

## South Korea's Response to COVID-19: Lessons for Pandemic Preparedness and Agile Crisis Management

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**Abstract:** The superior pandemic management approach of South Korea holds crucial lessons for other countries that currently review their own epidemic responses. The objective of this study is to analyze the learning processes in the wake of earlier epidemics in South Korea to understand the “starting conditions” for COVID-19. The aim is to explore the genesis of South Korea’s proactive pandemic management focusing on the administrative and institutional components which were critical in formulating problem-solving strategies to combat COVID-19. Since January 20<sup>th</sup>, 2020, when the first case of COVID-19 was confirmed in the Republic of Korea, the government’s response proceeded as if the government has been expecting a large-scale crisis and anticipated how the epidemic would unfold, despite being one of the first countries to be affected due to dense travel connections with China. The containment strategy followed a proactive strategic logic and included, for instance, the emergency authorization of mass-produce testing kits, systematic population-wide testing, early recommendations to wear face masks and intense social distancing measures during the earliest days of COVID-19. Based on the ways South Korea facilitated its experiences with MERS, and the impact of subsequent institutional reforms on its response to COVID-19, four major lessons are presented in the conclusion of this report:

- Governance structure: a centralized overview and steering capacity is a must have.
- Agile and proactive management: don’t wait until the first infection is confirmed.
- Basic strategic preparedness: a critical precondition for a swift epidemic response is to *have* a strategic playbook and resources ready.
- Institutional learning: a thorough post-COVID-19 audit will save many lives and limit the societal costs of pandemics in the future.

**Keywords:** COVID-19, pandemic governance, Republic of Korea, crisis management, preparedness

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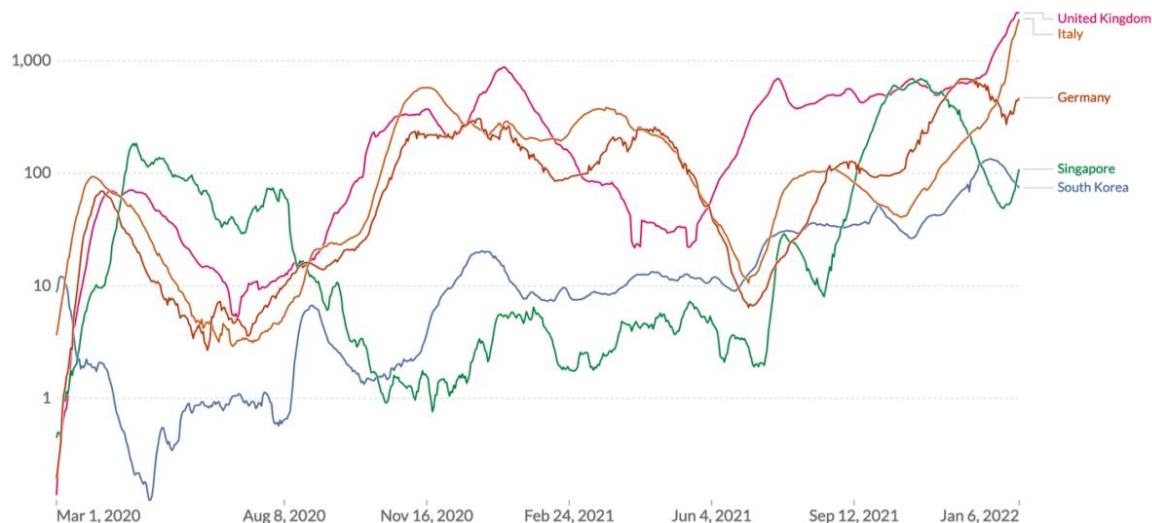
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## 1. Introduction

This study explores the genesis of the Republic of Korea's proactive pandemic management. It focuses on the administrative and institutional components which were critical in formulating problem-solving strategies to combat COVID-19. Since January 20<sup>th</sup>, 2020, when the first case of COVID-19 was confirmed in the Republic of Korea (hereinafter “South Korea”), the official response proceeded as if the government had been expecting a large-scale crisis and anticipated how the epidemic would unfold, despite being one of the first countries to be affected due to its geographical vicinity to China. The containment strategy followed a clear and unwavering strategic logic throughout the year 2020. It included, for instance, the emergency authorization of mass-produce testing kits, systematic population-wide testing, preemptive recommendations to wear face masks and intense social distancing measures during the earliest days of COVID-19.

**Figure 1** Daily New Confirmed COVID-19 Cases per Million People on 7-day rolling Average



Source: Ritchie et al. (2020). *Coronavirus Pandemic (COVID-19)* [Online Resource]. OurWorldInData.org.  
<https://ourworldindata.org/coronavirus>

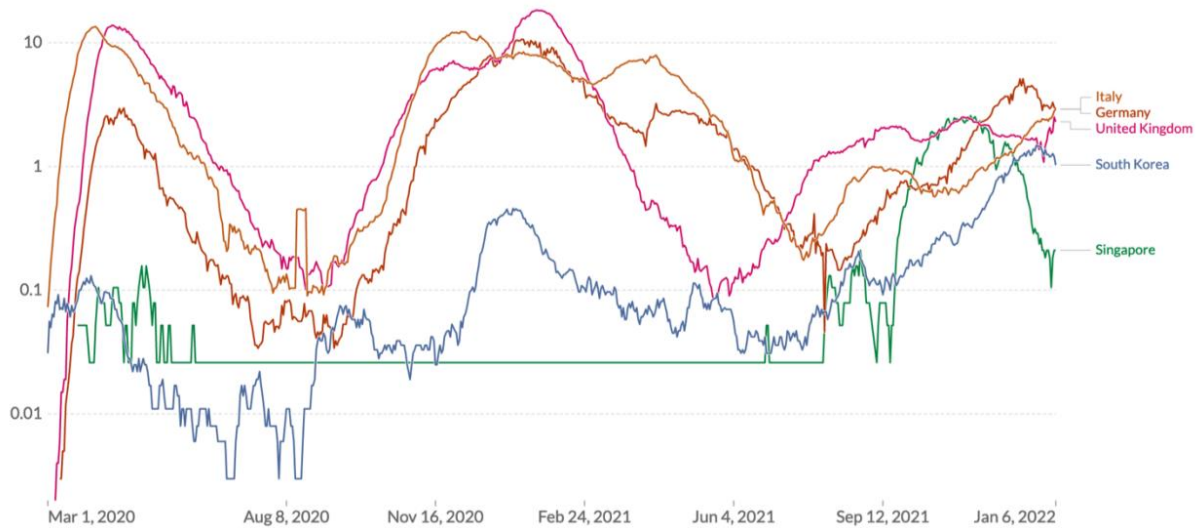
Instead of solely following the international norms and WHO protocols<sup>1</sup>, the South Korean government carried out the so-called ‘K-quarantine<sup>2</sup>’ that was based on the lessons from past epidemics such as SARS and MERS. As D. Scott and J.M. Park note, “South Korea’s Covid-19 success story started with failure” (Scott & Park, 2021). Although it is too early to jump to the conclusion that the South Korean response against this new infectious disease was ideal, South Korea superior performance is demonstrated by various comparative indices and data. The country did successfully suppress the first wave of COVID-19 infections during February and March 2020 and managed to maintain low infection numbers. Only in late 2021, after a fundamental policy

<sup>1</sup> For example, when WHO published an official guideline on the use of masks in the early stages of pandemic (World Health Organization, 2020), the Korean government implemented a tailored guideline that is not entirely compliant with the WHO recommendations but based on the domestic situation of mask supply (M. Kim, 2020).

<sup>2</sup> K-quarantine is a coined term in the early 2020, referring to the Korean government’s quarantine strategy in containing COVID-19 (Choe, 2020). It also refers to ‘Test Treat and Trace (3Ts)’ in the narrower sense. President Moon mentioned K-quarantine in his statement on the 3<sup>rd</sup> anniversary of the presidency, to praise Korea’s successful intervention against the first wave of COVID-19 (Office of the President, 2020).

change, away from a suppression approach, infection numbers rose significantly (see **Figure 1** and **2**).

**Figure 2** Daily New Confirmed COVID-19 Deaths per Million People on 7-day Rolling Average



Source: Ritchie et al. (2020). *Coronavirus Pandemic (COVID-19)* [Online Resource]. OurWorldInData.org. <https://ourworldindata.org/coronavirus>

The objective of this study is to analyze the role of path-dependency within the institutional environment and governance structure of South Korea in the context of COVID-19 crisis management. We first review the critical learning processes in the wake of earlier epidemics in South Korea, especially MERS, to understand the pandemic preparedness and starting conditions for COVID-19. Subsequently, the institutional context and crisis management governance will be examined to understand the characteristics of decision-making structure in South Korean pandemic management, and to analyze the cooperation and coordination mechanisms between different government levels. The role of scientific expertise in political decision-making of COVID-19 crisis-management will be highlighted next. The final section proposes several lessons from the pandemic response of the South Korean government for other countries. The decisive and agile political leadership, which was possible due to the pandemic preparedness as a result of past experiences and systemic improvements indicates the great importance of policy and institutional learning around the world.

## 2. South Korea's Pandemic Strategy in Comparison

The authors of the 2021 Global Health Security Index conclude that "all countries remain dangerously unprepared to meet future epidemic and pandemic threats." However, that "countries now have a more acute understanding of what this lack of preparedness means for their health and prosperity" is seen as an opportunity to improve preparedness (Bell & Nuzzo, 2021). South Korea ranks ninth in the ranking of the Global Health Security Index. **Table 1** shows further COVID-19 related indices, which diverge in their assessments but tend to place South Korea's crisis management performance above average or within the leading group.

**Table 1** *South Korea's Rank in Various COVID-19 Response Assessments*

Index	Rank/Total	Score	Scoring range
Global Health Security Index	9 <sup>th</sup> /195 countries	65.4	0 (the least favorable health security conditions possible) to 100 (the most favorable)
Bloomberg COVID resilience ranking	15 <sup>th</sup> /53 countries	66.5	0 (worst performance) to 100 (best performance)
The Economist Intelligence Unit	15 <sup>th</sup> /21 OECD countries	2.78	1 (worst response) to 4 (best response)
Lowy Institute Covid Performance Index	20 <sup>th</sup> /98 countries	69.5	0 (worst performing) to 100 (best performing)

Source. From 'Global Health Security Index' by Bell & Nuzzo, 2021. From 'COVID resilience ranking' by Chang et al., 2021. From 'A report by 'How well have OECD countries responded to the coronavirus crisis?' by The Economist Intelligence Unit, 2020. From 'Covid Performance Index' by the Lowy Institute, 2021.

The divergence of these rankings suggests that it is difficult to compare South Korea's performance, or any countries pandemic response with other countries. Therefore, a more qualitative-oriented research design provides important additional insights. For instance, the Bertelsmann Foundation conducted a qualitative assessment of the sustainable governance of 29 EU and OECD countries during the COVID-19 crisis (Schiller et al., 2021). The report puts South Korea at the ninth rank in terms of policy resilience, 22<sup>nd</sup> in resilience of democracy, and eighth in economic resilience. It highly praises South Korea for being the only country among 29 countries with an adequate administrative pandemic preparedness for a public health crisis. The Bertelsmann study also gives credit to the country's geographic isolation,<sup>3</sup> the cooperative culture of the population and the domestic capacity to produce facial masks and South Korea's successful containment in 2020 (Moon et al., 2021).

**Table 2** *COVID-19 Cases and Deaths per Capita in 2020 by Governance Type*

Governance type	Administrative system	Country	Democracy Index 2019 (Rank/total of 167 countries)	Accumulative cases* per one million population in 2020	Accumulative deaths* per one million population in 2020	Annual GDP growth in 2020
Democratic governance	centralized	Taiwan	7.73 (31 <sup>st</sup> )	33	0	-
		Singapore	6.02 (75 <sup>th</sup> )	10293	5	-5.4%
		Hong Kong	6.02 (76 <sup>th</sup> )	1180	19	-6.1%
	intermediate	<b>South Korea</b>	<b>8.00 (23<sup>rd</sup>)</b>	<b>1158</b>	<b>17</b>	<b>-0.9%</b>
	decentralized	Japan	7.99 (24 <sup>th</sup> )	1836	27	-4.6%
		Germany	8.68 (13 <sup>th</sup> )	20673	403	-4.6%
		USA	7.96 (25 <sup>th</sup> )	62235	1118	-3.6%
		UK	8.52 (14 <sup>th</sup> )	36893	1139	-9.7%
		Sweden	9.39 (3 <sup>rd</sup> )	43937	948	-2.9%
Authoritarian governance		centralized	China	2.26 (153 <sup>rd</sup> )	61	3
		Vietnam	3.08 (136 <sup>th</sup> )	15	0	2.9%

