COVID-19, Testing Time for RESILIENCE

In recovering from COVID-19: The Korean experience

May 11, 2020

The Government of
the Republic of Korea

Cover Photo:

A preseason game of
the Korean Baseball Organization (KBO) league
on April 27, 2020 in **Daegu city**,
the Korean city most severely affected by COVID-19

Season opening game has been held
on May 5, 2020

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(to be updated)

The Government of the Republic of Korea[1]

[1] This Paper on "COVID-19, Testing Time for Resilience: In recovering from COVID-19: The Korean experience" was prepared by the Development Finance Bureau at the Ministry of Economy and Finance (MOEF) in collaboration with the Ministry of National Defense, the Ministry of the Interior and Safety, the Ministry of Land, Infrastructure and Transport, the Ministry of SMEs and Startups and the Military Manpower Administration. Please contact djlee2@korea.kr (Director Daejoong LEE) or daunjeong@korea.kr (Deputy Director Da-un JEONG) for further information.

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President Moon Jae-in chairs the Cabinet meeting to discuss economic measures against COVID-19
Cheongwadae (Office of the President), April 28, 2020

> “The longer it takes to implement the measures, the more difficulties the people and businesses will face. In this unprecedented crisis situation, bold decisions should be made and carried out rapidly and accurately. I ask that the implementations be accelerated.”
>
> President Moon Jae-in
> Republic of Korea

As President Moon Jae-in of the Republic of Korea said, the impact of the health and economic crisis caused by COVID-19 is the first of its kind. In order to overcome this crisis, it is very important to make joint efforts at both the regional and national levels, as well as globally. This paper is a summary of Korea’s social, military, political and economic responses against COVID-19 from January to April 2020.

SUMMARY

SUMMARY

As the COVID-19 pandemic continues to spread, what began as a health and quarantine crisis has now placed economic burden worldwide. The virus sees no borders, race or economic status. It threatens everyone around the world, and both the developed and the developing economies. The economic fallout of this crisis creates major stressors, especially in the fragile and the less developed countries, as well as those in transition. In addition to the economic impacts of the pandemic, there will also be changes made to the health, education, defense sectors and to the society in general. The Korean government has taken various actions against COVID-19 across these sectors.

In terms of international cooperation, Korea focused on three areas to address the economic challenges of the pandemic. First, the government is working to help businesses against the difficulties in international trade because of the entry bans imposed by other countries. In addition to the strong government assistance in export activities and export financing, measures to promote construction of overseas infrastructure will also be announced in May to support development and contracting of large-scale projects. Second, potential risk factors will also be closely monitored to take preemptive actions against new risks in trade and to strengthen the bilateral cooperation with major countries, thereby helping businesses avoid the unnecessary additional burden. Lastly, the Korean government is preparing for the post-COVID-19 era by diversifying markets, promoting trade and overseas investment, while also securing manufacturing supplies against the new global order and changing global value chain (GVC).

Second, Korea supported education of students by preparing online contents despite the challenges of COVID-19. With help from the parents, students can prepare themselves for the new semester, which has been postponed due to COVID-19. With the goal to reduce the learning gap before schools reopen, the government has laid the groundwork for practical online learning. All students in primary, junior high and high schools have begun online classes as of April 20, 2020.

Third, Korea became the only country to hold a legislative (general) election during the height of the pandemic despite concerns and risks of transmission. The Korean government pushed ahead the scheduled election with strict quarantine guidelines after confirming that the spread of the virus had slowed. The public complied with these guidelines and exercised their right to vote, resulting in the voting rate of 66.2%, the highest in 28 years.

Fourth, in the public sector, Korea introduced the three-shift, remote working plan on March 16 after a number of civil servant had tested positive for the virus. By encouraging one-third of the staff to work remotely at a time, this plan aimed to minimize transmission at workplace while allowing no interruption in public service. Cloud Mobile and other ICT-based systems allowed government officials to work from home just as efficiently as they did in office.

Fifth, Korea was successful in slowing down the COVID-19 transmission utilizing digital technology and without strict border control or movement restrictions. All eyes are on the various measures taken by the Korean government to limit transmission, including innovative methods like the drive-thru and walk-thru screening centers, extensive testing, quick diagnosis, and the use of ICT to inform and track confirmed cases. These measures allowed Korea to flatten the COVID-19 curve without taking draconian measures.

Sixth, Korea was able to tackle the panic buying phenomenon successfully with an Intergovernmental Mask TF chaired by the Vice Minister of Economy and Finance. The government also publically procured the entire production of masks, expanded the production capacity, and utilized digital technologies in the allocation and distribution of masks.

And seventh, COVID-19 put Korea's military services under a test. When the national infectious disease crisis level was elevated to 'Red' with the virus spreading to local communities, the Ministry of National Defense approached the situation as wartime, and actively executed preventive measures to support government efforts. The ministry remodeled military hospitals, including the Armed Forces Daegu Hospital, to respond quickly against the shortage of hospital beds. The Defense Rapid Support Group was also established to process requests from local governments and government institutions. The training periods for medical professionals were also reduced for their quick deployment to the emergency sites.

1. Introduction

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"We are facing a global health crisis unlike any in the 75-year history of the United Nations — one that is spreading human suffering, infecting the global economy and upending people's lives."

UN Secretary-General António Guterres

"Global cooperation is essential to the containment of COVID-19 and its economic impact, particularly if the outbreak turns out to be more persistent and widespread. To be adequately prepared, now is the time to recognize the potential risk for fragile states and countries with weak health care systems."

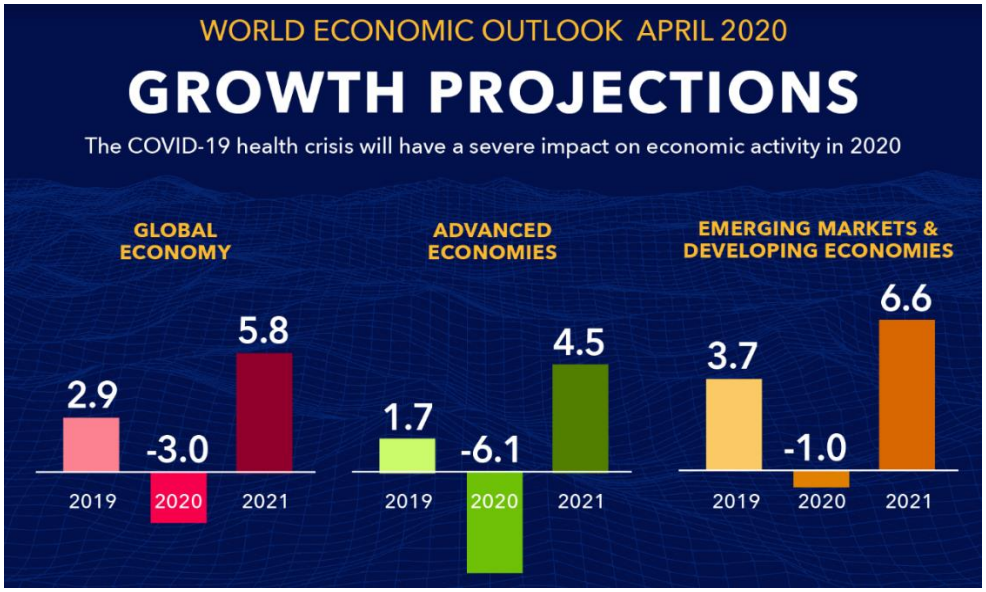
IMF Managing Director Kristalina Georgieva

"This crisis is first and foremost a health crisis which has forced governments to take unprecedented measures to protect people's lives,"

WTO Director-General Roberto Azevêdo

Due to the COVID-19 pandemic, the world economy is expected to experience an economic slump more serious than anticipated. According to the International Monetary Fund (IMF), the global economy is expected to grow at -3% (much worse than during the 2008–09 financial crisis) while global trade volume also grows at -11%, raising concerns over an economic recession like no other in history. These changes in international economic conditions such as the drop in the global trade volume and the limited cross-border activities will bring a particularly immense impact on the Korean economy, which is highly dependent on external factors.

Figure 1-1 World Economic Outlook of April 2020 (IMF)



According to the World Trade Organization, world merchandise trade is set to plummet by between 13 and 32% in 2020 due to the COVID-19 pandemic. Nearly all regions will suffer double-digit declines in trade volumes in 2020, with exports from North America and Asia hit hardest. Trade will likely fall steeper in sectors with complex value chains, particularly electronics and automotive products. A 2021 recovery in trade is expected, but dependent on the duration of the outbreak and the effectiveness of the policy responses.

Figure 1-2 World merchandise trade volume, 2000 – 2022 (WTO)

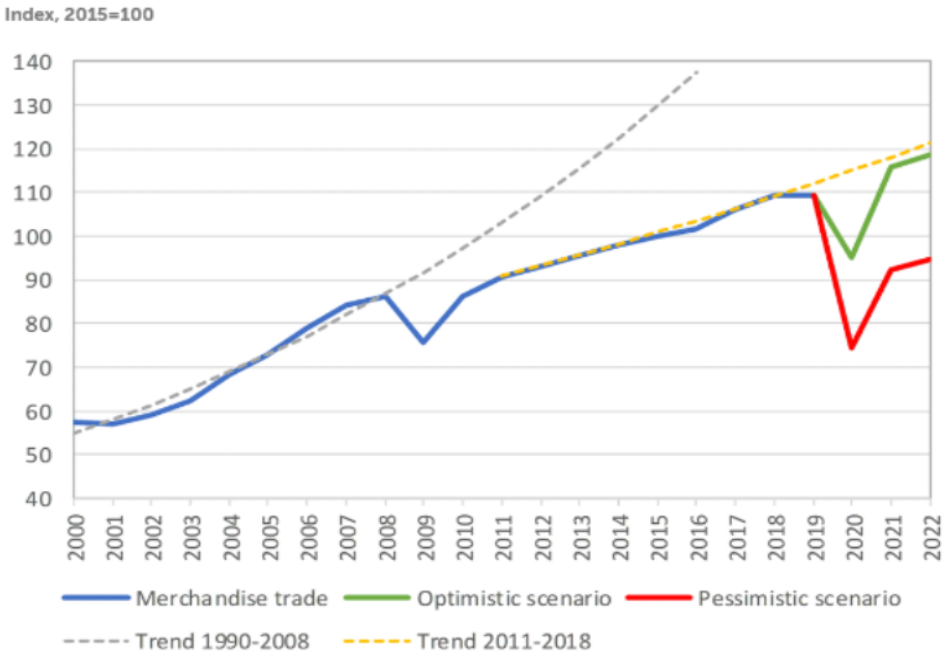


Figure 1-3 Ratio of world merchandise trade growth to world GDP growth, 1990-2020 (WTO)

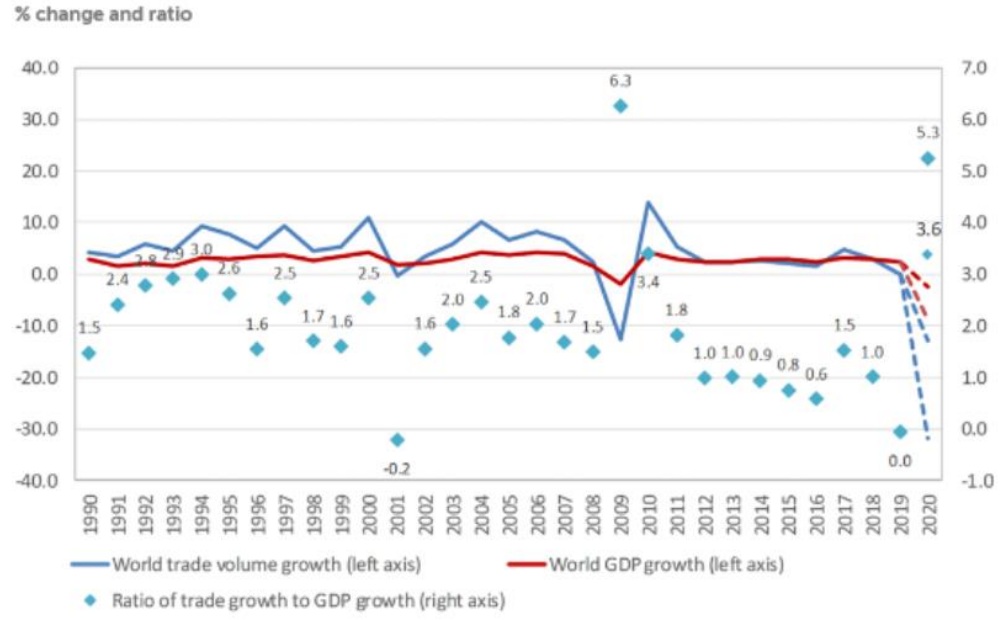


Figure 1-4 IMF World Economic Outlook by regions (IMF)

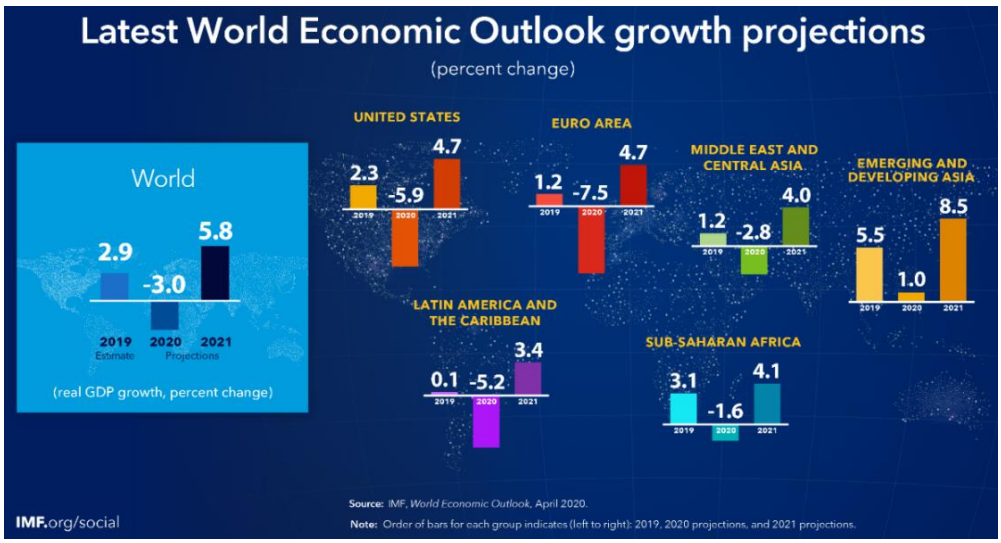
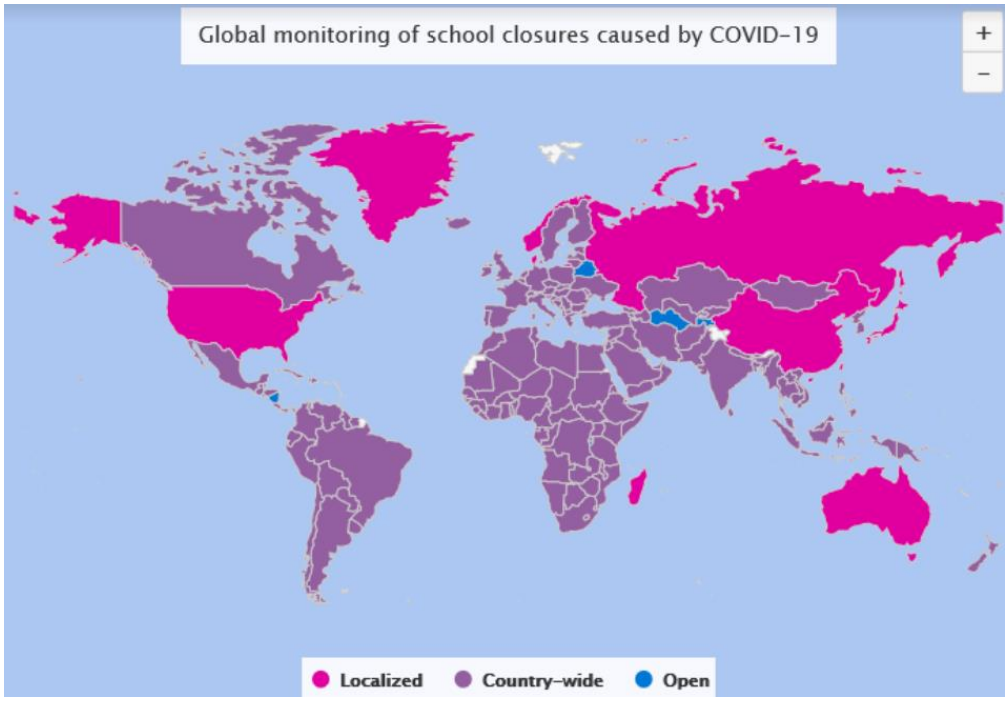


Figure 1-5 Global school closures status by COVID-19 (UNESCO)



Against such gloomy outlook on the global economy, it is also essential to understand the impact that COVID-19 will have on other sectors. Health and quarantine measures will be the first to change but the pandemic will also pose great challenges to the society in general, including education and national defense sectors. This paper will review how COVID-19 has affected various sectors of Korea, and how the Korean government quickly and efficiently responded to these changes.

