


Implementation of Occupational Safety and Health Management Systems During COVID-19 Pandemic on High-Rise Building Construction Projects

Alexsander Martin and Mega Waty

Abstract Indonesia is one from many countries that is struck by the COVID-19 virus pandemic. Indonesia still needs to recover from economy crisis caused by the pandemic. Indonesia's involvement can be seen from their development in infrastructure during the COVID-19 pandemic. The Occupational Safety and Health (OHS) Management System is a crucial part of the contractor organization's management system that is used to implement and develop OHS policies in the existing development project. In this research study, it will discuss about the application of OHS management systems in high-rise building projects during the COVID-19 pandemic. The result from the analysis and calculation in this research are compared with the Minister of Public Works Regulation No. 9/2008 regarding the Management System and Work Safety and the Instruction of the Minister of Public Works No. 2/IN/M/2020 concerning about the Protocol to Prevent the Spread of Corona Virus Disease 2019 (COVID-19) in the implementation of construction services. In its implementation, the OHS Management System is divided into three important parts, namely the Implementation and Operation of OHS Activities, OHS Evaluation/Inspection and OHS Management Review. The implementation of OHS Management System during the COVID-19 pandemic in high-rise building was obtained 77.09% (Good Enough).

Keywords COVID-19 • Occupational safety and health management system • High-rise building projects

A. Martin (✉) • M. Waty

Civil Engineering Undergraduate Program, Universitas Tarumanagara, Jakarta, Indonesia
e-mail: alexsander.325170001@stu.untar.ac.id

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1 Introduction

The ongoing global pandemic, which is caused by the Corona Virus Disease 2019 (COVID-19) that has been going on for the past year, is causing significant shocks to Indonesia's economic system. The construction services industry, which is one of the economy's main drivers, is also affected by the pandemic. The Occupational Health and Safety Management System is an important part of the contractor organization's management system that is used to implement and develop occupational safety and health policy on every existing construction project [1].

To ensure the quality of construction workers in the middle of the pandemic, the Director General of Construction Development issued circular letter No. 107/SE/DK/2020 outlining guidelines for the development of competence for construction workers in the New Normal Period [2].

In the middle of a pandemic, competency development must continue while also following health procedures and minimizing the risk of COVID-19 spread. COVID-19 is an extremely contagious virus that can be spread through direct or indirect physical contact [3].

2 Literature Review

2.1 *Occupational Health and Safety Management System*

The occupational safety and health management system is part of the organization's management system that is used to develop and implement (Occupational Health and Safety) OHS policies and manage risks [4].

According to Government Regulation No. 50 of 2012 the objectives of the occupational safety and health management system are:

1. Improving the effectiveness of occupational safety and health protection that is planned, measurable, structured and integrated.
2. Prevent and reduce workplace accidents and occupational diseases by involving elements of management, workers/laborers and/or trade/labor unions.
3. Creating a safe, comfortable and efficient workplace to boost productivity.

2.2 *Implementation of the Construction Occupational Safety and Health Management System During the COVID-19 Pandemic*

Many jobs were disrupted by the COVID-19 pandemic, including those in the construction services sector. Various adjustments to the implementation of existing

work activities are required during this pandemic. Adjustments to the Occupational Health and Safety Management System in the field are required in the construction services sector so that work activities can continue.

The COVID-19 Prevention Protocol on Construction Projects in the field issued by [5] is as follows:

1. The Task Force distributed or installed flyers, both digital and physical, on the appeals/recommendations for preventing COVID-19, such as handwashing and wearing masks, in strategic areas throughout the project field.
2. The Task Force, together with the Medical Officers, must provide explanations, recommendations, campaigns and promotions of COVID-19 prevention techniques in every morning safety education activity (safety morning talk).
3. The Task Force forbids anyone (managers, engineers, architects, employees/staff, foremen, workers and project guests) from coming to the project site if they are unwell with a temperature above 38 °C.
4. Medical officers carry out body temperature measurements to all workers and employees together with the Project Security Staff and Security Officers every morning, afternoon and evening.

If it is found that managers, engineers, architects, employees/staff, foremen and workers in the project field are exposed to the COVID-19 virus, the Medical Officers assisted by the project Security Officers will evacuate and spray disinfectants on the premises, facilities, handles and work equipment.