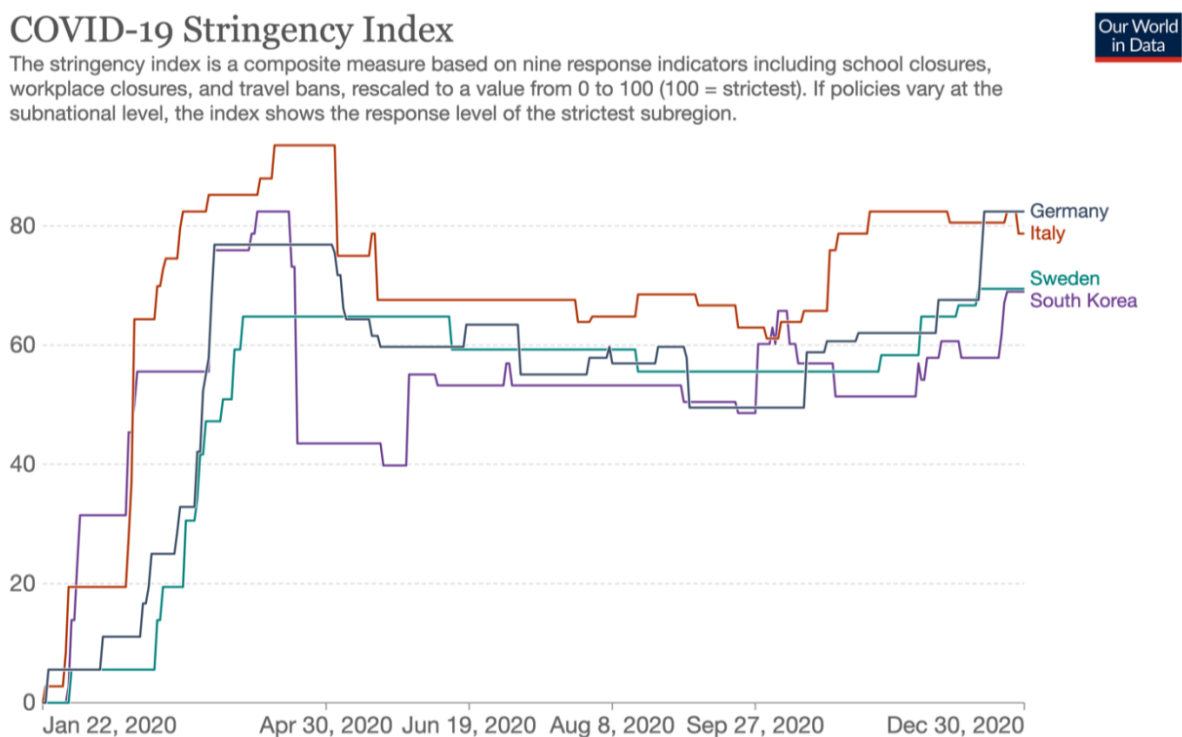
Source. The table was adopted from 'Characteristics of Korea's COVID-19 response system from the perspective of democratic governance' by Korea International Cooperation Agency, 2020. The data for

<sup>3</sup> Moon et al. compared the COVID-19 policy response of Korea with Japan, as equally geographically-isolated as Korea, and showed how the governance structures and insitutional context can result in the contrasting policy outcome during COVID-19.

democratic index are from 'The Economist Intelligence Unit's Democracy Index', by The Economist, 2020 (<https://www.economist.com/graphic-detail/2020/01/22/global-democracy-has-another-bad-year>). The data for the accumulative cases and deaths per one million population in 2020 are from 'Worldometer Coronavirus' by Worldometer, 2021 (<https://www.worldometers.info/coronavirus/>). The data for GDP growth in 2020 are from 'GDP growth (annual %)' by The World Bank, n.d. \* The decimal part was removed.

A straightforward comparison of infection and death numbers, and annual GDP growths (see **Table 2**) reveals that in 2020 South Korea's performance was comparatively superior to many other democratic countries. According to a report by the Korea International Cooperation Agency, countries with higher value on the democracy index such as Sweden, Germany or the UK, have recorded higher numbers of confirmed cases and deaths compared to countries like Singapore, Hongkong and South Korea during the first year of COVID-19 (see **Table 2**). This may imply that countries with a more mature democratic governance<sup>4</sup> do not necessarily possess the better approach in epidemic crisis management (Korea International Cooperation Agency, 2020). Furthermore, the Oxford Coronavirus Government Response Tracker (OxCGRT) shows that South Korea's non-pharmaceutical interventions (NPI) were more relaxed than other democratic countries including, for instance, Germany, Italy and Sweden (see **Figure 3**). This implies the inconvenient truth that the country's pandemic management resulted in a much smaller number of casualties by using the less severe measures and restrictions of freedom.

**Figure 3:** Stringency of Non-Pharmaceutical Interventions during 2020 of Selected Countries



<sup>4</sup>According to the World Bank's Worldwide Governance Index (WGI) in 2020, Korea received higher marks in government effectiveness compared to OECD average, whereas all the other indices such as political stability and absence of violence, regulatory quality, voice and accountability, and control of corruption received lower marks (The World Bank Group, 2020).

Source: Ritchie et al. (2020). *Coronavirus Pandemic (COVID-19)* [Online Resource]. OurWorldInData.org. <https://ourworldindata.org/coronavirus> Data are based on the Oxford Coronavirus Government Response Tracker (OxCGRT)

### 3. Theoretical Framework

South Korea’s outstanding performance during the first year of the pandemic calls for an explanation. While the public discussion has often dismissed the experiences of South Korea with reference to alleged cultural or geographical differences (Mayer et al., 2020) research in health studies and public policy has come up with different conceptual approaches. The theoretical framework of this case study builds on the notion of path-dependency (Wilsford, 1994), which is helpful to analyze how the Korean government’s response to COVID-19 was shaped and enabled by the existing institutions and structures. We adopt the framework developed by Kuhlmann et al. in their cross-country analysis on how institutional ‘starting conditions’ have influenced the COVID-19 crisis management (see **Table 3**; Kuhlmann et al., 2021).

**Table 3** *Theoretical Concept: Dimensions of Pandemic Management*

	Dimensions	Example
1	Institutional contexts, administrative cultures, and related path dependencies	Prior experiences with Epidemics Legislative preparedness Public healthcare infrastructures
2	Governance structures, coordination mechanisms, and related institutional dynamics	Centralized crisis management governance Decentralization in pandemic management Korea Centers for Disease Control and Prevention (KCDC)
3	Agile management, strategies, and communication	Risk Communication, leadership element of the President, Expert advisory group for policymakers, dynamics at science-policy nexus

*Source: adopted from ‘Opportunity management of the COVID-19 pandemic: testing the crisis from a global perspective’ by Kuhlmann et al., 2021 with own additions.*

Kuhlmann et al. (2021) focus on the mode of crisis responses and the specific preconditions such as country-specific administrative cultures and institutional arrangements that influence the crisis governance. Institutional path-dependency here, sheds light on the impact of experiences with earlier pandemics and the resulting political learning and reform processes within the public health system and relevant crisis management capacities. Drawing on this framework, however, our approach in addition emphasizes that the agency of politicians, experts and the public that does play an important role in shaping efficient pandemic management during phases of uncertainty and societal disruptions.

### 4. Case Study

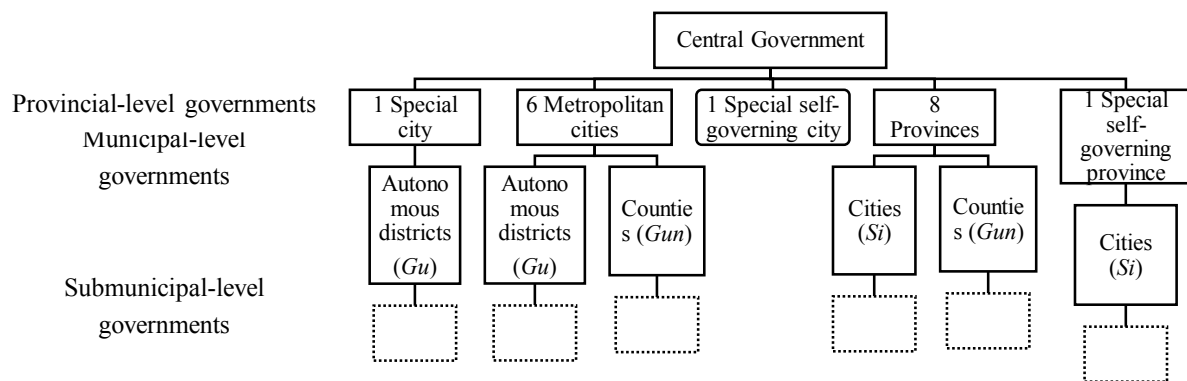
#### 4.1 Institutional Contexts, Administrative Cultures, and Related Path Dependencies

This section describes the composition of the South Korea’s decision-making structures, illuminates the changes made after the outbreak of MERS and details legislative frameworks as well as the public health infrastructures.

##### 4.1.1 Administrative Contexts

The South Korean government is a unicameral, president-representative, centralized democratic republic. The president of South Korea is directly elected by the citizens without the possibility to be reappointed, which may make the president more susceptible to public demand and approval compared to other electoral systems (Moon et al., 2021). The three levels of government compose the South Korean administrative system (see **Figure 4**): the central government, the 17 provincial-level governments including the provinces and metropolitan cities, and the municipal-level governments including cities (Si), counties (Gun) and Districts (Gu). The local councilors are directly elected from popular vote and the local autonomy in South Korea sustains grassroots democracy. In the system, the political leadership of the president to assess the situation and to take the initiative has a crucial impact especially in the national crisis management of South Korea (H. Kim, 2014).

**Figure 4** *The Administrative Structure of South Korea*



Source: From “Administrative System,” by Ministry of the Interior and Safety, n.d., (<https://www.laiis.go.kr/lips/mlo/wco/wholeCountryList.do>).

#### 4.1.2 Prior Experiences with Epidemics

In the last two decades, South Korea went through four major epidemics. The Severe Acute Respiratory Syndrome (SARS, 2003), Swine flu (2009), Middle East Respiratory Syndrome (MERS, 2015) and an ongoing pandemic of COVID-19 (2020; see **Table 4**). Throughout these outbreaks, especially MERS, the national crisis management governance and infectious disease response system of South Korea have been reorganized. While during SARS and Swine Flu, the government recognized problems of its epidemic crisis management such as the absent of central crisis management capacity and a dominance of ad-hoc reactions, the dodged response to MERS marked a turning point after which the South Korea governmental system realized a major overhaul of the infrastructures, institutions, legal frameworks and strategies for pandemic management.

**Table 4** *Four Recent Major Epidemics in South Korea*

	<b>SARS</b>	<b>Swine Flu</b>	<b>MERS</b>	<b>COVID-19</b>
Year	2003	2009	2015	2020
Confirmed cases	0 (3 probable cases)	c.a. 760,000	185	61,769



Deaths	0	270	38 (case fatality rate of 19.4%)	917 (in 2020)
Were there any proactive/preventive measures?			Yes	
Transmission of the disease	via droplets or smaller virus particles			

*Source: The statistical data for the confirmed cases and deaths of each infectious disease are from 'Infectious Disease Portal' by Korea Disease Control and Prevention Agency, (<https://www.kdca.go.kr/npt/biz/npp/ist/simple/simplePdStatsMain.do>).*

The MERS outbreak in 2015 started from a 68-year-old male who came back to South Korea from the Middle East and visited four different tertiary hospitals with acute respiratory symptoms, only to be diagnosed with MERS at the last hospital (Yoon, 2015a). In the beginning of the outbreak, the government announced that the name of the hospital with MERS outbreak and further epidemiological information will not be publicly disclosed to prevent public panic (J. Ahn, 2015). The initial response to MERS of then administration and insufficient containment capacity revealed the vulnerability of the national crisis management and the public healthcare system, which eventually led to a significant decline of the public trust and government legitimacy (T. Kim & Cho, 2021).

After the MERS outbreak produced a national political scandal, the National Assembly's Special Committee commissioned the Board of Audit and Inspection in order to review and assess the national response to MERS.<sup>5</sup> The Audit revealed in January 2016 that even though there was enough time to implement responsive measures, the severity of the outbreak was played down and the authorities were ill-equipped to manage the situation (Board of Audit and Inspection, 2016). Consequently, the South Korean government announced 'Measures to Reform National Infection Prevention and Control System for the Purpose of Immediate Response to Emerging Infectious Disease' to reform the crisis management approach of infectious disease outbreaks (Ministry of Health and Welfare, 2015a), based on the identified problems specified in MERS audit report. The reform announced in 2015 clearly laid out objectives for how South Korea will handle future infectious disease crises:

1. Initial response systems will be built to stop the outbreak of emerging infectious diseases, and to make sure that, if any type of infectious diseases break out, the spread can be prevented at the initial stage.
2. A specialized diagnosis and treatment system, along with quarantine facilities, will be established to promptly detect and prevent the outbreak of emerging infectious diseases.
3. In order to prevent nosocomial infection, each healthcare facility will be required to establish a triage system in the emergency room and expand the infrastructure necessary for nosocomial infection control. In addition, it is needed to reform the current customs contributing to the spread of infection such as visits by many family members and friends to patients in the hospital, and family members staying with patients at medical facilities as caregivers.

<sup>5</sup> Board of Audit and Inspection of Korea is a governmental organization and the supreme audit institution (Board of Audit and Inspection of Korea, n.d.).

4. Governance arrangements for emerging infectious diseases will be revised to reflect the specificity of infection prevention and control for the purpose of active response. (Ministry of Health and Welfare, 2015a)

The language of the four objectives of this blueprint makes it very clear, that South Korea is establishing its principles and strategy in infectious disease management. The new approach included an early, proactive, and decisive response with the clear goal to use instruments such as quarantine, testing, and contact tracing as a way to prevent to virus from spreading “at the initial stage”. Basically, this strategic approach comes down to hard suppression and ideally elimination. Moreover, the reform’s 48 tasks include the capacity building of the KCDC, establishing the crisis governance and coordination system, improving the containment strategy, capacity building of the infection control in hospitals and healthcare facilities (Ministry of Health and Welfare, 2016). The selected details of 48 tasks of the reform and the impact on COVID-19 response are to be found in **Table 5**.