First, COVID-19 adds difficulty in the education sector. Most governments around the world have temporarily closed educational institutions in an attempt to contain the spread of the COVID-19 pandemic. These nationwide closures are affecting over 90% of the world's student population. Several other countries have implemented localized closures affecting millions of additional learners. It is important to mitigate the impact of school closures, particularly for the most vulnerable and disadvantaged children by facilitating continued education for all through remote learning, thereby minimizing the growing socio-economic gap between learners, an unfortunate yet the most tangible outcomes of COVID-19.

Second, COVID-19 challenges the very fundamentals of democracy. In 2020, elections were planned to be held in major countries. Parliamentary elections are to be held in Australia, France, India and Korea. The US presidential and congressional elections are also scheduled in November. The voting process, from standing in line close to each other, handling s and using touch screens, make for a potentially toxic stew of community transmission of COVID-19. However, a postponement of elections or referenda, or the decision to proceed with a vote – even with mitigation measures – can create political tensions and undermine legitimacy of elected officials around the world. Therefore, it is important for election officials and policy makers to seek possible mitigation strategies.

Figure 1-6 General election held in Korea amid the pandemic (April 15, 2020)

Third, COVID-19 changes the landscape of workplace. An increasing number of companies are allowing their employees to work from home to limit the spread of the virus. Despite the growing calls to introduce the “smart work” system, many countries have yet to fully adopt the new way of working. Remote working may become a permanent result of the COVID-19 pandemic.

COVID-19 introduces a new enemy against the military. Responding to the COVID-19 pandemic has become the top task of the military in all countries. New cases were confirmed in four U.S. aircraft carriers and when a case was confirmed on the French nuclear-powered aircraft carrier, ‘Charles de Gaulle,’ the operation was stalled. Recently, the biggest topic of NATO's Spring 2020 Innovation Challenge was not the military strategy, but the coronavirus response. With the spread of COVID-19, militaries from around the world have huge challenges in supporting the decision-making of military leaders and delivering logistics and supplies to isolated individuals and teams without spreading the virus.

Figure 1-7 Aircraft carrier USS Theodore Roosevelt

This paper introduces Korea's efforts to achieve resilient recovery against the impacts of COVID-19 on education, working environment, society and military in addition to health and economy. Korea’s fight against the pandemic is an ongoing challenge with the possibility of resurgence. While it is premature to provide the answers against COVID-19, the following is a summary of the lessons and experiences of Korea in tackling the pandemic.

2. Testing time for policymakers

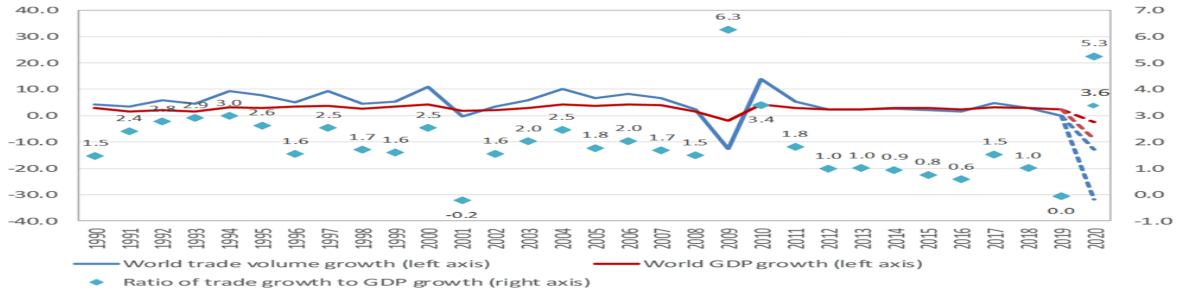
2. Testing time for policymakers

The world economy is expected to experience an economic recession more serious than anticipated due to the COVID-19 pandemic. According to the International Monetary Fund (IMF), the global economy is expected to grow at -3% while global trade volume also grows at -11%, raising concerns over an economic recession like no other in history. In this regard, the changes in international economic conditions such as the drop in global trade volume and limited cross-border activities will bring an immense impact on the Korean economy, which is highly dependent on external factors.

The Korean government plans to strengthen its policy on international economic affairs, focusing on maintaining export capacities, sharing the country's COVID-19 prevention and treatment programs to expand cooperation with foreign countries, building stronger bilateral partnerships with other countries, and preparing for the post-COVID-19 era. By preemptively responding to and managing various external factors, the government will support businesses in their export activities and expansion abroad.

At the same time, the World Bank warned that if consumption and investment do not recover quickly after the pandemic, the developing countries may face an even greater economic recession. The World Bank predicts that the production of developing countries this year will shrink for the first time since 1960 by 2%. The Korean government plans to strengthen support for developing countries that are expected to face economic difficulties and will continue to build partnerships with these countries. Korea will achieve this by supporting health-related projects in developing countries, suspending debt payments for low-income countries and drastically increasing the Official Development Assistance (ODA) for the countries included in the new northern and southern policies of Korea.

Figure 2-1 Ratio of World merchandise trade growth to world GDP growth, 1990-2020
(Source: WTO, April 8, 2020)



2.1 Outlook on the Global Economic Recession and the Impact on the Korean Economy

As of April 27, 2020, 2.9 million people have tested positive for COVID-19, with about 0.2 million deaths. In addition to the health-related impacts, the lockdown of countries and cities, as well as the restricted cross-border mobility of goods and human resources will also result

in extensive damage to the global economy. According to the World Trade Organization (WTO) outlook, world commodity trade will drop by 13% to 32% in 2020.

The World Bank is particularly concerned about the negative influence of the economic recession on developing countries. Unlike developed countries with solid economic structures, developing countries that are more vulnerable to external impacts will react more sensitively to external shock. Based on this, the World Bank predicts a 2% reduction in the production of developing countries. The IMF also predicts a challenging economic situation worldwide, with a global economic growth of -3% and an 11% reduction in world trade volume.

Table 2-1 World Economic outlook projections (IMF, April 20, 2020)

		Projections	
	2019	2020	2021
World Output	**2.9**	**–3.0**	**5.8**
Advanced Economies	**1.7**	**–6.1**	**4.5**
United States	2.3	–5.9	4.7
Euro Area	1.2	–7.5	4.7
Germany	0.6	–7.0	5.2
France	1.3	–7.2	4.5
Italy	0.3	–9.1	4.8
Spain	2.0	–8.0	4.3
Japan	0.7	–5.2	3.0
United Kingdom	1.4	–6.5	4.0
Canada	1.6	–6.2	4.2
Other Advanced Economies[2]	1.7	–4.6	4.5
Emerging Market and Developing Economies	**3.7**	**–1.0**	**6.6**
Emerging and Developing Asia	5.5	1.0	8.5
China	6.1	1.2	9.2
India[3]	4.2	1.9	7.4
ASEAN-5[4]	4.8	–0.6	7.8
Emerging and Developing Europe	2.1	–5.2	4.2
Russia	1.3	–5.5	3.5
Latin America and the Caribbean	0.1	–5.2	3.4
Brazil	1.1	–5.3	2.9
Mexico	–0.1	–6.6	3.0
Middle East and Central Asia	1.2	–2.8	4.0
Saudi Arabia	0.3	–2.3	2.9
Sub-Saharan Africa	3.1	–1.6	4.1
Nigeria	2.2	–3.4	2.4
South Africa	0.2	–5.8	4.0
Memorandum			
European Union[5]	1.7	–7.1	4.8
Low-Income Developing Countries	5.1	0.4	5.6
Middle East and North Africa	0.3	–3.3	4.2
World Growth Based on Market Exchange Rates	2.4	–4.2	5.4
World Trade Volume (goods and services)	**0.9**	**–11.0**	**8.4**
Imports			
Advanced Economies	1.5	–11.5	7.5
Emerging Market and Developing Economies	–0.8	–8.2	9.1
Exports			
Advanced Economies	1.2	–12.8	7.4
Emerging Market and Developing Economies	0.8	–9.6	11.0

The Korean economy, which is highly dependent on export activities, is also likely to be greatly influenced by the gloomy outlook for the world economy. Korea's export decreased by 26.9% in April (as of April 20) compared to the previous year, which already shows that this concern is becoming a reality.

2.2 Korea's Policies on International Economic Affairs in Responding to COVID-19

Deputy Prime Minister Hong Nam-ki discussed the three key areas in the government's international economic policy amid the COVID-19 pandemic at the Inter-Ministerial Meeting on International Economic Affairs on April 27 2020.

Figure 2-2 Deputy Prime Minister Hong Nam-ki chairing the Inter-Ministerial Meeting on International Economic Affairs (April 27, 2020)

The Korean government will focus on three key international economic cooperation measures to minimize the effects of the pandemic on the Korean economy.

The government is working to first address the challenges that businesses face in trade because of the entry ban of other countries, in addition to providing strong support to businesses in their export activities and export financing. In May, measures to promote overseas infrastructure construction will also be announced to support the development and contracting of large-scale projects. Second, to control new risks in trade under such difficult circumstances, and to strengthen the bilateral cooperation with major countries, Korea will closely monitor potential risk factors where conflicts may arise so that businesses can avoid additional burden. Lastly, the Korean government plans to be prepared for the new global order and changes in the global value chain in the post-COVID-19 era by diversifying markets, expanding trade and broadening overseas investment, as well as securing manufacturing supplies against the changing global value chain.

Figure 2-3. Vice Minister of Economy and Finance Kim Yong-beom meeting with board members of exporting businesses (April 21, 2020)

Active ODA engagements

Because developing countries not only lack sufficient health-related and medical infrastructure, but also are vulnerable to capital outflow and ODA reduction, the Korean government plans to provide active support for these countries by suspending debt payments and providing more ODA.

Over 400 million dollars will be provided through the Economic Development Cooperation Fund (EDCF) by the end of this year to target healthcare projects against COVID-19 in developing countries. A total of over 110 million dollars of repayments on loans for 26 low-income countries will be suspended, while the size of the Export-Import Bank of Korea's foreign subsidiary capital will be tripled to 400 million dollars.

In addition, the amount of ODA for countries in Korea's new northern and southern policies will be 7 billion dollars for the next three years. This amount has doubled compared to the previous three years to provide stronger support for the target countries.

ODA for New South Policies will include ICT aid taking into consideration recipient countries demand, landmark projects and model projects to help develop mid-to long-term partnership. ODA for New North Policies will include aid as priming of economic cooperation, and aid to help address issues recipient countries are most concerned about, such as healthcare and climate change.

Figure 2-4. Comprehensive Economic Policy Response to the Covid-19 Pandemic

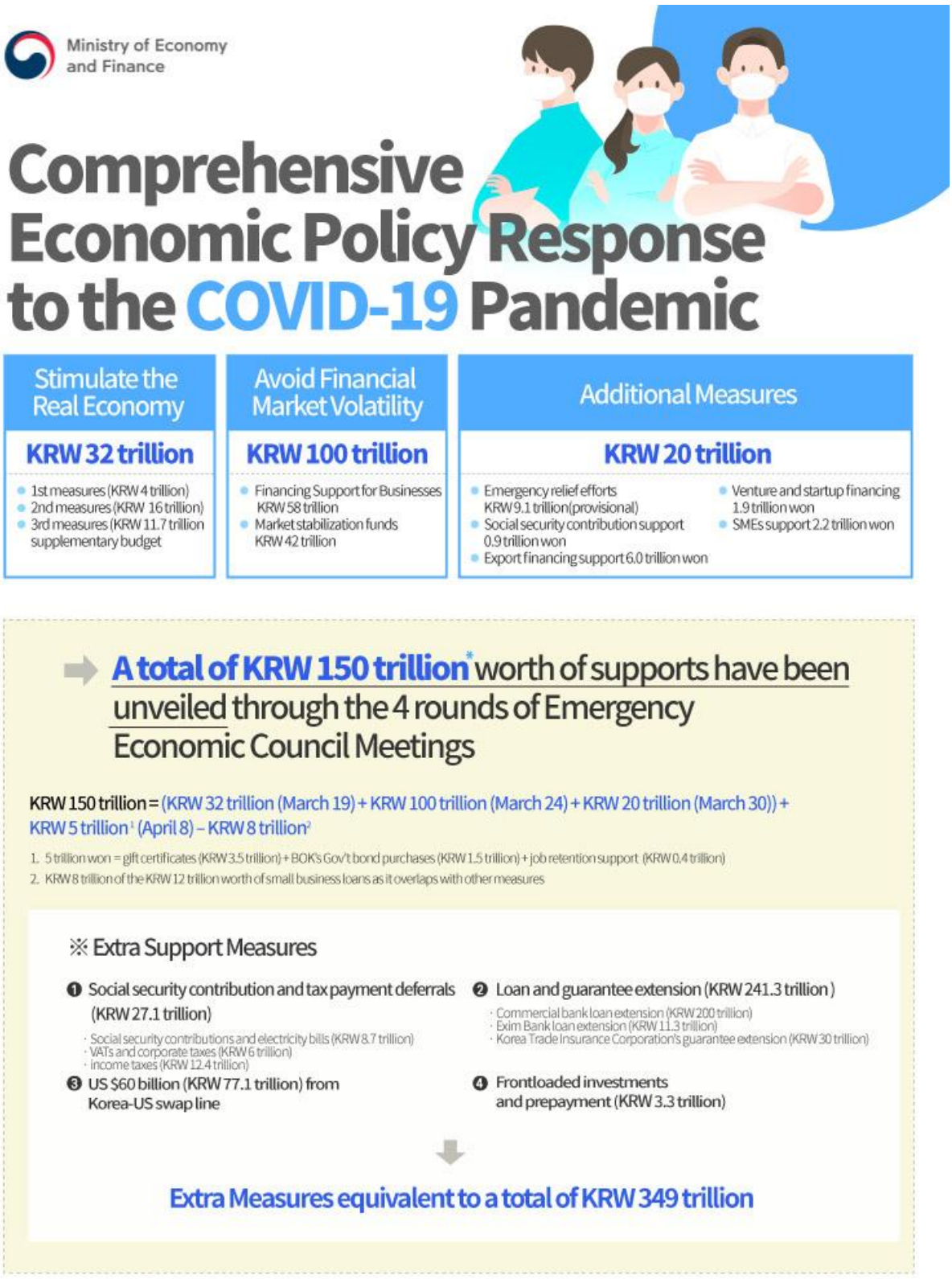
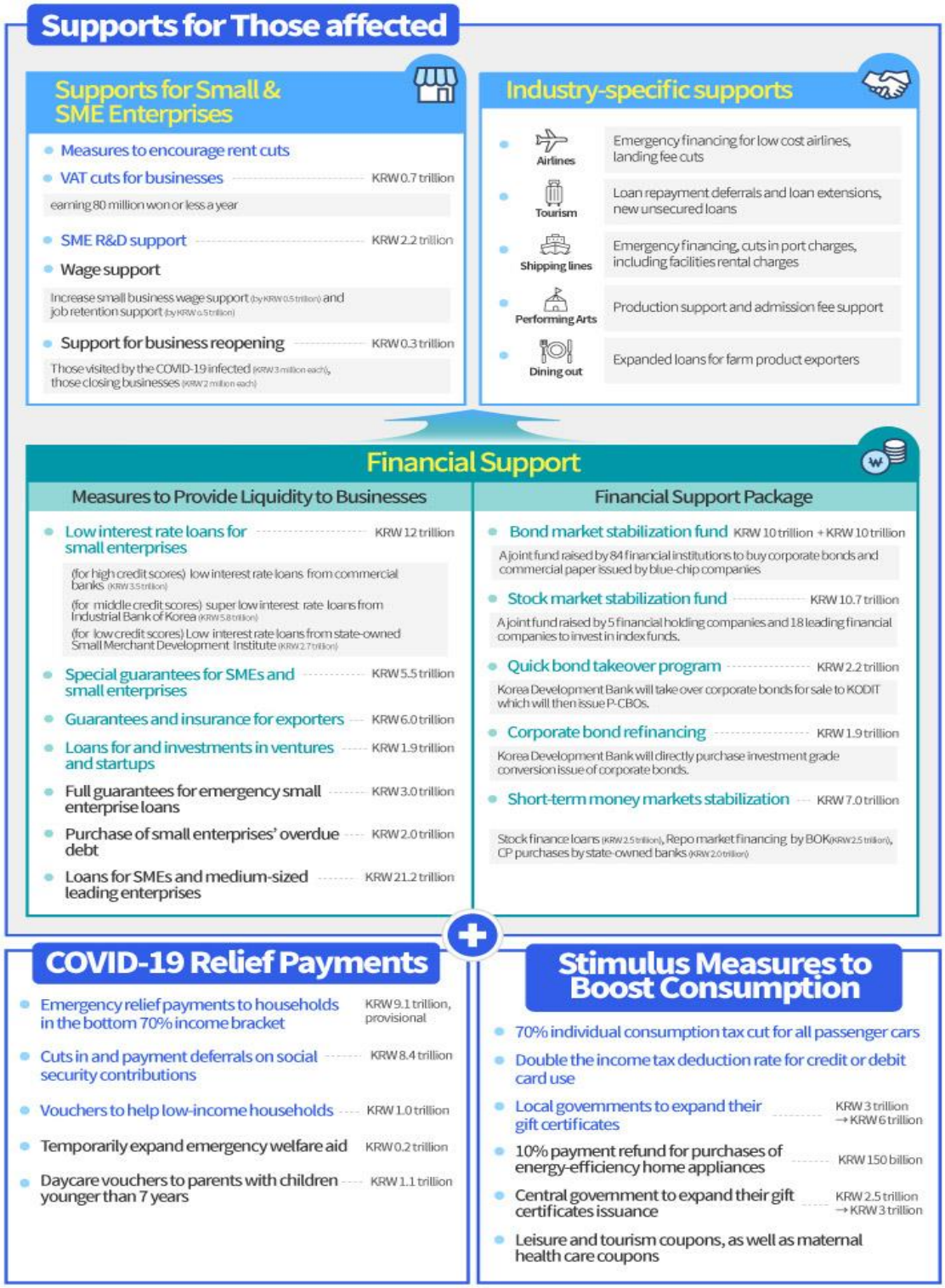


Figure 2-5. Supports for affected sectors



3. Testing time for schools & educators

3. Testing time for schools and educators

After the decision to postpone the beginning of the new school year for primary, junior high, and high school students, the Korean government provided online contents to allow students to continue learning at home in order to minimize the learning gap until schools reopen. During this time, the government also laid the necessary groundwork and set up systems to start the school year online. Since the phased in commencement of online classes on April 9, all students are now taking classes online.