2.3 Government Way to Overcome COVID-19 Pandemic in the Construction Services Sector

The Indonesian Contractors Association (ICA) revealed that the construction sector in Indonesia experienced a slowdown during the COVID-19 pandemic and needed fast handling [6].

The government's initial step in overcoming this pandemic problem is by issuing Ministerial Instruction No. 02/IN/M/2020 regarding the Protocol to Prevent the Spread of COVID-19 on March 27, 2020, the contents of which are as follows:

1. Establishment of a COVID-19 prevention task force.
2. Identification of potential COVID-19 hazards in the field.
3. Provision of Health Facilities in the field.
4. Implementation of COVID-19 Prevention in the field.

3 Research Methods

3.1 Research Sites

The location used to carry out this research covers the Greater Jakarta area. This location was chosen due to the high level of development in the area around the capital.

3.2 Research Procedure

In general, the procedures carried out in this study are as follows:

1. The first stage in this research is to determine the research covers for the projects that will be used.
2. The data obtained will next be put to the test using a validity and reliability test.
3. The validity and reliability tests in this study use the SPSS program.
4. If the data is valid and reliable, then research can continue to the calculation stage using the quantitative method.
5. After the data is calculated, then the results of the calculation will be displayed in the form of a pie chart.
6. Then do the analysis of the results of the pie chart.
7. The final stage of this research is to come to a conclusion about the calculations' results. Following that, conclusions will be drawn that will be valuable to engineers.

3.3 Research Variable

The following are the variables used in the study, which can be seen in Table 1.

4 Result and Discussion

The collected data from respondents will be put into the SPSS program. The data will be tested for validity and reliability in this program and if the data passes those two criteria, it will be processed using quantitative methods.

Table 1 Research variable

Variable	Factors for occupational safety and health management system	Source
X1	Have all dangerous parts of the equipment been marked	[7]
X2	Has the construction company leader taken primary responsibility for OHS and OHS management systems	[7]
X3	Does the company provide training and education for every employee to act safely in completing work	[7]
X4	Have the required documents and OHS guidelines been provided?	[7]
X5	Does the company make provisions to effectively communicate occupational safety and health information	[8]
X6	Does the company make rules to get expert opinion and advice	[8]
X7	Does the company provide a hand purifier (water, soap and hand sanitizer) and mask in the field	[9]
X8	Does the company provide education about COVID-19 in the field?	[9]
X9	Does the company carry out routine temperature checks every morning, afternoon and evening in the field	[9]
X10	Does the company carry out regular spraying of disinfectants throughout the premises, facilities and work equipment	[9]
X11	Is there any use of tools or clothes that are still shared	[9]
X12	Are the equipment and testing methods used adequately	[7]
X13	Are records of inspections, testing and monitoring well maintained	[7]
X14	OHS Management System audits are conducted periodically to determine the effectiveness of the implementation of the OHS Management System	[8]
X15	Audit results are used by management in the management review process	[8]
X16	Does the management conduct periodic reviews of the occupational safety and health management system	[7]
X17	Has there been a review of the evaluation of the implementation of the OHS policy	[7]
X18	Is there a review of the OHS goals, objectives and performance	[7]
X19	Is a review of the findings of the occupational safety and health management system audit conducted?	[7]
X20	Is there a review of the evaluation of the effectiveness of the implementation of the occupational safety and health management system	[7]

Table 2 Validity test results

Variable		r value
X1	Pearson correlation	0.476
X2	Pearson correlation	0.523
X3	Pearson correlation	0.393
X4	Pearson correlation	0.393
X5	Pearson correlation	0.694
X6	Pearson correlation	0.461
X7	Pearson correlation	0.483
X8	Pearson correlation	0.526
X9	Pearson correlation	0.531
X10	Pearson correlation	0.389
X11	Pearson correlation	0.585
X12	Pearson correlation	0.496
X13	Pearson correlation	0.656
X14	Pearson correlation	0.688
X15	Pearson correlation	0.478
X16	Pearson correlation	0.852
X17	Pearson correlation	0.894
X18	Pearson correlation	0.854
X19	Pearson correlation	0.841
X20	Pearson correlation	0.814

4.1 Validity Test

In this validity test, only 20 from 33 questions can be called valid. The data can be valid is when the r results from the test have passed the r table (0.344). The data from validity test results can be seen in Table 2.

4.2 Reliability Test

Data that passed the validity test will be tested for reliability test. The data can be reliable is when the Cronbach Alpha result from the test has passed 0.6. This means that the questionnaire data from the results of this study are reliable. The results of the reliability of this study are good because they are in the range of 0.8–1. The data from reliability test results can be seen in Table 3.

