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EXPLORING SOCIOECONOMIC VULNERABILITY OF TRADITIONAL MARKET SELLERS TO COVID-19 PANDEMIC

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ABSTRACT

Traditional market as a major resource of inexpensive goods for countless middle and low-income classes as well as an essential source of livings for many persons is one of the crowded places having high risk of SARS-CoV-2 virus (COVID-19) transmission. In a one hand, working in packed, precarious conditions, and becoming sick due to COVID-19 will have devastating effects on sellers' entire households. In the other hand, markets must remain open so that customers may buy goods and sellers and their supply chains may preserve their livings. By taking location in Gede Market, Cilacap Regency, Central Java Province, this research aims (i) to analyze the social and economic vulnerability of sellers to COVID-19 pandemic, and (ii) to identify the coping strategy of sellers to deal with COVID-19 pandemic. Quantitative and qualitative data were retrieved towards 50 traditional market sellers and related keypersons. AHP (Analytical Hierarchy Process) was used to measure the weight of each variable and factor of social and economic vulnerability. Multi scenarios analysis of socioeconomic vulnerability were conducted (social scenario, economic scenario, and equal scenario) resulting 18 percent, 48 percent, and 34 percent respondents having high level of vulnerability, respectively. There are as many as 18 percent of respondents who are always categorized in high vulnerability regardless of the scenario. Different coping strategies used by sellers to deal with economic problems during COVID-19 Pandemic such as reducing the number of commodities, conducting online selling, saving expenses, borrowing money, reducing the number of workers, transforming the fresh food commodities (perishable goods) into frozen food (more durable goods), and selling the commodities around neighborhood. However, this study also observed that some respondents did not undertake any coping strategy.

***Keywords**: Vulnerability, Market Sellers, Traditional Market, COVID-19*

A. INTRODUCTION

COVID-19 is a disease caused by coronavirus (SARS-CoV-2) and highly contagious. Prevention of the spread of virus can be done through physical and social distancing such as reducing activities outside the home and avoiding crowds (Lotfi et al., 2020). However, not all activity can be conducted online, for example, conventional trading activities in traditional markets.

Traditional market as a major resource of inexpensive goods for countless middle and low-income classes as well as an essential source of livings for many persons is one of the crowded places having high risk of

SARS-CoV-2 virus (COVID-19) transmission.

Due to COVID-19 Pandemic, activities in the market must be limited to reduce the virus transmission. As a result, the number of buyers decline and the market sellers had to close their kiosk resulting in the decline of their purchasing power as happened in the Kartasura Traditional Market (Purbawati & Nurul Hidayah, 2020).

Vulnerability is one of the factors that may aggravate the level of damage caused by a disaster. The difference level of socioeconomic vulnerability affects the different levels of damage and recovery between communities when a disaster occurs (Sari et al., 2015). Vulnerability is a condition that refers to physical, social, economic, and environmental factors that increase people's vulnerability toward hazard (United Nations, 2004b, 2004a). Difference level of vulnerability between traditional market sellers can cause differences in the coping strategies used. It is also necessary to analyze the coping strategies used by traditional market sellers to deal with COVID-19 Pandemic. In addition, COVID-19 Pandemic is a new phenomenon without previous pattern of coping strategies, so it is interesting to explore. This study aims to: (i) to analyze the social and economic vulnerability of sellers to COVID-19 pandemic, and (ii) to identify the coping strategy of sellers to deal with COVID-19 pandemic.

B. MATERIALS AND METHODS

The data was obtained by using questionnaires and in-depth interviews. The object chosen in this study is traditional market sellers in a traditional market called Pasar Gede, located in Cilacap Regency, Central Java Province, Indonesia. The total number of sellers in this traditional market is 500 sellers. The number of samples is determined using the Harry King Nomogram with an error rate of 10%, resulting into 50 samples. The 50 respondents were determined accidentally. Quantitative analysis was used to answer the first objective by using 5 variables and 11 factors. Analytical Hierarchy Process (AHP) was used to measure the weight of each variable and factor of social and economic vulnerability analysis (shown in Table 1). In this research, we conducted three scenarios: scenario 1 (social vulnerability has more weight than economic vulnerability), scenario 2 (economic vulnerability has more

weight than social vulnerability), and scenario 3 (both vulnerabilities have the same weight). Qualitative analysis was conducted to understand traditional market sellers' coping strategies.