Meanwhile, universities were advised to postpone the start of a new semester by up to 4 weeks. Universities are expected to continue offering online lectures until the end of the pandemic.

3.1 Decision to postpone the new school year

Decision to hold online classes and to postpone the start of a new semester

Before the beginning of a new school year in March, the government reviewed the need to postpone the opening of schools to prevent further spread of COVID-19. On February 23, the beginning of the new school year was postponed by one week from March 2 to March 9. However, as the virus continued to spread throughout the country, it was inevitable for schools to be closed for a while longer. Based on the increase in the number of new cases, the government further pushed back the start date to April 8, with the aim to avoid possible secondary infections in schools and to implement social distancing.

Universities calling off the new school year

The beginning of a new semester at universities early March was expected to bring in a huge influx of international students from countries including China, which had reported the highest rate of infections at the time. The government advised universities to postpone the start of a new school year by up to 4 weeks in order to prevent secondary infections into communities. Accordingly, all campuses delayed the new semester by two to four weeks.

3.2 Operating a platform for information exchange among teachers and providing online content during school closures

The government has created a range of measures to minimize the learning gap in students and to prepare them for the new semester during these unexpected school closures.

Assigning homeroom teachers and providing curriculum guidance

Homeroom teachers were assigned to students in the first week of March when primary, junior high, and high schools normally start, and students were able to access the curriculum plans. This helped students and parents ease their anxiety over the delay in the school year. Furthermore, online learning programs through platforms such as Edunet and EBS video clips were provided free of charge to allow independent learning for primary, junior high, and high school students.

Offering online textbooks and student feedback

Digital textbooks, including video clips and test questions, were provided online starting from the second week of March. Homeroom teachers uploaded homework to an online classroom titled ‘School-on’ in order to encourage student participation and to provide feedback to students. ‘School-on’ was designed to assist teachers create online classrooms and easily access essential information for teaching and guidance. Through this comprehensive educational support on the website (http://onschool.edunet.net), this platform allows teachers and students to interact with each other.

Figure 3-1. Main screen of the School-on (online schooling) website

In addition to the platforms supported by the central government, several city and district offices of education allowed teachers to use their own platforms to provide learning materials. Students were also encouraged to participate more actively in the learning process through live streaming and YouTube videos.

(Example Case 1) Daegu Metropolitan Office of Education

Teachers voluntarily built an online website called “let’s-go-to-school.com (translated)” to allow bonding between newly assigned homeroom teachers and students, and to enhance credibility of public education through educational support programs. On this website, students can access resources in sections dedicated to each school year, and other online contents such as live streaming of art classes.

Figure 3-2. Initial screen of ‘let’s-go-to-school.com (translated)’ learning materials

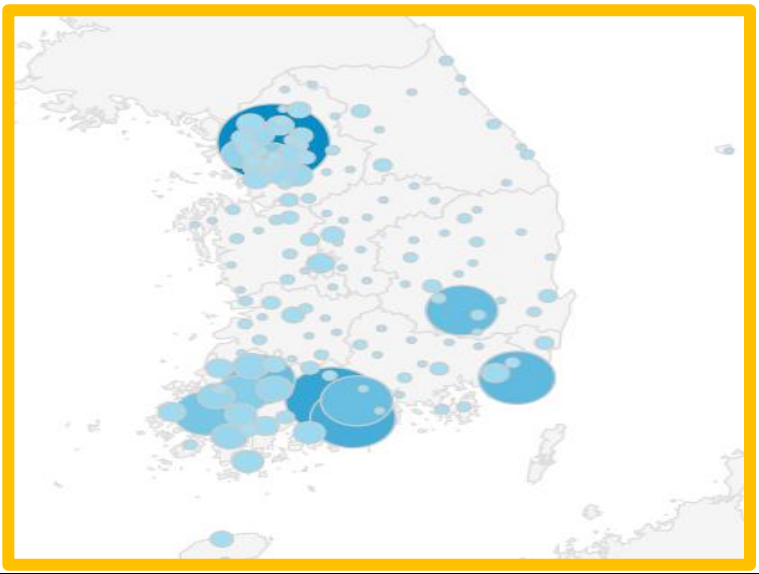
Figure 3-3. Initial screen of ‘let’s-go-to-school.com (translated)’ learning materials

(Example Case 2) Jeollanamdo Office of Education

The school of Creative Convergence Education in Jeollanamdo Province developed an online learning platform named ‘Jeollanamdo-Province-Classroom-On.com (translated),’ which is now being utilized nationwide. Instead of one-directional contents, this website adopted a questionnaire system where teachers can communicate with students. Students can access the site through a mobile application or the web without registering.

Figure 3-4. Initial screen for each log-in

Figure 3-5. Map of the current level of nationwide distribution



3.3 Measures to incorporate digital classrooms as regular school

Considering how it is impossible for students to meet for in-person classes during a pandemic like the coronavirus, there are limitations to postponing school in the short-term. In the long-term, it is imperative for schools to open and provide systematic learning through online classes. With this in mind, the Korean government incorporated the concept of digital classrooms and remote teaching methods into the Elementary and Secondary Education Act, with an objective to take the method of education to the next level in a future-oriented manner. These efforts include converting traditional offline education into a mix of both online and offline education.

For example, schools are given the flexibility to select from different types of digital classrooms (interactive, content-based and assignment-focused classes) depending on the level of academic content, student capacity and school conditions. Grades would be evaluated after classes begin in person based on all the learning materials including the ones from online learning to ease the concerns of students and parents.

Online Education

Phased-in commencement of online classes

On April 9, online classes began for the final year students in junior high and high schools. Despite the slower increase in new cases, there were still concerns that reopening of schools could lead to regional transmissions, and so the government decided to bridge the learning gap by facilitating online learning. To carefully prevent possible issues such as system overload, and to ensure stability of servers, the government set different commencement schedules for different grade levels. As of April 20, online classes have begun for all students from primary to high schools.

Figure 3-6. Minister of Education taking part in an opening ceremony for online schools

Three-step phased-in reopening of schools online for 2020:

(April 9) Online classes begin for final year students in junior high and high schools

- Orientation period until April 10

(April 16) Online classes begin for 4th to 6th graders in primary school and first and second year students in junior high and high schools

- Orientation period until April 17

(April 20) Online classes begin for 1st to 3rd year students in primary schools

A range of educational activities tailored to students in each school year

Considering that it may be difficult for younger students to adapt to remote classes, a wide range of audiovisual programs, including traditional subjects, arts, music, and science, were provided through television programs that are tailored to different stages of student development. In addition, about 400,000 e-Books were provided to students, as school or public libraries were no longer accessible. Each student has free access to four e-Books a month.

Figure 3-7. Offering e-library for students until schools reopen
(Source: Ministry of Education)

Ensuring fair education for low-income families

To help students from low-income families receive online education, the government provided free rental of approximately 316,000 tablets and other smart devices owned by schools and offices of education. The government also worked with telecommunication companies to allow all students, parents and teachers free unlimited data when accessing educational contents.

Online lectures at universities

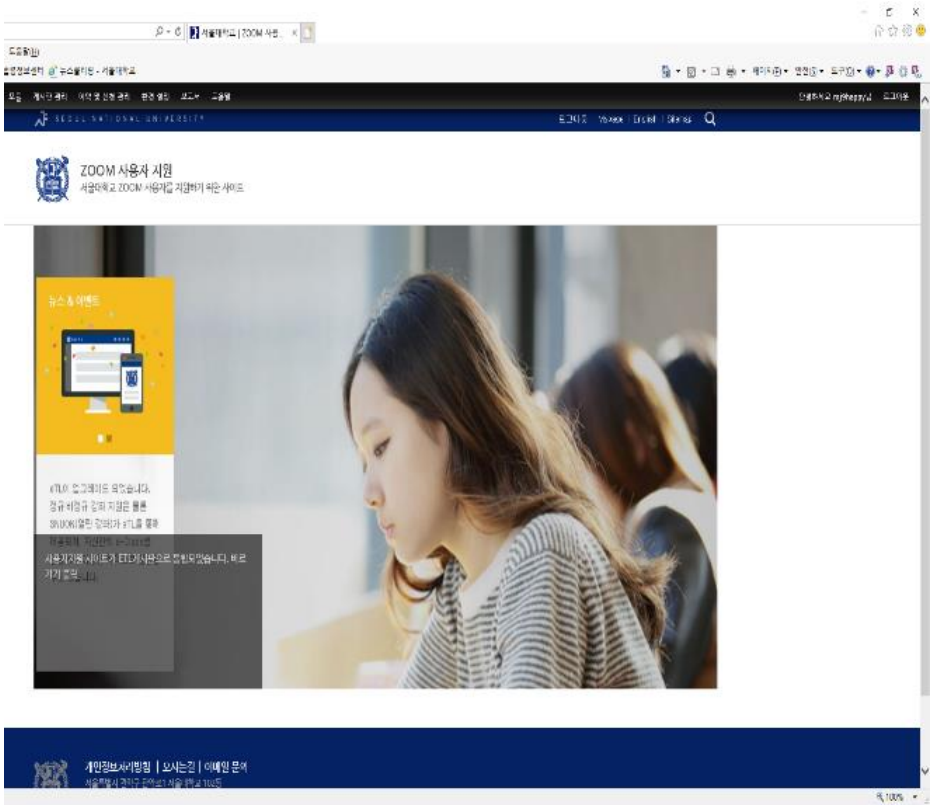
Universities also began online lectures after up to four weeks of postponing the start of a new school year. Universities are allowed to choose the teaching method based on the specific circumstances of the school or programs, while it is recommended that universities obtain digital equipment, including video recording devices, to provide recorded lectures or real-time classes online. All universities began online lectures during the social distancing period. Seoul National University uses three types of remote lectures: real-time online lectures, recorded video lectures, and lectures with assignments and online discussions. All remote lectures are to be held using the online learning systems of the university.

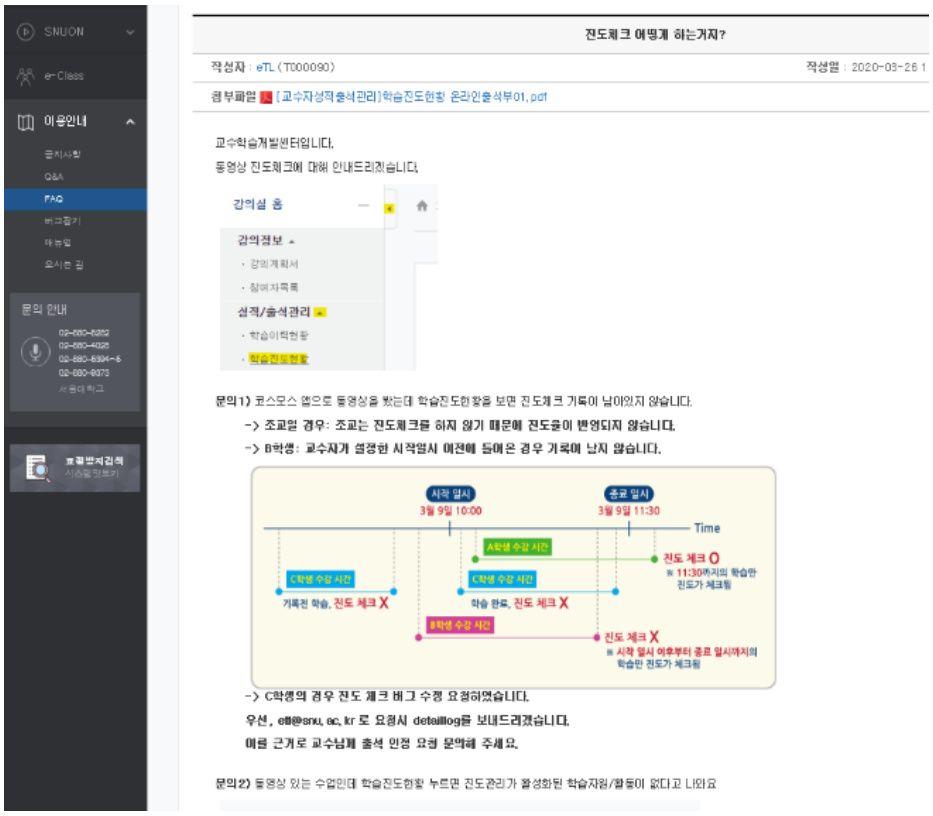
Figure 3-8. Devices to record online lectures at Seoul National University

Seoul National University expanded its system to set up a learning environment that can be simultaneously accessed by up to 11,000 students. The university also set up a task force to efficiently support remote learning. Furthermore, questions and issues on online lectures are addressed right away via call centers and email support.

