Reliability Test

Table 4. Reliability Test Results with SPSS24

Cronbach's Alpha	N of Items
.904	32

The results showed the reliability value = 0.904. Based on these results, the value obtained from the SPSS application exceeds the minimum value of 0.60, indicating the answer obtained is reliable, so that it proceeds to the analysis stage.

4.3 Data Analysis

The Relative Rank Index (RRI) value is obtained using the following equation:

Example of a questionnaire question X1.1

n = 5

N = 54

i = 0, 1, 2, …, n

li = 1 = 0 ; 2 = 0 ; 3 = 11 ; 4 = 23 ; 5 = 20 (The number of respondents' answers for each interval scale)

xi = i = 0 until 5

Solution :

nN = 5 x 54 = 270

li.xi = (1 x 0) + (2 x 0) + (3 x 11) + (4 x 23) + (5 x 20)

$\sum li.xi$ = 0 + 0 + 33 + 92 + 100

= 2

$$RRI = \frac{\sum li\ .xi}{nN}$$

$$= \frac{225}{270}$$

= 0,833

Based on the Relative Rank Index (RRI) obtained 10 points which greatly affect the level of implementation of the Covid-19 protocol on building construction projects. As for determining the level of application, it can be grouped into the Not Applied category (0.00 – 1.00), Rarely Applied category (1.10 – 2.00), Moderately Applied category (2.10 – 3.00), Applied category (3.10 – 4.00) and the category of Highly Applied (4.10 – 5.00).

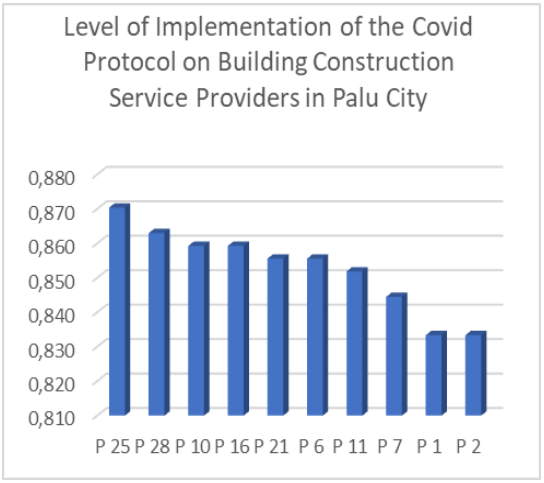

Fig. 1. RRI Results

From the results of the analysis, there are 10 sub-indicators with the highest RRI values, as follows:

1. Allocating costs for hygiene facilities (handwashing, disinfectant, masks, and hand sanitizer) (P25), with an RRI value of 0.870. Indicates the level of implementation of the Covid-19 protocol is “Highly Applied”. As for its implementation, based on Hadi (2018), overhead costs include the cost of organizing K3, one of which is in the form of health facilities and cleaning facilities, thus ensuring the K3 of workers and the safety of the construction environment.
2. Dividing the work location based on the type of work (P28), with an RRI value of 0.863. Indicates the adoption rate is “Highly Applied”. As for construction work, the division of locations and general working groups is carried out with reference to the type of work and the type of material, as an effort to prevent and reduce the risk of the spread of Covid-19 in construction projects.
3. Preparing facilities and infrastructure for washing hands, maintaining distance, and avoiding crowds for employees (P10), with an RRI value of 0.859. Indicates its applicability level “Highly Applied”. According to the PUPR Minister's Instruction No. 2 of 2020, service providers cooperate with the Covid-19 Task Force to provide facilities and infrastructure related to Covid-19 in the hope of preventing and minimizing exposure to Covid-19 in construction projects that can hamper the sustainability of the project.
4. Providing handwashing facilities with soap, disinfectant, hand sanitizer, tissue, and masks in the office and project field. (P16), with an RRI value of 0.859. Indicates the applicability level is “Highly Applied”. According to Arianto (2018), one of the K3 programs is to provide and ensure the availability of PPE to advice and infrastructure that supports the implementation of K3 for every worker. Referring to the regulation, it requires that Health facilities need to be prepared in the field.
5. Forbidding someone who is sick with an indication of temperature > 38 degrees Celsius to come to the project site (P21), with an RRI value of 0.856. Indicates the applicability level is “Highly Applied”. This is included in the prevention implementation variable where according to Hakim (2020), the risk on the project cannot be eliminated due to technical considerations and other things. Therefore, the thing that can be done is to reduce the consequences. Consequences or risks themselves can be prevented by implementing a good and planned emergency response system, and providing PPE and health facilities.
6. Contract Operator establishing the Covid Prevention Task Force (P6), with an RRI value of 0.856. Indicates the applicability level is “Highly Applied”. According to Setiono and Andjarwati (2019) in Hayono et al (2021), explaining that the implementation of the occupational safety and health (K3) program should be implemented from the most basic stage, namely the formation of K3 officers, or in a pandemic situation the formation of a Covid-19 prevention task force is carried out. which can function effectively.
7. Reporting to PPK if positive workers and/or patients under supervision (PDP) are found, and provide suggestions to temporarily suspend project activities (P11), with an RRI value of 0.852. Indicates the applicability level is “Highly Applied”. According to Aulia (2020), based on the Instruction of the Minister of PUPR, the implementation of construction services can be temporarily suspended if it is identified (1) Has a high risk because the project location is in a distribution center, (2) Positive workers are found or identified as Patients Under Supervision (PDP), and (3) Regional leaders/institutions have issued regulations to temporarily suspend construction activities.