Table 1. Result of Weight Measurement Using AHP

Variable and Factor	Weight
Vulnerability	
Scenario 1	
Social Vulnerability	0,700
Economic Vulnerability	0,300
Inconsistency	0,000
Scenario 2	
Social Vulnerability	0,300
Economic Vulnerability	0,700
Inconsistency	0,000
Scenario 3	
Social Vulnerability	0,500
Economic Vulnerability	0,500
Inconsistency	0,000
Social Variables	
Education	0,084
Institutional	0,070
Health	0,536
Social Safety Net	0,310
Inconsistency	0,070
Social Factors	
Education	
Latest education level	0,833
Knowledge about COVID-19 Pandemic	0,167
Inconsistency	0,000
Institutional	
Merchant organization participation	0,729
Social organization participation	0,163
Disaster organization participation	0,109
Inconsistency	0,080
Health	
Number of vulnerable family members	0,500
Number of family members with history of illness	0,500
Inconsistency	0,000
Social Safety Net	
Savings	0,614
Insurance	0,268

Variable and Factor	Weight
Government assistance	0,117
Inconsistency	0,020
Economic Factors	
Economic diversification	0,387
Kiosk ownership status	0,169
Total income	0,443
Inconsistency	0,020

C. RESULTS AND DISCUSSION

Socioeconomic Vulnerability

Vulnerability is an internal factor that expose community to disaster (Birkmann, 2013). Vulnerability is influenced by three aspects: physical, socio-economic, and environmental. These three aspects are factors influencing the level of vulnerability as well as an element of risk or risky aspects affected by disaster (Mei et al., 2017). However, this study only assessing vulnerability by socio-economic aspect. All traditional market sellers in this study are vulnerable to COVID-19 Pandemic. Everyone in any age group and healthy people (without history of illness) have a risk to be infected by COVID-19. However, vulnerable groups have higher risk get infected by COVID-19 (Ouassou et al., 2020).

Social Vulnerability

The variables used for social vulnerability are education, institutional, health, and social safety net. Some of the factors used in this study refer to the Joint Research Center (Joint Research Center, 2020), which include education level, elderly family members over 65 years old, family members with history of illness, savings, and government assistance. The result of social vulnerability measurement can be seen in Figure 1.

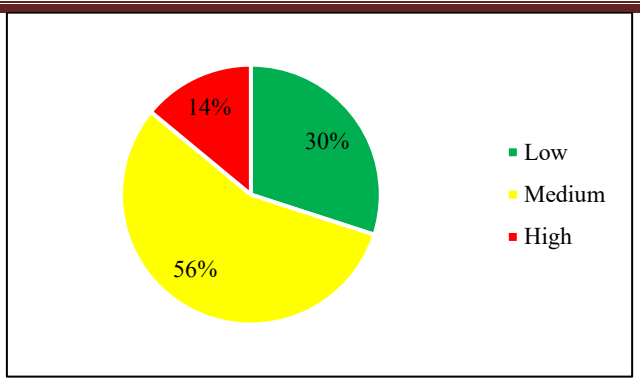

Figure 1. Distribution of Respondents based on Social Vulnerability Class (n=50).

14% of the respondents were classified in high social vulnerability category. Those respondents have vulnerable family members (toddler and/or elderly) and/or family members with history of illness. In addition, for social safety nets, respondents with high vulnerability do not have any savings or have less savings than others. Those respondents also did not have health insurance. Having no savings or insurance may increase the risk of a disaster caused by COVID-19 because they do not have optimal social safety net.

Economic Vulnerability

The economic vulnerability analysis uses three factors: economic activity diversification, kiosk ownership status, and total income. The result of the measurement of economic vulnerability can be seen in Figure 2.