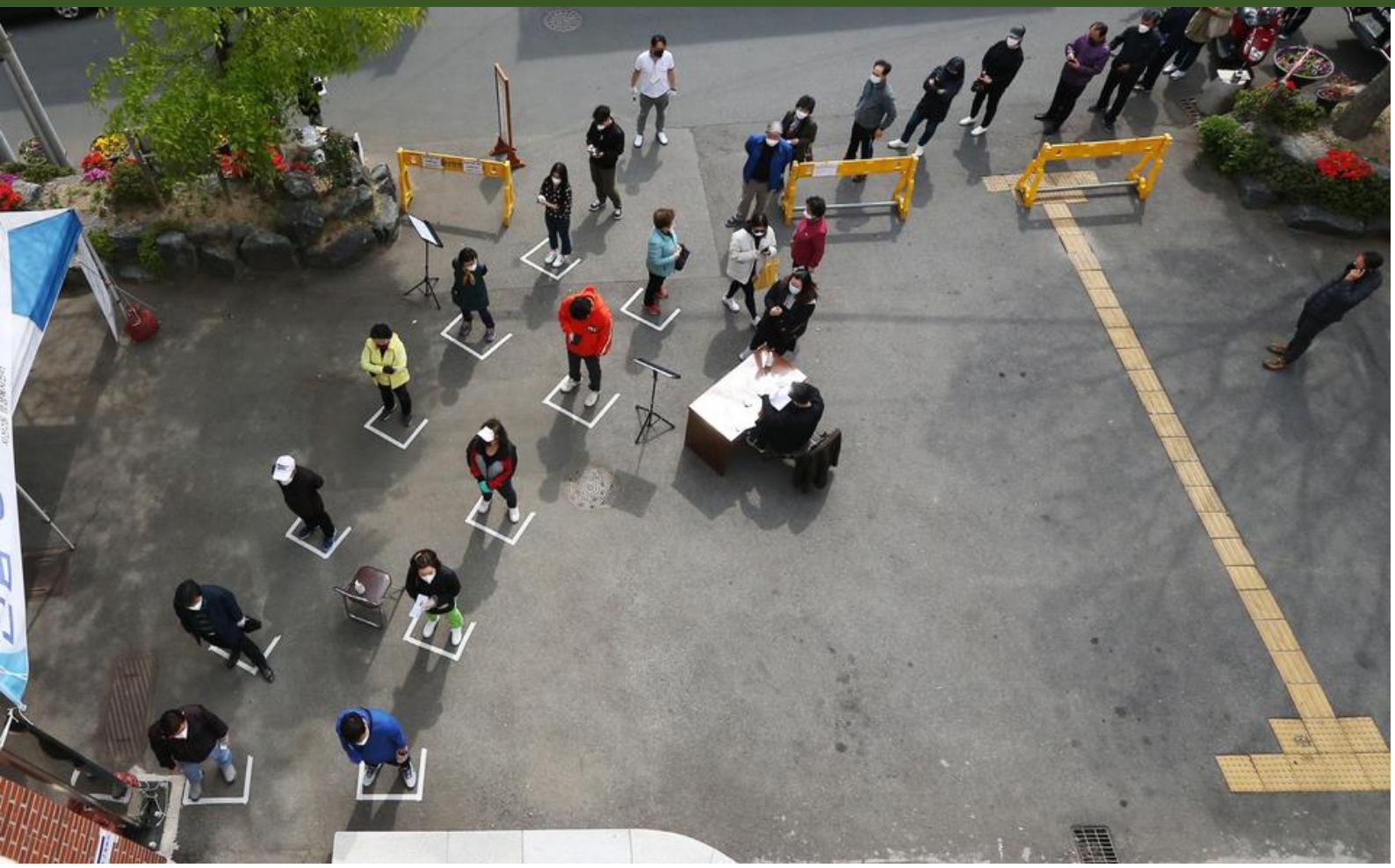
For students with disabilities, real-time stenography service for live-streaming lectures and stenographic notes for recorded lectures are provided. Note writing support as well as braille translations of the learning materials are also provided if needed. Clear principles were set to prevent confusion among lecturers and students. In principle, all exams other than mid-term and final exams are to be taken online to prevent transmissions. Midterm exams would be left to the lecturer’s discretion while final exams are made mandatory.

Figure 3-9. Website for remote lectures (Source: Seoul National University)





4. Testing time for democratic election



4. Testing time for democratic election

Korea's general elections were successfully completed during the coronavirus pandemic

On April 15, Korea became the first country to hold a general (legislative) election during the height of the COVID-19 pandemic despite worries over possible transmissions. Seeing that the spread of the virus had begun to slow, the government pushed ahead with the election to ensure the people's democratic rights to vote. Voters complied with the strict quarantine guidelines of the government in exercising their right to vote. As a result, the voting rate in the general election stood at 66.2 percent, the highest turnout in 28 years.

General elections are held every 4 years in Korea to elect the 300 members (253 from first-past-the-post constituencies and 47 from proportional party lists) of the National Assembly. A total of 29.13 million, or 66.2% of the 43.99 million eligible voters, voted in the 2020 general election. As of May 1, 2020, Korea's health officials concluded that there was no local transmission of the virus caused by the general election. Not one case related to the election has been reported during the 14 days of incubation period, according to the Korea Centers for Disease Control and Prevention.

Figure 4-1. President Moon and the First Lady cast their votes (April 10, 2020)

The election followed the original schedule despite the pandemic. Preliminary candidates were registered by December 17, 2019; the overseas electoral register was decided on March 15, 2020; candidate registration was received by March 27; the electoral register and the list of abode voters were prepared on March 28 and finalized on April 3; advanced polling were held from April 10 to 11; and the election was held from 6AM to 6PM on April 15, 2020.

Nationwide, 14,330 regular polling stations, 3,508 advance polling stations and 251 ballot counting places were set up. To ensure voting rights for those infected with COVID-19 or those under isolation or quarantine, special advance polling stations were set up in eight regions. Voters cast their ballots at polling stations in schools located in the given districts or town offices (community centers), which have jurisdiction over the smallest administrative units. Public facilities, such as train stations or libraries, and private buildings, such as galleries or restaurants, were also used as polling stations.

Figure 4-2. Polling station (from right to left: temperature check and use of hand sanitizer, identification check, issuance of ballot paper, casting of the vote before exiting) (Yonhap News)

4.1 Principles for voting and counting in response to COVID-19 under the National Election Commission (NEC)

With the goal to create infection-free polling and counting stations that ensure public safety and prevent further spread of the virus, the National Election Commission (NEC) has strictly followed the following principles:

- The government guarantees the exercise of franchises by allowing and providing more ways to report ballot at abode for those infected with COVID-19
- The government implements measures to guarantee the exercise of franchise for those testing positive to COVID-19 and those under movement restrictions after the registration period for abode voters.
- The government guarantees the exercise of franchise for those under self-quarantine until the date of the election (April 15) after being in contact with a confirmed case or arriving from abroad.

Five Types of Voting in the General Election

1. Abode voting

An eligible voter who is unable to move freely on the ground of his or her serious physical disability or a person who has been admitted for a long time in a hospital, sanatorium, asylum, prison or detention center may file an abode polling report during the set period (March 24-28, 2020) and mail in his or her vote.

2. Overseas voting

Overseas voters and overseas absentees may vote at an overseas polling station during the set period (April 1-6, 2020)

3. Ballot aboard ship

A seafarer who is unable to vote at an advance or regular polling station because he or she is on board a ship used for deep-sea fisheries or for overseas passenger transportation services may cast a vote via facsimile in the relevant ship during the set period (April 7-10, 2020).

4. Advance voting

Without a separate registration, an eligible voter who cannot vote on the election day may cast his or her vote at an advanced polling station, which is to be set up in each towns/township/neighborhood for two days from five days before the election day (April 10-11, 2020 from 6AM to 6PM). Voters may vote at any advance polling stations nationwide, regardless of their registered residency. In 2020, a total of 3,508 advance polling stations (3,484 in towns/townships/neighborhood, 16 in areas where military units are concentrated, and 8 in COVID-19 living/treatment centers).

5. Voting on the election day

Eligible voters may vote at a polling station in the voting district of his or her registered residency on the election day (April 15, 2020 from 6AM to 6PM). In 2020, a total of 14,330 polling stations were set up.

4.2 National code of conduct when casting ballots

The National Election Commission (NEC) set the national code of conduct for casting ballots as the following in order to ensure a safe voting environment free of COVID-19.

Before going to a polling station (Children are advised not to accompany the voter):

1. Prepare a valid ID
2. Wash hand for at least 30 seconds under running water and put on a mask

At the polling station:

1. Check for fever, sanitize hands and put on vinyl disposable gloves before casting vote
2. Maintain a one-meter distance from other voters inside and outside the polling station
3. Refrain from non-essential conversations inside or outside the polling station
4. Lower the facemask only to have the staff verify ID
5. Those with fever should vote at a temporary station and visit a health clinic afterwards
6. Wash hands for at least 30 seconds under running water after returning home

4.3 Possible Scenarios against COVID-19

(Case 1: Measures in case of an advance polling station shutdown)

If an advance polling station needs to be closed a day before the period for advanced polling, the place can still be utilized as an advance polling station if it is determined to be safe for the public after a full disinfection. If the location needs to be changed, the advance polling station will be moved to a different location or to temporary polling tents set up in schoolyards. If an advance polling station needs to be closed during the period of advance polling, the chairperson from the given district, city, or county commission will make the decision to suspend its operation, in which case a notification will be posted online along with the location of other nearby advance polling stations. The voting management officer closes and seals the slot of a voting box in the presence of an advance polling observer, and attaches the special sealing paper before transferring it to the election commission of competent district/city/county.

(Case 2: Measures in case of a polling station shutdown)

If a polling station needs to be closed a day before the Election Day, the station can still be utilized as a polling station if it is determined to be safe for the public after a full disinfection of the place even if the closure order is not lifted until the opening of the stations. If the location needs to be changed, the polling station will be moved to a different location or to temporary polling tents set up in schoolyards. If polling stations are to be closed on the Election Day, it would be best to secure an alternative location near the original location. Under the oversight of election observers, voting boxes, signposts, ballots, and a list of voters will be transferred to the new location, where polling will continue. Without an alternative location, polling will continue at a nearby temporary polling tents set up temporarily.

(Case 3: Measures in case of a ballot counting place shutdown)

If a ballot counting place needs to be shut down, it will be impossible to change the location even if an alternative location is available because the necessary equipment cannot be set up at the new location. Therefore, to prevent closing of a ballot counting place, facility managers should be asked in advance to restrict entry into the place until the scheduled closure of the place. In case of a ballot counting place shutdown, the voting boxes from polling stations are stored at a location until the shutdown is lifted, after which the ballots are counted at the original location.

Figure 4-3. Polling stations being disinfected (Yonhap News)

4.4 Preventive measures to counter COVID-19 at polling stations

In order to prevent transmission at polling stations, staff directed the voters to maintain a safe distance of at least a meter with other voters in and outside the polling station. Voting clerks checking the temperature at the entrance also advised voters to wait at the entrance if the polling station was too crowded until a safe distance can be ensured. Furthermore, voting clerks sterilized the voting equipment, signposts, and voting boxes with disinfectant tissues as often as possible. The NEC directed voters, voting clerks and observers to avoid unnecessary conversations.

In addition, Korea also conducted a thorough quarantine and disinfections of all polling stations. Polling stations (including the advanced polling stations) and the ballot counting places were disinfected immediately after being set up as well as after use. The priority was on facilities that needed to be used the following day, such as senior centers and schools. All areas including the inside, outside of the stations as well as the bathrooms, elevators and hallways were fully disinfected. Air pressure sprayers were used to disinfect the surfaces and the Ultra-low Volume (ULV) sprayers to disinfect floating germs. The disinfectant that allows use of the facility within 6 hours was used.

(Example Case) Checking the waiting times at each polling station in Sejong

Sejong City, the administrative capital where the government complex is located, has provided a notification service through a GPS-based smart portal named ‘Sejong N’ to let voters know how long they would have to wait at each polling station. The portal was aimed to help minimize the waiting time for voters and to reduce contact between voters.

A test run with Sejong N was conducted in early April. Voters used their computers or phones to log into Sejong N, and checked the location of polling stations, wait-time, and voting rates. They were also able to compare and check the waiting time at nearby polling stations. Voters practiced social distancing and cast their ballots at polling stations that were less crowded.

4.5 Support for general voters

The NEC announced the ‘National Code of Conduct for the Public Going to Polls.’ Voting instructions were mailed to all households after the code was announced. The commission also sent the same code of conduct when delivering election notices to soldiers and police officers. Moreover, ‘the National Code of Conduct for Voting’ was posted on the Korea Broadcasting on Voting and the NEC website, and fully advertised through social media, TV programs, and newspapers.

The NEC released a video clip on how to practice virus-safe voting, while educating voters about the election. The video clip was uploaded to a YouTube channel and used to train voting clerks working at polling stations. The video covered the disinfection measures for in and outside the polling stations, voting procedures, and proper ways to assist a voter with a fever or a respiratory symptom at a temporary polling tent.

For both voting and advance polling, the NEC took following actions. Voting and advance polling officials, including managing officers, clerks, and observers, wore a facemask and medical gloves. The professional staff who checked voter temperatures wore a face-protecting gear, a mask, and medical gloves. Voting and advance voting management officers designated voting clerks who would be in charge of checking the conditions of people with fever or respiratory symptoms.

The principles for tackling COVID-19 were incorporated into the establishment of polling and advance polling stations. In other words, signs were attached to inform voters to maintain a one-meter distance from each other. Furthermore, the routes taken by voters with a fever or respiratory symptoms were separated from ordinary voters. In addition, a box for the disposal of single use vinyl gloves was set up at the exit of polling and advance polling stations.

Figure 4-4. Voting procedures (National Election Commission)

Manual on voting and advance voting

① Voters must wear a mask when visiting a polling station.

② Voters must keep a distance of at least one meter from others inside and outside the polling station.

③ The person designated to checking temperature of voters (voting clerk) checks all voters for a fever at the entrance of a polling station.

④ Voters without symptoms use hand sanitizer and put on disposable vinyl gloves before entering the polling station.

⑤ Voters should only lower their masks to allow verification of ID while voting.

※ A voter will not be able to vote if he or she refuses to take off the mask for ID verification, unless ID can be verified with the mask on.

⑥ Voters must keep the disposable vinyl gloves on at all times from signing to confirm ID, receiving the ballot paper, marking the votes in the balloting booth, and placing the ballot paper in a ballot box.

⑦ After voting, voters should dispose the vinyl gloves in the designated box before leaving the polling station.

Manual for temporary balloting booth for voters with fever or respiratory symptoms

① Voters use hand sanitizer and put on disposable vinyl gloves.

② The voter's ID is checked through a certificate that could verify the ID.

③ The voting clerk writes the name of the voter in the electoral register to confirm receipt of the ballot paper (in the signature section at advance polling stations), issues the ballot paper (including return envelopes for advance voters outside of the district) and temporary polling station envelope to the voter.

※ Voting management officer marks in the reference section of the electoral register, "voter casting ballot at a temporary balloting booth" and manages the list of voters using temporary balloting booths.

④ Voters cast their votes alongside an observer.

⑤ Voters must place the ballot in an envelope for the temporary balloting booth and deliver it to a voting clerk.

⑥ A voting clerk accompanied by an observer transfers the envelope to a voting management officer, who places the ballot paper into a ballot box in the presence of an observer.

※ Precautions must be taken not to show the contents of the ballot in this process.

⑦ A voting clerk contacts a public health center (the 1339 hotline, or area code+120) to inquire about the voter's symptoms and follow their instructions.

⑧ A voting clerk must use disinfectant tissue to disinfect the voting equipment and temporary balloting booth, and ventilate the places.

Guidelines for voting clerks when checking for fever

When a person does not have a fever

① Check for a fever	▸ Check for temperature. (Since a non-contact thermometer is used, check the voter's temperature without physical contact to the forehead, wrists, or the rear side of ears.) ▸ If the voter refuses, request cooperation by explaining the objectives for checking for a fever under the government guidelines (the guidelines for responding to COVID-19 at group facilities and multi-use facilities).
② Explain the result	▸ If there are no symptoms, instruct the voter to keep a distance of more than one meter from the person in front. Inform the voter that they should have their ID ready to make the process easier.
③ Instruct the use of hand sanitizer and disposable vinyl gloves	▸ Instruct the voter to use the hand sanitizer, placed at the entrance or inside the polling station, and to put on the disposable vinyl gloves.

Guidelines when a person does have a fever

① Check for a fever	▸ Check for temperature. (Since a non-contact thermometer is used, check the voter's temperature without physical contact to the forehead, wrists, or the rear side of ears.)
② Explain the result	▸ Ask the voter who measures above 37.5 degrees Celsius for his or her cooperation to move to a temporary balloting booth. (Contact the voting clerk in charge of the temporary balloting booth) (Guide the voter to the temporary balloting booth) ▸ **(If the voter refuses,)** Ask for cooperation by explaining the objectives of a temporary balloting booth. **(If the voter continues to refuse,)** Report to a voting management officer, who will again ask for cooperation. If the voter continues to refuse, ask other voters already inside the polling station for cooperation to let this voter cast his/her ballot in a regular balloting booth, and then disinfect and ventilate the booth.
③ Guide the voter at the temporary balloting booth	▸ Instruct the voter to use the hand sanitizer placed in the booth and to put on the disposable vinyl gloves ▸ Instruct the voter to fill out the ID verification form and then follow the "Voting procedures at a temporary balloting booth for voters with fever or respiratory symptoms."
④ Instruct the voter to contact a public health center	▸ Instruct the voter to contact a public health center (the 1339 hotline or area code + 120) to inquire about the symptoms and to follow their instructions.

4.6 Allowing confirmed COVID-19 patients to vote

The Korean government allowed patients to vote at home or in the hospital where they are staying to help them exercise their voting rights while preventing further spread of the virus.

According to Article 38 Paragraph 4 of the Public Official Election Act, “a person who has been admitted for a long time in a hospital, sanatorium, asylum, prison, or detention center or a person who is unable to move freely on the ground of his or her serious physical disability” may participate in abode voting. On March 5, 2020, the NEC decided to allow those under quarantine and the COVID-19 patients in a hospital or a living/treatment center to cast their votes. After the decision, the NEC called on relevant institutions to ask for their cooperation.

