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Have presented a paper entitled

The Influence of the Application PSBB Covid-19 on the Use of the Motor Vehicle, Industry Fuel Oil Consumption and The Air Quality in Surabaya City

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Abstract. Indonesia is a country in Southeast Asia with cases covid-19 most confirmation details cases 118.753 confirmation, 75.645 cured, treated 37.587 and 5.521 died August 6th 2020, while the provincial government in indonesia east java province is COVID-19 most cases. Any effort have been done to prevent risk transmission of, efforts to the latter is social restrictions large scale. The purpose of this research is to know how much the decrease in the use of the motor vehicle and industry fuel oil consumtion and the increase in the air quality in Surabaya city. This research includes the kind of research survey. Sample and population the research is PT Pertamina Marketing Operation Region V Surabaya Jl. Wonokromo 88 Surabaya and the Environmental office Surabaya city Jl. Jimerto No 25-27 Surabaya. The data in this research was obtained through, interview techniques observation and document study. The research results show that the decrease the average daily consumption of the motor vehicle fuel premium and pertamax series 24.92%. biodiesel and Dex series 27.54%. With air quality better this is apparent from the air of particles of a decrease in the concentration (PM 10) 39.71%, and gas levels SO2 20.45%, CO 17.35%, O3 23.38% and NO2 25.81%.

Keywords: social restrictions large scale, covid-19, motor vehicle, industry, fuel oil consumption, air quality

1. Introduction

Since December 2019, the coronavirus disease 2019 (COVID-19) caused by the Severe Acute Respiratory Syn-drome Coronavirus 2 (SARS-CoV-2) has spread throughout China as well as other countries [1]. The outbreak of Coronavirus Disease (COVID-19) from Wuhan, China, has affected more than 250 countries and regions worldwide in only two months [2-4]. The outbreak of COVID-19 not only severely threatened the health of people around the world, but also had great impact on the global economy [1]. However, most of the clinical studies have been focused on Wuhan, and little is known about the disease outside of Wuhan in China [4]. From the existing epidemiological data, it can be seen that the epidemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is far more widespread and contagious than that caused by severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) [5,6] The sudden appearance of this infectious disease has become the

most serious problem affecting public health and social and economic development at present [4,7] The covid-19 through from one person to another, the droplet from the respiratory tract often produced when coughing or sneezing and through the air.

Indonesia is a country in South Eastern Asia most cases COVID-19 the details cases 118,753 confirmations, 75.645 cured, treated 37,587 and 5,521 died. East java in indonesia is the highest number of cases COVID-19, with confirmation details cases 24.115 person (20.31%), 16.732 person cured, treated 5,566 person and 1,817 person died. Then second place with DKI Jakarta 23,939 person (20.16%) confirmation details cases, 15.006 person cured, treated 8.032 person and 901 person died [8]. Standard recommendations to prevent spread the COVID-19 from government and health department Indonesia among them are: hand washing, do not touch face, always wearing a mask, avoid various personal belongings, washing food, clean house hold furniture, take care of ethics cough and sneezing, increase immune response [8]. Next social distancing/physical distancing keep at a distance with others. Work from home, is this activity work from their homes. School, the delay or dropping mass meeting. Isolation, is separate individuals infected and pain of individuals healthy. Quarantine restrictions individual movement is apparently healthy but may have affected by contagion. Immune to improve the systems (sleep enough, drink and he suggested food from vegetable). Finally the government implement social restrictions large scale (PSBB), which is the movement of a good guy locals and villagers from outside, at the office, the mall, industry, market, tourist attractions, transportation. The purpose of this research is to know how much influence the applied of social restrictions large scale COVID-19 on motor vehicle and industry fuel consumption and the air quality in Surabaya city.

2. Methods and material

2.1. Material

The social restrictions large scale (PSBB) conducted begin stage one reached the stage three. Phase one started to hold on April 28 th - May 11 st, the two on May 12 th - May 25 st and the three May 26 th - June 8 st 2020 based on [9-13]. The evaluation of large scale social restrictions show that phase one, the number of positive COVID-19 and patient monitoring in Surabaya city is higher. From the data reported those positive COVID -19 to Thursday, May 7th 2020 in East Java some 592 patients people, 1,461 patients in control and the 2,881 people in monitoring. Based on this data surabaya administration extend the applied of social restrictions large scale stage two. The evaluation results social restrictions to large scale the two show that, covid-19 pandemic surabaya city the massive positive more by the number of cases, May 24 2020, COVID -19 as many as the number of positive 1,975 people, cured 175 people, and 172 people died. Based on this data the local government surabaya city, extend of large scale social restrictions stage three by farthest expanded in markets, shops, trading center, and industry. Social restrictions large-scale phase three starting from may 26 to June 8, 2020 implemented based on analysis and evaluation deeply to social restrictions large scale stage one and stage two [13]. The evaluation results the social restrictions large-scale stage three**;** between governor east java, Surabaya mayor, Gresik regent and Sidoarjo task force the handling of COVID-19 not extended.