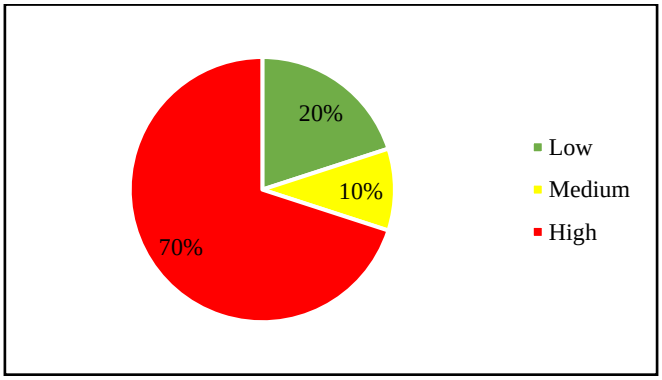

Figure 2. Distribution of Respondents based on Economic Vulnerability Class (n=50).

According to the result, most of respondents had high economic vulnerability (70%) due to the lack of economic activity diversification and low amount of income. All respondents with high vulnerability do not have any economic activity diversification. Their source of income depended solely on selling in the traditional market. The income of all respondents with high level of vulnerability is between Rp 300.000 and Rp 1.040.000. Having a high economic vulnerability to COVID-19 means the risk of disaster/damage caused by COVID-19 will be higher. Low incomes contributed to increase vulnerability due to few resources are available to recover from disasters (Cutter et al., 2003).

Socioeconomic Vulnerability Assessment with Multi Scenario

Socioeconomic vulnerability assessment is derived from the social vulnerability and economic vulnerability analyses. This socioeconomic assessment uses 3 scenarios: social scenario, economic scenario, and equal scenario. In the social scenario, the weight of social aspect is higher than the economic aspect with ratio 70:30 for social and economic. In the economic scenario, the weight of economic aspect is higher than social aspect with ratio 30:70 for economic and social. The equal scenario has same ratio for social and economic aspect (50:50). Multi scenario assessment used as to see whether there are respondents who always in the high vulnerability class and determined as a basis to propose the disaster risk reduction effort (Fandir, 2017).

Social Scenario

In this scenario, social aspect has higher weight than the economic one. It means that social variables and factor having a bigger contribution to vulnerability analysis. Figure 3 shown the result of vulnerability classification with social scenario.

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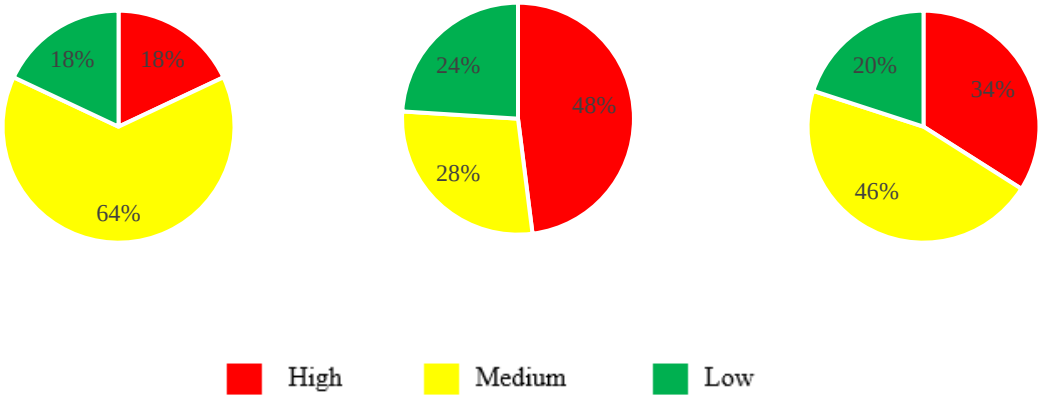

Figure 3. Distribution of Respondents' Vulnerability based on 3 Different Scenarios (Left=Social Scenario, Middle=Economic Scenario, Right=Equal Scenario)

The result shows that majority of respondents is classified in medium vulnerability category since most of respondents do not have vulnerable family members and family members with history of illness. However, there are 18% of respondents classified in high vulnerability category due to the presence of vulnerable family members and or family members with history of illness. In addition, they also do not have any savings or health insurance.