The registration for abode voting was open for five days from March 24 to 28. Eligible voters could cast their votes at abode after filing a report to the head of the competent district by 6PM on March 28, 2020. Normally, this report needed to be in original writing to the head of the competent district/city/country, but the reports related to COVID-19 cases were accepted in copies via email, facsimile, Kakaotalk (mobile instant messaging application) or text message. Those filing the report to vote at abode because of COVID-19 were checked by the hospital, Ministry of Health and Welfare, and the corresponding district/city/county. Staff responsible for handling the ballot papers received by mail were required to wear a mask and gloves and to frequently sanitize their hands.

Manual by the NEC on absentee voting

□ Providing guidance and registration papers on absentee voting for confirmed patients

▶ Sending notices on absentee voting registration and registration forms to those in hospital, or staying at living and treatment centers, or the self-quarantined after becoming infected with the virus.

□ Information on persons in charge of confirming the registration for absentee voting

▶ (Hospitalized patients) After receiving confirmation from the head of the hospital where patients are hospitalized, report the registration to the head of the district, city, or county.

▶ (Those in living and treatment centers) After receiving confirmation from the head of the city or province that established the center, report the registration to the head of the district, city, or county.

▶ (The self-quarantined) Skip the procedure to be confirmed by the head of the smaller administrative unit and report the registration to the head of the district, city, or county. When the report is submitted to the head of the district, city, or county, they will check the list of confirmed patients and confirm whether the individual is eligible for absentee voting.

※ If a confirmed patient is staying in a hospital or living and treatment center but cannot receive approval from the head of the given facility, the eligibility of his/her registration can be checked by the head of the district or county.

□ Information on absentee voters

▶ Wear a mask or disposable vinyl gloves during absentee voting (including when receiving the voting paper).

▶ After voting, send the return envelope to the official in charge of the hospital or facility

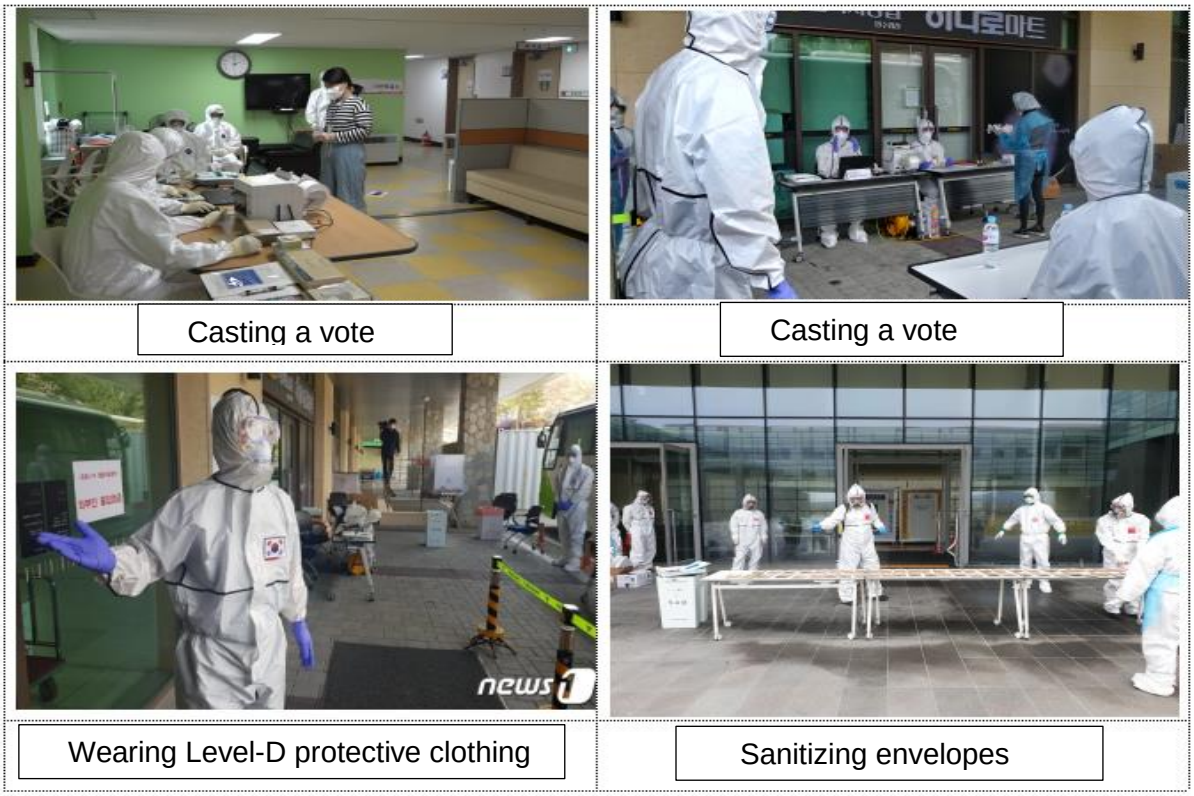
□ Cooperation with hospitals

▶ Take steps to ensure that voting papers are accurately delivered to absentee voters

▶ Disinfect or sterilize the return envelope before mailing it (or handling it over at a posting office).

Measures were taken to allow voting for those who test positive and those placed under quarantine after the period to report abode voting. Special advance polling stations were set up at eight locations of the living/treatment facilities, which are set up in university dormitories, forest lodges, and corporate training centers to house confirmed patients with minor symptoms. Each of these special advance polling stations were open for one day on either April 10 or 11.

Figure 4-5. Voting scenes (Source: NEC)



Depending on the number of voters, the stations were open for four to eight hours. Eligible voters included confirmed patients, and medical and administrative staff at the facility. Because medical and administrative staff were on a two-week shift, during which time they could not leave the facility, they were also eligible. Advance polling methods were followed, but the return envelopes were disinfected to prevent transmission through paper. The patients and the staff were given different time slots for voting.

To limit the transmission of contagion at these special polling stations, the stations were set up where it is well ventilated (most of them were set up outside). The staff in charge of the polling stations comprised of one advance polling officer (from the NEC), four polling clerks (two from the NEC and two from the facility where the station is set up), and two observers. In addition, voting management officers and clerks supervised the voting process wearing level-D protective gears similar to that of medical professionals. Items used at advance polling stations, such as signposts or stationery were destroyed after use at the given facility, while advance voting equipment, voting boxes, polling equipment, and return envelopes were disinfected or sterilized at the given facility before being transferred to other locations.

Manual for special advance polling stations

① Each person moves to a special balloting booth following the announcement or guidance of a voting clerk to separate the paths taken by confirmed patients and others without symptoms.

② Confirmed patients must wear a mask, sanitize their hands and wear disposable vinyl gloves before entering the polling station.

③ Voters present their IDs, sign their names to confirm ID, receive their ballot papers, and cast their ballots.

※ For ID verification, use a signature pen while wearing the disposable vinyl gloves. The use of unmanned (fingerprint) personal identification machine is restricted.

④ Voters place the ballot paper into a return envelope, seal it, and insert it into a voting box. Dispose the vinyl gloves before returning to the rooms.

⑤ Voting clerks supporting patients should minimize the voter-to-voter contact by having one person wait outside the booth while another is voting inside the booth.

⑥ The advance voting ballot box should be opened in the presence of the voting observers. The number of return envelopes is checked for accuracy and then transferred to a post office.

4.7 Voting for those under self-quarantine

Those under self-quarantine because of travel history abroad or contact with a COVID-19 patient were allowed to leave their house to vote. As a result, 11,511 of the 13,789 under self-quarantined cast their ballots.

Of those placed under self-quarantine by the relevant municipalities until the date of the election (April 15) because of contact with confirmed patient or travel history abroad, only those without symptoms and those living within 30-minute distance from a ballot station were allowed to leave the house to vote. Because a civil servant was designated to each person under self-quarantine, the civil servant checked through text messages who wished to participate in the voting, and then submitted the list to the commission or voting management staff by 7PM on April 14.

To support the voting of those under self-quarantine, the corresponding civil servants notified the eligible voters via a text message specific voting instructions including that they are allowed leave the house from 5:20PM to 7PM on April 15. These voters were required to inform the civil servant in charge when they departed for the polling station, and only permitted to travel on foot or via their own vehicle wearing a mask. These voters arrived at the given polling station before 6PM on the Election Day, were given numbered tickets, and kept two-meter distance from each other in line. Voting took place at special balloting booths built separately from regular balloting booths. The special balloting booths for the self-quarantined were set up outside or in places that were well ventilated. Voting clerks at the temporary balloting booths put on protective *gears* (protective clothing, eye protection, masks, medical gloves, and shoe overs) ten minutes before the closing of the regular booths to prepare for the voting of the self-quarantined voters.

Manual on voting for the self-quarantined

① Once all regular voters leave the venue after voting, the electoral register, ballot papers and ballot envelops are moved to the temporary polling station in the presence of the observers.

- On the electoral register, the names of the self-quarantined voters are listed in the order of the numbered tickets handed out.
- The ballot papers signed by the voting management officer should be prepared for all self-quarantined voters and perforated in the presence of the observers.

② Voting clerks instruct the self-quarantined voter one by one to enter the temporary polling station in the sequence of the numbered tickets.

③ The voter should be wearing a mask and put on disposable vinyl gloves after sanitizing their hands, before entering the balloting booth (without checking for a fever).

④ Voting clerks at the temporary polling station check the voter's ID and ask the voter to sign or seal the electoral register (Attachment 5).

⑤ Ballot paper and envelope are handed to the voter, who is then instructed to move to the balloting booth.

- Items touched by the voter, such as the pen used to sign the electoral register, are wiped with disinfectant tissues once the voter moves to the balloting booth.

⑥ The ballot paper marked by the voter is placed inside the envelope and delivered to the voting clerk. The voter disposes the vinyl gloves in a designated trash bin and uses hand sanitizer before leaving the polling station.

- Signposts and voting equipment are wiped with disinfectant issues as soon as a voter completes his or her vote.

⑦ Once all self-quarantined voters finish, the envelopes and the electoral register are brought back to the regular polling station in the presence of the observers.

⑧ In the presence of voting management officers and observers, voting clerks takes the ballot papers out of the envelopes and into the ballot box, making sure to keep the ballots confidential.

⑨ Voting clerks remove their personal protective gear and dispose of the disposable vinyl gloves and protective gear.

Figure 4-6. Voting by the self-quarantined (NEC)

In queue to enter a polling station

Casting a vote in a balloting booth

The NEC and municipalities appointed designated public officials to manage the self-quarantine voters for each polling station. The self-quarantined voters were also continuously monitored through the self-quarantine mobile application. Public officials from several municipalities supported the voting of the self-quarantined and supervised the process. For example, the police arrested a self-quarantined individual in Seoul who sought to vote after the polling stations were closed, refused to leave, and obstructed the transfer of ballot papers. In Gwangju, the police escorted a self-quarantined voter at the request of the local government, as the voter had a history of avoiding quarantine and was likely to not return home after voting.

(Case Examples) Supporting the self-quarantined voters in Daejeon, Busan & Jeju

Daejeon city conducted a complete survey of all 891 people in quarantine or isolation. Of them, 288 people expressed intention to vote, and 239 people actually cast their ballots. 147 civil servants from the city were deployed as designated agents to guide the self-quarantined voters on where and how to vote, as well as to make sure the voters returned home after voting. The health conditions of these designated agents were also monitored. ***Busan city*** sent three emergency text messages to the self-quarantined voters who showed intention to vote. The text messages advised the voters to wear a mask, travel to the polling station on foot or in their own vehicles, and report their departure to and return from the polling station on the self-quarantine mobile application. ***South Gyeongsang Province*** used ambulances and cars owned by county offices to help the self-quarantined voter travel to polling stations. ***Jeju Island*** appointed designated civil servants who accompanied the self-quarantined voters to the polling station.

4.8 Preventive measures at ballot counting place

To prevent transmission at a ballot counting place, which would also be crowded in a confined space, ballot counting places were established in a large space that allows at least a 1.5-meter distance between all ballot counting assistants. Floors were marked to have the witnesses (who witness the ballot counting process) keep a certain distance from the ballot counting assistant (who counts the ballots). Disinfectant mats were placed at the entrance of the ballot counting place, and sand sanitizers were placed throughout the place. The place was well ventilated by installing temporary ventilators if they are not available.

All those entering the ballot counting place needed to be checked for fever at entry by a designated staff (wearing facemask and medical gloves) or by a thermal imaging camera (TIC), which was installed to check everyone entering the place. Those with a fever were restricted from entering the place and asked to go home, or visit a screening center if medical attention is required. Ballot counting assistants were asked to wear a mask at all times. They were distributed snacks in smaller groups and advised to refrain from talking while eating. The witnesses needed to keep a safe distance, and spectators and the press would only be able to observe from designated areas. This code of conduct was frequently announced throughout the place. Hand sanitizers were placed at entrance, and around the place to be used as frequently as possible. The doorknobs, machines and equipment were also wiped frequently with disinfectant tissues.

If someone is suspected of having a fever during ballot counting, his or her temperature was measured again. If he or she does have a fever, then he or she would be treated as someone with symptoms. It was announced that if an observer is found to be a threat to the safety of the ballot counting assistants or others in the place (i.e. speaking loudly without a mask) despite the NEC warnings, then he or she could be ordered to leave the ballot counting place.

Figure 4-7. Guidance stickers in front of polling stations enforcing social distancing in Gwangju City (left) and Seoul (right) (Gwangju Daily and Yonhap News, respectively)

Figure 4-8. Counting agents with masks, gloves, and face masks on

Figure 4-9. All-source situation room for the general election

Figure 4-10. Promotional poster for voting procedures in response to COVID-19 (NEC)

Voting procedure for COVID-19

① Arrive with a mask → ② Temperature check → ③ Hand disinfection → ④ Put on plastic gloves → ⑤ Keep 1-meter distance → ⑥ Present ID and lower mask for confirmation → ⑦ Receive ballot paper → ⑧Fill in → ⑨ Insert into ballot box

- Polling stations are regularly sterilized and ventilated
- If a voter has a high temperature or respiratory problem, he/she is guided to cast a vote at a temporary ballot box

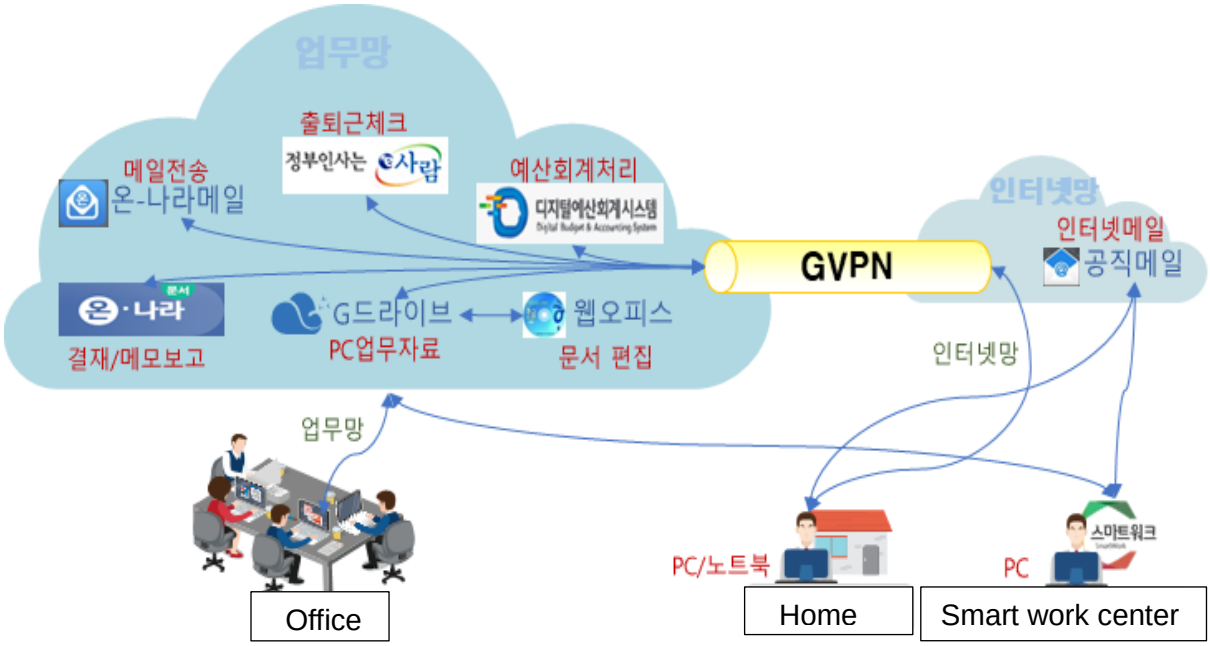
5. Testing time for safe & smart working

5. Testing time for safe and smart working

5.1 'Smart Work' and non-face-to-face working environments

The Korean government implemented three-shift remote work from March 16, as part of the effort to avoid further contagion in regional areas and avoid any discontinuation in the implementation of public services as there was an increase in the number of confirmed patients among civil servants. Under this non-face-to-face working environment, which was built based on a range of ICT technologies including Cloud Mobile, government officials have been working just as efficiently as if they had showed up at the office.