8. Conducting socialization and education on the Covid protocol for the workforce (P7), with an RRI value of 0.844. Indicates the applicability level is “Highly Applied”. According to Fatmawati (2018), based on Law no. 1 of 1970 concerning work safety, it is explained that every worker has the right to protection for his safety. Workers also need to receive training related to work safety itself. The coaching in question is in the form of an explanation to the workforce regarding the conditions and hazards that can occur, the use of personal protective equipment, to safe working procedures when doing work at the project site.
9. Conducting socialization related to the Covid-19 prevention protocol in construction projects (P1) with an RRI value of 0.833. Indicates the applicability level is “Highly Applied”. According to Hayono et al (2021), worker communication can be in the form of socialization or the delivery of information such as information on regulations and K3 issues, there is socialization and an appeal to implement the Covid-19 protocol as a reminder to continue to implement health protocols to prevent the spread of Covid-19.
10. Implementing PUPR INMEN Number 2 of 2020 regarding the Covid prevention protocol on construction projects with an RRI value of 0.833. Indicates the applicability level is “Highly Applied”. According to Aulia (2020), the Minister of PUPR ensures that all construction projects continue to run but adhere to the Covid-19 prevention protocol through the PUPR Minister's Instruction Number 2 of 2020. This protocol was formed to create a safe and comfortable situation for construction projects, as well as a guideline in construction work in the midst of a pandemic.

4.4 Spearman's Rho Correlation Test

Table 5. Correlation Between Factors

No	Correlation Between Factors	Correl. value
1.	Implementing INMEN PUPR Number 2 of 2020 regarding the Covid prevention protocol in construction projects (P2) correlates with conducting socialization related to the Covid 19 prevention protocol in construction projects (P1)	0,850
2.	Conducting socialization and education on the Covid protocol for the workforce (P7) correlated with conducting socialization related to the Covid 19 prevention protocol in construction projects (P1)	0,746
3.	Allocating costs for hygiene facilities (hand washers, disinfectants, masks, and hand sanitizers) (P25) correlates with dividing work locations by type of work (P28)	0,557
4.	Contract organizer Establishes the Covid prevention task force (P6) in correlation with Conducting socialization and education on the Covid protocol to the workforce (P7)	0,504
5.	Prohibiting someone who is sick with an indication of temperature > 38 degrees Celsius to come to the project site (P21) in correlation with contract organizers Establishing a Covid prevention task force (P6)	0,465
6.	Allocating costs for hygiene facilities (hand washers, disinfectants, masks, and hand sanitizers) (P25) correlates with conducting socialization related to the Covid 19 prevention protocol in construction projects (P1)	0,461

Based on Table 4.10 there are 10 questions that have the most significant relationship, namely:

1. Implementing PUPR INMEN Number 2 of 2020 regarding the Covid prevention protocol in construction projects (P2) correlated with socializing related to the Covid 19 prevention protocol in construction projects (P1). It has a correlation value of 0.850 with a significant value of 0.000, so the value of the correlation coefficient is positive, and the significance level value is less than 1%. In this case, to implement the instruction of the Minister of PUPR Number 2 of 2020 regarding the Covid-19 prevention protocol, it is necessary to socialize workers to educate the importance of implementing the Covid-19 protocol. According to Mallapiang (2017) in Pattisinai et al (2020), socialization and education from the company is the main key to K3 discipline to carry out construction work under the conditions of the Covid-19 outbreak.
2. Conducting socialization and education on the Covid protocol for the workforce (P7) correlated with

conducting socialization related to the Covid-19 prevention protocol in construction projects (P1). It has a correlation value of 0.746 with a significant value of 0.000, so the value of the correlation coefficient is positive and the significance level value is less than 1%. In this case, Pattisinai et al (2020) said that K3 education related to the prevention of the COVID-19 outbreak is very urgent to do, especially for workers who are still working at the site so that they can avoid transmission of the virus. It is hoped that with education related to the COVID-19 prevention version of the OSH protocol, workers will gain understanding to prevent transmission and can calmly carry out their work without any obstacles related to their safety.

3. Allocating costs for cleaning facilities (hand washers, disinfectants, masks, and hand sanitizers) (P25) correlates with dividing work locations by type of work (P28). It has a correlation value of 0.557 with a significant value of 0.000, so the value of the correlation coefficient is positive and the significance level value is less than 1%. According to Istiqamah (2017), K3 safety facilities are facilities that must be available on construction projects to ensure the health and safety of workers. One of the facilities that need to be provided is in the form of cleaning facilities that are used to clean oneself after work.
4. Contract organizers Establish a COVID-19 prevention task force (P6) which correlates with socializing and educating the workforce about the Covid protocol (P7). It has a correlation value of 0.504 with a significant value of 0.000, so the value of the correlation coefficient is positive and the significance level value is less than 1%. According to the PUPR Inmen No. 2 of 2020 described by Aulia (2020), the formation of the Covid-19 Task Force is carried out by service users and service providers. One of the tasks of the Covid-19 Task Force is to socialize and educate everyone, including construction workers, to protect themselves from exposure to Covid-19.
5. Forbidding someone who is sick with an indication of a temperature > 38 degrees Celsius to come to the project site (P21) in correlation with contract organizers. Establishing a COVID-19 prevention task force (P6). It has a correlation value of 0.465 with a significant value of 0.000, so the value of the correlation coefficient is positive and the significance level value is less than 1%. According to Arianto (2018), one of the HSE programs is in the form of providing HSE training by involving all workers, as well as forming and assigning HSE officers. In a pandemic situation like now, a Covid-19 Protocol Prevention Task Force was formed whose job is to check body temperature and visual physical conditions for all workers, employees, and guests before entering the work area. If a person with an indication of body temperature > 38 degrees Celsius, then they are not allowed to enter the construction area.
6. Allocating costs for cleaning facilities (hand washers, disinfectants, masks, and hand sanitizers) (P25) correlates with conducting socialization related to the Covid 19 prevention protocol in construction projects (P1). It has a correlation value of 0.461 with a significant value of 0.000, so the value of the correlation coefficient is positive and the significance level value is less than 1%. According to Reason (1977) in Hayono et. al (2021) there are 3 Top Management commitments in K3, namely (1) there are efforts to improve K3 in a certain period; (2) the company provides socialization/training, and (3) provides K3 equipment. Top management's commitment during this pandemic can be in the form of handling accidents and health problems that are carried out swiftly and quickly, socializing and training on Covid-19 prevention and providing safety and health facilities.

5. Conclusion and Suggestion

5.1 Conclusion

The results show that the level of implementation of the Covid-19 protocol on construction projects based on the sub-indicator of the level of application is "Highly Applied" and the highest RRI value is 0.870 to the lowest RRI value is 0.711, namely (1) Allocating costs for cleaning facilities (0.870), (2) Dividing work locations based on the type of work (0.863), (3) Preparing facilities and infrastructure for washing hands, maintaining distance, and avoiding crowds for employees (0.859), (4) Providing handwashing facilities with soap, disinfectant, hand sanitizer, tissue, and masks in the office and project field. (0.859), (5) Forbidding someone who is sick with an indication of a temperature > 38 degrees Celsius to go to the project site (0.856), (6) Establishing a Covid Prevention Task Force (0.856), (7) Reporting to PPK if positive workers are found and/Patients Under Surveillance (PDP) and provide suggestions to temporarily suspend project activities (0.852), (8) Conduct socialization and education on Covid protocols (0.844).