**Table 5** *Identified Problems in MERS and its Influence in COVID-19 Response*

<b>Identified problems in MERS response</b>	<b>Reform after MERS</b>	<b>How was this reflected in COVID crisis?</b>
The influx risk of the infectious disease was not recognized.	Professional exchange network was activated between KCDC and international institutions. The number of airport quarantine officers were increased and fever checks at the airport screening were implemented.	17 days before the first confirmed case, the government raised the infectious disease alert level blue and 24hour task-force team came into operation, the supervision of inbound travelers from Wuhan was tightened.
The preemptive quarantines and isolation were impossible due to the lack of institutional capacity.	Public spending was increased to enhance its response systems and stockpiling measures. The local governments were mandated to secure temporary quarantine facilities. The Emergency Use Authorization (EUA) was newly inserted to Medical Devices Act Enforcement Rule in 2016.	The EUA allowed to undertake the test kit development seven days before the first confirmed case and the COVID-19 RT-PCR kit was developed a week after the first confirmed case.
Epidemiological investigation was substandard due to the lack of data and data-analytical capability.	The 24/7 Emergency Operations Center (EOC) was established at KCDC. IDCPA was amended to enable rigorous contact tracing and the public disclosure of patient information and to increase the recruitment and trainings of EIOs.	All departments in the government established an EOC on March 6 <sup>th</sup> , 2020. The GPS data, credit card records and medical records were utilized to trace the infected and to identify people at risk. Self-Quarantine Safety Protection App was developed to monitor the quarantined. The KCDC developed the Epidemiological Investigation Support System (EISS).
Crisis management manuals were inadequate.	The Standard Manuals for Crisis Management were revised, as well as the Infectious Disease Alert Level System.	Specified response measures of each alert level enabled stepwise responses to be undertaken by each agent (see <b>Table 5</b> ).
Poor risk communication by government, concealment of the epidemiological investigation results resulted in public panic.	Public disclosure provisions were added to the IDCPA and the KCDC established the Crisis Communication Office and hotline center.	Official government briefings were held twice a day. The covid-19 fake news monitoring team came into operation at KCDC.

Hospital infection management was inadequate. The medical supplies/equipment were insufficient.	The government assigned national infectious disease hospitals and regional hub hospitals. The Emergency Medical Service Act was revised to minimize the risk of hospital-acquired transmission. The Medical Service Act was amended to mandate hospitals to be equipped with the negative pressure rooms based on the number of beds.	Public healthcare centers and hospitals set up separate screening clinics to prevent hospital-acquired infections.
Coordination among the central and local governments was disrupted. The so-called 'control tower' in crisis management was absent.	KCDC was promoted to KDCA, a vice-ministerial-level agency, to be empowered as a control tower for a centralized infectious disease response. Different levels of governments have built collaborative system by promoting information sharing, revising the manuals. The Standard Manuals for Crisis Management mandated each local government to establish Local Disaster and Safety Countermeasures Headquarters (LDSCHQ).	The CDSCHQ concerted all the efforts across different levels of government and diverse stakeholders to respond to the crisis. Central governments dispatched public health professionals and resources to the regions with local outbreaks.

*Source. From 'The 2015 MERS outbreak in the Republic of Korea: Learning from MERS' by Ministry of Health and Welfare, 2016, From All about Korea's response to COVID-19 by Government of the Republic of Korea, 2020a, From 'Press Release on 31<sup>st</sup> of August, 2015' by Ministry of Health and Welfare, 2015b. \*IDCPA: Infectious disease control and prevention act*

For example, the review of the MERS outbreak revealed that the number and the expertise of Epidemic Intelligence officers (EIOs)<sup>6</sup> were not sufficient to investigate an epidemiological outbreak and devise a response plan (K. Kim, 2017). Consequently, the revision of the Infectious disease control and prevention act (Act No. 9847, Dec. 29, 2009) required the government to designate 30 EIOs in the central government and two EIOs in each provincial-level government. Also, the authorization over private medical records and location data was granted to EIOs for the epidemiological investigation.

In the bigger picture, the political and legal approach to crisis management has been reformed substantially. For instance, aside from the changes of the Infectious disease control and prevention act, the Board of Audit and Inspection deemed the Framework act on the management of disasters and safety as insufficient in defining the responsibilities of each government and department which led to the disruption of coordination between the different levels of government during the MERS outbreak (Bautista, 2020). The audit even determined which individuals in the administration should bear personal responsibility for the containment failures and will receive an administrative punishment accordingly (C. Ahn, 2016). Dr. Jung Eun-kyung, one of the 16 punished officials, who received pay cut, is the current director of the KCDC and thus leads the 'K-Quarantine.'

Moreover, the audit concluded that there was hardly any coordination between the central and local government during MERS (partially due to the lack of information sharing). In 2015, local government did not have authority to act decisively and effectively. Learning from this, the more

<sup>6</sup> Epidemic Intelligence officers (EIO) are the epidemiological investigators who manage infectious diseases based on their expertise in epidemiological investigations, disease monitoring, and vaccination, with a focus on field work. It was introduced in 1999 after the dysentery outbreak (1998), based on the Epidemic Intelligence Service of the Centers for Disease Control and Prevention (CDC) of the United States (M.-S. Lee et al., 2017). In 2015, 34 people served KCDC in epidemiological investigation, of only two being EIOs (K. Kim, 2017).

refined version of South Korea's crisis management in 2020 showed enhanced authority of the local governments. The Regional centers for disease control and prevention (Regional CDC) were established in five major provincial governments to facilitate cross-level communication and coordination (Korea Disease Control and Prevention Agency, 2020b), although the system remained a centralized crisis management (National Research Council for Economics Humanities and Social Sciences, 2020).

In late 2019, when the news came out that China reported an outbreak of 27 pneumonia cases with unknown etiology (WHO, 2020), South Korea was therefore equipped with specific institutional 'starting conditions' for shaping its initial COVID-19 response. Based on the lessons learned from MERS, South Korea opted for a proactive and agile containment approach to test, trace and treat (United Nations, 2020). Without imposing any tight lockdown measures or restriction on movements, South Korea successfully engineered a COVID-19 containment against the first and second wave of outbreak.

#### *4.1.3 Legislative Preparedness*

By law, infectious diseases are categorized as a social disaster (Framework Act On The Management Of Disasters And Safety, 2018) and to protect the people and property from the danger of national crises as such is an important role of the state (The United Nations Office for Disaster Risk Reduction, 2015).

The Ministry of Health and Welfare (MOHW) oversees the crisis management in case of the infectious disease outbreak, whereas other types of national crisis (e.g., natural disaster and man-made disaster) are managed by the Ministry of the Interior and Safety. The goal of crisis management for the infectious diseases is to strengthen the prevention and preparedness system in case of outbreak or epidemic, to minimize the scale of crises by preparing a response protocol in advance, to actively protect the public's right to health, and to minimize the economic damage (Ministry of Health and Welfare, 2014). For the government to reach this goal, the Framework act on the management of disasters and safety, the Infectious disease control and prevention act, the Framework act on health and medical services, the Quarantine act (Act No. 9846, Dec. 29, 2009), and the Medical Service Act (Act No. 8366, Apr. 11, 2007) provide the legal grounds for the infectious disease containment.

The modern form of the Infectious disease control and prevention act in South Korea has been shaped in the last two decades since the revision in 2000 (Chun, 2011). Even though it laid a legislative foundation of the national crisis management against infectious diseases, it is known to have caused a policy confusion in the initial stages of MERS containment. The authorities lacked a legal basis for a transparent epidemiological investigation of the suspected cases and the production of testing kits were delayed due to bureaucratic regulations (Yoon, 2015b). The authority and responsibility of each level of government was not clearly distinguished and the centralized headquarters to manage the crisis was absent. After the MERS outbreak, the infectious disease control and prevention act was therefore revised to enhance the communication and coordination between the central and local governments, to promote public-private alliance and to legitimize the rigorous contact tracing, quarantine measures, and disclosure of patient information (Seo et al., 2015).

The Article 76-2 of the infectious disease control and prevention act provides a legal ground for the South Korean government to collect private data, such as GPS location, credit card histories and surveillance camera footage of both confirmed and suspected cases, for the purpose of epidemiological investigation. Then the Article 6 stipulates that the state must disclose the collected data because each citizen has a right to clearly understand “the situation of the outbreak of the infectious diseases.” Also, Article 49 allows the South Korean authorities to restrict assembly and association under the name of containment. As a result, this legal regime empowers the government in the in case of public health emergency. In sum, South Korea was equipped with legislative tools to combat against the spread of the epidemic before the emergence of COVID-19.

#### *4.1.4 Public Healthcare Infrastructure*

After the MERS outbreak in 2015, the South Korean government's reform of the public health emergency system put ‘the expansion of public healthcare resources’ forward, focusing on expanding the designated hospital for infectious diseases and negative-pressure isolation rooms. However, the expansion of public healthcare sector was suspended, just like it happened after the swine flu (2009) and SARS outbreak (Yun, 2020). Public consensus on the expansion of public healthcare sector was reached, and especially Moon administration framed a policy proposal aimed at strengthening the public healthcare sector by founding public medical universities and increasing the number of medical university students (Choi, 2020), even though it foundered on the obstinate objection<sup>7</sup> of Korean Medical Association (KMA).

Another weakness of South Korean public healthcare is that even though South Korea has the second highest rate of hospital beds per capita (12.3 beds per 1,000 people, OECD average in 2017 is 4.7) in OECD after Japan, hospital beds in public healthcare institution per capita (1.3 beds per 1,000 people, OECD average in 2017 is 3.0) is the second lowest after Mexico (OECD, 2019). This disproportion between the public and private healthcare sector already forewarned the shortage of resources in public healthcare sector and the absence of resource redistribution system in the case of regional outbreak. Moreover, insufficient negative pressure rooms and lack of capacity in emergency patient care later became a setback for the initial response against COVID-19, even though the reform after MERS increased the number of negative pressure rooms to 1,027 beds by February 2020 (J. Bae, 2020).

However, in the fight against COVID-19, South Korea was equipped with a comprehensive public health infrastructure. South Korea’s National Health Insurance (NHI) system offers universal health coverage<sup>8</sup> for all residents in South Korea, which became one of the essential components enabled extensive testing, tracing, and treatment (3Ts) strategy in COVID-19 containment. The NHI and the government waived all the expenses related to COVID-19 including tests, prescribed drugs, hospitalization and even reimbursed sick pay (H. Lee et al., 2021). This universal health

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<sup>7</sup> The KMA took the lead and launched a nationwide strike in August 2020 amid the second resurgence of COVID-19 to protest against this public healthcare reform proposal (“Thousands of South Korean Doctors Strike amid COVID-19 Resurgence,” 2020). The strike lasted for two weeks which had seriously disrupted the COVID-19 containment and the proposal eventually failed to be carried into practice due to the strong objection from the doctor’s community (“South Korean Doctors to End Strike over Reforms as Virus Surges,” 2020).

<sup>8</sup> 97% of the population pays the compulsory contribution to the NHI system based on the income and 3% are Medical aid program recipients with low-income (Youngshin Kim, 2020).

coverage together with 3Ts strategy in COVID-19 response has helped to effectively hinder the transmission of the disease, implement containment on time and ultimately to lower the COVID-19 mortality in South Korea (Na et al., 2020).

## 4.2 Governance Structures, Coordination Mechanisms, and Institutional Dynamics

This section illuminates central organizations and structures relevant for epidemic management in South Korea.

### 4.2.1 Korea Centers for Disease Control and Prevention (KCDC)

The KCDC was established in 2004, under the Ministry of Health and Welfare, to monitor the public health of South Korean people. Its core tasks include the operation of infectious disease response system, the surveillance of both acute and chronic diseases and the promotion of research in biomedical science (Korea Disease Control and Prevention Agency, 2020a). During the MERS outbreak, too many headquarters were established and operated: Central disease control headquarters (affiliated with KCDC), Central MERS management headquarters (affiliated with the Ministry of Health and Welfare), pan-government MERS countermeasures support center (affiliated with the Ministry of Public Safety and Security), comprehensive public-private response taskforce for MERS etc. (Ministry of Health and Welfare, 2016). The absence of centralized control tower and the collision between the incoherent guidelines of each institution resulted in the poor containment of MERS outbreak.

Going through major epidemics, the South Korean government recognized the importance of the centralized headquarters to help central and local governments to cooperate. Hence, the increased authority and autonomy was granted to KCDC during MERS and KCDC was later promoted to the Korea disease control and prevention agency (KCDA<sup>9</sup>), an independent agency, amidst COVID-19 (Government of the Republic of Korea, 2020a).

Since 2017, that KCDC started developing possible scenarios and corresponding response protocols in the outbreak of an infectious disease with unknown cause like MERS (National Research Council for Economics Humanities and Social Sciences, 2020). The 'Task Force for Diagnosis and Analysis of Infectious Diseases of Unknown Cause', a research group launched in April 2018 within the KCDC, has been meeting on an irregular basis to discuss new ways to deal with infectious disease outbreaks. On December 17, 2019, the taskforce team held a scenario-based training, based on the hypothetical situation that a Korean family began to suffer from pneumonia with an unknown etiology after a trip to Yunnan, China and a novel infectious disease started to spread in the South Korean hospitals and workplaces they had visited (Korea Centers for Disease Control & Prevention (KCDC), 2020). During this exercise, new approaches were developed with became eventually used shortly later during the outbreak (Scott & Park, 2021).