Figure 5-1. The concept of non-contact working environments and components



Category	Components (Functions)
Work systems	**G Drive** (storage for work materials), **G Office** (for writing documents), **On-Nara documents** (for reporting/approval) /**Mail**/**I-Um** (PC video conference), **e-Person** (checking attendance at work), **Digital budget and accounting system** (for dealing with budgets and accounting), **Work portal for each institution, etc.**
Network	**National information and communication network** (called the network for work), **the internet network**, **GVPN** (Government Virtual Private Network)**, etc.**
Terminal	**PCs**, **laptops**, **tablets, etc.**

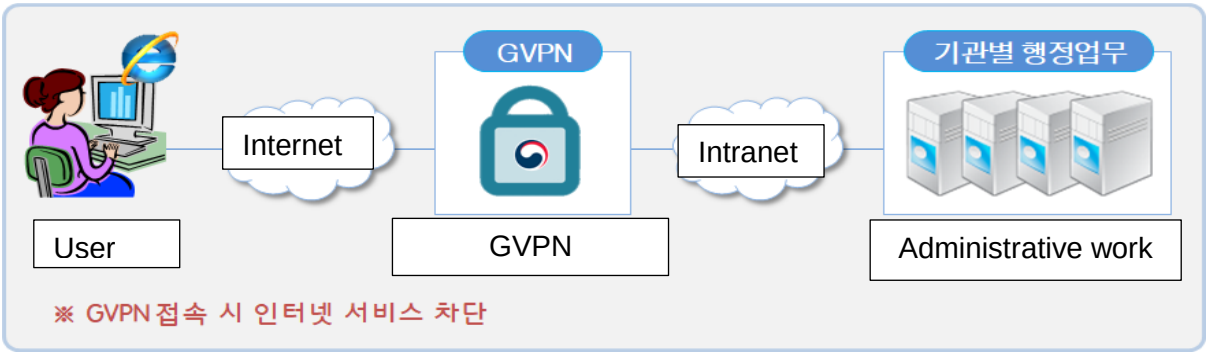
The non-contact working environment refers to an environment for administrative work, including writing or reporting documents and requesting approval, where employees can log onto a network for work through a Government Virtual Private Network (GVPN) at any time even outside of the office during a business trip or when working remotely.

5.2 The concept of GVPN and procedures

With Virtual Private Network technologies being used, the GVPN delivers a service for public servants to access the government administrative systems while on domestic overseas business trips or at home through the internet. The GVPN is used as a certification tool so civil servants who received Government Public Key Infrastructure (GPKI) can log onto the service.

※ GPKI refers to an electronic signature-based system method to check IDs from government institutions and public servants and prevent document forgery.

Figure 5-2. Concept of the GVPN



Working through the GVPN

The GVPN can be used only for permitted work related to work management systems (including a program named Harmony), PC video conference, and digital budget and accounting systems. In particular, it cannot be used for services such as messengers and Web-hard versions due to security risks.

5.3 Supports in relation to COVID-19 (GVPN)

1) Expanding systems and optimizing resources

Additional Web servers were set up to make a total of 5 servers (from 2 servers initially) and VPN licenses were also expanded from 24,000 to 40,000 to support higher usage of the network. With optimization of the web server traffic (from 2,058 to 8,192) and the server load balancing methods (from hash to whash), the access to the server was made more stable. The maximum network capacity was also increased from 1G to 4G (national information telecom networks and VPN bandwidth).

2) Support for the GVPN use among employees working from home

In addition to the guidelines and user manuals on how to sign up and use the GVPN, training sessions were held three times via video conference for those at Government Complex Sejong (92 from 21 government ministries participated). A call center to assist the use of the system was also open on weekends from 9AM to 6PM.

3) Monitoring the daily traffic

The system was monitored on the number of new users, and the number of users at a given time, and especially during the busy times (8AM to 10AM), during which the system was monitored in ten minute intervals.

Requirements to work from home

- Use of MS Windows 7 or an upgraded version (Windows 10 recommended), PC with Internet Explorer 11
- When necessary, install office programs, including Hangul, PDF Viewer, and Microsoft Office
- A network environment where internet users rely on wired LAN or Wi-Fi, or LTE (4G or 5G)
- Install GPKI and GVPN SW on your laptop after registering on the GVPN
- Upload administrative materials from your PC to the network for working on the G Drive

Figure 5-3. Procedures for using the GVPN

①		Log onto www.gvpn.go.kr on the internet network and click 'register new users.'
②		User enters personal information after consenting to the collection of personal information → Enter organization information → Register work purposes (PC video conference, On-Nara Knowledge, G Drive, G Office, On-Nara Documents, and digital budget and accounting systems) → Sign up for GPKI certificate-based composite certification → User registration completed *When employees require registration of On-Nara documents or the writing or editing of work materials, they can use G Drive to request approval.
③		Employees can ask for approval through the GVPN via a telephone call to the person in charge (in the department of information and statistics) after completing the request for user approval and composite certification.
④		Log onto www.gvpn.go.kr during remote work or a business trip after receiving approval from the persons in charge at the relevant government body and log in with the GPKI certificate. * Log-in process: Select "certificate + composite certification' on the right side of the website → log onto the GVPN.
⑤		After logging onto the GVPN, you can select the work system (work portal or G Drive, etc.) on the right side bar.

5.4 Cloud-based G Drive and Web Office

Cloud-based systems, a core part of non-contact working environments, are provided by SaaS. G Drive is a cloud storage service where users can save and access work materials on their office PCs at any time and from any location.

Components of G Drive document box

- My document – personal document / work document
- Share folder in a department – work plan / reports / references
- On-Nara folder – related document
- Joint work folder – document necessary for joint work among organizations

Web Office is a Web compiling service that enables users to read or compile work related materials on Web browsers, without installing document-compiling programs on their terminal. As long as you can use the internet, you can revise documents regardless of the terminal environment. Furthermore, Web Office serves the function of simultaneous compilation through which several people can edit a document together. This creates a working environment where workers can edit documents as if they were meeting face to face.

5.5 Electronic approval and document distribution

The government built the common foundation for Cloud services in 2016, and has put together an administrative system, which is used across all administrative institutions. Of these services, On-Nara Document 2.0 integrates electronic approval request systems, which were previously managed separately by each government institution. This system ranges from the production of documents to distribution. On-Nara Document 2.0 categorizes and manages documents based on the Business Reference Model or BRM. Even before the coronavirus outbreak, all processes from document release, approval requests, and distribution were managed electronically through the On-Nara Document System. For this reason, employees were able to continue working without any difficulties when work systems at government bodies were shifted to non-contact working environments.

Document 24 is a document distribution service for the public that is run by the Ministry of Public Administration and Security (MPAS). This system helps ordinary people, companies, and organizations submit public documents via the internet at any time regardless of the working hours at government agencies. This service has grabbed attention since its set-up because users do not have a deadline for printing documents, thereby saving on printing, transportation, and labor costs. Public documents can be received and transmitted to all destinations, including private companies, and so the program has helped the public settle welfare payments or pay fines during the social distancing period without any hassle. Since the launch of this service in September 2018, 1.245 million documents were distributed in the first year.

5.6 E-mail, messengers, and PC video conferences

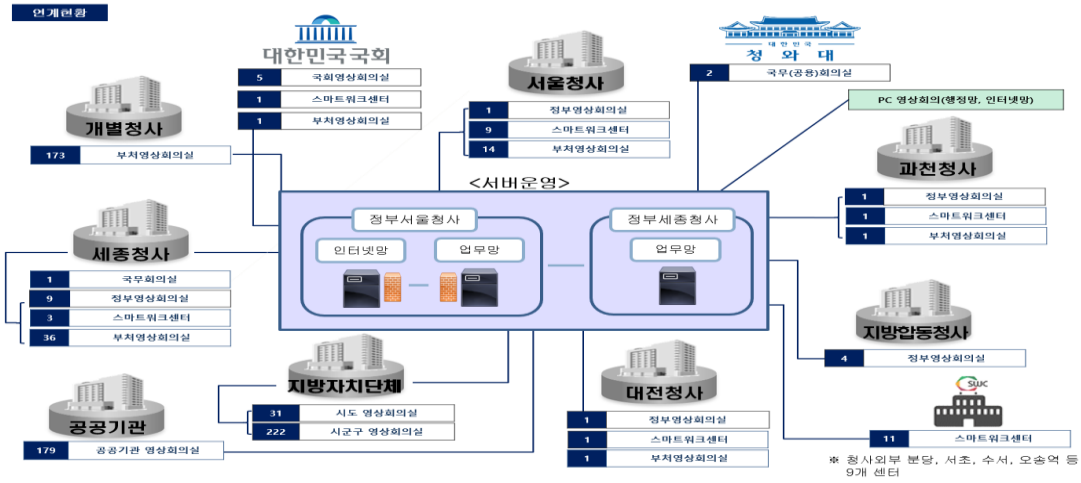
Workers should be able to share ideas even in non-contact working environments, as if they were face to face. E-mail services, which are generally used at work, were divided into On-Nara Mail, which only allows an e-mail to be sent only within the administrative network, and a public servant integration e-mail service that is used to contact other organizations. The program met the goals of promoting cooperation and maintaining security.

The messenger offers different services based on work methods on purpose. It consists of On-Nara messenger, which is used across all government bodies, and a mobile messenger Barotalk, which can be accessed by outside organizations. Some institutions use one messenger for their headquarters and another messenger for communication with government bodies under their umbrella.

In the non-contact working environment, PC video conferences are a popular way to save time and costs incurred by the relocation of the Government Complex to Sejong. It only takes screens, speakers, microphones, and an internet connection for people to participate in virtual meetings without any complicated procedures. They can communicate with each other, view each other's screens and share conference materials at the same time. This helps participates stay focused and feel as if they are part of the meeting. Internal meetings without participation from external organizations can be held in a safer and more convenient manner by logging onto a PC video conference. Remote workers can also access the administration network and be part of meetings.

In addition to office PCs and individual terminals, PC video conferences can also be connected to a video conference room so that workers can hold a plenary meeting. A total of 708 video conference rooms are established in the Blue House, National Assembly, and smart work centers, allowing for maximum convenience.

Figure 5-4. Video conference room network (as of March, 2020)



(Central servers connect all government complexes throughout the country, the National Assembly, local governments and well as the Office of the President)

5.7 Use of non-contact working environments

The government has encouraged working from home to implement social distancing because of COVID-19. The number of the GVPN subscribers skyrocketed 221% in a month. The department in charge of the GVPN focused on monitoring traffic every ten minutes from 8 am to 10 am in order to provide a stable online service. During the remote working period, the department checked daily system use, increases in subscriber numbers, traffic, and the number of simultaneous users. It is predicted that there will continue to be strong demand for the services. Servers and network capacities were expanded so that more than 100,000 public officials (more than 75 percent of civil servants serving at central administrative agencies) can work from home.

* Increase in the number of the GVPN subscribers due to the coronavirus outbreak/ 19,000 in December 31, 2019 to 90,000 in April 7, 2020, a 374% increase

Table 5-1. Operation of the GVPN

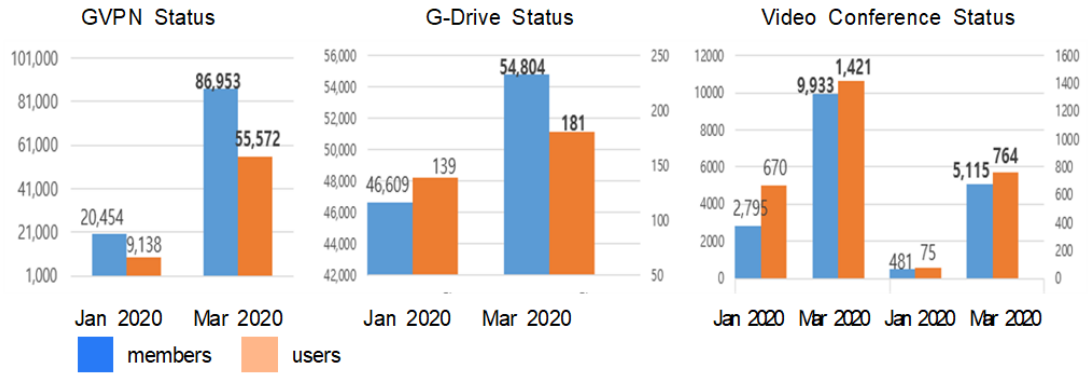
Category	Subscribers (as of April 7)	Daily users			
		Second week of March	Third week of March (Group 1)	Fourth week of March (Group 2)	First week of April (Group 3)
Total	**90,327**	**18,323**	**39,317**	**55,572**	**52,452**
Central governments (66)	63,040	14,332	32,857	40,767	37,802
Municipalities (245)	27,287	3,991	6,460	14,805	14,650

· The average rate of using resources is 20% for CPU and 25% for memory, maintaining stable functions.
· The network bandwidth (four gigabytes) is stable with 770 Mbps on average.

User manuals and FAQs have been distributed to users who feel unfamiliar with remote work and non-contact working environments despite social distancing. Workers from government bodies in the Sejong Government Complex have learned how to use online systems and been encouraged to work from home. In addition, the operation of call centers to help employees working from home has been extended during weekdays. All these efforts have helped employees focus on work at home without any difficulties or inconveniences.

Traffic for video conferences has surged due to COVID-19. The government has also taken the special temporary measure adding 3,500 licenses for simultaneous users.

Figure 5-5. Trends in the use of systems comprising non-contact working environments



5.8 Managing attendance and security principles for remote workers

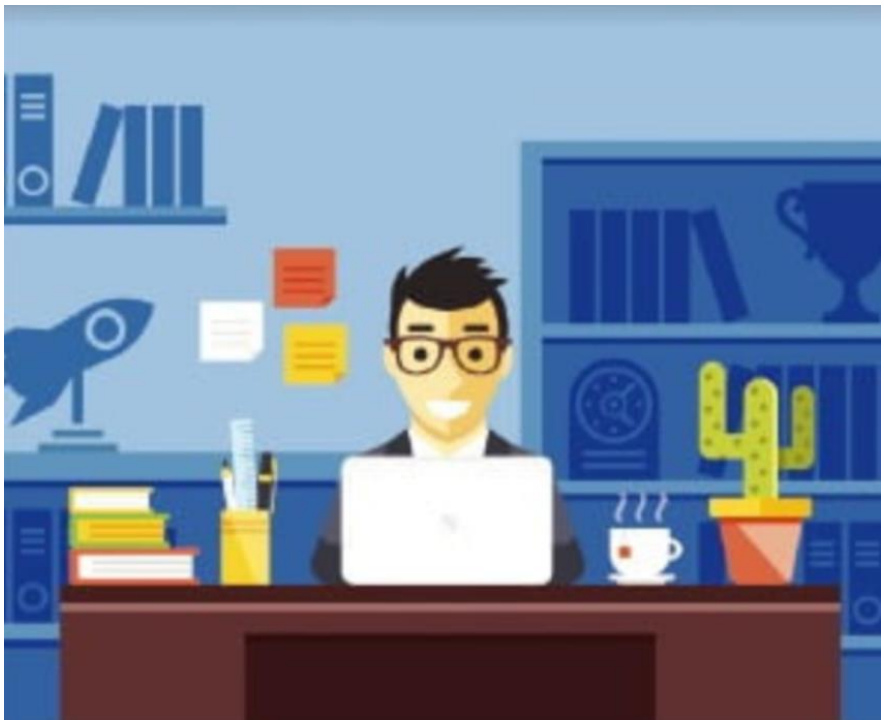
Remote workers record the times that they begin and end work (before 9 am and after 6 pm, respectively) in a public servant personnel electronic system called e-Person. Unlike in the past when employees would fill out an employee attendance card or punch a time card machine, employees now log onto the system with their own accounts to record attendance. If workers save the times, they are automatically recorded on the server. This makes impossible for individuals to register a time on behalf of another person. Employee attendance can be managed in a more transparent and precise way. Vacations or leaving work early can be requested and dealt with by e-Person, which allows for strict oversight over work performance and attendance.