5.2 Suggestion

1. The Task Force and the building construction service provider concerned are expected to be more active and stricter in implementing the Covid-19 protocol in the construction area to anticipate the spread of Covid-19 in the construction area, considering that the construction sector is one aspect that has the potential to spread clusters. new to the growth of Covid-19, especially in Palu City.
2. There needs to be further research related to the factors in construction work that are affected by the Covid-19 pandemic by taking from the perception of the PPK (Policy Making Officer) and Consultants.
3. It is expected that respondents, namely service providers, can be more cooperative in participating in research by students who submit questionnaires because the length of primary data collection from agencies hampers data processing.

References

Arianto, A., 2018. Evaluation of K3 Cost Calculation on Building and Road Projects, Palu: Tadulako University.

Asnudin, A., 2007. Overview of the K-3 Program in the Implementation of Construction Involving Small-Scale Contractors (Central Sulawesi Case. MEKTEK Journal.

Aulia, R., 2020. Study on Identification of Covid-19 Prevention Protocol Programs in Construction Projects, Makassar: Hasanuddin University.

Fatmawati, 2018. Understanding of onstruction Workers on the Application of Occupational Safety and Health (K3) in High-rise Building Projects in Palu City, Palu: Tadulako University.

Government Regulation., 2012. Government Regulation Number 50 of 2012 concerning the Implementation of SMK3, Jakarta: Central Government.

Governor's Regulation, 2020. Governor's Regulation (PERGUB) Regarding the Implementation of Discipline and Law Enforcement of Health Protocols in the Prevention and Control of Corona Virus Disease 2019, Palu.

Hadi, A. S., 2018. Workshop on Sustainable Professional Development in Central Java Province Financing in OHS, Semarang

Hakim, A. R., 2020. Risk Management on Occupational Health and Safety Aspects in Construction Projects During the Covid-19 Pandemic, Bandung: Bandung Institute of Technology.

Hayono, J., Susanto, A. S., Chandra, H. P. & Ratnawidjaja, S., 2021. The Influence of Leadership on K3 During the Covid 19 Pandemic. Volume 1.

Istiqamah, A., 2017. Factors Affecting Occupational Safety and Health (K3) on Construction Workers Case Study Construction of Library, Archives, and Documentation Office Buildings Sigi Regency, Palu: Tadulako University.

Kurniawati, E., 2018. Occupational Safety and Health (K3) on Construction Projects in Bandung City. Yogyakarta: s.n

Ministry of Public Works and Housing, 2020. Instruction of the Minister of Public Works and Housing Number 02/IN/M/2020 of 2020 concerning the Protocol to Prevent the Spread of Corona Virus Disease 2019 (Covid-19) in the Implementation of Construction Services. Jakarta: published by the Ministry of Public Works and Housing.

Ministry of Public Works and Public Housing, 2008. Law of the Republic of Indonesia Number 28 of 2002 concerning Buildings. Jakarta: Directorate General of Public Housing and Settlements.

Nirmala, Labombang, M., Asnudin, A. 2013. Availability and Needs of Road Construction Personnel in Central Sulawesi Province. MEKTEK Journal

Pattisinai, A. R., Widayanti, F. R., Dewi, D. A. & Nadiar, F., 2020. The Importance of Occupational Safety and Health (K3) on Construction Project Sites in the Era of the Covid-19 Pandemic. Volume 2.

Presidential Instruction, 2020. Presidential Instruction (INPRES) regarding Activity Refocusing, Budget Reallocation, and Procurement of Goods and Services in the Context of Accelerating Handling of Corona Virus Disease 2019 (Covid-19). Jakarta: issued by the Central Government.

Suwandi, S., 2008. Introduction to the Study of Meaning Semantics. Yogyakarta: Mighty Media.

Symbols and abbreviations

N	Standard penetration resistance value
n	Integer from zero to infinity
RRI	Relative Rank Index