

Emergency Management Policy Issues during and after COVID-19: Focusing on South Korea

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South Korea is currently facing many changes and challenges. To make matters worse, society has struggled to function as it did before COVID-19. This study describes the past and current COVID-19 situation to offer lessons on management during and after COVID-19. We provide implications from COVID-19 and the foundation for future disasters by employing the strengths, weaknesses, opportunities, and threats (SWOT) analysis and indigenous administrative conceptual framework on culture, institution, and instrument to add a circumstance perspective. This study used secondary data from prior research and literature. Resolutions for these policy issues are presented using the strength-opportunity (SO), strength-threat (ST), weakness-opportunity (WO), and weakness-threat (WT) strategies. We suggest utilizing instruments that consider diverse societies and preventing the disease with climate change by collaborating with social institutions. We hope these implications and resolutions will provide insights for the future and other countries.

Keywords: COVID-19, Indigenous administrative theory, SWOT analysis, Emergency management and policy issues

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1. Introduction

The world is changing dramatically every day. South Korea is one of the Confucian cultures with a democratic system (Cho, 2017; Jung, 2011), a small market, and limited natural resources. South Korea is no exception, as it currently faces multicultural, economic, and social challenges due to globalization, a rapidly aging population, the development of technology and science, and climate change. To make matters worse, the coronavirus disease originating in 2019, known as SARS-CoV-2 (COVID-19), (Hu et al., 2021), is obstructing the functioning of society, not only in South Korea but worldwide. Considering all these difficulties, it is critical to assess the current situation of COVID-19 and design preventive measures against future COVID-19.

Based on the theoretical framework of this study, we explain changes in environmental emergency management, review the current COVID-19 environment in South Korea, and draw implications for Korean policy in the post-COVID-19 era from SWOT analysis. In the end, this study can suggest future directions for research on COVID-19 based on current limitations and future study implications in terms of theory and practice, offering detailed descriptions for practitioners and theoretical implications for scholars on upcoming issues in South Korea and other countries.

1.1 COVID-19

Since the first case was reported in 2019 in Wuhan, China (Wang & Wang, 2020; WHO, 2020), COVID-19 has spread worldwide, causing unprecedented difficulties. It has changed the world in terms of culture, society, technology, and science. These changes have added to the prior difficulties and brought about a South Korean Untact (intact, non-face-to-face contact) Society³, where people avoid contact with each other. For instance, schools and universities hold classes online, and people practice “social distancing.” Even athletic arenas closed their doors to spectators. In the meantime, remote work became common. To further complicate matters, most blue-collar workers lost their jobs and struggled to survive, while some white-collar workers still maintained their jobs and salary. Ultimately, this situation decreased the labor force and employment rate, leaving the economy worse off than ever. Consequently, economic activity experienced the worst drop since World War II (Bremmer, 2020). The government has implemented the anti-disaster basic income unemployment benefit to prevent the dropping economy and boost the unemployment rates and morale of the unemployed. Furthermore, although a vaccine was developed, it takes time to complete to return to normal life and recovery, which, as Bremmer (2020) estimated, followed a “jagged swoosh” (Bremmer, 2020). Some inflation concerns come partly from overspending due to anti-disaster basic income, unemployment benefits, and other related policies. The stock market seems to be a jagged swoosh. Many people expected COVID-19 to change the public attitude regarding all activities (Bremmer, 2020). However, just as we overcame COVID-19, another threat from Russia - Ukraine War that began

³ Untact Society, usually used in South Korea, refers to intact and contactless society in which most works and activities (e.g., online shopping, food delivery, and work at home) are done online utilizing virtual IT infrastructure.

in February 2022 and additional inflation following COVID-19 worsened the situation.

1.2 Why South Korea?

South Korea was one of the poorest countries in the world after World War II and the Korean War in the 1950s, but it turned into one of the leading countries after the 1970s and 1980s thanks to industrialization. 2016 Bloomberg index pointed out that South Korea is one of the most innovative economies (Jamrisko & Lu, 2016). In the end, among the developing countries designated by the United Nations Conference on Trade and Development (UNCTAD), South Korea became the first developing country to become designated as a developed country (Kim, 2021). The Korean government developed a relatively ambidextrous and balanced system to address COVID-19 (e.g., social distancing vs. social interaction, freedom vs. security, and strictness vs. looseness) to avoid “Big Brother” with less supervision and lockdown (Cho, 2020a). According to Bloomberg, in June 2022, South Korea was the top 1 country in terms of COVID-19 management (Hong et al., 2022). Thus, it is worthwhile to delve into Korea's unique struggle and analyze its situation during and after COVID-19 to prepare for future disasters and infectious diseases. Reactions to the COVID-19 pandemic vary depending on indigenous administrative settings, although countries follow some efficient universal principles. Thus, we need to consider their own indigenous cultures and settings to avoid the failure of the Comparative and Development Administration (Cho, 2020b). This meant that a system developed in the context of the United States (U.S.) could fail in other contexts. (Bjur & Zomorrodian, 1986; Cho, 2020b). Based on the SWOT analysis with indigenous theories of management, recalling the past and current COVID-19 situation in South Korea and forecasting the post-COVID-19 era provide a more authentic “context-based” (Bjur & Zomorrodian, 1986, p. 398) disaster management to prevent and mitigate future disasters.

2. Theoretical Framework

2.1 Indigenous Administrative Theory

Many scholars are curious about the transferability of concepts or problems from Western management can transfer to other countries and emphasize indigenous administrative theory⁴ to develop their theory (Bjur & Zomorrodian, 1986; Kim, 2012). Thus, indigenization is one of the main concerns in many developing countries (Kim, 2012) and even in other countries when people introduce one system to others.

⁴ Theory encompasses cultural assumptions of “how things work” for managers to decide and act (Bjur & Zomorrodian, 1986, p. 399-400). Administrative theory is defined as follows: “Conceptual descriptions of how the administrative system is organized, how functional roles and relationships are defined within the institutions responsible for achieving societal goals, and how people are engaged in such functions and relationships within the organization” (Bjur & Zomorrodian, 1986, p. 399).

To take a systematic overview of society, we developed a framework for society, culture, science and technology, and the natural environment based on Bjur and Zomorrodian's (1986) conceptual framework of indigenous administrative theories.⁵ This framework allows context-based indigenous administration theory to identify value for success or failure in the background (Bjur & Zomorrodian, 1986). The individual perspective can be listed as follows: The cultural value of the framework is represented as perspective 1 (Bjur & Zomorrodian, 1986). Culture has a fundamental value and influences people's beliefs, decisions, and actions. Culture represents leaders' and followers' fundamental values and norms (Bjur & Zomorrodian, 1986). Culture continually changes in reaction to situations in its environment with consonant other perspectives. The institutions of society established perspective 2 in the framework (Bjur & Zomorrodian, 1986). This embraces political, economic, and social rules and laws consistent with culture (Bjur & Zomorrodian, 1986). Technological design and models are based on values (Bjur & Zomorrodian, 1986). Perspectives 1 and 2 represent pervasive "basic value" through society's forward societal infrastructure and social life direction (Bjur & Zomorrodian, 1986, p. 404-405), influencing the means and methods for implementation (Bjur & Zomorrodian, 1986). They also provide an administrative/management model and technology to describe the instrumental value of organizations (Bjur & Zomorrodian, 1986) for technology and science, which is perspective 3. Bjur and Zomorrodian (1986) stated that this indigenous framework needs continuous reappraisal and feedback by checking mismatches and consonants with contexts. Thus, we need to apply this framework to South Korea, where many cultures, institutions, and tools have been implemented.

In addition to this perspective, this study reinforces its framework by including the environment as the fourth perspective on COVID-19 and disaster management and policy. This contribution increases the feasibility of this study on COVID-19 because COVID-19 and other infectious diseases and disasters are supposed to engage the climate and natural environment. This indigenous framework guides the theoretical and methodological process of adaptation (Bjur & Zomorrodian, 1986).