Economic Scenario

In this scenario, the weight used for economic aspect was 0.700, while the social aspect was only 0.300. The result of vulnerability assessment used economic scenario was different from the result in the social scenario. While in the social scenario, the majority respondents had low vulnerability, in this economic scenario, majority of the respondents had high vulnerability. The result can be seen in the Figure 4. Respondents with high vulnerability do not have economic activity diversification and generate low income, while respondents with low vulnerability, they conduct different economic activities and generate higher income.

Equal Scenario

In this equal scenario both social and economic aspects have the same weight (50:50). According to this scenario, majority of respondents (46%) were classified in medium vulnerability category. The result of vulnerability assessment with equal scenario can be seen on Figure 5 below.

There are 34% of the respondents classified in high

vulnerability category due to condition of their family members (physical vulnerability or history of illness), lack of saving, lack of economic activity diversification and low income. This result shows that the social factors having bigger influence are vulnerable family members, family members with history of illness, and savings. Meanwhile, economic factors having bigger influence are economic diversification and income.

According to these three different scenarios, we identify that there are some respondents who always classified in high vulnerability category. There are seven types of vulnerability category according to this research as shown in Figure 6.

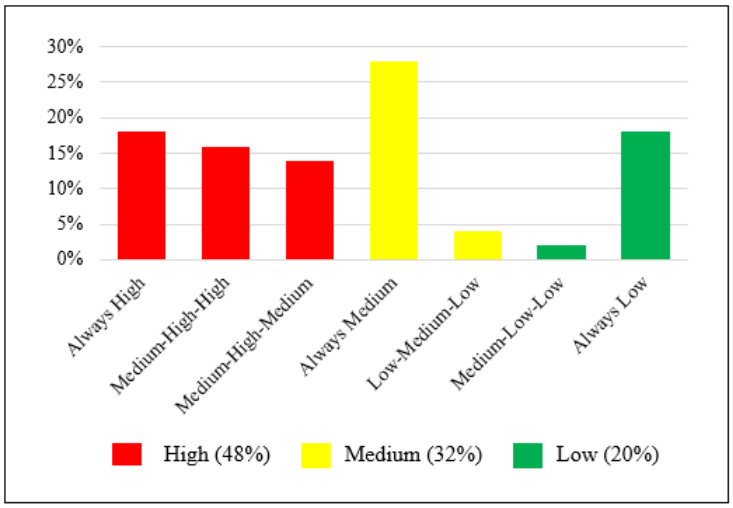

Figure 6. Classification of Respondents' Vulnerability based on 3 Scenarios (n=50)

There are 18% respondents that are always classified in the high vulnerability whatever the scenario. This category has a poor condition on social and economic factors: high number of vulnerable family member, high number of family member with illness, very low income (range between Rp 400.000 – Rp 900.000 per month), and poor safety net. It shows that traditional market sellers with high vulnerability have higher risk and poor capacity to cope with disaster.

Coping Strategy

Economic Problems Faced by Traditional Market Sellers during COVID-19 Pandemic As many other occupations, traditional market sellers are also affected by COVID-19 Pandemic. Their livelihood distracted

by the ongoing pandemic due to the movement imitation so that people cannot go to crowded places such as market. During COVID-19 Pandemic, traditional market sellers lose their buyers. This study tries to explore the economic problems and other problems faced by the traditional market sellers during COVID-19 Pandemic (can be seen on Table 2).