2.2 Methods

Research locations in the surabaya city. Its population is set and sample of the research is the PT Pertamina Marketing Operation Region V Surabaya Jl Wonokromo 88 Surabaya and the office for Environmental Surabaya city Jl Jimerto 25-27 Surabaya. The data in this research was obtained

through interview techniques, observation and documentstudy. From the research data analyzed in diskriptif quantitative.

3. Result and discussion

3.1. Result

3.1.1 The fuel oil consumption

The fuel oil Consumption for motor vehicles and industry during the period 42 day Before the applied of social restrictions large scale COVID -19 and 42 day when the applied of social restrictions large scale COVID -19 in the Surabaya city is as shown in table 1 and Figure 2.

Table 1. The average gasoline fuel consumption

No	Fuel Consumption Time		
	Before the applied of social restrictions large scale COVID-19 in kl/day	When the applied of social restrictions large scale COVID-19 in kl/day	Decline percentage (%)
1	12,976	9,743	24.92

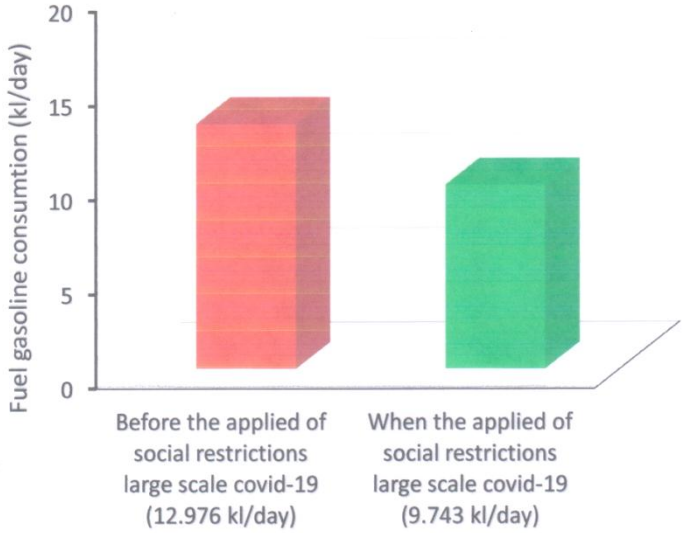

Figure 1. Bar-chart for the average gasoline fuel consumption

Table 2. The average diesel oil consumption

No	Fuel Consumption Time		
	Before the applied of social restrictions large scale COVID-19 in kl/day	When the applied of social restrictions large scale COVID-19 in kl/day	Decline percentage (%)
1	6,060	4,391	27.54

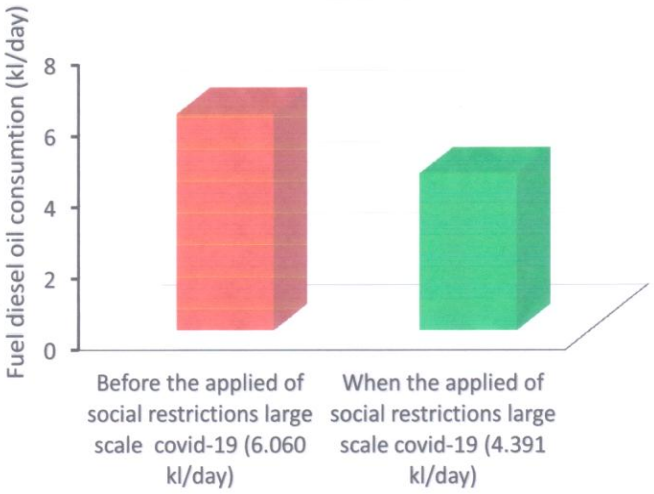

Figure 2. Bar-chart for the average diesel fuel consumption

3.1.2. The air quality

The quality air due to any vehicle and industry for the period the 42 before the applied of social restrictions large scale COVID-19 and 42 the day when the applied of social restrictions large scale COVID-19 in the Surabaya city is as shows Table 3 and Figures 3.