Table 3 Reliability test result

Cronbach's Alpha	N of items
0.904	20

4.3 Percentage Result of the Occupational Health and Safety Management System Implementation

Analysis result of the implementation of the occupational safety and health management system during the COVID-19 pandemic on high-rise building projects can be seen in Table 4.

According to the occupational safety and health management system during the COVID-19 pandemic, all activities for high-rise building projects reached a value of 77.1%, indicating that the implementation has been handled effectively. This can be seen from the regulations:

- Good, if the assessment results reach >85%
- Pretty good, if the assessment results reached 60–85%
- Not good, if the assessment results reach <60%.

Table 4 Questionnaire percentage results

No.	Yes (%)	No (%)	Total (%)
<i>The implementation and operation of OHS activities</i>			
X1	69.7	30.3	100
X2	87.9	12.1	100
X3	78.8	21.2	100
X4	78.8	21.2	100
X5	87.9	12.1	100
X6	57.6	42.4	100
X7	90.9	9.1	100
X8	90.9	9.1	100
X9	72.7	26.3	100
X10	45.5	54.5	100
X11	48.5	51.5	100
<i>OHS evaluation/inspection</i>			
X12	84.8	15.2	100
X13	90.9	9.1	100
X14	81.8	18.2	100
X15	84.8	15.2	100
<i>OHS management review</i>			
X16	72.7	26.3	100
X17	78.8	21.2	100
X18	69.7	30.3	100
X19	69.7	30.3	100
X20	69.7	30.3	100
Average (%)	77.1	22.9	100

Table 5 Classification table based on research section

Research section	Percentage (%)	Classification
Implementation and operation of OHS activities	73.5	Pretty good
OHS evaluation/inspection	85.6	Good
OHS management overview	72.1	Pretty good

5 Conclusion

Based on the results of research that has been carried out on the Implementation of Occupational Health and Safety Management Systems During the COVID-19 Pandemic in high-rise construction projects, there are three parts of research in determining the success of implementing Occupational Health and Safety Management Systems, which can be seen in Table 5.

Several findings from the research conducted on the three sections above reveal that the implementation of the OHS management system in high-rise building construction projects during the COVID-19 pandemic has been carried out relatively well, with an average percentage of 77.1%. However, being relatively well or good is not enough to make the construction environment safer. In order to create a safer environment, safety protocols such as using a mask are required.

References

1. Purwanto A (2021) Ekonomi Indonesia pada masa pandemic COVID-19: Potret dan strategi pemulihan 2020–2021. <https://kompaspedia.kompas.id/baca/paparan-topik/ekonomi-indonesia-pada-masa-pandemi-covid-19-potret-dan-strategi-pemulihan-2020-2021>. Accessed 13 Feb 2021
2. Tresnawati D (2020) Upaya pemenuhan target sertifikasi tenaga kerja konstruksi dalam periode tatanan kehidupan baru. *Buletin Konstruksi* 4:7–9
3. Jati A (2020) 2 Cara Penularan Virus Corona COVID-19, Langsung dan Tidak Langsung. <https://www.liputan6.com/bola/read/4215173/2-cara-penularan-virus-corona-covid-19-langsung-dan-tidak-langsung>. Accessed 13 Feb 2021
4. British Standards Institute (2007) BS OHSAS 18001:2007: occupational health and safety managements systems-requirements. British Standards Institute, London
5. Kementerian Pekerjaan Umum (2020) Protokol pencegahan COVID-19 di Proyek Konstruksi. <https://covid19.go.id/p/protokol/kemen-pupr-protokol-pencegahan-covid-19-di-proyek-konstruksi>. Accessed 20 Feb 2021
6. Fitriani R (2020) Mengintip panduan pengendalian COVID-19 sektor konstruksi oleh OSHA. *Buletin Konstruksi* 4:4–6
7. Bramantya D (2016) Penerapan sistem manajemen keselamatan kerja di lingkungan proyek pembangunan MIDTOWN hotel Samarinda. *Kurva S Jurnal Mahasiswa* 1(1):51–66
8. International Labour Organization (2021) Occupational safety and health management in the construction sector. International Labour Organization, Geneva
9. Kementerian Pekerjaan Umum (2020) Instruksi Menteri No.2/IN/M/2020. Kementerian Pekerjaan Umum, Jakarta