Table 2. Economic Problems Faced by the Traditional Markets Sellers during COVID-19 Pandemic

Economic Problem Face by Traditional Market Sellers		Total
Single Problem	Multi Problems	
Profit decreased		19
	Profit decreased and kiosk closes early	11
	Profit decreased and unable to meet daily needs	4
	Profit decreased and kiosk closes early	4
	Profit decreased, kiosk closes early, amount of commodities decreased, and unable to meet daily needs	4
	Profit decreased and lost regular costumers	3
	Profit decreased, kiosk closes early, and amount of commodities decreased	1
	Profit decreased, amount of commodities decreased and unable to meet daily needs	1
	Profit decreased, unable to meet daily needs, and reduction the number of employees	1
	Profit decreased, kiosk closes early, reduction the number of employees	1
	Profit decreased, unable to meet daily needs, and reduced trading capital	1

The decline in profits occurred because households as the main consumers of traditional market experienced a large decline in purchasing power due to limited outdoor activities and many of them lost source of income, especially household with informal sources of livelihood (Komara et al., 2020). As a result of the decline in profit, market sellers have the difficulty to meet the daily needs, decreasing the number of commodities, reducing the number of employees, and decreasing the capital.

Coping Strategies to Overcome COVID-19 Pandemic by Traditional Market Sellers

Coping strategies usually carried out to overcome economic shocks caused by disasters such as drought, floods, pests, or diseases. Coping strategies are usually carried out in the form of reducing expenses (Ansah et al., 2020). Based on Murakami (2017) there were 7 coping strategies that carried out in dealing with shocks, including reducing the amount of expenses and borrowing money. Based on

(Armansyah & Taufik, 2020), there were 7 strategies carried out by traditional market sellers to deal with COVID-19 Pandemic. These strategies include reducing the number of employees, borrowing money, and diversifying economy. It shows that the strategies adopted by traditional market sellers to deal with COVID-19 Pandemic was a common strategy. In addition to these strategies, traditional market sellers carried out other strategies, shown in table 3 below.

Table 3. Coping Strategies by Traditional Market Sellers to Deal with COVID-19 Pandemic

Coping Strategies		Total
Single Strategy	**Multi Strategies**	
- Reducing the number of commodities		10
- Conducting online selling		9
- Saving expenses		8
- Did not undertake any coping strategy		6
- Borrowing money		5
	- Saving expenses - Reducing the amount of commodities	4
- Reducing the number of workers		3
	- Saving expenses - Reducing the number of workers	1
	- Savings expenses - Borrowing money	1
	- Conducting online selling - Saving expenses	1
	- Reducing the amount of commodities - Transforming perishable goods into more durable foods	1
	- Reducing the amount of commodities - Selling the commodities around neighborhood	1

Most respondents carried out coping strategy by reducing the number of commodities. The capital owned by the sellers to buy commodities was decreasing after the COVID-19 Pandemic due to the business credit experienced congestion and low number of buyers. Business owners with small or limited capital, experienced greater impact in their business (Komara et al., 2020). Based on an in-depth interview with the Head

of the Market, Pasar Gede, traders in Pasar Gede do not yet have good financial management skills. This causes the mixing of money for trading capital and for daily needs so that the strategy chosen by most respondents is to reduce the amount of trade. In addition to reducing the amount of merchandise, reducing expenses for daily needs, and reducing employees were also carried out by the respondents. This is done to reduce the amount of expenditure due to the low profits generated from trading. Based on the coping strategies carried out by traders, it shows that they have a submissive behavior towards the situation (disaster) and have fatalistic view (Gaillard & Texier, 2010).

Vulnerability Typology and Strategy to Face Economic Problems due to COVID-19 Pandemic

There are 7 typologies of market sellers' socioeconomic vulnerabilities to the COVID-19 Pandemic and there are 12 different strategies carried out by market sellers to deal with economic problems due to COVID-19 Pandemic. Then a cross tabulation was made to determine the relationship between those two (Table 4).