Table 3. The average cosentration the air of particles of having a diameter of smaller than 10 micrometer (PM10)

No	Types of Particles		
	PM 10 before the applied of social restrictions large scale COVID-19	PM 10 when the applied of social restrictions large scale COVID-19	Decline percentage (%)
1	68	41	39.71

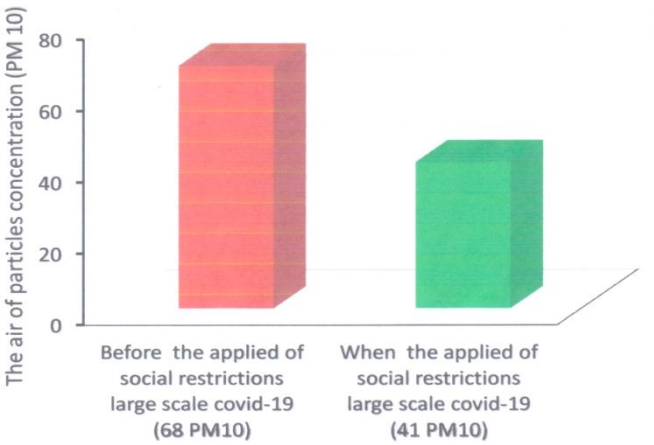

Figure 3. Bar-chart for the average air of particles cosentration of having a diameter of less than 10 micrometer (PM10)

Table 4. The average gas levels SO_2

No	Types of Gas		
	Gas levels of SO_2 (% volume) before the applied of social restrictions large scale COVID-19	Gas levels of SO_2 (% volume) when the applied of social restrictions large scale COVID-19	Decline percentage (%)
1	17.46	13.89	20.45

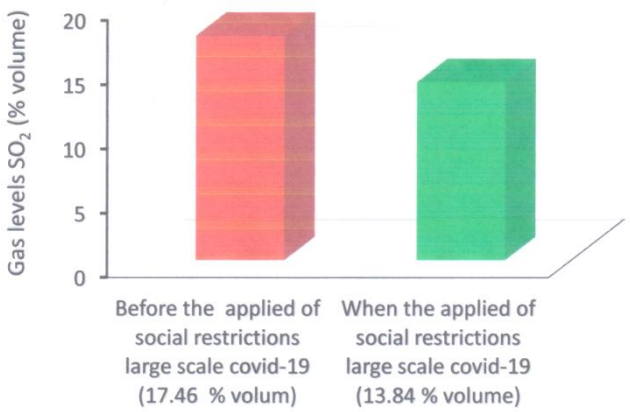

Figure 4. Bar-chart for the average gas levels SO_2

Table 5. The average gas levels CO

No	Types of Gas		
	Gas levels of CO (% volume) before the applied of social restrictions large scale COVID-19	Gas levels of CO (% volume) when the applied of social restrictions large scale COVID-19	Decline percentage (%)
1	15.33	12.67	17.35

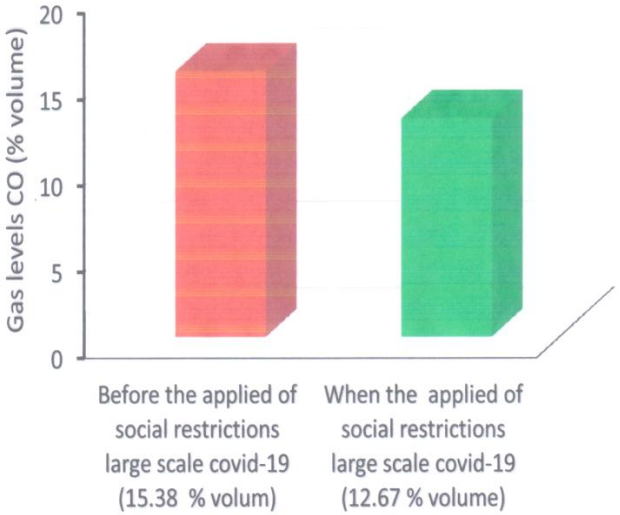

Figure 5. Bar-chart for the average gas levels CO

Table 6. The average gas levels O_3

No	Types of Gas		
	Gas levels of O_3 (% volume) before the applied of social restrictions large scale COVID-19	Gas levels of O_3 (% volume) when the applied of social restrictions large scale COVID-19	Decline percentage (%)
1	11.33	8.75	23.38