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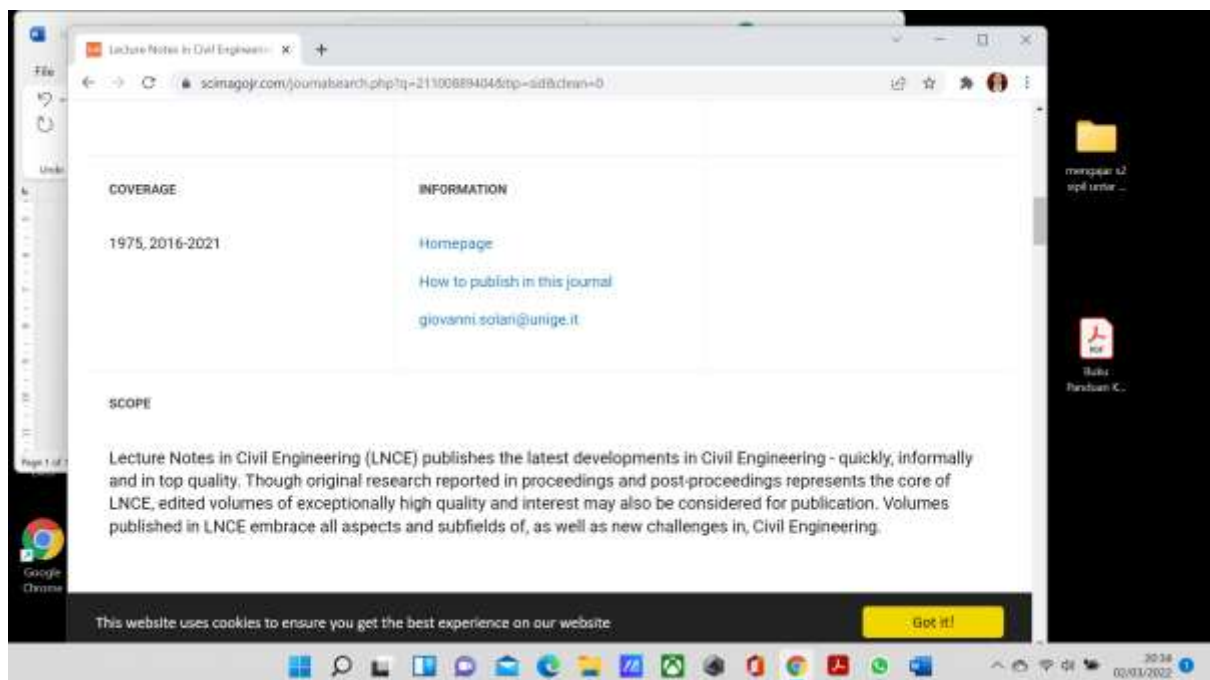
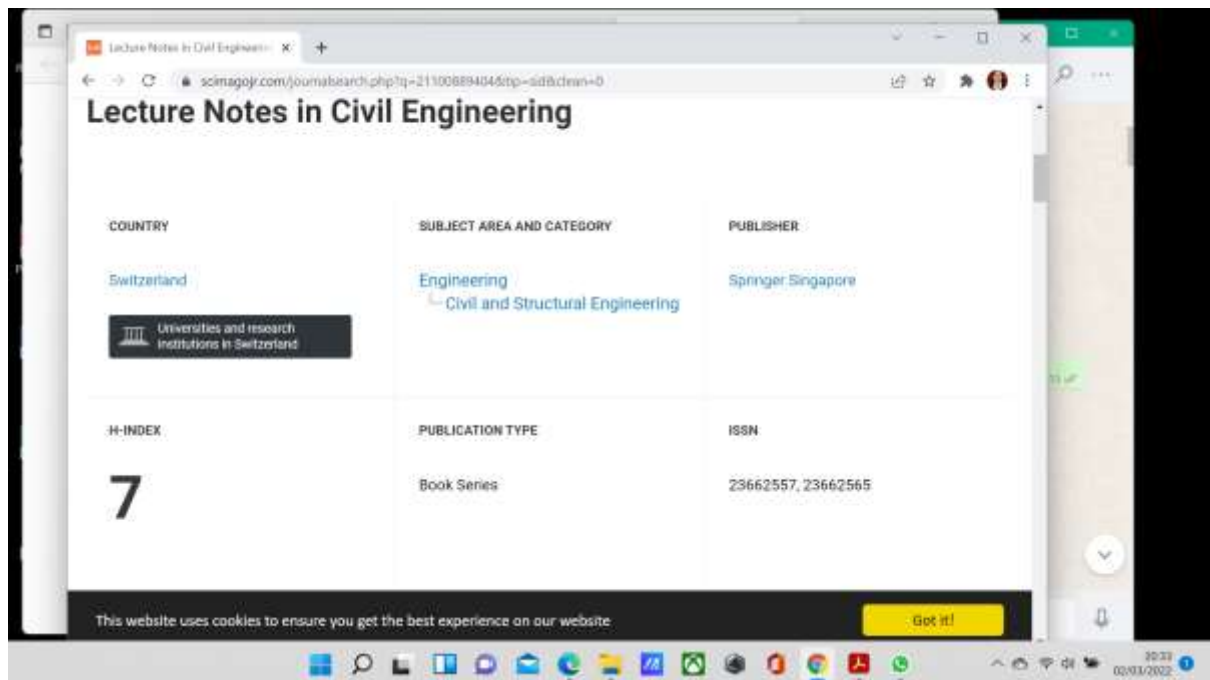