Figure 5-6. Personnel management electronic system for public servants (e-Person)

The biggest concern is data security. Work confidentiality must be maintained even in the absence of a defined space such as an office. Remote workers have abided by data security guidelines such as the ‘Work Management Guidelines for Public Servants in Tackling COVID-19’ and ‘National Data Security Guidelines.’

(Manual on Accessing the Remote Work System)

- ▶ Install the latest security software on your PC or laptop.
- ▶ Save materials used during work in G Drive and delete them all from your PC.
- ▶ Security codes are set for confidential materials at the stage when they are created.
- ▶ Use remote work, avoid handling personal information and managing confidential documents.
- ▶ During remote work, avoid handling personal information and confidential documents.



6. Testing time for epidemiological investigation

6. Testing time for epidemiological investigation

6.1 3 T's based on ICT, 'K-quarantine' Prevention of COVID-19

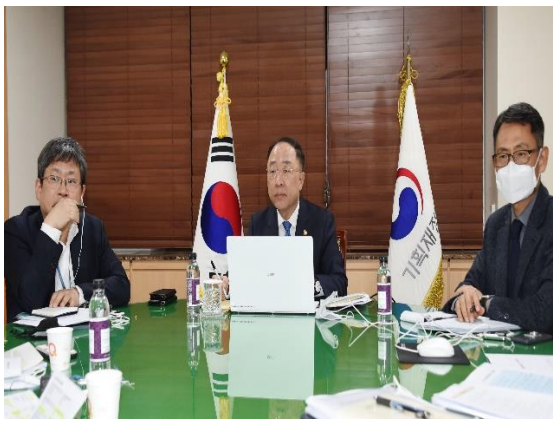
Korea was successful in slowing down the COVID-19 transmissions using advanced ICT and without strict border control or movement restrictions. All eyes are on the various measures taken by the Korean government to limit transmissions, including innovative methods like the drive-thru testing, expansive testing, quick diagnosis, and the use of ICT to inform and track confirmed cases. Responding to the requests from countries around the world including the G20, as well as key international organizations such as the World Bank (WB), the Asian Development Bank (ADB) and the Organization for Economic Cooperation and Development (OECD), the Korean government plans to prepare a 'K-standard' model to share Korea's actions against the pandemic.

(Example Case) Responses from foreign media outlets: NY Times & The Washington Post

South Korea showed it's possible to contain COVID-19 without shutting down economy.(NYT, U.S.A)

The Moon government's deft handling of a global pandemic that has taken on nightmarish proportions elsewhere has drawn praise from health experts and policymakers worldwide, with many citing it a model. "Let's follow South Korea"(WP, U.S.A)

Figure 6-1. Webinar of Deputy Prime Minister Hong with the World Bank (April 17, 2020)



Countries around the world are particularly interested in the enormous number of tests that Korea has conducted on both those with symptoms and those who have been in contact with confirmed patients. As of April 24, 2020, Korea has conducted over 590,000 tests, the highest in the world relative to the population, and over 900,000 tests including redundant tests.

Drive-thru and walk-thru testing stations are a shining example of an innovative idea. Drive-thru testing stations were first introduced in Korea and have since been adopted around the world. The US and Germany announced that they will be introducing similar types of testing stations, while CNN praised the idea, saying that it was one of the best actions against COVID-19. Currently, 612 testing stations and 71 drive-thru stations have been installed to allow easy access to suspected patients. With 118 labs to analyze specimens, the daily testing capacity of Korea is currently at 20,000 and the results become available on the same day. Large-scale analysis of data through the use of AI is also being done.

6.2 Epidemiological Investigation Support Systems

The epidemiological investigation support system for COVID-19 automates epidemiological investigations based on the Act on Preventive and Management of Infectious Diseases. Developed by the Ministry of Land, Infrastructure and Transport in cooperation with the Korea Centers for Disease Control and Prevention and Ministry of Science and ICT, it is based on data hub technology that collects and processes urban data. After being launched for test operation on March 16, it was transferred under the control of the Korea Centers for Disease Control and Prevention and officially began its operation on March 26.

Figure 6-2. Changes in Contact Tracing Methods

Epidemiological officer sends official request to National Police Agency, credit card companies, telecom companies, etc.

The entites receive the request and decide whether to share necessary information

(Time required for contact tracing is reduced **from 24 hours to 10 minutes**)

This system significantly reduced the time required for contact tracing from 24 hours of manually collecting and analyzing the data, in addition to the paperwork and individually contacting the 28 government ministries for cooperation to just 10 minutes as the big data on GPS data and credit card transactions are computerized and automated. This system also enhanced the accuracy of the investigations and reduced the amount of work for the epidemiological investigators, making it possible for them to quickly conduct large number of investigations.

Against the world's spotlight on Korea's support system for epidemiological investigation, and the consequent requests from about 50 foreign correspondents for interviews and information on the system, the ministry that developed the system, the Ministry of Land, Infrastructure and Transport, hosted a briefing session for foreign reporters on April 10. Reporters from Russia, Spain, the U.S. and other countries asked questions about this system, whether Korea plans to share it with other countries and measures to be taken if the system is abused. The list of questions and answers is attached below. The Korean government plans to engage in technical cooperation with other countries and international organizations showing interest in the system.

Figure 6-3. Online Briefing for Foreign Correspondents (April 10, 2020)

[Reference] Key Q&A with foreign correspondents

Q1. Is the system applied to all confirmed patients? Are the patients notified when their personal information is used? Is the system used to trace routes of those isolated in the designated facilities or those who are under self-quarantine? (KBS, Jong-bin Kim)

A1. Korea does not use the system for all confirmed COVID-19 cases. Only the information of the confirmed patients who officials in charge of epidemic investigation regard necessary for further collection of personal information is collected through the platform. When the officials make the decision, we then proceed to request information through this platform. Before initiating the request for personal information through this system, we notify the affected person during the interview with officials that their information will be retrieved for the epidemic investigation. As for the credit card payment information, the credit card company will notify their customer before they provide the information. As for those in self-quarantine in public-self quarantine facilities or at their own homes, we apply/use the system for some cases where officials regard such a practice is necessary.

Q2. Is everybody's information in Korea uploaded automatically to this official common data platform 24/7, or is it uploaded from the different databases (CCTV, phone companies, card companies, etc.) only after a positive case is confirmed and an authorized KCDC official requests that the information is uploaded? When you mention that "an epidemiological investigation or should decide whether additional collection of personal information is needed", could you mention an example of what kind of additional information this would be? (Spain)

A2. The system collects personal information of the confirmed cases which are determined by the health officials (epidemiological investigators) as requiring additional information. In short, the system does not collect information of all confirmed patients. The information used includes the location data from telecommunications companies and credit card records. CCTV footages are not included, as they have higher risk of privacy invasion. We request information in order to clarify missing links in the patient's imperfect memory, and to know whether the patient had shown symptoms when contracting the virus, etc. If the date of occurrence is confirmed and the movement tracks are simple and clear, the request for additional information is not made. If the date of occurrence is confirmed but the movement tracks need to be further clarified, the information from the 1~2 days before the occurrence date is collected. If the patient cannot remember the date of occurrence and the movement tracks, the information from previous 15 days (the maximum incubation period of the virus) may be requested.

Q3. Does Korea believe that it has the most developed technology in COVID-19 Management System? (Compared to China, Singapore, as The Office Director of Skolkovo Beijing, the biggest Innovation Center in Russia has commented) The question in point is, who gets the authority to manage such system. This kind of system could be misused in a democracy, but in a democratic society the public has the power to change the one in control. In the long term, many countries will develop similar level of capability. And a new competition will arise between the countries that misuse such power and those who do not. Do you agree with this prospect? And what are your opinions on the application of the system? (Russia)

A3. This is a very philosophical question, I guess. There are similar prospects indeed made about this system, and there are maybe some opinions that disagree with such a prospect. Technology itself is neutral, which makes it even more important for the users to have the right mindset. I read an article from the Financial Times, it was written by Yuval Harari. The writer said that we are at a crossroads because of COVID-19 where countries should choose the path of whether they would side with a democracy or autocracy, or whether they would go down the path of nationalism or globalism. And as for your question, I believe that with right citizenship, right mindset, we can use this system or new technology in a way that we wish. And Korea adopted the COVID-19 Smart Management System because we had our legal institution revised first, after the 2015 MERS outbreak, when we started to realize that sometimes we should prioritize public safety or public health before privacy.

Q4. As a matter of fact, I understand that several journalists have asked similar angle but I will be rather more blunt and ask about the privacy law and abuse of information and ability surveillance - what systematic measures are designed to prevent any abuse, please? thanks in advance. (U.S.A)

A4. The system only collects and uses personal data under the legal basis, and also abides by the due process for collection and disposure of personal data. We manage the information based on the existing legal grounds. The system incorporates VPN, exclusive log-in system, and double log-in process in order to prevent hacking. Only the officials who are granted access to the system (the epidemiological investigators) can read information. All access records are logged, minimizing the possibility of information misuse. Also, KCDC can acquire personal information only after getting the approval from other relevant authorities, such as the Korea National Police Agency. There are other systems to manage the use of personal information, such as the Personal Information Protection Act and the Personal Information Protection Commission, a government organization under the President’s Office.

Q5. In addition, I would also like to get a bit more info about what the exact standards are for eventually ending these expanded surveillance powers. And will this determination be made by KCDC? (U.S.A)

A5. A clear standard will be set up by KCDC, taking into consideration diverse factors such as the national alert level on COVID 19.

Q6. 1st Q: Is this new platform planned to be connected to electronic bracelets tracking system for incoming visitors? 2Q: How this or other systems can track asymptomatic cases? Does it use AI n other technologies of 4th industrial revolution?(Russia)

A6. No. This system's purpose is completely different, and we do not have any plans to apply this system to the wrist band tracking system. Big Data and AI technologies are applied in general. The system uses the Smart City Data Hub technology which allows real-time process/analysis of large-scale urban data. Also, machine learning technologies are incorporated in the system.

Q7. Ministry of Health and Welfare and Ministry of the Interior and Safety have been operating smartphone application to manage self-quarantines effectively. Please let us know if the information from those apps could be utilized on the Smart City System. What do you expect the advanced technologies used in this Smart City System such as big data will contribute transition to living quarantine in Korea? (Reuter)

A7. The technology used for the system is the Smart City Data Hub technology, which can combine data from different fields to generate meaningful new information. For example, when combining weather information and traffic data, new services can be generated. Besides, we're still thinking about new ways to utilize the data hub in daily life.

Q8. Are you going to share this system with other countries? (Bangladesh)

A8. "Go alone to go fast, go together to go far" COVID19 is a global challenge, and we plan to share this system on request from other countries. However, as each country has different legal and institutional basis about personal information, we will help them in consideration of such differences.

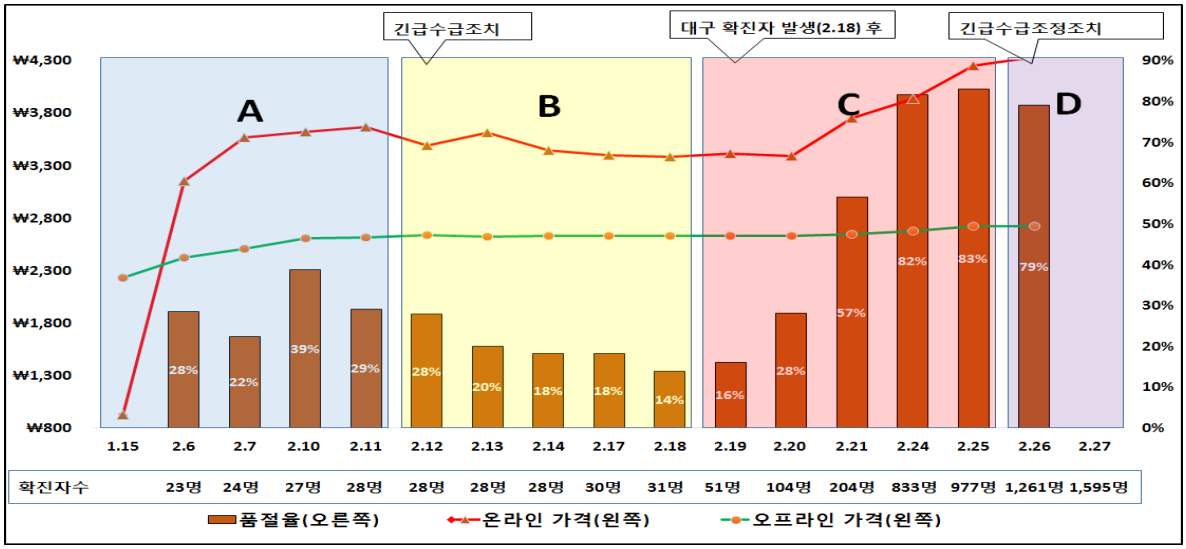
7. Testing time for tackling panic buying

7. Testing time for tackling panic buying

7.1 Panic buying of facemasks

The first case being confirmed in Korea on January 20 led to an instability in the supply and demand of masks, which was resolved in the early to mid-February as the COVID-19 situation had seemed to end. However, with the mass infection around Daegu and Gyeongbuk starting on February 19, the shortage in masks became full-blown. Despite the emergency measures of the government to stabilize the supply and demand of masks, the instability continued.

Figure 7-1. Out-of-stock rates, online prices (red line) and offline prices (green line)



- (A) Online price surged in the early phase
- (B) Online and offline prices stabilized due to the emergency supply measures
- (C) Out-of-stock rates increased sharply after the first confirmed case in Daegu

The government introduced various measures from end of January to end of February including an emergency joint meeting of relevant ministries on January 30, the formation of joint inspection team to conduct daily inspections and to handle reports on unfair sales of masks starting on January 31, the announcement of the ban on hoarding of masks on February 5, and the first and second sets of emergency measures to adjust supply and demand on February 12 and 26, respectively.

Inspection of the Mask Supply

Despite the extensive measures taken by the government, public anxiety deepened and the lack of masks officially became a social problem near the end of February. President Moon emphasized the need to visit and check the problems on site, and the Ministry of Economy

and Finance set up its own inspection team, independent of the joint government inspection team, to inspect the mask supply chain. The Ministry of Economy and Finance formed a 64-person inspection team within a day and began visiting and inspecting factories and authorized sellers on the next day, February 28. The Deputy Prime Minister, who is also the Minister of Economy and Finance, also visited these manufacturing companies to listen to their difficulties.

The on-site inspection team visited the stores authorized to sell public masks, manufacturing factories, and the distribution hubs to inspect the situation on production and distribution, and understand the difficulties in the supply and demand of raw materials. As a result, the team inspected 751 sites from February 28 to March 9, and allowed inputs from the on-site staff to be appropriately reflected in policies.

Mask Inspection Team by the Ministry of Economy and Finance	Deputy Prime Minister Hong Visiting a Production Line (March 9)
	

7.2 Measures to stabilize the mask supply

Even the second set of emergency measures to stabilize the supply and demand of masks had little impact. Stronger actions were required. The government announced another set of measures reflecting the comments from relevant ministries, authorized sellers, the Korean Pharmaceutical Association, and the manufacturing companies. These measures included an increase in the ratio of publicly supplied masks from 50% to 80%, the five-day rotation system that allows an individual to purchase two masks a week, utilization of the existing Drug Utilization Review (DUR) system to limit the weekly mask purchase to two, streamlining the procurement of publicly supplied masks through the Public Procurement Service, and incentives provided to mask manufacturing companies.

Taskforce to Stabilize the Supply and the Joint Inspection Team

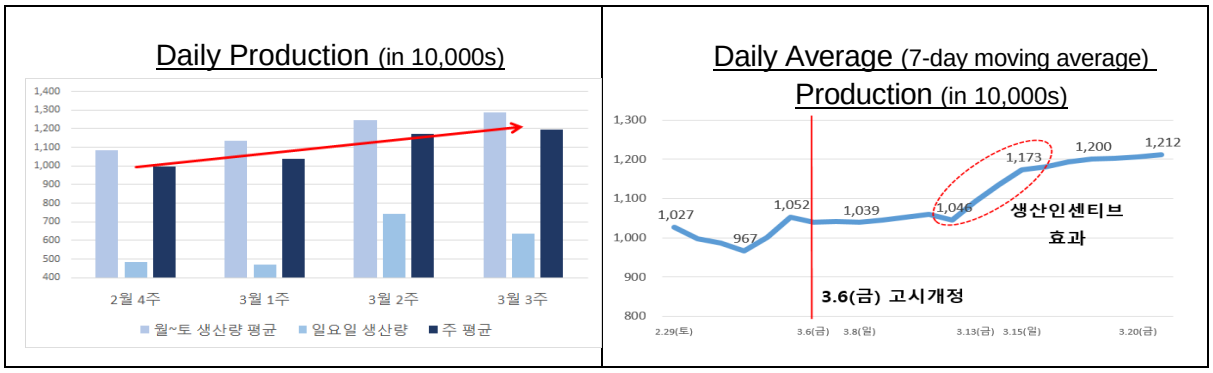
The Ministry of Food and Drug Safety was initially responsible for the supply of masks but against deepening instability, the Ministry of Economy and Finance temporarily assumed the main responsibility. On February 28, a task force was launched within the ministry to stabilize the mask supply, and later, this task force was expanded into an inspection team of joint efforts between the private and public sectors. The joint inspection team was in operation for 19 days

from March 4 to 22, and the 34 members of the team from relevant ministries and private companies handled issues on mask supply, including the supervision of the total supply of masks, monitoring the situation on securing and distributing masks, and signing contracts to procure masks.