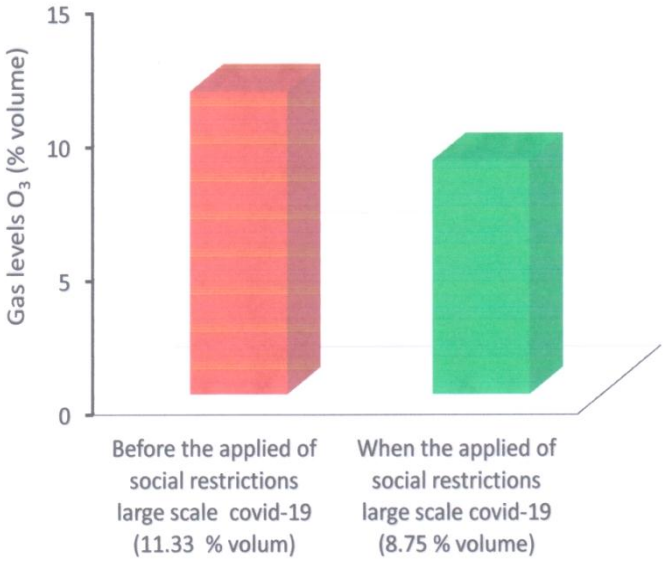

Figure 6. Bar-chart for the average gas levels O_3

Table 7. The average gas levels NO_2

No	Types of Gas		
	Gas levels of NO_2 (% volume) before the applied of social restrictions large scale COVID-19	Gas levels of NO_2 (% volume) when the applied of social restrictions large scale COVID-19	Decline percentage (%)
1	13.83	10.26	25.81

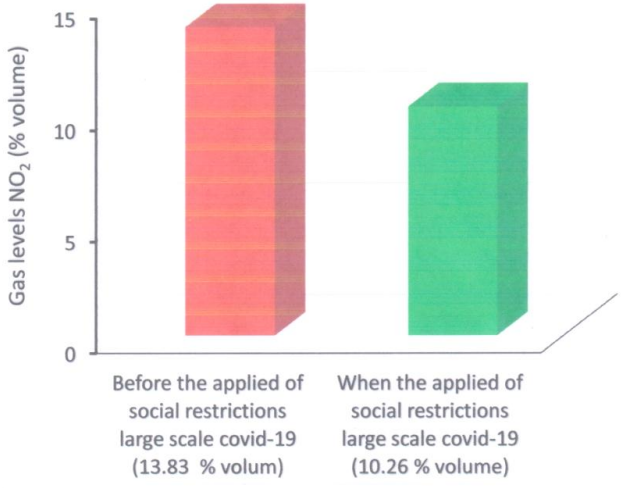

Figure 7. Bar-chart for the average gas levels NO_2

3.2. Discussion

Table 1 and Figure 1 show the fuel oil consumption gasoline, while Table 2 and Figure 2 show the fuel diesel oil consumption in the Surabaya city for 42 days before the applied of social restrictions large scale COVID-19 and 42 days when the applied of social restrictions large scale COVID-19. Gasoline fuel type (Table 1 and Figure 1) show fuel oil consumption decrease 24.92%, while diesel fuel type (Table 2 and Figure 2) show fuel oil consumption decrease 27.54 %. The decline fuel gasolin consumption caused the applied social restrictions large scale COVID-19 in the Surabaya city, students have to study at home, learning replaced through online/daring. The government office, their activities is limited shopping central many closed. The decrease diesel oil consumption not only because the activity of school, and central office, also machine industry only operated 50%.

Table 3 and Figure 3 show the air quality in the Surabaya city for 42 days before the implementation of PSBB and 42 days when the applied of social restrictions large scale air quality in the Surabaya city is better. This is shown in Table 3 and Figure 3 that the concentration of the air particles of the smallest size 10 micrometer (PM10) significant decline, that of 39.71%, it was caused mobility of motor vehicles and operational engine in the industry decrease. Table 4 and Figure 4 show the average daily gas levels of SO_2 decrease 20.45%, gas SO_2 is caused by the gas Incomplete combustion engine from motor vehicles and industrial. Table 5 and Figure 5 show to decrease average daily gas levels CO 17.35%, it is because of the vehicle volume and fuel oil consumption decrease. Table 6 and Figure 6 show decreased of average daily gas levels O_3 23.38%, while Table 7 and Figure 7 show to decrease to average daily gas levels NO_2 25.81%. Gas NO_2 is because the heat combustion chamber the higher, so that the gas emission NO_2 decrease.

4. Conclusion

With applied the social restrictions large scale COVID-19 motor vehicles and industry fuel consumption decrease the surabaya city, and air quality the better, this is shown that: (1) gasoline consumption decrease 24.92%, while diesel oil decrease 27,54%, (2) particles cosentration (PM 10) decrease 39.71% and levels gas SO_2 decrease 20.45 %, levels gas CO decrease 17.35 %, levels gas O_3 decreas 23.38%, and levels gas decrease NO_2 25.81%.

5. Acknowledgement

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