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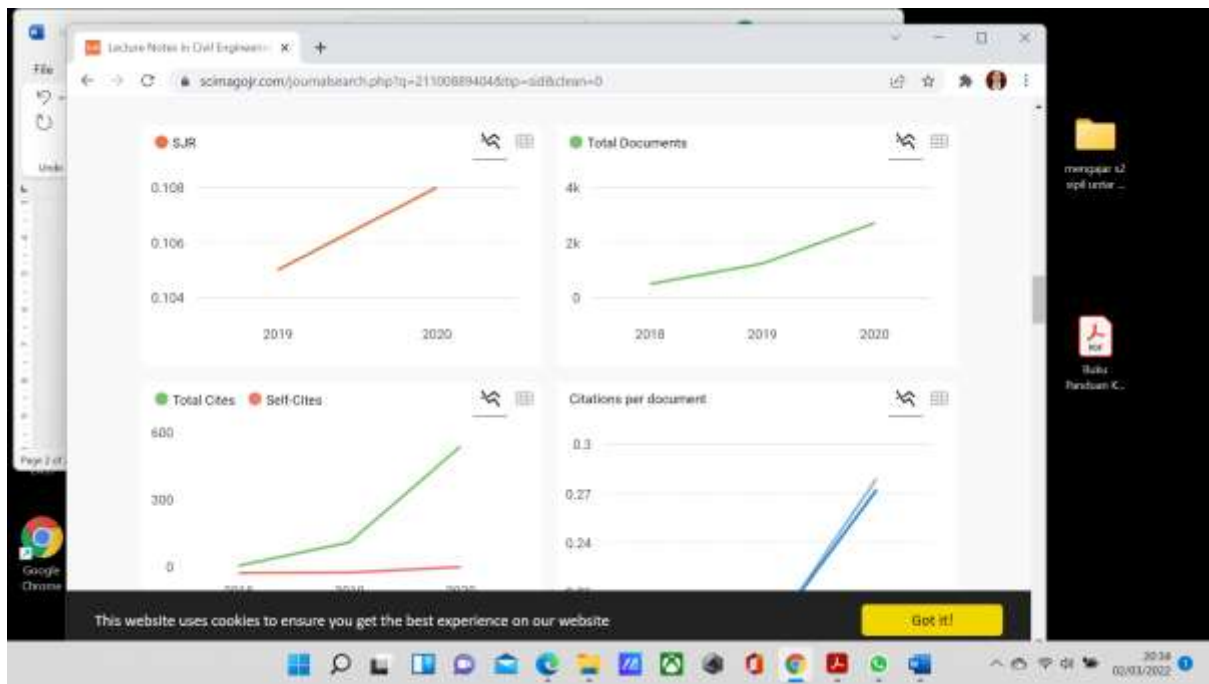
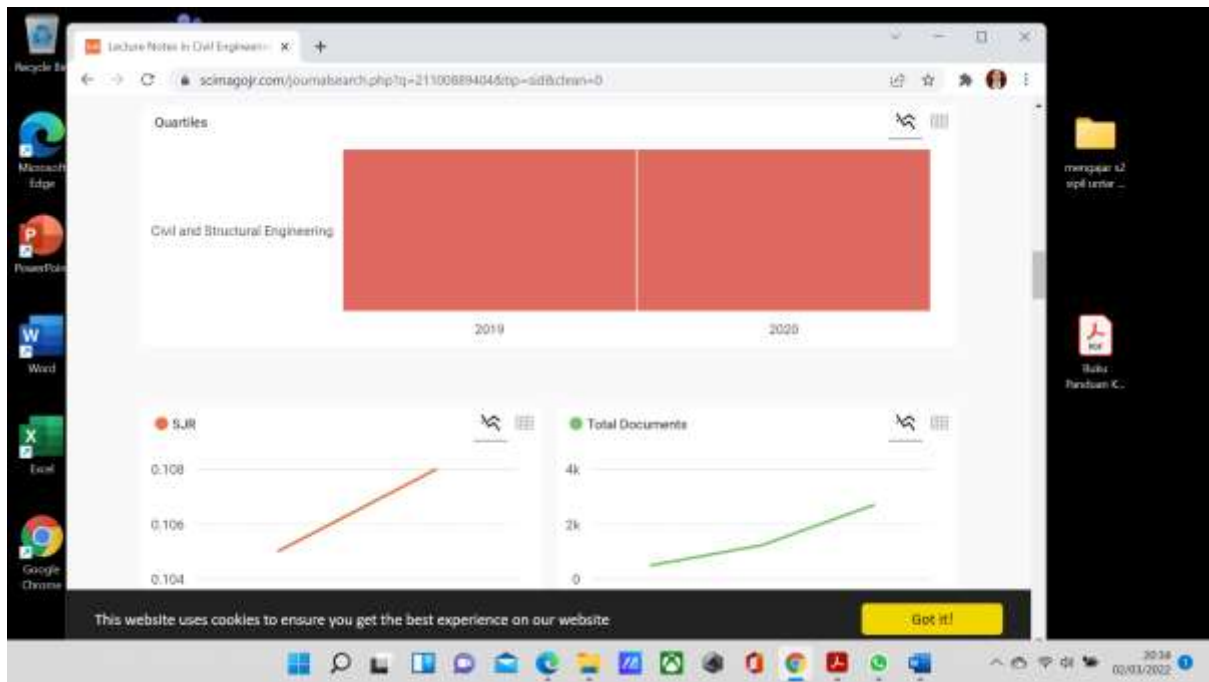
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