Table 4. Cross Tabulation between Vulnerability Typologies and Coping Strategies

Coping Strategies		Vulnerability Class based on Different Scenarios		
Single Strategy	**Multi Strategies**	**High**	**Medium**	**Low**
- Reducing the number of commodities		4	4	2
- Conducting online selling			2	7
- Saving expenses		7	1	
- Did not undertake any coping strategy		3	2	1
- Borrowing money		3	2	
	- Saving expenses - Reducing the amount of commodities	3	1	
- Reducing the number of workers		1	2	
	- Saving expenses - Reducing the number of workers	1		
	- Savings expenses	1		

Coping Strategies		Vulnerability Class based on Different Scenarios		
Single Strategy	Multi Strategies	High	Medium	Low
	- Borrowing money			
	- Conducting online selling - Saving expenses			1
	- Reducing the amount of commodities - Transforming perishable goods into more durable foods		1	
	- Reducing the amount of commodities - Selling the commodities around neighborhood	1		

There are differences in the coping strategies carried out by market sellers with high and low vulnerability. Market sellers with high vulnerability tend to do strategies by reducing spending on daily needs. In contrast to traders with a low vulnerability, the coping strategy used is to diversify income by selling online (see numbers 2 and 10 in table 4). This shows that traders with low vulnerability have good capacity in dealing with COVID-19. On the other hand, traders with a high vulnerability need to pay attention to be able to increase their capacity to deal with shocks due to the COVID-19 pandemic.

Vulnerability Reduction as an Alternative to Disaster Risk Reduction

Efforts Social Vulnerability Reduction Efforts

a. Improving Preparedness for the Elderly and People with a History of Illness

A good understanding of COVID-19 and how to prevent its transmission is required. However, giving this understanding is not enough just for family members. Efforts are also needed from the government to invite the elderly to live a healthy lifestyle and implement health protocols to prevent the transmission of COVID-19.

b. Increasing Social Safety Net

An effort is needed to encourage market sellers to set aside their profits for savings. This can be done by making joint savings among market sellers who are assisted by the government

(Trade Department) or from NGOs. Disaster risk reduction efforts by using joint savings or disaster preparedness savings have previously been carried out to reduce the risk of natural disasters. An example is found in the Guidelines for the Implementation of Disaster Risk Reduction by the Indonesian Red Cross (Indonesian Red Cross, 2015), where people deposit their savings every month as disaster preparedness savings. Savings with disaster preparedness is useful as an emergency fund when a disaster occurs (Mei, 2013; Sari et al., 2015).

Economic Vulnerability Reduction Efforts

Economic vulnerability can be reduced through economic diversification to improve the economy and people to recover faster when disaster occurs (Cutter et al., 2003). Economic diversification that can be done is in the form of selling online because during this pandemic, the online business opportunity is quite large.

D. CONCLUSIONS

There are 18% respondents that are always classified in the high vulnerability whatever the scenario. This category has a poor condition on social and economic factors: high number of vulnerable family member, high number of family member with illness, very low income (range between Rp 400.000 – Rp 900.000 per month), and poor safety net. The traditional market sellers with high vulnerability have higher risk and poor capacity to cope with disaster, therefore, this category of vulnerable group needs to be prioritized in COVID-19 disaster risk reduction program. Respondents having moderate or low level of socioeconomic vulnerability are those who can find creative solution and strategic efforts during the pandemic i.e., using online platform for their selling activities. This condition highlights the importance of skill and knowledge aspect in in the perspective of sustainable livelihoods. It is shown by this research that skills and knowledge on information technology (human capital/assets) is very crucial in dealing with shock conditions caused by the COVID-19 pandemic where physical distancing

efforts are implemented to prevent the spread of the virus.

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F. REFERENCES

Ansah, I. G. K., Gardebroek, C., & Ihle, R. (2020). Shock interactions, coping strategy choices and household food security. *Climate and Development*, 1–13. https://doi.org/10.1080/17565529.2020.1785832

Armansyah, & Taufik, M. (2020). Jurnal Ilmu Administrasi Publik Strategi Pelaku Usaha Informal Offline dan Online Menghadapi Pandemi Covid-19 di Kota Palembang. *PUBLIKAUMA: Jurnal Ilmu Administrasi Publik UMA*, *8*(1), 137–145. https://doi.org/10.31289/publika.v8i2.4484

Birkmann, J. (2013). *Measuring vulnerability to natural hazards* (J. Birkmann, Ed.; 1st ed., Vol. 1). United Nations University Press. https://collections.unu.edu/eserv/UNU:2880/n9789280812022_text.pdf

Cutter, S. L., Boruff, B. J., & Shirley, L. W. (2003). Social Vulnerability to Environmental Hazards. *Social Science Quarterly*, *84*(2), 242–261.