Developing new testing methods, defining the range of contacts, and conducting the epidemiological mapping were discussed at this meeting. The training was attended by 15 virus researchers from the KCDC Infectious Disease Analysis Center and seven epidemiological

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<sup>9</sup> Even though the current official title is KDCA, KCDC will continue to be used to avoid confusion.

investigators from the KCDC Emergency Operations Center. Only a month later, the first COVID-19 patient in South Korea was confirmed. Sang-won Lee, the head of the KCDC Infectious Diseases Diagnosis and Management Division, who participated in the task force training, said, "we did not predict and target SARS-CoV-2," but government could respond "quickly in the early stages of the COVID-19 epidemic because the task force already established a response guideline against pneumonia with an unknown etiology" (Byun, 2020).

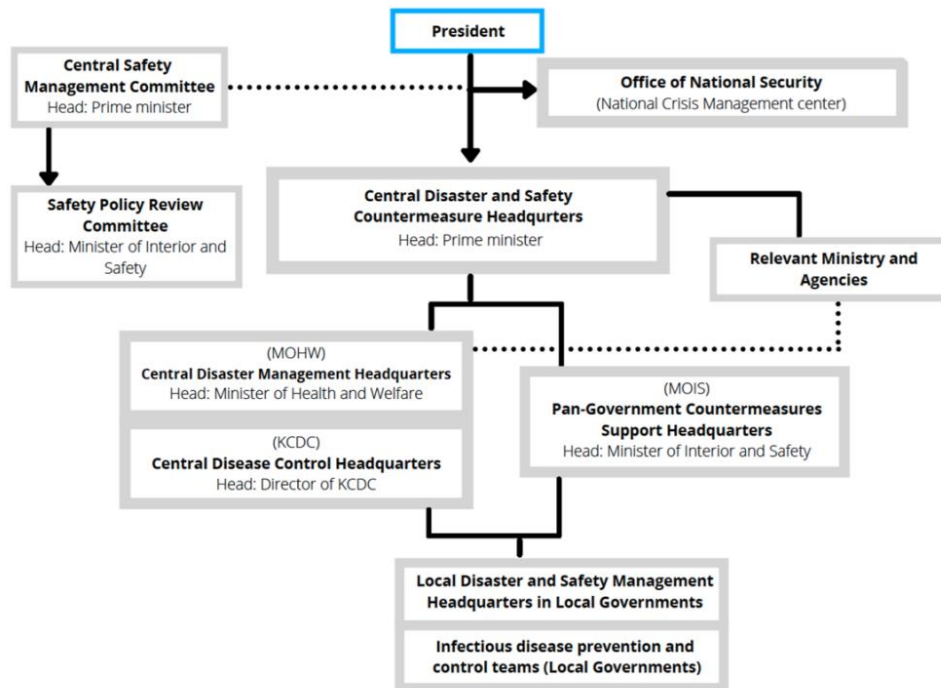
#### *4.2.2 Centralized Crisis Management Governance*

South Korea's response to national crises follows a centralized approach, due to its centralized political structure (Seo et al., 2015). The initial version of the national crisis management system was designed amidst the SARS outbreak in 2002 (Ministry of Health and Welfare, 2003). Accordingly, in large-scale disasters, the Central Disaster and Safety Countermeasure Headquarters (CDSCH) must be established as a highest decision-making body in the national crisis management, operating as an executive control tower. According to the Framework act on the management of disasters and safety, the minister of the interior and safety shall serve as the head of the CDSCH, but if a response at the pan-government level is deemed necessary, the prime minister may exercise the authority as the head of the CDSCH (Enforcement Ordinance of Framework Act On The Management Of Disasters And Safety, 2021). To coordinate with the central headquarters, Local Disaster and Safety Countermeasure Headquarters (LDSCH) are established in provincial-level governments and municipal-level governments (Framework Act On The Management Of Disasters And Safety, 2018). LDSCH is responsible for the management of bed capacity, personnel and medical resources in the region.

The Central Disaster Management Headquarters (CDMH) is led by the minister of health and welfare to oversee the management of the outbreak of diseases, especially in case of infectious diseases. The CDMH performs the countermeasures and restores the damage from the crisis. Before the COVID-19 outbreak (J. H. Bae, 2016), the crisis management system was a de facto double-headed (CDSCH and CDMH) command structure without a clear division of authority, which caused an administrative confusion in the crisis management. Such an event occurred in 2014, when the Sewol ferry en route to Jeju sank and 304 out of 476 passengers died, which revealed an absence of functioning crisis management system in the country (Dongkyun Park, 2016).

In COVID-19 response, a relatively clearer hierarchy has been established between CDSCH and CDMH, making CDSCH the most powerful headquarters of all, creating a defined structure of communication and reducing the administrative confusion (see **Figure 5**). The Central Disease Control Headquarters (CDCH) is affiliated with the KCDC and specializes in the containment of infectious disease crisis. The KCDC is a national agency that performs containment, investigation, quarantine, testing, and research on infectious diseases and the head of KCDC leads the CDCH.

**Figure 5** The Overview of South Korea's Comprehensive Crisis Response System in Alert Level 4



Note. This flowchart was adopted from 'All about Korea's response to COVID-19' by Government of the Republic of Korea, 2020a.

According to South Korea's national infectious disease risk alert system, the MOHW issues the categorized risk alert, based on the degree of threat to public health. On 23<sup>rd</sup> of February 2020, nationwide epidemic of COVID-19 was observed, and the alert level was adjusted to the highest level and CDSCH was activated<sup>10</sup> (see **Table 6**). The CDSCH meeting comprises the central government, provincial-level government, and major cities in the municipal-level (Government of the Republic of Korea, 2020a). After the daily CDSCH meeting was held, the discussed agenda, the latest updates and the result of the meeting were announced in the daily briefing on the website of the South Korean government for the transparent communication with the public (Central Disaster and Safety Countermeasures Headquarters, 2020).

**Table 6** Comparison of Overseas Infectious Disease Risk Alert System in MERS and COVID-19

Level Degree of Threat	MERS Response system	COVID-19 Response system	COVID-19 alert
Level 1 (Blue) Infectious disease emerges and becomes an epidemic overseas	KCDC activates disease surveillance, airport quarantine inspections, education for disease prevention.	1) KCDC initiates internal response teams. 2) Monitoring and surveillance for the risk assessment take place and the available response capacity is put together.	2020.01.08
Level 2 (Yellow)		1) CDCH at KCDC is activated	2020.01.20

<sup>10</sup> The alert level of MERS outbreak in 2015 escalated only up to level 2 (yellow) because of the economic risk and the international reputation (J. H. Bae, 2016). Therefore, neither the CDMH nor the CDSCH could be activated, and an ad-hoc taskforce called 'Central MERS Management Countermeasure Headquarters' was established, which did not exist in the crisis management manual.



Infectious disease enters Korea	The Central Disease Control Headquarters (CDCH) at KCDC is activated	2) Cooperation channels for the relevant agencies are activated 3) Enhanced monitoring and surveillance system is operated	
<b>Level 3 (Orange)</b> Limited spread of the disease is detected	*Ready to launch CDMH and CDSCH when Orange alert is issued.	1) the Central Disaster Management Headquarters (CDMH) is launched 2) Prime Minister calls a pan-governmental meeting when needed.	2020.01.27
<b>Level 4 (Red)</b> Community outbreak or nationwide epidemic is observed	<div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> CDSCH (Prime minister or Ministry of Public Safety and Security) </div> <div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 60px; text-align: center;"> CDMH (MOHW) </div> </div>	The Central Disaster Safety Countermeasure Headquarters (CDSCH) is activated, and pan-government approach is initiated at full capacity. (see <b>Figure 4</b> for the overall response system in Level 4 alert)	2020.02.23

*Note. This table is adopted from 'Infectious disease crisis response' by Korea Disease Control and Prevention Agency, 2019, 'Measures to Reform National Infection Prevention and Control System for the Purpose of Immediate Response to Emerging Infectious Disease' by Ministry of Health and Welfare, 2015, and 'All about Korea's response to COVID-19' by the Government of the Republic of Korea, 2020.*

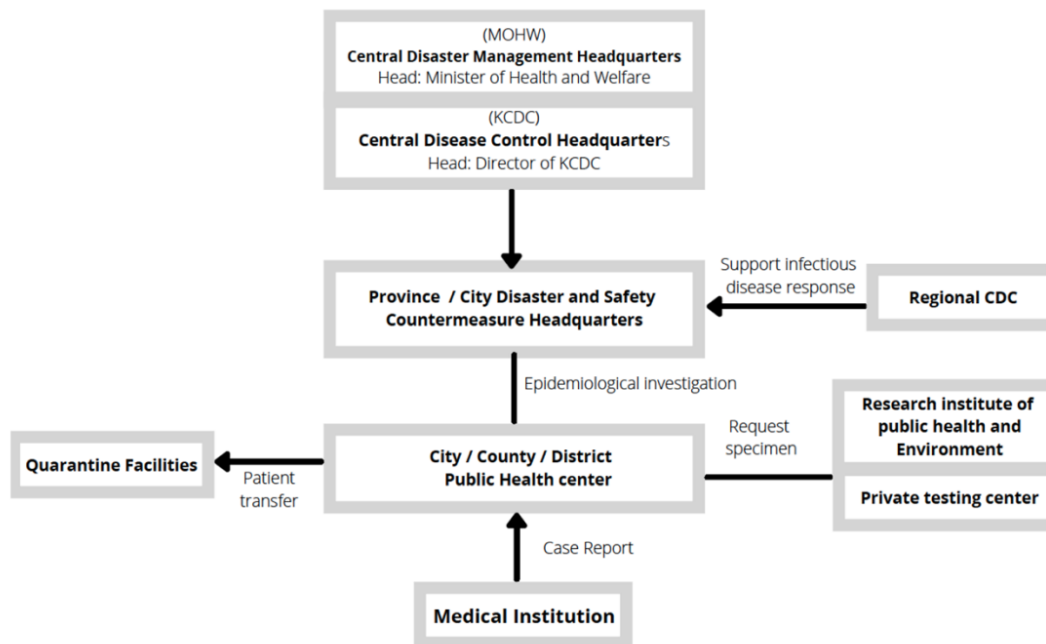
This cross-level meeting allowed to identify the problems and to implement nationwide solutions without communication disruptions between the governments and between the different departments. To eliminate cumbersome and unnecessary bureaucracy in the case of outbreaks, CDSC clustered 17 provincial-level districts into six regional clusters so that patients can be easily transferred, and medical resources can be effectively distributed. Establishing this collaborative approach was also part of the public healthcare system reform after the MERS outbreak. The audit report on MERS prevention and response pointed out that there was a lack of authority of the local governments and an absence of communication channel between the central and local governments which led to an inefficient early response (Board of Audit and Inspection of Korea, 2020).

#### 4.2.3 Decentralization in Pandemic Management

Since the intergovernmental communication has been effective, more trust and authorities were passed down to local administration compared to MERS response. The authority to prevent infectious disease and to execute compulsory measures was transferred from the provincial-level governments to municipal-level governments. The authority to install, operate and manage the private infectious disease prevention facilities was transferred from the central government to the municipal-level governments. This decentralization of authority in pandemic management was essential to preemptive and immediate response of the front-line local government. Moreover, the basic epidemiological investigations and quarantine measures were first carried out at the local government level, and then subsequently reported to the KCDC, the system which enables a quick response to outbreak (see **Figure 6**; Korea research institute for local administration, 2021).

Another improvement compared to MERS is that each local government set up a cooperative system with medical institutions (to secure hospital beds and medical resources), the national fire agency (to transfer patients to public health centers and hospitals), and the National Police Agency (to track patients for an epidemiological investigation) to manage the confirmed cases and the individuals in self-isolation (Government of the Republic of Korea, 2020a).

**Figure 6** Working System of Central-Local Governments



*Note. This flowchart was adopted from 'COVID-19 health system response monitor: Republic of Korea' by Kang et al., 2020.*

#### 4.3 Agile Management, Strategies, and Risk Communication

Having to deal with the novel disease in January 2020, much earlier than other numerous countries, South Korea already took a clear stance and rolled out its response strategy based on the objectives and principles learned from the past. The objectives of the South Korean government's COVID-19 containment are "... to prevent the spread of the disease, protect public health, keep the society and economy open, and thereby allow daily life to continue (Government of the Republic of Korea, 2020a)." In order to achieve the objectives, the COVID-19 crisis management system of South Korea had adopted four principles:

1. Openness: Keeping borders and society open without blanket entry ban and mandatory lockdown measures.
2. Transparency: Full and prompt disclosure of data on global and domestic COVID-19 trends, along with information about government decisions and strategies.
3. Civic Engagement: Implementing policies based on clear communication and citizen participation.
4. Innovativeness: Embracing creative problem-solving and resilient and flexible responses (Government of the Republic of Korea, 2020a).

As stipulated through the wide-ranging reforms after the MERS epidemic, South Korea followed a proactive and agile crisis management approach that included the activation of early response

mechanisms, quick amendments of legal frameworks, evolving scientific policy advice, risk communication, and presidential leadership.

#### *4.3.1 Early and Proactive Response*

South Korean politicians decided weeks before the first cases were detected that enact a suppression strategy which, by and large, following the blueprint from 2015. Testing, tracing, quarantine, and measures such as wearing face masks and social distancing were early communicated and employed by different levels of the administration. **Figure 7** demonstrates the response measures that had been implemented in the very early stages of COVID-19 epidemic, starting from before the first confirmed patient.