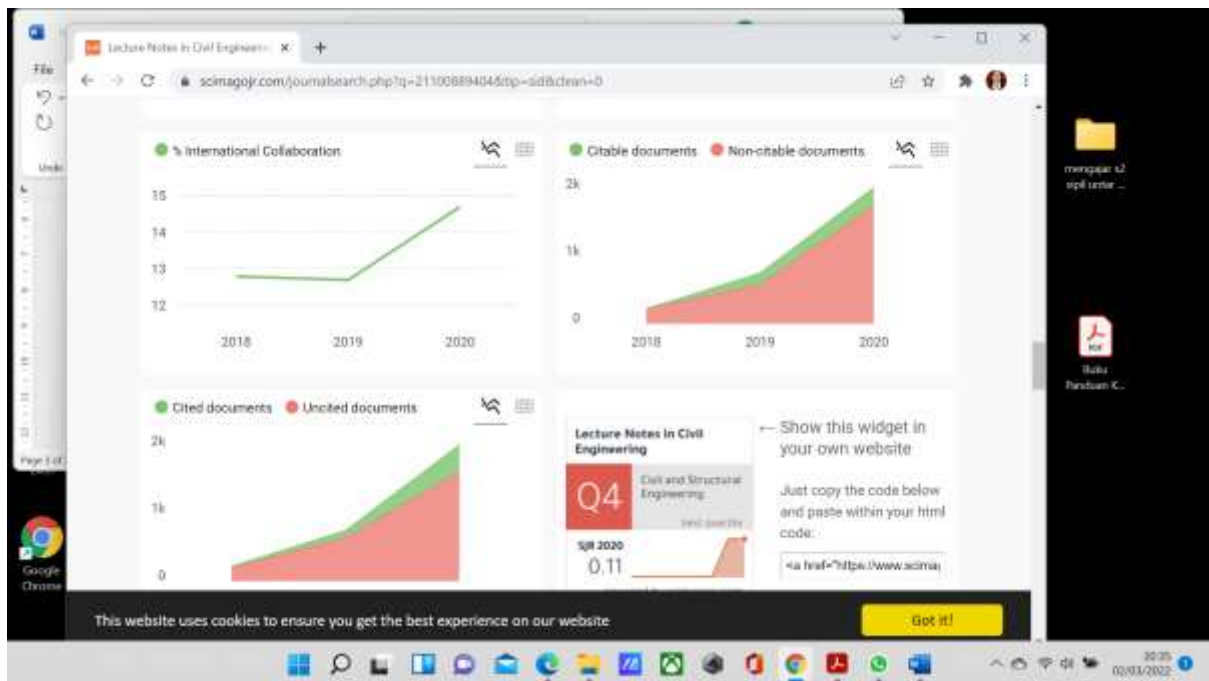
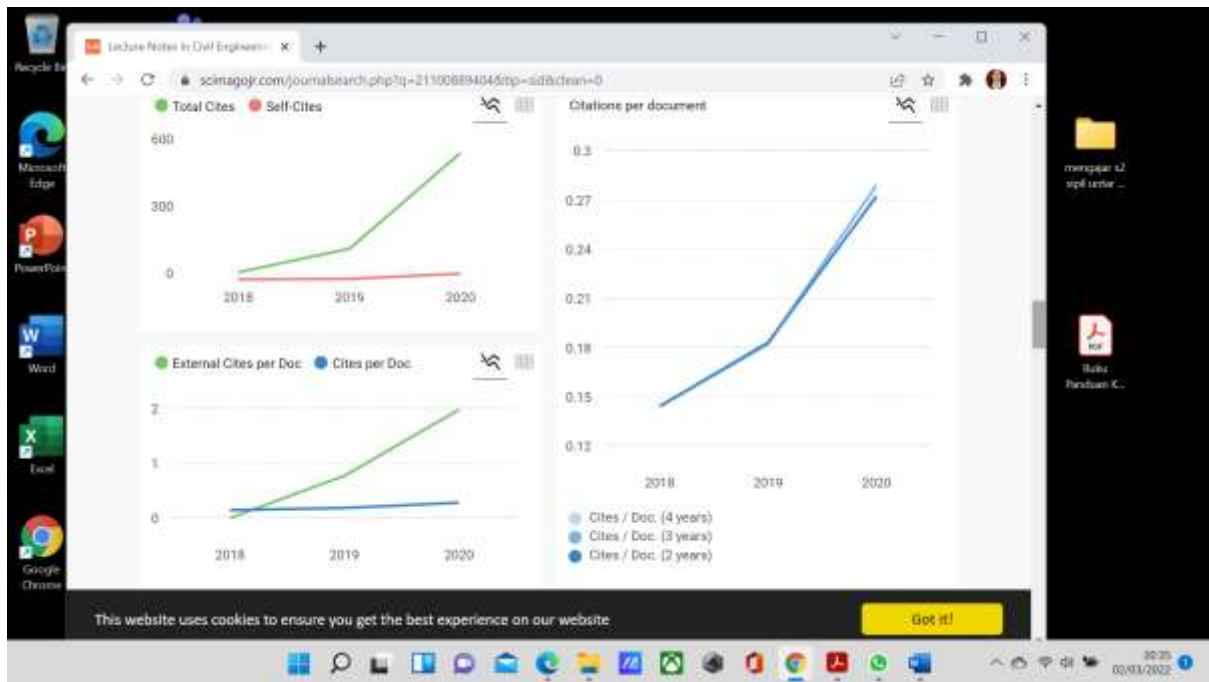
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