2.2 SWOT Analysis

SWOT analysis is one of the popular tools organizations can use to conduct environmental analysis (Lee et al., 2012) to evaluate strengths, weaknesses, opportunities, and threats on a specific topic (Wang & Wang, 2020) while considering the internal and external elements (Lee et al., 2012). It is a useful systematic and comprehensive tool to formulate strategies and plans from the analysis of (Jasiulewicz-Kaczmarek, 2016; Wang & Wang, 2020) policy analysis and diagnosis. Based on the internal strength (S), weakness (W), external opportunity (O), and threat (T), strategies such as SO, WO, ST, and WT can be applied for further analysis (Wang & Wang, 2020). During the COVID-19, many scholars have tried to analyze important issues, including vaccination in India (Sharma & Pardeshi, 2021), overall COVID-19 strategies (Wang & Wang, 2020), education in the United Kingdom and Ireland (Longhurst et al., 2020), and many other areas. Based on the SWOT analysis, scholars obtained robust and fortified strategies.

⁵ We changed the term "level" into "perspective" because this study tried to describe Korean society from the diverse perspectives rather than a hierarchical viewpoints.

2.3 Finding Gaps from the Previous Studies

However, we can identify gaps in the previous studies. Regarding indigenous administrative theory, although many scholars agree with the importance of indigenous theory (Kim, 2012; Sheehan, 1998), this framework has not been studied in depth. Instead, studies on context or cultures usually mention indigenous administrative theory only briefly and do not address its applicability (e.g., Aggestam, 2006; Heady, 2006; Kalantari, 2005; Larsson & Lubatkin, 2001; Lewis, 2002; Lubatkin et al., 1997; Lubatkin et al., 1998; Lubatkin et al. 1999). Furthermore, although in the case of many disasters, emergency management should figure out the difference between culture, institution, technological tools, and circumstances, few studies have provided this perspective. Furthermore, regarding infectious diseases and natural disasters, it is critical to consider the changing climate; however, many studies have failed to consider it.

SWOT analysis places too much focus on specific areas. Although emergency management is essential during COVID-19, it is not sufficient to uncover the issues after COVID-19. Few SWOT analyses have been applied to address the emergency management issues at a country level while considering indigenous cultures. Moreover, most prior studies have focused on the recent issue rather than macro and long-term viewpoints without a long-term overview of countries' future issues on upcoming disasters. In the end, applying SWOT analysis based on the indigenous administrative theory fortified the analysis by considering the environment, culture, institutions, and tools. Thus, this study tried to show the long-term suggestions of future researchers and practitioners in a more detailed and organized way after COVID-19.

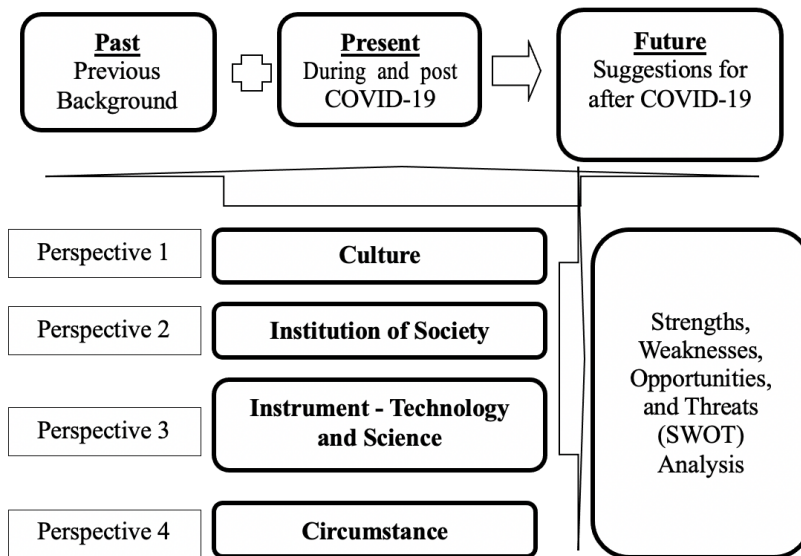


Figure 1. Conceptual Framework for Application of Policy and Practice

The study time spanned from before COVID-19 to October 2022 and included post-October 2022

estimates. The main geographical area was South Korea. The archival data were obtained from the government, newspapers, and articles based on the chain of evidence derived from research questions (Yin, 2014; Cho & Jung, 2019). The data analysis was based on the deductive theoretical proposition. The disproportionate attention was corrected by designing the case study sequence backwardly and forwardly (Yin, 2014). The analysis was based on the South Korean indigenous cultural perspective and SWOT analysis with strengths, weaknesses, opportunities, and threats. We extracted the future implication from strengths & opportunities (SO), strengths & threats (ST), weaknesses & opportunities (WO), and weaknesses & threats (WT) strategies.

3. South Korea Before COVID-19

3.1 Perspective 1 Culture: Globalization and Multicultural Society

Culture influences the way we resolve problems. South Korea was a homogeneous society with a mixture of Eastern and Western cultures. Its Confucian culture is characterized by interpersonal relations and faithfulness (Kim, 2010; Cho & Jung, 2018). South Koreans are more accustomed to studying hard and sacrificing themselves because of centralization and its cultural inertia, although many cultures and institutions affect South Korea. South Korea emphasizes education for their children to succeed in national examinations.

Korea is expected to become a full-fledged immigrant society around 2050, with about 10% of the nation comprising foreigners. Korea's long history of isolationism has led many citizens to take pride in the homogeneity of their society, but such attitudes have changed. Due to globalization and to avoid dirty, dangerous, and demanding (3D) work, Koreans have brought workforces outside South Korea to maintain their industry. Thus, Korea should keep transforming into a multicultural society to increase its population and prevent a shrinking society. Before the 1960s-1980s, many South Koreans worked abroad, including the Middle East and West Germany (Kim, 2019)⁶. However, due to the avoidance of 3D work following economic development, Korea's lack of a labor force has led to an inflow of foreign workers (Park, 2018). After a formal foreign affair relationship was established with China in 1992, more Korean-Chinese workers moved to South Korea (Park, 2018). Since the end of the 20th century, the development of transportation and technology has accelerated globalization and multiculturalism.⁷

After registering 1 million foreigners in 2007, the government began to discuss the “multicultural situation” and fast-tracked policies on related issues (Chung & Kim, 2020, p. 87). Recently, 1.3 million foreigners have resided in South Korea. Additionally, since the 2010s, international students have become much more common on Korean campuses due to globalization. While the influx of foreigners has resolved the workforce shortage and opened up new world perspectives,

⁶ Dispatch of overseas personnel. National Archives of Korea.
<http://theme.archives.go.kr/next/koreaOfRecord/manpower.do#> (Accessed August 22, 2020).

⁷ Noteworthy, a multicultural society is forming due to the migration of foreign workers as well as marriages to immigrants and American soldiers (Park, 2018). Moreover, international marriages between Korean and Chinese or East Asian have increased because some rural areas do not have enough unmarried young people.

it has exacerbated other problems, such as illegal immigration, worker's rights issues, and conflicts in a multicultural society. The negative effects of multiculturalism include an increased bias toward foreigners, domestic violence, organized crime, murder, and rape by foreigners who might feel alienated or isolated. To resolve these problems, the government provides a social integration program called Korea Immigration and Integration Program (KIIP),⁸ which aims to help immigrants assimilate into Korean culture quickly and obtain citizenship. Recently, the studies and propaganda of *Inclusive Society* have risen to deal with these issues.

Meanwhile, globalization and multicultural society drove our government to open its market due to its small economic size, facilitating the influx of immigrants and new cultures as well as more infectious diseases, terrorist attacks, new ideas, and other conflicts. Severe Acute Respiratory Syndrome (SARS) in 2003 and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2015 and 2018 are examples of how globalization influences the spread of respiratory disease. The Sewol Ferry disaster in 2014 boosted concerns about the disaster and emergency, and many emergency organizations have been developed from the more alert public awareness. During the Sewol Ferry disaster in 2014, the mass media paid increased attention to the victims. This initiated polite attention to the victim while transforming the security culture (Cho, 2017). However, respect or appreciation was not commonly shared among people. During Middle East Respiratory Syndrome (MERS), some people shunned medical workforces and their children due to their possible infection (Choi & Cho, 2019a).