The management of facial masks illustrates the proactive adoption of non-pharmaceutical intervention explicitly demonstrate South Korean government's governance capacity. As the demand for medical masks skyrocketed in January 2020, South Korean government immediately responded by expanding the mask manufacturing facilities and implemented the administrative measures to stabilize the supply of masks. On February 5<sup>th</sup>, 2020, the act of cornering and hoarding the medical equipment was banned. On February 26<sup>th</sup>, the export of masks was banned and 50% of the domestically produced masks were obliged to be supplied to official distributors (Ministry of Food and Drug Safety, 2020). On March 9<sup>th</sup>, 5-day rotation mask distribution system was implemented which allows the citizens to purchase two masks per week (UNDP Seoul Policy Centre, 2020). The digitalized information of real-time mask stocks and available stores were made accessible through the mobile application. The government's active intervention in mask supply was terminated in July 2020 when the mask market was evidently stabilized.

Another example are social distancing (physical distancing) measures: To prevent coercive measures like a city-wide lockdown or limiting mass transits and to maintain people's daily lives, the government actively applied three-level social distancing scheme since March 22<sup>nd</sup> of 2020 (Government of the Republic of Korea, 2020a). The level of social distancing was flexibly adjusted according to the daily confirmed cases and incidences, which included measures for prevention and control in gatherings, schools, public facilities, and workplaces (Central Disaster Management Headquarters, 2020).

#### *4.3.2 Changes of Legal Frameworks during COVID-19*

A set of bills to amend three COVID-19-related acts was passed by the South Korean parliament on 26<sup>th</sup> of February, 2020: The Infectious Disease Control and Prevention Act, Quarantine Act, Medical Service Act (Umeda, 2020). The amendment included an extensive and powerful reform to strengthen the authority of the government in response to COVID-19.

The amended Infectious Disease Control and Prevention Act allowed to impose strict punishment to the persons who refuse to abide by the COVID-19 containment measures, for example persons who refuse the order to take a test (fine up to three million KRW), or persons who violate self-quarantine protocols (imprisonment up to a year or fine up to 10 million KRW; Government of the Republic of Korea, 2020a). Also, the minister of health and welfare was authorized to ban exports of medical supplies when domestic shortage of supply is expected (E. Kim, 2020).

The amendment of the Quarantine act allows the minister of health and welfare to request the entry ban of infected or suspected persons with certain infectious diseases. The persons who are entering from the regions at risk of an infectious disease outbreak are also subject to this ban. This amendment provided a legal basis for the entry ban of foreign national entrants in the first wave of COVID-19.

Amendment act no. 17069 of the Medical Service Act mandates the minister of health and welfare to establish and operate a surveillance system to monitor healthcare-associated infections and a medical institution must report the above-mentioned outbreaks to the surveillance system (Korea Law Translation Center, 2020).

The Infectious Disease Control and Prevention Act was later amended again in August, September and December of 2020 which granted even more legal authorities to the government in the containment of COVID-19. The powerful legislative tools may have assisted the crisis management strategy but concerns were raised that the successful containment of South Korean government was the individual rights' trade-off, namely privacy (Cho, 2020). In a survey (J. Kim & Kwan, 2021), approximately 60% of Koreans have agreed to the disclosure of tracing information, age and sex, accepting certain level of privacy violation for social benefits of the containment measures.

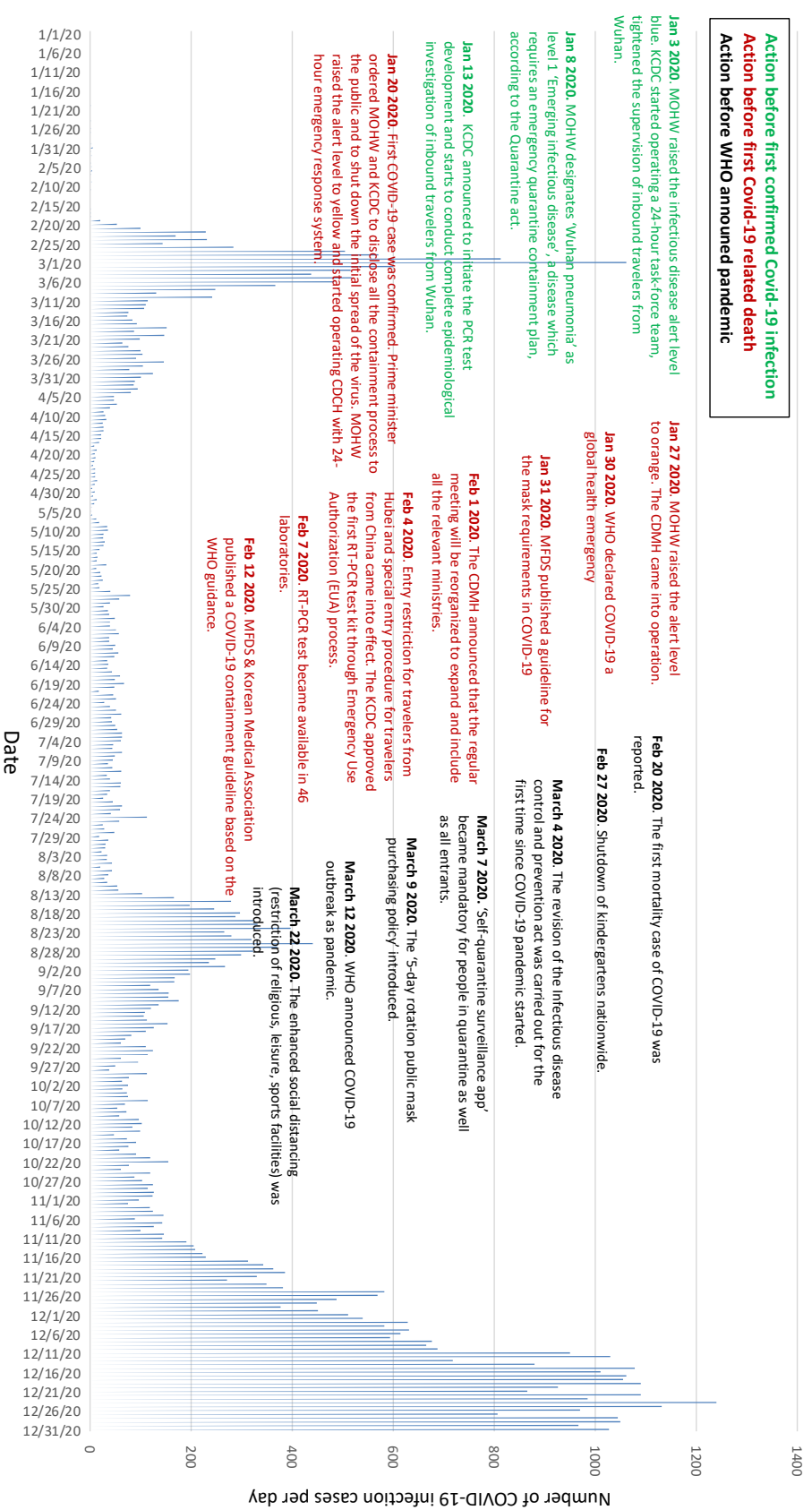
#### *4.3.3 Expertise and the Expert Advisory Group for Policymakers*

Infectious disease containment is a national response which includes not only the clinical intervention for the infected patients but also a comprehensive approach that encompasses the whole-of-society. Therefore, the containment that encompasses the realms of science and politics, should be carefully programmed by the central collective body based on the expertise of experts in various sectors. Ideally, a decision-making process in an effective disaster management would be based on the scientific evidences provided on time by academia and research entities (The United Nations Office for Disaster Risk Reduction, 2015). However, Korea's response to COVID-19 did not include a permanent scientific advisory board, which could have helped to develop measures and guidelines based on the scientific evidence. Instead, ad-hoc committees were created on demand (see **Table 7**).

According to the Infectious disease control and prevention act, which was revised after MERS outbreak in 2015, the KCDC must form an expert committee called 'Special Committee on Infectious Disease Crisis Management Measures' in the infectious disease crisis with around 15 committee members including:

1. Public officials in charge of preventing or managing infectious diseases
2. Experts in infectious disease-related medicine (infectious disease internal medicine, respiratory internal medicine, preventive medicine, etc.), pharmacy, public health field, public relations, medical architecture, etc.
3. Infectious disease experts recommended by related organizations

**Figure 7 Daily COVID-19 Infections and the Government Response in 2020**



Source: Based on the data from 'Number of new coronavirus (COVID-19) cases in South Korea from January 20, 2020 to January 12, 2022' by Statista, 2022. Retrieved January 15<sup>th</sup>, 2022 from <https://www.statista.com/statistics/1102777/south-korea-covid-19-daily-new-cases/> and the compilation of South Korea COVID-19 Timeline in 2019-2020 (see Appendix)

4. Other persons deemed necessary by the Commissioner of the Korea Centers for Disease Control and Prevention (Regulations of Special Committee on Infectious Disease Crisis Management Measures, 2017).

The members recruited must sign a non-disclosure agreement and the meeting was bound to absolute confidentiality. On January 10th, 2020, 10 days before the first COVID-19 case was confirmed in South Korea, KCDC formed a ‘Special Committee on Infectious Disease Crisis Management Measures’ and held an emergency meeting with the experts (Yeon-hee Kim, 2020). It is known that the South Korean government’s decision to authorize emergency use of testing kits for the mass production was the result of expert consultation on 10<sup>th</sup> of January 2020 (Jeon, 2020).

**Table 7** *The List of Expert Advisory Groups in COVID-19 Management*

<b>Term</b>	<b>Name</b>	<b>Participants</b>
January 10 <sup>th</sup> , 2020 - present	Special Committee on Infectious Disease Crisis Management Measures	Public officials in charge of infectious disease containment, medical personnel with expertise in infectious diseases control, experts recommended by Mayors/Do Governors, experts recommended by non-profit private organizations, and other persons with abundant knowledge and experience in infectious diseases
February 2 <sup>nd</sup> , 2020 - March 3 <sup>rd</sup> , 2020	Pan-Academic Action Committee on COVID-19	CDMH, CDCH and seven relevant academic associations
April 10 <sup>th</sup> , 2020 - present	Distancing in Daily Life Committee	Researchers, including infectious disease experts, epidemiologists, health economists, sociologists, and representatives of expert groups, government personnel and CDSCH
November 24 <sup>th</sup> , 2020 - present	Public-private partnership consultation group	CDSCH, CDMH, CDCH, Pan-academic action committee on covid-19, Central Clinical Committee etc.

*Source. From the 'Regulations of Special Committee on Infectious Disease Crisis Management Measures', 2017, the 'Pan-Academic Action Committee on COVID-19 dissolves' by Hyungoo Kang, 2020, the press release on April 10<sup>th</sup>, 2020 by the Office for Government Policy Coordination, 2020.*

On 2<sup>nd</sup> of February 2020, the ‘Pan-Academic Action Committee on COVID-19’ was established to provide expert advice for the policy-making process of the South Korean government (MBN online, 2020). It is known to had been staffed with 73 experts from each national medical association and the members from the former advisory board in the MERS crisis management. During the MERS outbreak, each academic association held independent meetings and the government acknowledged a need for a solidarized entity of advisors to build collective understanding (J. Lee, 2020). The proposal from the meeting resulted in very successful containment measures in the initial phase, such as meticulous epidemiological mapping and transparent risk communication with the public (Cha, 2020). However, neither the list of attendees of these governmental meetings with experts nor the meeting minutes were disclosed to the public. Eventually on 3<sup>rd</sup> of March, the committee was dissolved after being criticized for forming the committee with the experts that ‘suit government’s palate.’

To sum up, the CDSCH is in charge of all decisions on containment policy, but the decision-making process is unknown to the public. This means that the public is not aware of on which scientific basis the decision is based, which expert advice was offered and rejected, or which standard was applied. Routinely, only the final decision of ‘government meeting’ is announced to

the public. This top-down non-transparent manner of communication does not take policy responsiveness into consideration which naturally leads to public dissatisfaction (S. Kim & Jeong, 2021). Even though the international press gave credits for the success of South Korean pandemic governance due to an obedient public, the dissatisfaction of the public arose repeatedly in the format of petitions and protests (Kalinowski et al., 2021). For example, in February 2020, more than 1.4 million people signed an online petition calling for the impeachment of president Moon (Lim, 2020) for mishandling the COVID-19 containment and especially for not imposing blanket travel ban on entrants from China (Anonymous, 2020). In August 2020, thousands of people demonstrated in Seoul against the government's COVID-19 measures and demanded for the resignation of the President Moon (Jung, 2020). Jung Eun-kyung, the director of the KCDC, agreed to the necessity of transparency in the decision-making process, but stressed that the existing principle helps the attendees to freely state their opinions (M. Park, 2021).<sup>11</sup>

Risk management during a national crisis is characterized by time pressure and limited resources. Coping with a global crisis like COVID-19, governments must also take the incompleteness and the uncertainty of the science into consideration (*Transparency in Corona Policy Making*, 2021). As public trust in government decisions highly depends on the transparency in an understandable manner, the Moon administration and KCDC held a daily briefing since the beginning of the COVID-19 crisis. The South Korean government may have been praised for the initial response against COVID-19 in 2020 based on the COVID-19 statistics but the Korean public was not aware of the scientific reasons and facts behind the public health restrictions. For example, the scientific evidence for why the social distancing had to be limited to 5 people, or why bars and clubs had to shut down at 10pm, was not communicated.