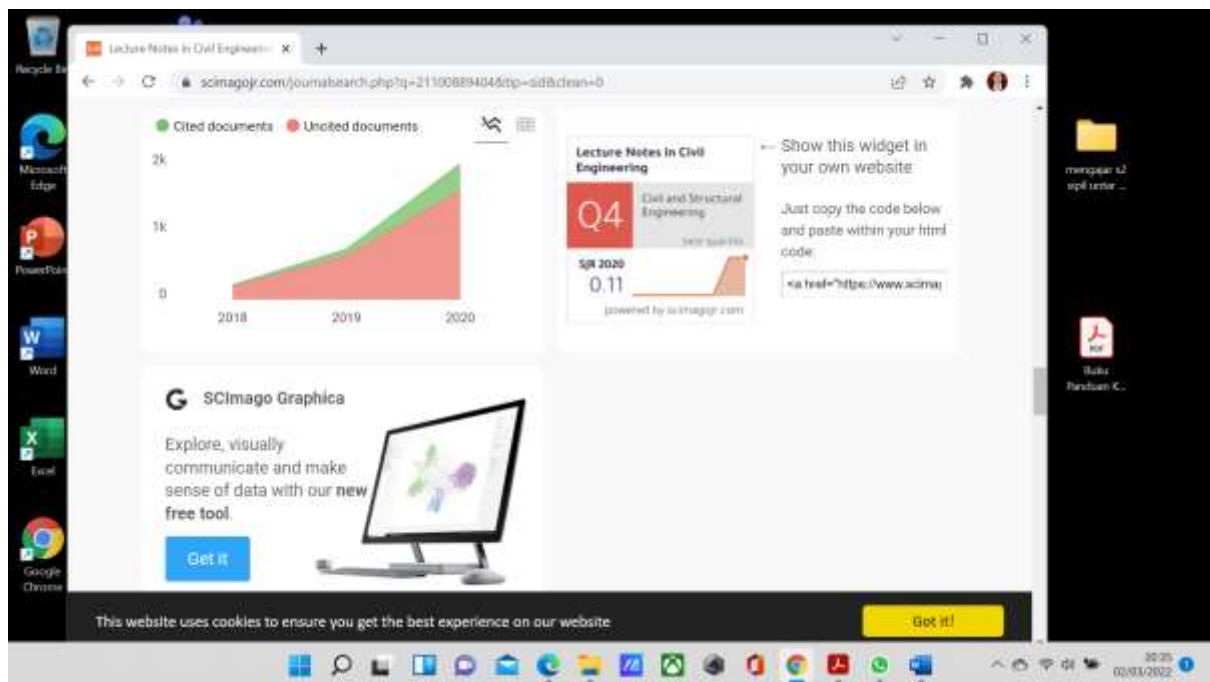
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- [Authors](#)
- [Authors and affiliations](#)