3.2 Perspective 2 Institution of Society: Rapid Aging in Developed Society

Due to globalization, more social institutions of education, politics, economy, and emergency management were modified due to the changes in world institutions. A small market with limited territory, a lack of resources, and a population of South Korean lead to the South Korean economy being dependent on the international economy, which initiated the South Koreans' sensitivity to the international economy.

Since 1948, along with disease-relevant organizations, South Korean emergency organizations and systems have been expanding until 2014 (Cho, 2017) until the Ministry of Public Safety and Security (MPSS) was established in 2014 but dismantled during the Presidency of President Moon in 2017. Meanwhile, the Korean social welfare system developed through economic development. As the economy developed, the government introduced many social welfare systems for minorities and low-income people. For instance, National Health Insurance (NHI) has been developed since 1989 (Shin, 2019). This helps citizens lower the obstacles to visiting the medical hospital and clinics by relieving their financial burden. In recent years, more high-ranked high school students have aspired to be medical doctors, despite the shortage of nurses and other professionals in the public healthcare workforce.

⁸ Korea Immigration and Integration Program (KIIP) helps immigrants get accustomed to Korean culture and communication(Kang & Lee, 2017). To induce participation, KIIP grants incentives to those who finish this program, such as waivers on the written test for Korean nationality (Kang & Lee, 2017).

On the other hand, SARS in 2003, Sewol Ferry in 2014, and MERS in 2015 and 2018 initiated the problems of the disaster management system and facilitated the establishment of the emergency management system. For instance, during MERS, the Koreans did not take the medical workers' stress seriously (Choi & Cho, 2019a).⁹ However, after MERS, even before COVID-19, the Korean government employed the Public Mental Health Service Psychological Crisis Support Team (Choi & Cho, 2019a). South Korea ranked 9th in the world regarding the Global Health Security Index (Cameron et al., 2019).

Like developed countries, such as France and Japan, South Korea has suffered from a low birth rate, a growing ratio of senior citizens, and one-person households. Currently, South Korea is one of the lowest birth rate countries in the world. Because of the high-density society with the lack of employment and expensive housing, the young generation is reluctant to marry. Even after marriage and childbirth, another financial burden concerns their children's education. Economic burdens have decreased the birth rate, and the population has recently begun to decrease. The birth rate dropped from 6 in the 1960s to 0.8 in 2021. Subsequently, Korea has become an aging society with a low birth rate. According to Statistics Korea (KOSTAT), it is estimated that the nation's population will continue to decrease in groups under the age of 14 by 2020, while the number of people over 65 will increase. Korea became an aged society in 2000 and an aging society as of 2017. It is expected to be a super-aged society by 2026 (Lee, 2016).

Furthermore, the reluctance to marry and the growing number of senior citizens have caused an abundance of single-person households because marriages are delayed for economic reasons. These low birthrates with diminished marriage and aging societies with single-person households are associated with low economic growth and low employment as consumption and investments shrink. Furthermore, single-person households and older adults tend to be vulnerable to disasters (Choi & Cho, 2019b), diseases, crimes, and accidents (Korean National Policy Agency, 2018).

Finally, the South Korean government has become more active in protecting people against the disaster, reflecting on people's attention to safety after Sewol Ferry Disaster in 2014 and constitutional law designated government duty to protect them (Choi & Cho, 2019a; Cho & Jung, 2019). Additionally, since 1995, the Korean government has established local autonomy, and local governments compete to provide better services. As a result, central and many local governments have made an effort to collaborate and devise policies to help the vulnerable, such as elders, international students, and children, in the disaster (Choi & Cho, 2019b). Furthermore, Korean financial soundness was decent before COVID-19. This also maintains the current population by protecting them.

3.3 Perspective 3 Instrument - Technology and Science: Advent of the Fourth Industrial Revolution and Effects

⁹ Relatively shorter duration of SARS and MERS in 2015 and 2018 compared to COVID-19 might not contributed to the stress.

With many technologies and science influx from international communities, South Korea is keeping up with the international pace. Korea has rapidly advanced from the industrial revolution to the Information Technology (IT) revolution in the last century, overcoming many difficulties. IT infrastructure has advanced since the end of the 1990s. The country has been facing what has been termed the Fourth Industrial Revolution. Technology development led to the surging IT structure and social media. MERS experience in 2015 led the government to recognize the importance of preventing fake news in social media and providing quick and correct information on spreading disease. Based on the online infrastructure, Korea developed a robust logistic and office system based on quick delivery and occasional online meeting. On the other hand, many companies (e.g., LG and Samsung) and the government have tried to develop the battery industry and alternative energy to reduce emissions and prevent climate change by reducing gasoline emissions.

Despite expectations that the revolution will catalyze productivity, some scholars still worry that job losses may occur more rapidly. Robots may replace low- and mid-grade engineers, and AI may perform actions that only humans could perform in the past. This revolution could lead to increased poverty and a collapse of labor markets, and some predict that social inequality will spread.¹⁰ Jeremy Rifkin (1995) pointed out in his book *The End of Work* that failure to distribute productivity (e.g., establishing partial tax exemptions for workers and maintaining a minimum wage) would cause serious social problems and crises. He is concerned that the Fourth Industrial Revolution will lead to continued unemployment, possibly increasing criminal behaviors, including survival crimes, drug abuse, and sex crimes. In the meantime, unlike the high growth rate of 8% in the 1980s, South Korea is currently facing a low growth rate of 3%, which is estimated to drop to around 1% (Park, 2018). Additionally, the youth (15-29 years old) unemployment rate has increased to 9.9%, the historically highest point despite President Moon's efforts to boost the economy (Park, 2018b). According to Machin and Meghir (2004), the unemployment rate is statistically significant in relation to crime, as the economic inequality from unemployment could facilitate criminal motivations or magnify criminal opportunities.

3.4 Perspective 4 Circumstance: Climate Change and Ultrafine Dust

International industrial development and trade increase pollution and problems by facilitating climate change despite the prevention efforts and collaborations to tackle climate change. The International Panel on Climate Change (IPCC) 6th report argues that the average temperature will increase by 1.5 Celsius around 2030-2052.¹¹ Korea has had four separate seasons. However, the climate is currently changing in the Korean Peninsula (Son, 2018). While spring and fall are getting shorter, summer is getting longer and hotter. Subtropicalization seems to be a pattern (Son, 2018). Global warming from industrial development may cause even more rapid climate change in the

¹⁰ Fourth industrial revolution <https://100.daum.net/encyclopedia/view/47XXXXXXXX185> (Accessed 2020. 8. 9).

¹¹ Special Report: Global Warming of 1.5 °C. Summary for Policymakers <https://www.ipcc.ch/sr15/chapter/spm/> (Accessed October 15, 2022).

Peninsula. Moreover, asymmetry of biodiversity has occurred because the proportions of people and their livestock have escalated from less than 1% to more than 95% of the entire earth's animals over approximately 10,000 years (Choe, 2022). This causes infectious diseases to spread to human beings more frequently (Choe, 2022). East Asia, where the Korean Peninsula is located, is highly sensitive to global warming. Tropical diseases, such as malaria and tsutsugamushi disease, are increasing, and wild tick habitats are also expanding.