Fandir, A. (2017). Analisis Multi Skala Kerentanan Fisik, Sosial, Ekonomi, Dan Lingkungan Di Kawasan Rawan Bencana Piroklastik Gunungapi Kelud (Kecamatan Ngantang, Kabupaten Malang, Jawa Timur). *Tesis*.

Gaillard, J. C., & Texier, P. (2010). Religions, natural hazards, and disasters: An introduction. *Religion*, *40*(2), 81–84. https://doi.org/10.1016/j.religion.2009.12.001

Komara, B. D., Cahyo, H., & Setiawan, B. (2020). Jalan Terjal UMKM dan Pedagang Kecil Bertahan di Tengah Pandemi Covid-19 dan Ancaman Krisis Ekonomi Global. *Jurnal Manajemen Bisnis*, *17*(3). http://journal.undiknas.ac.id/index.php/magister-manajemen/

Lotfi, M., Hamblin, M. R., & Rezaei, N. (2020). COVID-19: Transmission, prevention, and potential therapeutic opportunities. In *Clinica Chimica Acta* (Vol. 508, pp. 254–266). Elsevier B.V. https://doi.org/10.1016/j.cca.2020.05.044

Mei, E. T. W. (2013). Gestion Des Evacuations Lors Des Crises Volcaniqes : Etude de Cas Du Volcan Merapi, Java, Indonesie. *Thèse Doctorale, Université*(Ecole Doctorale de Géographie), 333. https://tel.archives-ouvertes.fr/tel-

01001681/file/2013-07_-_MEI_-_Ges.pdf

Mei, E. T. W., Meilyana Sari, I., Fajarwati, A., & Safitri, D. (2017). Assessing the Social Economic and Physical Vulnerabilities to Gamalama Volcano. *Advances in Social Science, Education and Humanities Research. 1st International Conference on Geography and Education (ICGE 2016)*. https://www.atlantis-press.com/article/25875168.pdf

Murakami, E. (2017). *ADBI Working Paper Series HOUSEHOLD CONSUMPTION RISK AND COPING STRATEGIES IN TAJIKISTAN: EVIDENCE FROM HOUSEHOLD SURVEYS Asian Development Bank Institute*. https://www.adb.org/publications/household-consumption-risk-and-

Ouassou, H., Kharchoufa, L., Bouhrim, M., Daoudi, N. E., Imtara, H., Bencheikh, N., Elbouzidi, A., & Bnouham, M. (2020). The Pathogenesis of Coronavirus Disease 2019 (COVID-19): Evaluation and Prevention. In *Journal of Immunology Research* (Vol. 2020). Hindawi Limited. https://doi.org/10.1155/2020/1357983

Purbawati, C., & Nurul Hidayah, L. (2020). *Dampak Social Distancing terhadap Kesejahteraan Pedagang di Pasar Tradisional Kartasura pada Era Pandemi Korona*. https://doi.org/http://dx.doi.org/10.31604/jim.v4i2.2020.156-164

Sari, I. M., Fajarwati, A., & Mei, E. T. W. (2015). Tingkat Kerentanan Sosial Ekonomi Petani Terhadap Jatuhan Piroklastik Gunungapi (Kasus : Desa Ngargomulyo, Kecamatan Dukun, Kabupaten Magelang). *Jurnal Bumi Indonesia*, *4*(3). https://www.neliti.com/publications/222996/tingkat-kerentanan-sosial-ekonomi-petani-terhadap-jatuhan-piroklastik-gunungapi#cite

United Nations. (2004a). *Living with Risk Living with Risk A global review of disaster reduction initiatives A global review of disaster reduction initiatives ISDR International Strategy for Disaster Reduction (Volume II)*.

United Nations. (2004b). *Living with Risk Living with Risk A global review of disaster reduction initiatives A global review of disaster reduction initiatives (Volume I)*.