#### 4.3.4 Risk Communication

On the day the first case of COVID-19 in South Korea was confirmed, the first public briefing was held at the KCDC. Since January 30, 2020, the CDSCH held daily briefings in the morning and CDCH held daily briefings in the afternoon. This twice-a-day briefings consisted of the updated statistics: the number of newly confirmed cases the cumulative cases, the daily deaths, the total number of deaths, the number of the recovered and the isolation-released (National Research Council for Economics Humanities and Social Sciences, 2020). The briefing also informed the entry regulation for travelers followed by a Q&A session.

The transparent disclosure of information to the public is the result from the lessons learned from the MERS outbreak in 2015. According to the audit report of the MERS outbreak, the absence of data transparency in the containment strategy was able to snowball a local outbreak to a national epidemic crisis (Board of Audit and Inspection, 2016). The Infectious Disease Prevention Act was revised and the Minister of Health and Welfare was able to exert a wide range of authority to collect private data of confirmed and potential patients, GPS logs, credit card records and the surveillance camera footages. So gathered private data became publicly accessible on each city's

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<sup>11</sup> In the UK, the Scientific Advisory Group for Emergencies (SAGE) also didn't reveal the list of the participants and the decision-making process in the initial phase of the pandemic for fear of the members being put under the societal pressure. Following pressure of people demanding transparency, SAGE started to release the list of participants and the record of discussion on the website for the transparency and freedom of information releases (Scientific Advisory Group for Emergencies (SAGE), 2021).

official website to alert other citizens whose itinerary might have run across this confirmed case at any time in the last 14 days (Government of the Republic of Korea, 2020a). Moreover, all individuals with cell phone could receive ‘crisis alert messages’ in regard to nearby confirmed cases and their itineraries from the government, which is known to have been effective to keep people informed about their risks (Paek & Hove, 2021).

While being lauded for the most important tasks of ‘K-quarantine,’ to test, to trace and to treat (quarantine), the response system that South Korea built since 2015, concerns were raised as well that the individual basic rights are being sacrificed for the public good. Even though the global standard of data governance in crisis management still doesn’t exist, it is clear that Korea is taking a different path than Europe or USA, which shows strong resistance to authoritarian data governance (J. Park, 2021).

#### *4.3.5 Presidential Leadership*

At the outbreak of Covid-19, President Moon Jae-in, who was elected in 2017, governed the country. Prior to his presidency, Moon also served as a chief of staff to the president in Roh Moo-hyun administration (2003-2008), which successfully contained SARS in 2003 and promoted the National institute of health to current KCDC (Korea Disease Control and Prevention Agency, 2021). The Moon administration used the COVID-19 crisis as an opportunity to set in motion what is perceived and presented as a fundamental transition of not only the government, but also the entire society. On July 14th, 2020, the South Korean government announced a national initiative called ‘The Korean New Deal’ (Government of the Republic of Korea, 2020b). This policy consists of two main elements – Digital New Deal and Green New Deal – investing 160 trillion KRW to create a greener and more digitalized society and strengthening social safety nets (IEA, 2021).

## **5. Conclusions**

South Korea’s response to the COVID-19 crisis during the year 2020 is instructive and exemplary. Compared to other democratic countries in East Asia and Europe, it has experienced significantly lower numbers of infections and COVID-19 related deaths while imposing less severe public health measures. For instance, the COVID-19 death toll per million in Germany was 24 times higher than that of South Korea; in the US, it was 66 times higher than in South Korea (see **Table 2**). At the same time, the South Korean economy experienced a smaller contraction during 2020 than most other countries. This report explores what led to this outstanding performance.<sup>12</sup> Although the reasons are complex and multifaceted, a clear pattern emerges. South Korea (together with Taiwan) is the democratic country that has managed to deliver the fastest and earliest response to the outbreak (Gaub & Boswinkel, 2020). A deeper explanation for this fast and agile policies is path-dependency: the improvements of crisis management, governance structure and guiding principles for infectious disease outbreaks that the South Korean administration realized

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<sup>12</sup> The research design of this study has several limitations. This qualitative study is focused on the case of the Republic of Korea and the lessons learned from the MERS outbreak mainly with respect to government institutions and planning. It does not cover cultural changes, public opinion and sentiment concerning pandemics. Furthermore, the report addresses only the year 2020 and further research is needed to understand South Korea’s pandemic management after the emergence of vaccines for and variants of COVID-19.



after the reforms in the wake of the 2015 MERS outbreak. In the early days of 2020, as no precedent existed on how to handle the novel virus, the South Korean government did not emulate China's strict approach in Wuhan. It simply pursued the preemptive and proactive strategy and utilized the public health infrastructure that the comprehensive audit had recommended five years earlier.

The case of South Korea holds crucial insights for other countries (see S. Lee et al., 2020) that are at the moment recapitulating their own pandemic management approaches, reflecting on successes and mistakes. Attempts to improve resilience and overall pandemic preparedness are needed at a local, national and global level. This process of introspection and institutional learning will take time. However, it is of utmost importance to engender significant improvements because the “pandemic century” has only just begun while pandemic preparedness worldwide remains insufficient (see Singh et al., 2021; Wenham et al., 2021; Maxmen, 2021). It goes without saying that South Korea's pandemic management was far from perfect; much can be criticized and improvements are needed, for example, concerning transparency of expertise and science communication.<sup>13</sup> Nevertheless there are critical general lessons that can be drawn from the South Korea's success stories to help informing the improvement of health crisis management approaches elsewhere.

- **Governance structure:** a centralized overview and steering capacity is a must have. Even though the role of local governments and health authorities is undeniably important for the frontline containment management, there is a limit to applying up-to-date scientific knowledge into policy-making process at the local government level—especially when managing novel diseases with unknown etiology (Kwon, 2020). A central data management and steering infrastructure is needed. Clear mechanisms for a local-central coordination and the distribution of roles in each level of governments are necessary for an efficient epidemic management.
- **Agile and proactive management:** Don't wait until the first infection is confirmed. The South Korean COVID-19 response, which started 17 days prior to the first confirmed case, shows a high level of administrative pandemic preparedness. The decisive use of testing, tracing and quarantine measures was critical in taming the first wave of infections. The South Korean legislature didn't hesitate to pass the bills to empower the containment measures of the government. Integral element of such an assertive approach is a transparent and swift risk communication by the government at all times.
- **Basic strategic preparedness:** a critical precondition for a swift epidemic response is to have a strategic playbook and resources ready. South Korea's guiding principles of early suppression and elimination and related instruments are exemplary for countries that aim at suppressing or eliminating early on new infectious diseases. If it were not for the

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<sup>13</sup> A key weakness of South Korea's pandemic management was a lack of transparency in decision making and especially the scientific input and role of expertise for the policy makers and decision-making processes. Experts also failed to provide the public with the adequate scientific basis in easy in an accessible language, which was delegated to the KCDC. Another problem was the weak infrastructure underpinning the *public* healthcare sector. Finally, various observers criticized the South Korean government for infringing on individual rights in the process of COVID-19 containment, which impacted basic rights such as privacy, assembly, and public demonstrations.

investment in public health sector to foster infectious disease experts, to increase the number of negative pressure rooms nationwide. In line with WHO advice, South Korea illuminates the life-saving power of proactive action and a consistent approach which contrasts with the sudden policy changes in many countries.

- **Institutional learning:** a thorough post-COVID-19 audit will save many lives and limit the societal costs of pandemics in the future. A transparent and comprehensive assessment of epidemic crisis management is not just a “nice option” to have for democracies. It rather is instrumental in order to increase the level of pandemic preparedness. Democratic countries should not waste the precious opportunity now to revamp their entire pandemic management institutions and approaches from scratch. South Korea’s post-MERS achievements demonstrate the enormous usefulness of such a political investment.

## 6. Appendix

### South Korea COVID-19 Timeline in 2019-2020

Wave	Month	Day	Major Events/ Government Response	Total Infection Cases
	December	31	China reported 27 pneumonia patients with unknown cause in Wuhan, China	
	January	3	The South Korean government raised the infectious disease alert level blue. KCDC started operating 24hour task-force team, tightened the supervision of inbound travelers from Wuhan.	
		8	The Ministry of Health and Welfare (MOHW) designates ‘Wuhan pneumonia’ as level 1 ‘Emerging infectious disease’, a disease which requires an emergency quarantine containment plan, according to the Quarantine act.	
		9	The KCDC requested information on the virus to the Chinese government.	
		10	The MOHW and KCDC announced that the Wuhan pneumonia is caused by a novel type of Coronavirus, a zoonotic disease which caused 2003 SARS outbreak in China and 2015 MERS outbreak in South Korea and that the symptoms are similar to being sick from cold.	
		13	The KCDC announced to initiate the PCR test development based on the genetic sequence provided by China. KCDC starts to conduct complete epidemiological investigation of inbound travelers from Wuhan	
		20	The first positive case with COVID-19 was confirmed. The prime minister gives order to MOHW and KCDC to disclose all the containment process to the public and to shut down the initial spread of the corona virus. MOHW then raised the alert level from blue to yellow and started operating Central Disease Control Headquarters (CDCH) with 24-hour emergency response system.	1
		27	The MOHW raised the alert level from yellow to orange and the COVID-19 Central Disaster Management Headquarters (CDMH) was in operation.	4
		29	The CDMH held 3 <sup>rd</sup> meeting with Ministry of Foreign Affairs (MOFA), MOHW, Ministry of Interior and Safety (MOIS) to designate national facilities as temporary quarantine facilities. The CDMH formed a public health consultative group with Korean Medical Association, Korean Hospital Association, Korean Dentist Association, the Association of Korean, Medicine, Korean Nurse Association, Korean pharmaceutical Association to share expert advice.	
		30	The WHO declared COVID-19 a global health emergency. The KCDC formed Public-Private-Partnership with the Korean society for laboratory medicine and the Korean association of quality assurance for clinical laboratory to develop, assess and verify the corona PCR test and open to private companies for the mass production.	6
		31	The ministry of food and drug safety published a guideline for the mask requirements in COVID-19 (KF80, 94, and 99 equivalent of FFPI <sub>1,2</sub> , and 3 were recommended).	
	February	1	The CDMH announced that the regular meeting will be reorganized to expand and include all the relevant ministries.	
		2	The government announced an intervention to be made in the supply and distribution of masks. The CDMH formed a fake news response team with Ministry of Culture, Sports and Tourism (MCST), Korea Communications Commission (KCC), Korean national policy agency (NPA) and MOHW to remove fake news online and emphasize fact-checking in media, and cooperate with telecommunication service providers to shut down the spread of fake news.	
		4	The entry restriction for travelers from Hubei and special entry procedure for travelers from China came into effect. The KCDC approved the first RT-PCR test kit through Emergency Use Authorization (EUA) process.	
		5	The ‘Public notice on the prohibition of cornering and hoarding of filtering respirators and hand sanitizers’ was enforced.	
7		The RT-PCR test became available in 46 laboratories.	24	
1 <sup>st</sup> wave	12	The Ministry of Food and Drug Safety & Korean Medical Association published a COVID-19 containment guideline based on the WHO guidance.		
	20	The first mortality case of COVID-19 (male, 63 y/o) was reported.		

Wave	Month	Day	Major Events/ Government Response	Total Infection Cases	
1 <sup>st</sup>		23	The MOHW raised the alert level from orange to red. The opening of schools was delayed by one week. The First drive-through screening station came into operation.	556	
		26	The number of corona cases exceeds 1,000. The nationwide export restriction of masks was applied.	1,146	
		27	The kindergartens nationwide were shut down from February 27 <sup>th</sup> to March 8 <sup>th</sup> .		
		29	The entry restriction was introduced for travelers from 76 countries. The daily new cases of COVID-19 (909 cases) hit the peak of the 1 <sup>st</sup> wave.		
	March	2	The opening of schools was delayed by three weeks. The living treatment center came into operation.	4,212	
		3	The number of corona cases exceeded 5,000.	5,186	
		4	The revision of the Infectious disease control and prevention act was carried out for the first time since COVID-19 pandemic started.		
		5	The kindergarten shutdown was extended until March 22 <sup>nd</sup> .		
		7	Mandated to install 'self-quarantine surveillance app' for people in quarantine as well as all entrants		
		9	The '5-day rotation public mask purchasing policy' was introduced.		
		12	WHO announced COVID-19 outbreak as pandemic.		
		15	The special entry procedure for travelers from France, Germany, Spain, the UK, Netherlands was introduced.		
		16	The special entry procedure for travelers from all European country was introduced.		
		19	Travel alert level 1 for all countries and regions, special entry procedure for all entrants		
		22	The entrants from Europe were mandated to test and quarantine for 14 days regardless of the test result. The enhanced social distancing (restriction of religious, leisure, sports facilities) was introduced.		
		23	'Exceptional travel alert' was issued.		
		27	All entrants from USA were mandated to quarantine for 14 days.		
	April	1	All entrants were mandated to quarantine for 14 days		
		3	The number of corona cases exceeds 10,000.	10,062	
		4	The enhanced social distancing was extended for two weeks.		
		9	The online school semester started nationwide.		
		15	South Korea became the first country to hold the parliamentary election during the COVID-19 pandemic, with no consequent outbreak.		
	2 <sup>nd</sup> wave		19	The 'partially eased social distancing' was extended until 5 <sup>th</sup> of May.	
			27	The electronic wristband was introduced for quarantine violators.	
		May	5	The enhanced social distancing came to an end.	
			6	Due to the extremely low daily new cases, the social distancing rules were eased.	
			26	The mask mandate in public transportation was announced.	
June		1	The '5-day rotation public mask purchasing policy' was abolished.		
		10	The electronic entry log (QR code) in high-risk facilities was implemented.		
		28	The phased social distancing (level 1 - level 3) was introduced.		
July		2	Remdesivir was administered to two COVID-19 patients for the first time.		
		12	The 'public mask' system was abolished, returning to a free market system. The nationwide export restriction of dental/surgical masks continued.		
August	10	The number of global corona cases exceeded 20,000,000.	14,626		
2 <sup>nd</sup> wave		12	The revision of the infectious disease control and prevention act enabled 1) to charge treatment costs to inbound travelers 2) to impose penalty to corona rule violators.		
		17	The total treatment costs to foreigners with positive COVID-19 when they're proved to have violated domestic countermeasures		
		26	Korean medical association in 2 <sup>nd</sup> strike against public health policies of the government		
		27	The daily new cases of COVID-19 (441 cases) hit the peak of the 2 <sup>nd</sup> wave.		
September	7	Level 2 social distancing was extended nationwide to September 20 <sup>th</sup> .	21,296		