Traditional diseases, which tend to be associated with tropical and subtropical regions, are quickly spreading worldwide (Boukerche & Mohammed-Roberts, 2020), including in South Korea. For instance, dengue fever¹² spread to Nepal, where the climate was too cool for dengue fever, and many other countries (Boukerche & Mohammed-Roberts, 2020). Currently, according to the World Health Organization (WHO), it has become endemic in more than 100 countries (Boukerche & Mohammed-Roberts, 2020). Other viruses, such as hantavirus, bacillus anthracis, and viruses from 30,000 years ago, emerged from melting ice due to climate change and global warming (Choe, 2021). In addition, if Korea does not properly respond to climate change, the economic damage is predicted to be about 5.2% of the GDP (Son, 2018). Experts warn that the entire nation could become a subtropical climate by 2060 (Son, 2018).

Recently, South Koreans have faced ultra-fine dust from indigenous facilities in South Korea, China, and other places. Fine dust is more threatening than smoke (Lee, 2019), and it becomes toxic with the addition of various harmful substances, such as factory exhaust, sulfate and nitrate from automobile exhaust, carcinogenic polycyclic aromatic hydrocarbon, endocrine disruptor volatile organic compounds, and heavy metals (Lee, 2019). According to the WHO, seven million people per year die earlier than expected due to ultra-fine dust (Lee, 2019). According to the Seoul Institute, ultra-fine dust causes 1,763 people per year to die early in Seoul (Seoul Metropolitan Government, 2019). Seoul Institute estimated that the number of senior deaths would reach 2000 or more in 2030 (Nam, 2019). Consequently, wearing a mask has been recommended by the government to protect against (ultra)fine dust, unlike the U.S.¹³ This bothered some people, and not everybody followed the government guideline.

4. South Korea During the COVID-19 Pandemic

4.1 Perspective 1 Culture: Conflicts in a Multicultural Society

Despite the multicultural society, COVID-19 spread quickly due to globalization, leading to increased cultural conflicts. Unlike other diseases, like SARS or MERS, COVID-19 did not remain

¹² Before 1970, dengue fever broke out in nine countries (Boukerche & Mohammed-Roberts, 2020).

¹³ On the other hand, it has long been prohibited or even illegal to wear a mask in the U.S. and western countries, due to anti-mask laws. For instance, 15 states in the U.S., including New York, California, Michigan, Georgia, Florida, Louisiana, and Washington, D.C., have enacted anti-mask laws (Kang, 2015). Historically, it was enacted against the Ku Klux Klan (KKK)'s terror wearing a KKK Hood and mask (Kang, 2015). Thus, many Americans oppose wearing a mask in light of their history and culture. Outside America, anti-mask laws have been implemented in 15 countries, including France, Germany, Russia, Canada, Bulgaria, and Egypt (Park, 2019).

in a few countries, turning into a pandemic. To make matters worse, globalization and multicultural social problems mixed with COVID-19 generated additional conflicts among the people. Globalization led to an influx of international students to South Korea. The fear and threat of COVID-19 influenced people's ethnocentrism (Van Bavel et al., 2020). For instance, Chinese people were stigmatized as possible COVID-19 spreaders in South Korea at the beginning of COVID-19.¹⁴ Some members of the international community do not have sufficient information because of language limitations. However, the South Korean government decided to provide free COVID-19 tests to illegal residents without charge and without deporting them, regardless of infection of COVID-19 (Seo, 2020). The Korean government has provided information about COVID-19 in many languages (e.g., English and Chinese—even sign language for the deaf, considering the multicultural nature of society).

Cultural diversity helps the government balance policies. Koreans implemented well-balanced measures for dealing with COVID-19 (Cho, 2020a). Like China, South Korea implemented policies set by the central government;¹⁵ however, the South Korean government has not controlled people's travel. Like the U.S., South Korean citizens also cherish their human rights and have had an anti-state attitude since democratization in the 1980s.¹⁶ The South Korean government did not implement a curfew or traveling restrictions to respect individuals' freedom and avoid negative economic impacts. However, most South Koreans followed the guidelines against COVID-19 from the central government. Few protests or anti-government sentiment were caused by the mask-wearing mandate or even the rationing of the masks to two per day in South Korea when masks were not readily available.

In terms of medical workers, since the COVID-19 outbreak, many organizations and people have expressed their respect and appreciation to the medical workforce who fought COVID-19, which had not been common before COVID-19 and even during the MERS in 2015 and 2018. However, medical workers in public health in rural and other areas struggled with fatigue and the stress from overwork during COVID-19 due to labor shortage.

¹⁴ Furthermore, some Asians have been shunned and attacked outside of Asia.

¹⁵ This tightness and looseness of the medical policy during the COVID-19 (Gelfand et al., 2011; Gelfand et al., 2017; Van Bavel et al., 2020) was related to strict punishment for illegal behavior on COVID-19 policies in Korea, like in China, due to institutional inertia influenced by similar Confucian culture.

¹⁶ Influenced by culture, the implementation of countermeasures against COVID-19 has differed from culture to culture. Considering the cultural perspective, South Korean government balances the countermeasures between China and the U.S.. As a state-centered country, China implemented aggressive COVID-19 prevention measures, unlike the U.S. For instance, while the Chinese government aggressively controlled people's movement and enforced mask wearing and even regional shutdowns, the U.S. was careful to control people and even reluctant to enforce mask mandates or limit travel. Interestingly, some Americans have protested the government's enforcement of mask wearing. This difference is due to the fact that the Chinese government has long been centralized, whereas the Americans' stance is more anti-state (Wilson, 1989).

4.2 Perspective 2 Institution of Society: Learning Organization Through Developed System

The institution of society is important. Despite the worldwide pandemic, the authorities of the United Nations and WHO have been weak in intervening and coordinating different countries due to a lack of budget and enforcement power. In addition to the conflict between the U.S. and China, the South Korean economy, internationally dependent due to limited territory and population, made the government reluctant to enhance border control to prevent COVID-19. Moreover, COVID-19 caused a dilemma because closing the country would harm the economy, while opening the door to foreign people would epidemiologically harm their country, threatening people's safety. Furthermore, the Korean government was not ready for COVID-19 because of the underdeveloped discipline against COVID-19. However, people criticized the late border closing.

Despite the collapse of the MPSS in 2017, disease-management agencies and institutions have expanded during the COVID-19 period. Due to the similar respiratory SARS disease in 2003, MERS in 2015 and 2018, and even the Sewol Ferry disaster, the government developed countermeasures, including more sophisticated guidelines against COVID-19 and disasters, and improved the public health system based on prior experience. Public health is important in caring for the elderly, the poor, and international citizens. Like the *Learning Organization's* implications, South Korean society is learning from its errors and continuously improving its institutions and systems. For instance, South Korea successfully protected its citizens against SARS in 2003 (Choi & Cho, 2017). This experience helped government agencies deal with COVID-19 by bolstering administrative and legal medical systems and hiring more experts. Many suggestions¹⁷ after MERS (e.g., Choi & Cho, 2017, 2019a) were realized and implemented after MERS to improve COVID-19 policies. For example, the South Korean government compensated organizations that had to shut down due to COVID-19 (Ko, 2020). The government tried to relieve the stress and fatigue experienced by the medical workforce (Ko, 2020). Those reactions were implemented during COVID-19, which had been pointed out as a weak point of the MERS 2015 response to the respiratory viral infectious diseases (Choi & Cho, 2017, 2019a).

Korean government promoted the Korea Center for Disease Control and Prevention (KCDC) to the Disease Control and Prevention Administration (DCPA) to fight against future COVID-19 by expanding authority on implementing research and projects as well as planning future COVID-19 (Lee, 2020a).¹⁸ NHI supported COVID-19 patients receive COVID-19 treatment for a small fee or

¹⁷ Those suggestions are as follows:

- "Appropriate compensation for workers who risk their livelihood when dealing with infectious diseases", "Managing stress and trauma", "Incentive for private organization participation" (Choi & Cho, 2019a, p. 168).
- "Compensating for disadvantages, supplementing facilitates", "Continuous checking of the international criteria and domestic situations", "emotional cure and rewards" (Choi & Cho, 2017, p. 14).