-
-
- Alexander Martin

- 1

[Email author](#)

- Mega Waty

- 1

[View author's OrcID profile](#)

- 1 1.Civil Engineering Undergraduate ProgramUniversitas TarumanagaraJakartaIndonesia

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Keywords

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References

1. 1.

Purwanto A (2021) Ekonomi Indonesia pada masa pandemic COVID-19: Potret dan strategi pemulihan 2020–2021. <https://kompaspedia.kompas.id/baca/paparan-topik/ekonomi-indonesia-pada-masa-pandemi-covid-19-potret-dan-strategi-pemulihan-2020-2021>. Accessed 13 Feb 2021

2. 2.

Tresnawati D (2020) Upaya pemenuhan target sertifikasi tenaga kerja konstruksi dalam periode tatanan kehidupan baru. Buletin Konstruksi 4:7–9 [Google Scholar](#)

3. 3.

Jati A (2020) 2 Cara Penularan Virus Corona COVID-19, Langsung dan Tidak Langsung. <https://www.liputan6.com/bola/read/4215173/2-cara-penularan-virus-corona-covid-19-langsung-dan-tidak-langsung>. Accessed 13 Feb 2021

4. 4.

British Standards Institute (2007) BS OHSAS 18001:2007: occupational health and safety managements systems-requirements. British Standards Institute, London [Google Scholar](#)

5. 5.

Kementerian Pekerjaan Umum (2020) Protokol pencegahan COVID-19 di Proyek Konstruksi. <https://covid19.go.id/p/protokol/kemen-pupr-protokol-pencegahan-covid-19-di-proyek-konstruksi>. Accessed 20 Feb 2021

6. 6.

Fitriani R (2020) Mengintip panduan pengendalian COVID-19 sektor konstruksi oleh OSHA. Buletin Konstruksi 4:4–6 [Google Scholar](#)

7. 7.

Bramantya D (2016) Penerapan sistem manajemen keselamatan kerja di lingkungan proyek pembangunan MIDTOWN hotel Samarinda. Kurva S Jurnal Mahasiswa 1(1):51–66[Google Scholar](#)

8. 8.

International Labour Organization (2021) Occupational safety and health management in the construction sector. International Labour Organization, Geneva[Google Scholar](#)

9. 9.

Kementerian Pekerjaan Umum (2020) Instruksi Menteri No.2/IN/M/2020. Kementerian Pekerjaan Umum, Jakarta[Google Scholar](#)

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