Wave	Month	Day	Major Events/ Government Response	Total Infection Cases
		12	The KCDC was promoted to an independent institution KCDA.	
		15	First public announcement from the South Korean government on the plan to secure vaccine supply from Covax, Astrazeneca, Novavax, Pfizer, Moderna and Johnson&Johnson	
		29	The Revision of the Infectious disease control and prevention act was carried out.	
	October	13	The mask mandate in public was announced.	
		23	The nationwide export restriction of masks was lifted.	
	November	13	Penalties for mask-mandate violators came into effect (KRW 100,000).	
		21	The number of domestic COVID-19 cases exceeded 30,000.	30,403
	December	24	Government Confirmed 20 million COVID-19 vaccine dose supply agreement with Pfizer, 6 million dose agreement with Johnson & Johnsons.	
		25	The daily new cases of COVID-19 (1,240 cases) hit the peak of the 3 <sup>rd</sup> wave.	
		31	Moderna confirmed 40 million COVID-19 vaccine dose supply agreement with the South Korean government.	61,769

## References

- Ahn, C. (2016, January 14). As a result of MERS audit, “9 people will be severely punished.” *The Medical News*. <http://www.bosa.co.kr/news/articleView.html?idxno=598871>
- Ahn, J. (2015, June 2). Government refusing to disclose MERS-infected hospitals..outraged public. *Moneytoday*. <https://news.v.daum.net/v/20150602165112243>
- Anonymous. (2020). *We call for the impeachment of President Moon Jae-in*. Office of the President.
- Bae, J. (2020). *1,027 negative pressure beds nationwide... Doctors fear shortage of beds*. Joongang Daily. <https://www.joongang.co.kr/article/23710749#home>
- Bae, J. H. (2016). A Study on Improvement of National Disaster Management System through the MERS Outbreak in Korea. *Journal of Governance Studies*, 11(3), 27–53. <https://doi.org/10.16973/jgs.2016.11.3.002>
- Bautista, S. N. (2020). *Turning government failure into success: how Korea learned from MERS to succeed on COVID-19*. DevpolicyBlog. <https://devpolicy.org/how-korea-learned-from-mers-failure-to-succeed-on-covid-19-20200714/>
- Bell, J. A., & Nuzzo, J. B. (2021). *Global Health Security Index: Advancing Collective Action and Accountability Amid Global Crisis*. [https://www.ghsindex.org/wp-content/uploads/2021/12/2021\\_GHSindexFullReport\\_Final.pdf](https://www.ghsindex.org/wp-content/uploads/2021/12/2021_GHSindexFullReport_Final.pdf)
- Board of Audit and Inspection. (2016). *National epidemics prevention system seen through MERS audit*. [https://www.bai.go.kr/bai/cop/bbs/detailBoardArticle.do?mdex=bai20&bbsId=BBSMSTR\\_100000000009&nttId=115400](https://www.bai.go.kr/bai/cop/bbs/detailBoardArticle.do?mdex=bai20&bbsId=BBSMSTR_100000000009&nttId=115400)
- Board of Audit and Inspection of Korea. (n.d.). *About BAI*. [https://bai.go.kr/bai\\_eng/intro/chairman/introduction](https://bai.go.kr/bai_eng/intro/chairman/introduction)
- Board of Audit and Inspection of Korea. (2020). *MERS Prevention and Response*.
- Byun, T. (2020, March 30). Authorities set up measures a month before the first confirmed case. *Hankookilbo*. <https://www.hankookilbo.com/News/Read/202003291656388506>
- Central Disaster and Safety Countermeasures Headquarters. (2020). *Central Disaster and Safety Countermeasure Headquarters Policy Briefing*. Korea Policy Briefing. <https://www.korea.kr/news/policyBriefingView.do?newsId=156377980&pageIndex=12&searchType=title&startDate=2008-02-29&endDate=2021-10-28&srchWord=중앙재난안전대책본부>
- Central Disaster Management Headquarters. (2020). *COVID-19 CDSCH Regular Briefing (June 28th)*. MOHW. <http://ncov.mohw.go.kr/tcmBoardView.do?contSeq=355170>
- Cha, V. (2020). *A Timeline of South Korea’s Response to COVID-19*. Center for Strategic & International Studies. <https://www.csis.org/analysis/timeline-south-koreas-response-covid-19>
- Chang, R., Varley, K., Tam, F., Munoz, M., & Tan, A. (2021). *The Covid Resilience Ranking*. <https://www.bloomberg.com/graphics/covid-resilience-ranking/>
- Cho, S. (2020, May 17). Talking about human rights we have lost amid the successful containment of corona virus. *Pressian*.
- Choe, S.-H. (2020, September 2). New Covid-19 Outbreaks Test South Korea’s Strategy. *The New York Times*. <https://www.nytimes.com/2020/09/02/world/asia/south-korea-covid-19.html>
- Choi, H. (2020). *The 10th Social Relations Ministers Meeting (expanding the med-school quota)*.

- Ministry of Education Press Release.  
<https://www.moe.go.kr/boardCnts/view.do?boardID=294&boardSeq=81329&lev=0&searchType=null&statusYN=W&page=1&s=moe&m=020402&opType=N>
- Chun, B. C. (2011). Public Policy and Laws on Infectious Disease Control in Korea: Past, Present and Prospective. *Infection and Chemotherapy*, 43(6), 474.  
<https://doi.org/10.3947/ic.2011.43.6.474>
- Dongkyun Park. (2016). The Problems of Crisis Management and Policy Implications: Lessons from the Sewol ferry disaster in South Korea. *Journal of Korean Public Police and Security Studies*, 13(1), 45–72. <https://doi.org/10.25023/kapsa.13.1.201605.45>
- Gaub, F., & Boswinkel, L. (2020). WHO'S FIRST WINS?: International crisis response to Covid-19. *European Union Institute for Security Studies*.  
<https://www.jstor.org/stable/resrep25024>
- Government of the Republic of Korea. (2020a). *ALL ABOUT KOREA'S RESPONSE to COVID-19*.
- Government of the Republic of Korea. (2020b). *Korean New Deal: National Strategy for a Great Transformation*.  
<https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=4948>
- IEA. (2021). *Korean New Deal - Digital New Deal, Green New Deal and Stronger Safety Net*.  
<https://www.iea.org/policies/11514-korean-new-deal-digital-new-deal-green-new-deal-and-stronger-safety-net>
- Jeon, C. (2020, April 9). The experts of COVID-19 era. *The Hankyoreh*.  
<https://www.hani.co.kr/arti/opinion/column/936390.html>
- Jung, S. (2020, August 15). protest in downtown Seoul amid fears of mass infection on the Independence day... Seoul city and police “tension.” *Yonhap News*.
- Kalinowski, T., Rhyu, S., & Croissant, A. (2021). *South Korea Report. Sustainable Governance in the Context of the COVID-19 Crisis*. <https://doi.org/10.11586/2021105>
- Kang, H, Kwon, S., & Kim, E. (2020). *COVID-19 health system response monitor: Republic of Korea*. <https://apps.who.int/iris/handle/10665/337371>
- Kang, Hyungoo. (2020, March 6). Pan-Academic Action Committee on COVID-19 dissolves. *Newsmp*. <http://www.newsmp.com/news/articleView.html?idxno=203933>
- Kim, E. (2020, February 27). ‘Corona 3 Act’ passed... A fine of up to 10 million won for violating self-quarantine. *Joongang Daily*.  
<https://www.joongang.co.kr/article/23716513#home>
- Kim, H. (2014). Suggestion for National Crisis Management System of Korea. *The Quarterly Journal of Defense Policy Studies*, 30(3), 129–164.  
<https://www.kci.go.kr/kciportal/ci/sereArticleSearch/ciSereArtiView.kci?sereArticleSearchBean.artiId=ART001921258>
- Kim, J., & Kwan, M.-P. (2021). An Examination of People’s Privacy Concerns, Perceptions of Social Benefits, and Acceptance of COVID-19 Mitigation Measures That Harness Location Information: A Comparative Study of the U.S. and South Korea. *ISPRS International Journal of Geo-Information*, 10(1), 25. <https://doi.org/10.3390/ijgi10010025>
- Kim, K. (2017). How Did South Korean Governments Respond during 2015 MERS Outbreak?: Application of the Adaptive Governance Framework. *Journal of Contemporary Eastern Asia*, 16(1), 69–81. <https://doi.org/10.17477/jcea.2017.16.1.069>
- Kim, M. (2020). Analysis and Implications of Korean Health Authorities’ Fulfillment on World Health Organization’s Recommendations for Mask Use: Focused on COVID-19. *Journal of*

- Convergence for Information Technology*, 10(8), 77–86.  
<https://doi.org/https://doi.org/10.22156/CS4SMB.2020.10.08.077>
- Kim, S., & Jeong, W. (2021, July 23). Let's overcome COVID-19, this is a turning point. *Hankyoreh*. [https://h21.hani.co.kr/arti/society/society\\_general/50679.html](https://h21.hani.co.kr/arti/society/society_general/50679.html)
- Kim, T., & Cho, Y. (2021). COVID-19 Pandemic and Government Trust. *National Strategy*, 27(1), 39-68 (30 pages).  
<https://www.kci.go.kr/kciportal/ci/sereArticleSearch/ciSereArtiView.kci?sereArticleSearchBean.artiId=ART002686661>
- Kim, Yeon-hee. (2020, April 6). “A large-scale diagnostic test in Korea was made possible in this way.” *Sisain*. <https://www.sisain.co.kr/news/articleView.html?idxno=41711>
- Kim, Youngshin. (2020, April 5). Reasons for choosing ‘Health Insurance Contribution’ as the criteria for selecting emergency disaster support fund. *Medical World News*.  
<http://medicalworldnews.co.kr/m/view.php?idx=1510934991>
- Korea Centers for Disease Control & Prevention (KCDC). (2020). Development of laboratory test and analysis system for infectious diseases of unknown etiology. *Weekly Health and Diseases*, 13(45), 3221–3229.  
[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjRq\\_DRrcH1AhUKyKQKHYSKQFnoECAMQAQ&url=http%3A%2F%2Fwww.kdca.go.kr%2Ffilepath%2FboardDownload.es%3Fbid%3D0034%26list\\_no%3D711057%26seq%3D1&usg=AOvVaw0SevmViAx0TXETb](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjRq_DRrcH1AhUKyKQKHYSKQFnoECAMQAQ&url=http%3A%2F%2Fwww.kdca.go.kr%2Ffilepath%2FboardDownload.es%3Fbid%3D0034%26list_no%3D711057%26seq%3D1&usg=AOvVaw0SevmViAx0TXETb)
- Korea Disease Control and Prevention Agency. (2019). *Infectious disease crisis response*.
- Korea Disease Control and Prevention Agency. (2020a). *About KDCA*.  
<http://www.kdca.go.kr/contents.es?mid=a30101000000>
- Korea Disease Control and Prevention Agency. (2020b). *Organization*.  
<https://www.kdca.go.kr/contents.es?mid=a20813010000>
- Korea Disease Control and Prevention Agency. (2021). *The history of KDCA*.  
<https://www.kdca.go.kr/contents.es?mid=a20804000000>
- Korea International Cooperation Agency. (2020). *Characteristics of Korea's COVID-19 response system from the perspective of democratic governance*.  
<https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE10485811>
- Korea Law Translation Center. (2020). *Korean Statutes related to COVID-19*.
- Regulations of Special Committee on Infectious Disease Crisis Management Measures, (2017).  
<https://www.law.go.kr/admRulLsInfoP.do?admRulSeq=2100000078352>
- Framework Act On The Management Of Disasters And Safety, Pub. L. No. Act No. 15344 (2018). [https://elaw.klri.re.kr/kor\\_service/lawView.do?hseq=46614&lang=ENG](https://elaw.klri.re.kr/kor_service/lawView.do?hseq=46614&lang=ENG)
- Korea research institute for local administration. (2021, April). Local Government Achievements and Policy Tasks for Decentralization of Autonomy in the “With Corona” Era. *KRILA Policy Brief*.  
[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwj4IMjYyZb0AhUFh1YBHcY0BksQFnoECAYQAQ&url=https%3A%2F%2Fwww.krila.re.kr%2Fdownload%2Fbrief%2F119&usg=AOvVaw2Hhk\\_tIxzsefB9UJr9HWv3](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwj4IMjYyZb0AhUFh1YBHcY0BksQFnoECAYQAQ&url=https%3A%2F%2Fwww.krila.re.kr%2Fdownload%2Fbrief%2F119&usg=AOvVaw2Hhk_tIxzsefB9UJr9HWv3)
- Enforcement Ordinance of Framework Act On The Management Of Disasters And Safety, (2021). [https://www.law.go.kr/법령/재난\\_및\\_안전관리기본법시행령](https://www.law.go.kr/법령/재난_및_안전관리기본법시행령)
- Kuhlmann, S., Bouckaert, G., Galli, D., Reiter, R., & Hecke, S. Van. (2021). Opportunity management of the COVID-19 pandemic: testing the crisis from a global perspective. *International Review of Administrative Sciences*, 87(3), 497–517.