¹⁸ Korean government needs an organization with fortified authority and capacity to prevent and overcome COVID-19. To prevent COVID-19, Korean government promoted an organization recently, separating from the Ministry of Health and Welfare, the Korean government has elevated KCDC to the level of a standalone agency, KDCA, to enhance disease control expertise (Lee, 2020) and collaboration. This aims to strengthen readiness against COVID-

free of charge covered by the NHI (Lee, 2020b; Song, 2020).¹⁹ However, South Korean medical capacity is behind in vaccine development, although South Korea secured the vaccine from the U.S.²⁰ In the end, more than 86 % of people have been vaccinated as of October 10, 2022 (Corona Live, 2022; Insflier, 2022).

We need to boost the adaptive mindset to overcome COVID-19 stress and reduce its negative health effects while increasing physiological functioning during the stress (Crum et al., 2013; Crum et al., 2017; Van Bavel et al., 2020). Some people struggle with poverty and isolation rather than COVID-19 (Seo, 2020), which causes more suicide and stress (e.g., COVID Blue [with depression] or COVID Red [with anger], burnout, isolation, unemployment, bankruptcy, family conflict and dismantle) (Seoul Metropolitan Government, 2020) among the poor, elderly, and disabled. Governments provide stress relief systems online and in person to relieve stress and fatigue.

On the other hand, COVID-19 revealed social problems. Closing small businesses and restricting gatherings and meetings harmed the economy, leading to polarization between rich and poor people. Rural areas do not have enough public health doctors. Especially the low-income, senior citizens, and single-person households were more vulnerable. Senior citizens are more vulnerable and likely to die in this rapidly aging society and the *Untact Society* with computers and technology.²¹ The government implemented anti-disaster basic income to prevent a shrinking population from the rapidly aging society, cancelled meetings and marriages, and a shutting down small business. During COVID-19, the government decided to provide an anti-disaster basic income of more than 800 dollars per four-member family to boost the economy and support low-

19 by allowing greater independence in terms of the budget, personnel, and organization as a whole (Lee, 2020). Furthermore, this aims to enhance practical authority over the planning and implementation and boost the researches and projects as well (Lee, 2020). This promotion also equips regional disease control centers that are responsible for epidemiological study and support regional quarantine (Lee, 2020). Additionally, the Center for Infectious Diseases Research annexed by National Institute of Health will be expanded into the National Research Center for Infectious Diseases (Lee, 2020). The center will monitor infectious diseases as well as develop and commercialize treatments and vaccines (Lee, 2020).

¹⁹ One reason that the U.S. has struggled more than other countries with the highest cases of COVID-19 is their weak health care system. The United States' health cost are so high that the cost for COVID-19 is burdensome to the middle-income and poor people. For instance, the inspection cost of COVID-19 patients in the U.S. is thousands of dollars, while those in South Korea are free of charge (Park, 2020b).

²⁰ Meanwhile, the limited countermeasure of disease could cause the selfism as shown in the lack of vaccine. For instance, the lack of vaccine caused international conflicts for securing vaccine. Even after many countries (such as U.S., China, Russia, and United Kingdoms) developed the vaccine, vaccine securement and distribution was inequitable. Furthermore, the side effect of COVID-19 made people reluctant to be vaccinated, vaccination resistance varied by countries.

²¹ According to a study conducted by London School of Hygiene & Tropical Medicine, people 80 years or older have a 2000% greater chance of dying from COVID-19 than people in their 50s and several-hundred-times greater chance than people under 40 years (Kim, 2020a).

income people and those struggling due to COVID-19. Furthermore, second, third, and fourth anti-disaster basic income was implemented selectively. However, Korean financial soundness worsened.

Complete collaboration is still difficult to achieve among governments, showing pros and cons during COVID-19. South Korea's autonomous governments competed and collaborated, generating many brand-new innovative ideas against COVID-19, such as drive-thru testing (Park, 2020c), walk-thru testing, tracing of the confirmed cases, and other COVID-19 quick investigation systems, that spread globally (Lee et al., 2020; Kim et al., 2020). Local autonomous governments provided COVID-19 relief supply boxes to quarantined people. Meanwhile, collaboration was limited by the selfism of local governments to secure their local citizen. For instance, Gyeonggi Governor even declined to provide a sickbed for Daegu COVID-19 confirmed citizens to protect Gyeonggi province residents (Kim, 2020b). On the other hand, when Daegu City struggled with the dramatic surge of confirmed cases in the early stage of COVID-19, many citizens from the local government volunteered to help Daegu city by providing medical resources.

4.3 Perspective 3 Instrument - Technology and Science: Advent of the Untact Society and Fake News Prevention

Technology changed society but not equally for all people as the COVID-19 situation worsened with economic polarization. The previously established IT infrastructure and the fourth industrial revolution helped white-collar workers keep their jobs during COVID-19, while blue-collar workers lost their jobs and incomes. This contributed to an economic depression. Unemployment does not benefit society and individuals (Machin and Meghir, 2004). Thus, the Korean government provided the anti-disaster basic income to support the economy.

Technology paves the new way to prevent COVID-19 as well. COVID-19 has accelerated telework, telecommuting, and online learning and even boosted *Metaverse*²² life, supported by the technological development of the Fourth Industrial Revolution. Before COVID-19, many public and private organizations were reluctant to implement telework, telecommuting, and online classes. After COVID-19, most classes, meetings, and conferences are conducted via online platforms such as Google Meet and Zoom. South Korea named it an *Untact Society*. An *Untact Society*'s lifestyle is transforming the social and industrial structure. Most unnecessary meetings have been canceled, postponed, or replaced by online meetings. The developed IT infrastructure boosts the quick logistic system, which helps deliver stuff quickly and prevents panic buying. People tried to order food and necessary items online to save time and lives. This lifestyle also changes the structure of the economy. While new technology and science enable the tracing of people's movements, credit card purchases, closed-circuit television (CCTV), tracking the location

²² "The *Metaverse* is the post-reality universe, a perpetual and persistent multiuser environment merging physical reality with digital virtuality. It is based on the convergence of technologies that enable multisensory interactions with virtual environments, digital objects and people such as virtual reality (VR) and augmented reality (AR)" (Mystakidis, 2020, p. 486). Many activities such as commencement and conferences have replaced offline in-person meeting with the online metaverse.

of cell phones, travel history of domestic public transportation, and international travel history via resident registration number (RRN)²³ to prevent COVID-19 from spreading (Park, 2020a), it also raised some privacy issues.

Some social media and unauthentic news spread fake news during COVID-19. Behaviors in disaster tend to be promoted by celebrities and community leaders through the public message, propaganda, and exemplary behavior of the leader by boosting positive norms (Van Bavel et al., 2020). To prevent fake news, the Korean government provides regular daily briefings on COVID-19. This helps prevent rumors (Oh et al., 2020). For instance, Korean alternative medicine and religious institutions suggested alternative remedies (such as saltwater and praying). Nevertheless, daily government briefings prevent this misinformation from spreading fake news and conspiracy theories in social media and other outlets. Thus, we need to adopt countermeasures that would not infringe on human rights based on technology and science.

4.4 Perspective 4 Circumstance: Ultrafine Dust as a Blessing in Disguise?

One of the reasons for COVID-19 was climate change (Choe, 2022). According to the Cambridge University research team, tropical bats, the zoonotic origin of “SARS-CoV-1 at the origin of 2003 SARS” and “SARS-CoV-2 at the origin of COVID-19” (Rat et al., 2020, p. 7880), have migrated from the tropical to the temperate climate regions (e.g., southern area of Chinese Yunnan province and neighboring regions in Myanmar and Laos) for 100 years (Beyer et al., 2021; Choe, 2022). The infectious disease would invade humans with higher possibility and frequency (Choe, 2022). In the end, COVID-19 spread to China, South Korea, and worldwide.

Meanwhile, dust has become a blessing in disguise during COVID-19, although climate change and ultra-fine dust have bothered South Koreans (Cho, 2020a). With no vaccine for COVID-19, the experience of wearing a mask against ultra-fine dust helped protect against COVID-19. While the anti-mask laws influenced people’s reluctance to wear masks in Europe and the U.S., South Koreans had already been accustomed to mask-wearing.²⁴ Thus, the South Korean government has successfully enforced guidelines and manuals for mask-wearing. That is why ultra-fine dust in South Korea has become a blessing in disguise and possibly contributes to boosting the prevention of COVID-19.

One of the main concerns for COVID-19 is that, like other endemics, it could be seasonal, with a higher tendency to spread during the winter (UK Research and Innovation, 2020). Currently, COVID-19 almost turned into an endemic. Nevertheless, we need to consider other infectious diseases following COVID-19. Some scholars predicted and have realized that humans might need

²³ Similar to the social security number (SSN) in the U.S., the RRN is a stricter method to control individual Koreans because it that one citizen should have one life-time number, unlike SSN. All South Koreans have an RRN.

²⁴ Like some western countries, the South Korean government considered an anti-mask law several times—in 2003, 2006, 2009, 2012 and 2015—but failed to enact one (Ku, 2015; Jeon, 2019).

to learn to live with COVID-19 due to its difficulty to eliminate, although many people were vaccinated against COVID-19 and hope to be free the COVID-19.

5. Policy Issues After the COVID-19 Pandemic

Previous sections explained the environmental changes and effects of COVID-19. Many people still expect that life after COVID-19 will not be the same as before COVID-19. This raises the question of how to mitigate, prevent, or prepare against future disasters and COVID-19-relevant issues. After evaluating current situations in South Korea based on past experiences, the SWOT analysis revealed possible measures to manage pandemic based on the indigenous administrative theory's framework. Ultimately, this study outlines some issues with the Korean government's national crisis management policies and suggests strategies for changing the domestic and international environments, as summarized in Table 1.

Table 1

Strategies After the COVID-19 Pandemic: Based on SWOT Analysis and Indigenous Model Before and During COVID-19

<p style="text-align: center;">Internal Environment</p> <p style="text-align: center;">Strategies</p> <p style="text-align: center;">External Environment</p>	Strengths [S]	Weaknesses [W]
	<p>- Culture: Confucian cultural emphasis on education, centralization, and good compliance with the central government; Globalization and diversity from the multicultural society of Eastern and Western.</p> <p>- Institution of Society: Developing social welfare system; <i>Learning Organization</i> from MERS and SARS; Expansion of emergency organization; A developed health system; High-ranked students' preference to be doctors; Autonomous local government; The soundness of the budget.</p> <p>- Instrument – Technology and Science: Quick application of new technology with <i>Untact Society</i> based on the Fourth Industrial Revolution with online infrastructure; Social media development.</p> <p>- Circumstance: Mask wearing for ultrafine dust as a blessing in disguise due to weak severe hostility against wearing the mask.</p>	<p>- Culture: Discrimination toward Chinese; Policy and cultural differences from homogeneous society with less represented international people; Avoidance of 3D work; Lack of awareness on disaster.</p> <p>- Institution of Society: A rapidly aging society with a low birthrate accelerated during COVID-19; A dependent economy due to a small market and economy scale; Late border closing against COVID-19; Worsened with low growth and high unemployment; A higher proportion of senior citizens; Difficulties of collaboration; Worsening financial soundness; Limited medicine (e.g., vaccine); Lack of nurses and public health care doctors; Stress and fatigue of people and medical workers in case of long-term disease.</p> <p>- Instrument – Technology and Science: Unnecessary regulation; Intervening privacy from tracking domestic people movement; Fake news and rumors from less authentic media.</p> <p>- Circumstances: Climate Change, Subtropicalization; Ultra-fine dust.</p>

Opportunities [O]	Strengths & Opportunities [SO]	Weaknesses & Opportunities [WO]
<p>- Culture: Increasing international people; Full-fledged immigrants; <i>Inclusive Society</i>; Greater awareness of disease and disasters.</p> <p>- Institution of Society: More motivation for the international market due to the small domestic market; Developed social systems and emergency management; Increasing international collaboration; More experience in infectious disease; KCDC promotion to KDCA against COVID-19.</p> <p>- Instrument – Technology and Science: Effort to catch up with the international Fourth Industrial Revolution; Development of social media; Highly developed medicine and many supplies for the medical workforces; <i>Smart City</i>.</p> <p>- Circumstance:</p> <p>Collaboration effort to prevent climate change; Experience wearing the mask.</p>	<p>- Culture: Development of <i>Inclusive Society</i>; Education on multi-culture and awareness against disasters; Increasing the morale and good expression to the medical workers.</p> <p>- Institution of Society: Continuous reshaping of emergency management and organization via learning organization; Developing stress relief programs and systems.</p> <p>- Instrument – Technology and Science: Keep developing technology, online system, and <i>Smart City</i>; Bolster information system via mutual communication sharing productive information against disasters; More developing stress management programs via media and communication systems.</p> <p>- Circumstance: Keep wearing masks and people protection in case of infectious disease.</p>	<p>- Culture: Increasing number of international people; Mitigating conflicts between international cultures via education. Diverse language message; Provision of disaster prevention service to international citizens (e.g., more diverse text message language).</p> <p>- Institution of Society: Social system for the disadvantage of the immigrants, vulnerable, and unemployed; Collaborative Platform; Increasing vaccine development capacity; Raising public health doctors more; Maintaining financial soundness; Continuous medical organizations and staff development with more infectious disease experts and disaster-relevant workforces.</p> <p>- Instrument – Technology and Science: Protecting citizens’ privacy and rights from science development, Keeping the daily briefing to suppress fake news and rumors.</p> <p>- Circumstance: Future disease from domestic infectious disease; Prevent climate change with collaboration.</p>

Threats [T]	Strengths & Threats [ST]	Weaknesses & Threats [WT]
<p>- Culture: Higher chance of infectious diseases to spread worldwide due to globalization.</p> <p>- Institution of Society: Selfism from lack of resources; Weak WHO authority; U.S. vs. China conflicts.</p> <p>- Instrument – Technology and Science: Privacy issue from tracking international travelers' movement, Expert shortage for the fourth industrial revolution; Financial soundness; AI replacing human jobs; Regulation for human rights.</p> <p>- Circumstance: Climate change; Ultrafine dust; Air pollution, Asymmetry of biodiversity and diseases associated with climate change; Future disease from outside of the country; The continuous influx of COVID-19 variants and zoonotic-infections disease; Lacking science; Other disasters facilitate disease (e.g. forest fires and deforestation).</p>	<p>- Culture: Importing world technology and experts from diverse cultures.</p> <p>- Institution of Society: Boosting cooperation and partnership in case of future disasters. Independent economy; Basic income even after the disaster; Overcome the financial soundness problem.</p> <p>- Instrument – Technology and Science: Protecting individuals from the potential issue of AI and other technology; Technology against climate change and disaster; Preventing and reducing unnecessary regulations.</p> <p>- Circumstance: Maintaining strict control of international travelers and immigrants with less privacy intervention during the spread of infectious disease.</p>	<p>- Culture: Boost awareness on disaster via education and diverse media; More immigrants due to avoidance of 3D.</p> <p>- Institution of Society: Collaboration for new skills and institution; Balancing during the conflict between China and U.S.</p> <p>- Instrument – Technology and Science: International cooperation preventing fake news and rumors; Protection of traveler's privacy and education for cooperation; Double-checking and furnishing disaster guidelines along with WHO and other international organizations; Educating and inviting an expert on the technology.</p> <p>- Circumstance: Coexistence with COVID-19 due to further variants; Preventing climate change via domestic and international collaborations; Population dispersion to another less dense area, even space or other planets; Global collaboration for more accurate forecasting and monitoring of global warming.</p>

5.1 Perspective 1 Culture: Inclusive Society

An *Inclusive Society* counters a multicultural society. In light of globalization in Korean society, more diverse diseases and natural disasters could happen in South Korea. Meanwhile, diverse international experts and technology can be invited and imported from abroad to collaborate with them. To protect vulnerable international students, elderly citizens, low-income populations, and international residents against future disasters, we need to be prepared for a multicultural and diverse society via an *Inclusive Society* that embraces diverse people, which also helps reduce the shrinking of the South Korean population.²⁵ However, they are also underrepresented compared to others. Thus, it is necessary to advocate for vulnerable minorities and people via an *Inclusive Society*.