- <https://doi.org/10.1177/0020852321992102>
- Kwon, S. (2020). For a sustainable COVID-19 response policy. *The Korean Journal of Public Health*, 57(2), 25–37.
- Lee, H., Lee, J., Jung, H., & Lee, J. Y. (2021). Power of universal health coverage in the era of COVID-19: A nationwide observational study. *The Lancet Regional Health - Western Pacific*, 7, 100088. <https://doi.org/10.1016/j.lanwpc.2020.100088>
- Lee, J. (2020, March 13). “the Korean Medical Association-Media industry-Conservative Party” crosses the line. *The Hankyoreh*.  
[https://h21.hani.co.kr/arti/special/special\\_general/48375.html](https://h21.hani.co.kr/arti/special/special_general/48375.html)
- Lee, M.-S., Kim, E.-Y., & Lee, S.-W. (2017). Experience of 16 years and its associated challenges in the Field Epidemiology Training Program in Korea. *Epidemiology and Health*, 39, e2017058. <https://doi.org/10.4178/epih.e2017058>
- Lee, S., Hwang, C., & Moon, M. J. (2020). Policy learning and crisis policy-making: quadruple-loop learning and COVID-19 responses in South Korea. *Policy and Society*, 39(3), 363–381. <https://doi.org/10.1080/14494035.2020.1785195>
- Lim, H. (2020, March 5). “President Moon’s impeachment petition” closes with 1,469,000 people... 2nd in history. *Yonhapnews*.
- Maxmen, A. (2021). Has COVID taught us anything about pandemic preparedness? *Nature*, 596(7872), 332–335. <https://doi.org/10.1038/d41586-021-02217-y>
- Mayer, M., Rudyak, M., & Meinhof, M. (2020, November). Warum wir von Asien noch immer nicht lernen wollen. *Cicero*. <https://www.cicero.de/aussenpolitik/corona-lockdown-asien-china-taiwan-japan-westen>
- MBN online. (2020, November 24). Infectious disease experts and health authorities starts collaboration... Resume of public-private partnerships. *Mbn*.  
<https://www.mbn.co.kr/news/society/4350754>
- Ministry of Food and Drug Safety. (2020). *Restriction on export of masks and mandatory supply to public distributors*. [https://www.mfds.go.kr/brd/m\\_99/view.do?seq=43974](https://www.mfds.go.kr/brd/m_99/view.do?seq=43974)
- Ministry of Health and Welfare. (2003). *Establishment of SARS management system and future measures*.  
[https://www.mohw.go.kr/react/al/sal0301vw.jsp?PAR\\_MENU\\_ID=04&MENU\\_ID=0403&CONT\\_SEQ=24665](https://www.mohw.go.kr/react/al/sal0301vw.jsp?PAR_MENU_ID=04&MENU_ID=0403&CONT_SEQ=24665)
- Ministry of Health and Welfare. (2014). *Infectious diseases Crisis Management Standard Manual*. <https://s3.amazonaws.com/s3.documentcloud.org/documents/2095040/untitled.pdf>
- Ministry of Health and Welfare. (2015a). [9.1] *Measures to Reform National Infection Prevention and Control System for the Purpose of Immediate Response to Emerging Infectious Disease*.  
[https://www.mohw.go.kr/eng/nw/nw0101vw.jsp?PAR\\_MENU\\_ID=1007&MENU\\_ID=100701&page=1&CONT\\_SEQ=326060](https://www.mohw.go.kr/eng/nw/nw0101vw.jsp?PAR_MENU_ID=1007&MENU_ID=100701&page=1&CONT_SEQ=326060)
- Ministry of Health and Welfare. (2015b). *Press Release on 31st of August, 2015*.  
[http://www.mohw.go.kr/react/al/sal0301vw.jsp?PAR\\_MENU\\_ID=04&MENU\\_ID=0403&CONT\\_SEQ=325188&page=1](http://www.mohw.go.kr/react/al/sal0301vw.jsp?PAR_MENU_ID=04&MENU_ID=0403&CONT_SEQ=325188&page=1)
- Ministry of Health and Welfare. (2016). *The 2015 MERS outbreak in the Republic of Korea: Learning from MERS*.  
[https://www.mohw.go.kr/react/jb/sjb030301vw.jsp?PAR\\_MENU\\_ID=03&MENU\\_ID=032903&CONT\\_SEQ=337407&page=1](https://www.mohw.go.kr/react/jb/sjb030301vw.jsp?PAR_MENU_ID=03&MENU_ID=032903&CONT_SEQ=337407&page=1)
- Ministry of the Interior and Safety. (n.d.). *Administrative system*.

- <https://www.laiis.go.kr/lips/mlo/wco/wholeCountryList.do>
- Moon, M. J., Suzuki, K., Park, T. I., & Sakuwa, K. (2021). A comparative study of COVID-19 responses in South Korea and Japan: political nexus triad and policy responses. *International Review of Administrative Sciences*, 87(3), 651–671. <https://doi.org/10.1177/0020852321997552>
- Na, B. J., Park, Y., Huh, I. S., Kang, C. R., Lee, J., & Lee, J. Y. (2020). Seventy Two Hours, Targeting Time from First COVID-19 Symptom Onset to Hospitalization. *Journal of Korean Medical Science*, 35(20). <https://doi.org/10.3346/jkms.2020.35.e192>
- National Research Council for Economics Humanities and Social Sciences. (2020). *Korea Report of COVID-19 Responses*.
- OECD. (2019). *Health at a Glance 2019*. OECD. <https://doi.org/10.1787/4dd50c09-en>
- Office for Government Policy Coordination. (2020). *Press Release*. <https://www.opm.go.kr/flexer/view.do?ftype=hwp&attachNo=97748>
- Office of the President. (2020). *Statement by the President on the Third Anniversary of President Moon's presidency*. President. Go.Kr.
- Paek, H.-J., & Hove, T. (2021). Information Communication Technologies (ICTs), Crisis Communication Principles and the COVID-19 Response in South Korea. *Journal of Creative Communications*, 16(2), 213–221. <https://doi.org/10.1177/0973258620981170>
- Park, J. (2021). *Striking a Balance between Data Privacy and Public Health Safety- A South Korean Perspective*. The National Bureau of Asian Research. <https://www.nbr.org/publication/striking-a-balance-between-data-privacy-and-public-health-safety-a-south-korean-perspective/>
- Park, M. (2021, October 6). “The quarantine policy decision-making process should be transparent... committee list and meeting details should be disclosed.” *Medigate News*. <http://m.medigatenews.com/news/981758725>
- Schiller, C., Hellmann, T., Schüle, H., Sascha, H., & Gasster, E. (2021). *Just how resilient are OECD and EU countries? Sustainable Governance in the Context of the Covid-19 Crisis*. <https://doi.org/10.11586/2021123>
- Scientific Advisory Group for Emergencies (SAGE). (2021). *Transparency and freedom of information releases*. GOV.UK.
- Scott, D., & Park, J. M. (2021). *South Korea's Covid-19 success story started with failure*. Vox. <https://www.vox.com/22380161/south-korea-covid-19-coronavirus-pandemic-contact-tracing-testing>
- Seo, K.-H., Lee, J., & Kim, K.-H. (2015). A Review on the Korea's National Public Health Crisis System. *Public Policy Review*, 29(4), 219–242. <https://doi.org/10.17327/ippa.2015.29.4.009>
- Singh, S., McNab, C., Olson, R. M., Bristol, N., Nolan, C., Bergström, E., Bartos, M., Mabuchi, S., Panjabi, R., Karan, A., Abdalla, S. M., Bonk, M., Jamieson, M., Werner, G. K., Nordström, A., Legido-Quigley, H., & Phelan, A. (2021). How an outbreak became a pandemic: a chronological analysis of crucial junctures and international obligations in the early months of the COVID-19 pandemic. *The Lancet*, 398(10316), 2109–2124. [https://doi.org/10.1016/S0140-6736\(21\)01897-3](https://doi.org/10.1016/S0140-6736(21)01897-3)
- South Korean doctors to end strike over reforms as virus surges. (2020, September 4). *Aljazeera*. <https://www.aljazeera.com/news/2020/9/4/south-korean-doctors-to-end-strike-over-reforms-as-virus-surges%0D%0A%0D%0A>
- Statista. (2022). *Number of new coronavirus (COVID-19) cases in South Korea from January 20,*

- 2020 to January 12, 2022. Number of new coronavirus (COVID-19) cases in South Korea from January 20, 2020 to January 12, 2022
- The Economist. (2020). *The Economist Intelligence Unit's Democracy Index*.
- The Economist Intelligence Unit. (2020). *A report by The Economist Intelligence Unit How well have OECD countries responded to the coronavirus crisis?* [https://pages.eiu.com/rs/753-RIQ-438/images/Coronavirus whitepaper V3.pdf?mkt\\_tok=NzUzLVJJUS00MzgAAAGB\\_UiUfqD9ge6uL-Rn0OtsIkKmKbSSJ3h7DGkIsckW7WcSz6I0IxNMAwMmff5rlA7a1lRhfx4hoLa2-SCHXk4qeHtDPc4CuFcsjEs32qfPo2G](https://pages.eiu.com/rs/753-RIQ-438/images/Coronavirus%20whitepaper%20V3.pdf?mkt_tok=NzUzLVJJUS00MzgAAAGB_UiUfqD9ge6uL-Rn0OtsIkKmKbSSJ3h7DGkIsckW7WcSz6I0IxNMAwMmff5rlA7a1lRhfx4hoLa2-SCHXk4qeHtDPc4CuFcsjEs32qfPo2G)
- The United Nations Office for Disaster Risk Reduction. (2015). *The Sendai Framework for Disaster Risk Reduction 2015-2030*.
- The World Bank. (n.d.). *GDP growth (annual %)*. The World Bank Group. <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>
- The World Bank Group. (2020). *Worldwide Governance Indicators*. World Bank DataBank. <https://databank.worldbank.org/source/worldwide-governance-indicators>
- Thousands of South Korean doctors strike amid COVID-19 resurgence. (2020, August 26). *Aljazeera*. <https://www.aljazeera.com/news/2020/8/26/thousands-of-south-korean-doctors-strike-amid-covid-19-resurgence>
- Transparency in Corona Policy Making*. (2021). People's Health Institute. <http://health.re.kr/?p=7984>
- Umeda, S. (2020). *South Korea: Parliament Responded Quickly to COVID-19 by Amending Three Acts*. Library of Congress. <https://www.loc.gov/item/global-legal-monitor/2020-06-04/south-korea-parliament-responded-quickly-to-covid-19-by-amending-three-acts/>
- UNDP Seoul Policy Centre. (2020). *Stabilization of Mask Supply and Distribution*. [https://www1.undp.org/content/seoul\\_policy\\_center/en/home/presscenter/articles/2019/Coll ection\\_of\\_Examples\\_from\\_the\\_Republic\\_of\\_Korea/covid-stabilization-of-mask-supply-and-distribution.html](https://www1.undp.org/content/seoul_policy_center/en/home/presscenter/articles/2019/Coll%20ection_of_Examples_from_the_Republic_of_Korea/covid-stabilization-of-mask-supply-and-distribution.html)
- United Nations. (2020, May 11). Tedros highlights complex challenges posed by COVID-19 resurgence, as lockdowns ease. *UN News*. <https://news.un.org/en/story/2020/05/1063732>
- Wenham, C., Kavanagh, M., Torres, I., & Yamey, G. (2021). Preparing for the next pandemic. *BMJ*, n1295. <https://doi.org/10.1136/bmj.n1295>
- WHO. (2020). *COVID-19 - China*. <https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON229>
- Wilsford, D. (1994). Path Dependency, or Why History Makes It Difficult but Not Impossible to Reform Health Care Systems in a Big Way. *Journal of Public Policy*, 14(3), 251–283. <https://doi.org/10.1017/S0143814X00007285>
- World Health Organization. (2020). *Advice on the use of masks in the community, during home care and in health care settings in the context of the novel coronavirus (2019-nCoV) outbreak*.
- Worldometer. (n.d.). *South Korea Coronavirus Cases*. Retrieved April 11, 2021, from <https://www.worldometers.info/coronavirus/country/south-korea/>
- Yoon, J. (2015a). The Study of Effectiveness of MERS on the Law and Remaining Task. *The Korea Society of Law and Medicine*, 16(2), pp.263-291. <https://www.earticle.net/Article/A263053>
- Yoon, J. (2015b, December). The Study of Effectiveness of MERS on the Law and Remaining Task. *THE KOREAN SOCIETY OF LAW AND MEDICINE*, pp.263-291.

<https://www.earticle.net/Article/A263053>  
Yun, G. (2020, March). Infectious diseases and public health care in response to COVID-19.  
*Korea Institute for Health and Social Affairs.*  
[http://repository.kihasa.re.kr/bitstream/201002/34500/1/이슈엔포커스 377호-  
코로나특집5호.pdf](http://repository.kihasa.re.kr/bitstream/201002/34500/1/이슈엔포커스%20377호-코로나특집5호.pdf)