Additionally, due to their limited communication skills, international students and foreign-born inhabitants are more vulnerable when facing a disaster and responding to urgent matters. One of them is the language barrier. Thus, some news and updates were provided in English and Chinese at the beginning of COVID-19. In the future, other minority languages, such as Mongolian, Vietnamese, and Cambodian, should also be incorporated into disaster messages and news.²⁶ Furthermore, international people should have the opportunity for more decent jobs in South Korea. However, it is difficult to determine whether minorities or the vulnerable have been hired and dealt with sufficiently. Thus, an Inclusion Index²⁷ is needed to boost employment and the *Inclusive Society* to increase the population, which would fill the gap in 3D work. Furthermore, South Korean homogeneity could still be a barrier to accepting diverse individuals. The multicultural education system should support and maintain the right attitude reflecting a multicultural society.

5.2 Perspective 2 Institution of Society: Developing Domestic and International Collaboration and Basic Income

We should strengthen international cooperation and an independent domestic economy market, despite the conflict between the U.S. and China and deepened isolationism of the U.S. after the Trump administration, even the Biden administration, and Xi Jinping's 3rd term. Considering the two countries' influence on the South Korean market, we must balance between them to maintain political stability and a robust Korean economy.

²⁵ However, the discrimination and adjustment difficulties that immigrants experience tend to be directly linked to crime (Kim, 2013).

²⁶ U.S. provides information in many languages, including Chinese, Spanish, and even Korean and other minority languages (Ministry of the Interior and Safety, 2019).

²⁷ The minority worker's employment situation can be checked using the Inclusion Quotient Index for a better *Inclusive Society*. This has been applied in the Federal Employee Viewpoint Survey – Sources (Summary & Evaluation of FERC's 2017 Federal Employee Viewpoint Survey Results <https://www.ferc.gov/about/offices/oed/oed-hco/2017-survey-results-evaluation.pdf>).

South Korea should maintain learning organizations against future diseases and disasters. Thus, we suggest a collaborative platform. A collaborative platform²⁸ acts on a wider scale than collaborative governance (Ansell & Gash, 2017). A collaborative platform is adaptive and evolves with a high level of open-ended goals and strategies (Ansell & Gash, 2017). By establishing a collaborative platform for diverse disasters with an integrated but organized system of NHI, DCPA, and relevant organizations, costs can be reduced, and benefits can be maximized, following economies of scale. Thus, organizations and collaborative platforms should be equipped with better capacity and knowledge to protect against not only COVID-19 but also other humanmade and natural disasters by learning from their mistakes.

If the disease or disaster continues for a long time, we must be prepared to respond systematically to the physical and psychological challenges. We continuously develop the stress management of the medical workforce by consulting them regularly. We need to double-check and furnish the international discipline with robust international collaboration and fill the gap of new knowledge with international experts and communication using agile management when a new virus spreads. Additionally, we need to boost the medicine and vaccine development capacity using many good medical workforces. For instance, while developing a vaccine, it is necessary to boost cooperation and collaboration to secure enough vaccines. More medical doctors and nurses are needed to provide various services against future infectious diseases and relevant side effects, such as stress. Incentives and favorable policies should be offered to entice the public healthcare workforce.

In addition, we need to consider basic income during and after the disaster. However, we must balance financial soundness and economic protection from COVID-19. Furthermore, even after COVID-19, we still need to consider how basic income²⁹ can be applied to our society when artificial intelligence (AI) replaces human workers (Brynjolfsson & McAfee, 2014), considering the Fourth Industrial Revolution. If robots or machines with AI could replace workers, we would need to consider basic income again, as the unemployed would live in poverty (Wilson, 1996).

5.3 Perspective 3 Instrument - Technology and Science: Smart City with Developed Technology and Science

Medical and scientific technology and guidelines imported from other countries have spread worldwide. The *Untact Society* prevents the spread of infectious diseases. Fake news and rumors sometimes spread with the news media domestically and internationally; however, they must be prevented by the government's daily media briefings, public advertisements, and authentic media.

²⁸ According to Ansell and Gash (2017, p. 20), a collaborative platform is referred to as “an organization or program with dedicated competences, institutions and resources for facilitating the creation, adaptation and success of multiple or ongoing collaborative projects or networks.”

²⁹ Basic income is a kind of negative income tax initiated by Milton Friedman in the 1960s (Koo, 2020).

Despite the benefit of new technology and science, we must also balance the many ethical issues. Despite the effectiveness of tracking the confirmed cases, there are still pros and cons concerning tracking measures. They should be modified for better privacy in South Korea. For instance, tracking international tourists should not harm the tourism industry. We need to continue developing the institution and technology to balance and protect people's rights (such as privacy and freedom of movement and expression vs. protection against disease) through the government's daily media briefings and education.

Although the Fourth Industrial Revolution could be seen as a threat to privacy in the future, it can also be seen as a resource. Considering the issues above and the problems and estimating that almost 60% of people in the world live in the city (Myeong et al., 2017), we should develop the *Smart City* as one example of future disaster management and policy. Thus, we need to construct a platform for disaster and safety by building e-governance and participation (Myeong et al., 2017). Considering that unemployment might increase crime rates (Rifkin, 1995), boosting the economy and employment is necessary. Utilizing big data (Kang, 2018) from the development of electronic facilities and infrastructure in the era of the Fourth Industrial Revolution, a security system called the Sustainable Emergency & Safety Smart City could be built to improve safety. The developed technology can also be utilized to build a Smart Disaster Safety Response System (Kang, 2018) with a *Smart City*³⁰. For instance, based on the data and technology, the government can design responses to climate change (e.g., ultrafine particles, water pollution, and changing sea temperatures) and crime and establish disaster prevention programs (e.g., detecting forest fires, sea level change, landslides, and diseases), and maintain social welfare and care for senior citizens and the disabled (Kang, 2018).³¹

However, automated technology cannot consider the context and culture of the country.³² Despite the usefulness of *Smart City* and AI functions based on big data, people still need to adjust the guidelines before applying them to our society to prevent unnecessary regulations that could hinder or delay innovation. We need to encourage domestic experts and invite international experts to resolve those problems and keep up with rapid changes in science and technology.

5.4 Perspective 4 Circumstance: Upcoming Disease and Disaster

³⁰ *Smart City* is “A city combining ICT and Web 2.0 technology with other organizational, design and planning efforts to de-materialize and speed up bureaucratic processes and help to identify new, innovative solutions to city management complexity, in order to improve sustainability and livability.” (Toppeta, 2010; Nam & Pardo 2011, p.186).

³¹ The government can use big data to monitor risk prediction and signs of danger and respond to hazardous areas using robots and unmanned aircraft (Kang, 2018).

³² Without critical ideas, some guidelines can be translated without cultural consideration. For instance, during the MERS virus, one of the means of prevention of MERS was to avoid contact with camel, which was not useful and applicable in Korean Society in which camels do not play a part in South Korea. Additionally, developing countries and companies started to consider AI's problems. For example, when the machine drives automatically and causes an accident, who will legally and technologically compensate the injured (the driver, insurance company, or automobile company) and how will this be accomplished?

Infectious diseases have kept evolving along with climate change while people are trying to fight against climate change with citizen-friendly policies and programs to mitigate future disease concurrence (e.g., subsidies and education). Climate change will cause an increase in infectious diseases, like coronavirus, malaria, and dengue fever, worldwide (Boukerche & Mohammed-Roberts, 2020; Choe, 2022). Pollution would accelerate climate change while increasing disaster. Even after the first breakout of COVID-19, many COVID-19 variants, such as Alpha, Beta, Gamma, Delta, Omicron, and Omicron sub-variants, have emerged in multiple countries, including the United Kingdom, South Africa, Brazil, and India (WHO, 2022). We must continue to be prepared against them. Furthermore, some people talked about the era of “coexisting with COVID-19,” like the flu, or living with COVID-19 or some other zoonotic-infections disease. Furthermore, climate change, forest fires, and deforestation are associated with animal habitats that might cause zoonotic infections via human-to-animal contact (Boukerche & Mohammed-Roberts, 2020). Like fine dust, fine particle pollution, including black carbon, nitrates, and sulfates, enter the bloodstream and lungs, causing serious health problems (Boukerche & Mohammed-Roberts, 2020). Air pollution expedites the risk of COVID-19 by spreading faster and becoming more harmful (Boukerche & Mohammed-Roberts, 2020).

The changing climate causes ice melting and other problems, such as the reemergence of ancient diseases, rising sea levels, and other potent problems. Global warming could lead to the viral mutation of new heat-tolerant diseases that render our defenses useless (Ahima & Casadevall, 2020; Boukerche & Mohammed-Roberts, 2020). According to scientists, the changing weather and melting ice would unlock ancient diseases from the permafrost and ice, which had spread once but no longer circulated (Boukerche & Mohammed-Roberts, 2020). This is because certain frozen fungi, viruses, and bacteria can survive millions of years (Boukerche & Mohammed-Roberts, 2020). This could cause another pandemic after COVID-19.

Overall, due to globalization, the transmission of disease and climate change has accelerated. More fortified international and domestic collaboration is necessary for future infectious diseases. Although it is bothersome and time-consuming to restrain people from traveling by tracking and checking stay-at-home orders, we must continue quarantine with domestic and international collaboration, prevention, and education. Thus, the Korean experience of wearing a mask will benefit in case of future infectious diseases to protect people, although some countries are still reluctant to wear masks (such as the U.S. and European countries).

On the other hand, after the launch of the Biden administration, more countries have accelerated their efforts to prevent and mitigate climate change by improving hydrogen fuel, electric vehicles, and the battery industry. In the end, those relevant industries are facilitated by the government. To address these potent problems, scientists insist that it is necessary to have an accurate forecasting and monitoring system for climate change with enhanced surveillance and technology as well as global collaboration (Boukerche & Mohammed-Roberts, 2020). In the worst-case scenario, if entire territories become infertile and barren, we need to prepare for global population dispersion and even to space, the moon, and other planets to mitigate the density of population and avoid the polluted area by developing space areas, as described in the sci-fi movie or novel. Following many

other countries that have developed space technology, South Korea's space technology needs to be developed much more.

6. Conclusion

South Korea has been facing many challenges. Along with an increasing number of multicultural families and foreign workers, a rapidly aging society with a low growth rate, the rise of the Fourth Industrial Revolution, and climate change transformed society. To make matters worse, the entire planet has been struggling to get through the unprecedented COVID-19 crisis. This study discussed policy issues related to national crisis management. Based on the SWOT analysis and indigenous administrative theories, we can integrate scattered relevant factors (Wang & Wang, 2020) with more organized methods. Table 2 summarizes this study (see Table 2).

Table 2.

Summary of South Korea Emergency Management Policy Issues before, during, and after COVID-19

	Past	Present	Future
	Previous Background	During and post-COVID-19	Suggestions for after COVID-19
Culture	<ul style="list-style-type: none"> - Confucian culture - Globalization and multicultural society - Increasing world spreading infectious disease 	<ul style="list-style-type: none"> - Discrimination toward Chinese but <i>inclusive policy</i> implementation - The more developed culture and system against disaster 	<ul style="list-style-type: none"> - <i>Inclusive Society</i> - Cultural consideration for a multicultural society - Changes in infectious disease influx due to globalization
Institution	<ul style="list-style-type: none"> - Small market - A rapidly aging society with low growth - Autonomous local government - Developed social system and emergency management from experience 	<ul style="list-style-type: none"> - Weak WHO and selfism for securing resource - U.S. vs. China conflicts - <i>Learning Organization</i> from the previous disaster - Bolstering social system in social welfare and emergency 	<ul style="list-style-type: none"> - Keeping <i>Learning Organization</i> - Emergency management platform and basic income - Developing medical capacity - Balancing during U.S. vs. China conflicts

		<p>management via collaboration and competition</p> <ul style="list-style-type: none"> - Stress issues and management - Support for vulnerable people - Limited medical capacity 	<ul style="list-style-type: none"> - Developing domestic and international collaboration
Instrument - Technology and Science	<ul style="list-style-type: none"> - Fourth industrial revolution, - Low growth and high Unemployment - Development of social media 	<ul style="list-style-type: none"> - <i>Untact Society</i> based on Fourth Industrial Revolution - Fake news from social media and the daily briefing - Developed technology but the privacy issue 	<ul style="list-style-type: none"> - <i>Smart City</i> - Privacy and rights from science development - Educate and invite experts - International cooperation
Environment	<ul style="list-style-type: none"> - Climate change - Subtropicalization and ultrafine dust - Asymmetry of biodiversity 	<ul style="list-style-type: none"> - Mask wearing for ultrafine dust as a blessing in disguise 	<ul style="list-style-type: none"> - Prevention of disasters and climate change with collaboration to mitigate future disease occurrence - COVID-19 variants - Coexisting with-COVID-19 - Population dispersion to another less dense area

Before COVID-19, homogenous South Korea, as one of the Confucian cultures, faced a multicultural society following globalization to boost its economy. Despite the conflicts, a small market with limited resources enforced globalization to increase industrialization but faced global issues, such as the economy and disease, while developing social systems. Meanwhile, with the development of many systems, South Korea has faced a rapidly aging society with low economic growth, fourth industrial revolution, and climate change with ultra-fine dust. During COVID-19, the previous environment influenced South Korea. Globalization and climate change is one reason

for COVID-19; however, South Korea dealt with the issue with an inclusive method and mature culture, despite the conflict. Climate change provided the experience of wearing a mask, which became a blessing in disguise. South Korea tried to balance the issues of discrimination, privacy, stress management, fake news, and several other collaborations based on the experience of previous disasters and established technology and institutions.

Finally, this paper proposed an emergency management system that considers culture in a globalized society of the vulnerable, with a more inclusive attitude in times of disaster. This system includes social welfare, collaboration, and a smart city with more experienced experts to deal with upcoming future diseases using the established culture, institutions, and instruments in climate change. After all, considering climate change, we need countermeasures to stop the spread of the disease due to global warming, zoonotic infection, and the reemergence of ancient diseases, in addition to COVID-19.

This study provides the practitioner with diverse countermeasures from a more organized framework for future prevention efforts in multiple areas and perspectives. Theoretically, this study expanded upon Bjur and Zomorrodian's (1986) conceptual framework and applied the SWOT analysis. This study developed its perspective by adding another perspective, considering climate change's effects on the infectious disease of COVID-19. This analysis will guide future studies and analysis. In the end, despite the "It all depends" (Sherman, 1966; Bjur & Zomorrodian, 1986, p. 416) and "wicked problems" (Rittel & Webber, 1973, p. 155), social science scholars need to find more acceptable and applicable methods to support the theoretical foundation to assist scholars, administrators, and practitioners improve management and policies. This study paves the way to prepare for upcoming disasters with better emergency management and policy via better domestic and global collaboration.

Despite the contribution of this research, it has some limitations due to the non-mutually exclusive categories, which is unavoidable but diminishes the clarity of this study. This should be overcome in further studies. Further field research and training should confirm indigenous management models (Bjur & Zomorrodian, 1986). The description of how South Korea developed and overcame disaster presents foundations and intuitions for other countries. This research suggested how to analyze past, current, and future disasters. This framework should be applied to other international countries and disasters.

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