7.3 Production and Supply of Masks after the Measures

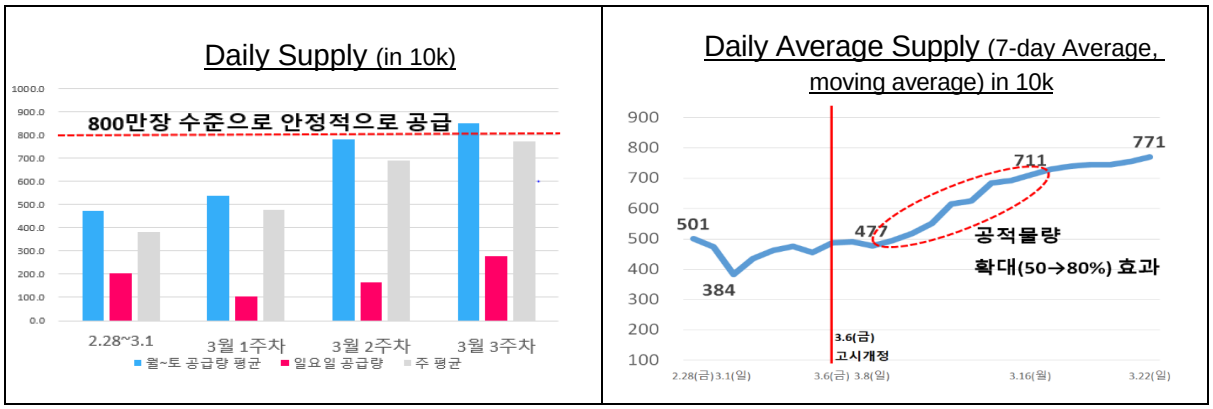
As a result of the efforts detailed above, the overall situation on mask production and supply was stabilized. In terms of production, over 11 million masks were produced in a day starting in the second week of March, and since the first week of April, an average of 11.75 million masks are being produced in a day. In terms of supply, 8.18 million masks were supplied daily during the first week of April, which is about 71.5% increase from the previous month. In terms of pharmacies, the supply rose by about 140.9% compared to the previous month with a supply of 6.65 million masks a day.

Figure 7-2. Daily production of masks



- The daily production of masks stably increased
- The daily average of mask production increased after the establishment of notification on March 6. Incentives on production also increased the daily average production.

Figure 7-3. Daily supply of masks



- The daily supply became sufficient at about 8 million masks a week
- The daily average supply increased after March 6 due to the increase in publicly supplied masks (50%→80%)

7.4 Key points in stabilizing the supply of masks

The key points in the measures introduced by the Korean government to stabilize the mask supply can largely be summarized into three areas: policy perspective, contributions from the private sector and governance.

Policy Perspectives

In terms of policy, the government stabilized the demand by setting clear principles such as the five-day rotation scheme to address both the insufficient production volume from the supply side as well as consumer anxiety arising from hoarding of masks. The five-day rotation scheme flattened the demand over the course of a week, while preventing the purchase of more than two masks at other locations reassured the public of a fair supply system. These measures ultimately eased the anxiety of the citizens, thereby dispersing and stabilizing demand.

In addition, the bulk signing of contracts with manufacturing companies through the Public Procurement Service provided companies with proper incentives. This allowed authorized sellers to focus on the distribution and sales of masks, while manufacturing companies focused on production, leading to a huge increase in production volume.

Increasing the public sales of masks to 80% not only helped secure a stable supply of masks but also made the distribution network more efficient. In addition, by limiting the proxy purchase of masks, the government prevented a rapid decrease in inventory.

Lastly, mobile applications that allowed consumers to check the real-time inventory volume of masks were developed. This helped spread out the same day demand of consumers in a region, and at the same time, minimized the inefficiency of consumers visiting pharmacies with no stock and of pharmacies responding to customer inquiries about stock.

Contributions of the Private Sector

A mature sense of citizenship was a key factor in successfully stabilizing the mask supply, as citizens followed the mask purchasing principles and even offered their weekly ration of masks to others requiring a mask more urgently. Pharmacists also cooperated actively with the government policies by voluntarily opening their pharmacies over the weekend to allow more people to buy the publicly supplied masks.

Production and distribution companies also cooperated with the government to put in all possible efforts to produce and distribute the masks day and night and throughout the weekends.

In addition, innovative ideas and products from the private sector helped the supply of masks. Various types of masks that help with sanitation such as disposable masks and cotton masks with filters began appearing in the market against the demand unmet by publicly supplied masks.

Governance Perspectives

In terms of governance, government-wide efforts played a key role in stabilizing the mask supply. All relevant ministries worked with extraordinary determination to stabilize the mask supply, and what was decided in meetings were implemented right away.

Furthermore, the Vice Minister of Economy and Finance himself began chairing the meetings with relevant ministries to ensure an efficient decision-making process. Meetings were held twice a day if necessary, and key issues between ministries were resolved immediately. Manager-level public officials participated in discussions with other ministries directly instead of waiting for the results of working-level reviews, and decided on matters quickly through top-down methods.

Lastly, the task force within the Ministry of Economy and Finance to stabilize the mask supply and a joint work force between the private and public sectors made it possible to take action quickly and efficiently. For example, a mask distributor commented that certain pharmacies wanted more of the children's size masks, which are normally low in demand. The Ministry of Food and Drug Safety conducted a survey on the demand, and the Ministry of Economy and Finance checked the supply and prepared a measure to provide more masks for children.

8. Testing time for military services

8. Testing time for military services

COVID-19 came up as a national security threat as the infectious disease has shown global prevalence and spread to local community levels in the Republic of Korea. In response, the Korean government elevated the level of infectious disease crisis alert to 'Red,' which is the highest. The ROK military has also proactively executed strong response measures to prevent an influx of the disease in the military.

First, the ROK military has urgently remodeled its Armed Forces Daegu Hospital into a designated infectious disease hospital in order to solve the bed shortage problem in the Daegu and Gyeongsangbuk-do area. The military increased the number of engineers from 25 to 100 and transitioned 100 regular beds to 303 negative pressure beds only in seven days, massively contributing to securing the government's conditions for treating confirmed patients. Furthermore, it boldly shortened the required military training periods for service members with medical specialties and deployed them to the COVID 19 response frontline like Daegu, actively practicing its duty of protecting the lives and possession of civilians in the most dangerous areas. Especially, the newly commissioned nurse officers, who had an early graduation commission ceremony, were urgently dispatched to Daegu in a timely manner in March when the number of confirmed cases was skyrocketing. The military also conducted large-scale decontamination and sterilization operations in the Daegu and Gyeongsangbuk-do area.

Innovative technologies preemptively adopted by the military were handed down to health authorities. ROK military introduced a sample gathering examination (pooling technique) to diagnose a large pool of people including the newly recruited personnel. Some media reports demonstrated concerns about the technique since it was quite unfamiliar at the time. However, the technique was later introduced as an official examination method for citizens after the KCDC (Korea Centers for Disease Control and Prevention) verified the accuracy and utility of the methodology with epidemic prevention experts and medical institutions.

Figure 8-1. In response to COVID-19, the Armed Forces Nursing Academy launches a support campaign to support citizens

Figure 8-2. Military medical personnel serving at Daegu Hospital, a designated infectious disease hospital

Such military endeavors obtained great results in contagion prevention and the suspension of the disease. No additional COVID-19 confirmed case have been reported in the military after March 22, and further efforts are being made to suspend transmissions throughout the enlistment processes by identifying infected people without symptoms. The ROK military will continue to maintain a robust military readiness posture to guarantee national security and protect the lives and safety of citizens.

Figure 8-3. Captain Kim Hae Ju, with a bandage on her nose covering a blister due to the long-term use of a mask

8.1 Whole-of-Government Support for COVID-19 Response

The national infectious disease crisis level was elevated to 'Red' as COVID-19 spread to local communities. The MND (Ministry of National Defense) approached the COVID-19 situation as equivalent to wartime and actively executed preventive measures to support governmental efforts. The MND solved bed shortage problems by quickly remodeling military hospitals including the Armed Forces Daegu Hospital, and established and operated the Defense Rapid Support Group to process requests from local governments and government institutions. The MND also shortened training periods for medical personnel including medical officers for their rapid deployment to local settings.

Medical Staff Support

The ROK military provided active medical personnel support to local governments and government institutions. The support was prioritized first for quarantine stations at airports and seaports. Around 300 military doctors and nursing officers were dispatched daily to private hospitals and temporary living facilities. In total, the military provided 27,179 medical personnel from January 27 to April 27.

The military also boldly adjusted military training for public health doctors in order to prevent any failure to provide medical personnel at site.

1) Training periods were adjusted for the newly appointed 750 public health doctors and they were employed earlier than planned to conduct medical responses on site.

2) For 96 volunteers among the on-site support medical personnel who were designated for commission, the MND shortened the military training required for their commission to delay their enlistment date and extend their period of medical support on site in order to minimize medical support shortages.

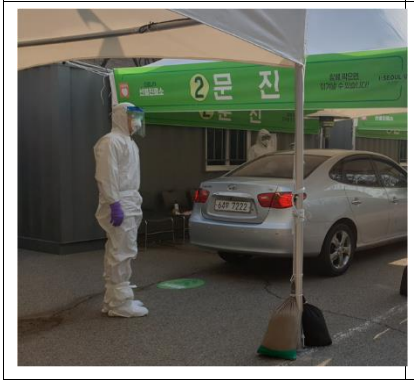
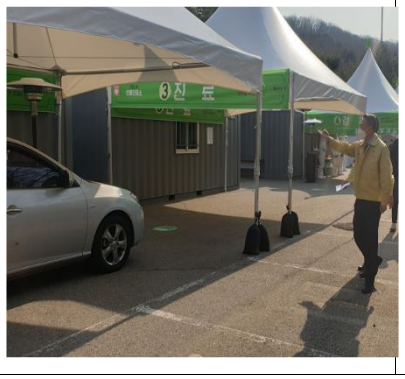
3) The commissioning ceremony for Armed Forces Nursing Academy seniors previously planned for March 9 was held earlier on March 3 instead. The MND deployed the 75 newly commissioned nursing officers to the Armed Forces Daegu Hospital to contribute to treatment in the Daegu and Gyeongbuk areas.

While all draft physical examinations were suspended due to COVID-19, medical staff of the Military Manpower Administration, who normally conduct the examinations, were deployed to the drive-thru screening centers in Seoul. For four days from March 3 to 6, a total of 10 medical staff (4 each day) provided their medical services to help contain the viral transmission. This was the first time ever in the history of the Military Manpower Administration that medical staff of the administration provided medical support to areas other than draft physical examinations.

Military Hospital Bed Support

The military solved bed shortage problems in the Daegu and Gyeongbuk area and proactively supported hospital treatments of confirmed patients by transitioning the Armed Forces Daegu Hospital and Armed Forces Daejeon Hospital into designated infectious disease hospitals in addition to their provision of negative pressure beds from the Armed Forces Capital Hospital.

Figure 8-4. Medical support provided by the medical staff for physical examinations at drive-thru screening centers

Screening Center 1	Screening Center 2	Health Interview
		

1) As the Armed Forces Daegu Hospital became a designated infectious disease hospital on February 23, it underwent remodeling comparable to a military operation. It installed partitions and movable negative pressure generators on three floors with open spaces, transitioning 100 regular beds into 303 negative pressure beds in only seven days. Only 25 engineers were involved in the beginning, but the number was augmented to a maximum of 100; for medical personnel, 130 people including 75 newly commissioned nursing officers were provided for hospital management. The Armed Forces Daegu Hospital treated a total of 313 confirmed patients in Daegu and Gyeongbuk area from March 5 to April 27.

2) The Armed Forces Daejeon Hospital was operated as a hospital exclusively taking charge of COVID 19 suspected cases within the military since the beginning phase of COVID 19 response. Later, upon request by Central Emergency Headquarters, it became a designated infectious disease hospital by February 21, managing 88 infectious disease beds. The Armed Forces Daejeon Hospital managed a total of 72 negative pressure beds that included 10 negative pressure beds and additional 62 negative pressure generators provided by the Central Emergency Headquarters, treating a total number of 47 confirmed patients from February 24 to April 27.

Decontamination Support

To contribute to the suspension of the disease following increases in COVID-19 confirmed cases, the MND provided a total number of 26,000 personnel and 19,000 pieces of equipment for facilities with large floating populations and roads including hospitals, temporary living facilities, and express terminals from February 24 to April 28.

The CBRN command, which specializes in CBRN protection, provided decontamination support to high-risk facilities and facilities with dense populations by utilizing special equipment used in CBRN missions. Especially, it provided support to colleges that could not gain support despite confirmed cases, and to designated national infectious disease hospitals. The command largely contributed to protecting health and reducing the anxiety of citizens through its ‘Decontamination Delivery.’

Moreover, during the period in which the government is preparing for a ‘Distancing in Daily Life’ system, the ROK military is further investigating and providing support to facilities that need decontamination, such as schools, kindergartens, retirement homes, libraries, and sports facilities. The military will maximize its efforts to safely return the lost spaces to everyday life.

Figure 8-5. Personnel Support for Daegu, the COVID-19 epicenter in Korea

Figure 8-6. Decontamination Support for Facilities with Confirmed Cases

Facility/Administrative Personnel Support

The ROK military's range of support extended from medical support to various points such as decontamination centers and temporary living facilities.

1) A total number of 32,300 personnel, which is equivalent to a daily number of 447, was provided for administrative support to 20 places nationwide such as Incheon International Airport since January 28, the Lunar New Year period.

2) The KDLI of the Joint Forces Military University was provided as a temporary living facility for Korean residents in Wuhan, China. The third team consisting of 140 residents stayed in the KDLI.

3) Starting from support for the three groups of Korean residents from Wuhan, about 930 administrative personnel provided temporary living facilities for residents from Iran, Spain, and Italy.

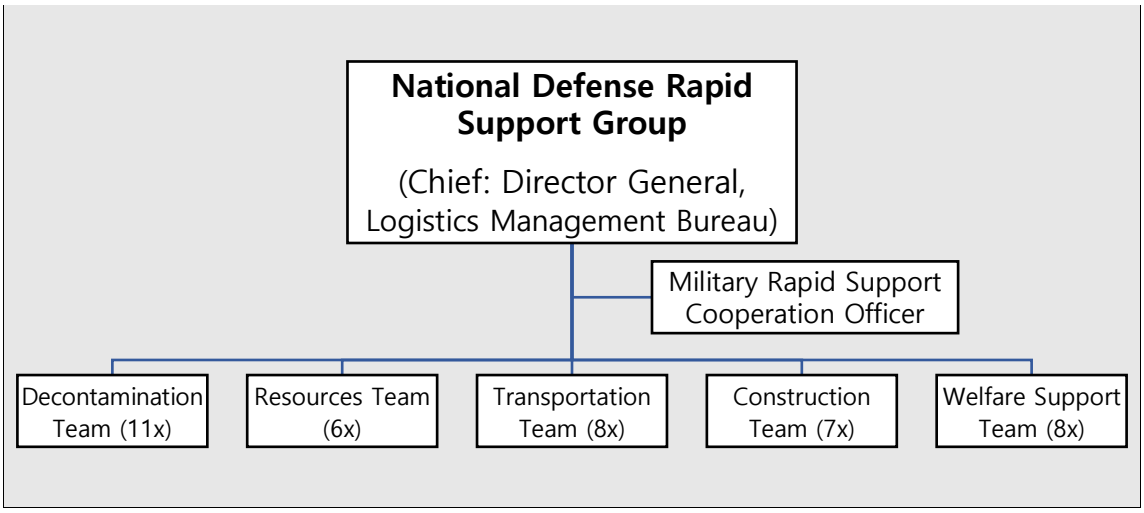
4) Sixty drivers for sample collections from members of the religious group 'Shincheonji' members, and 80 temporary screening center administrators were provided. Additionally, in support of 13 military life consultant volunteers, 5,820 were provided to help the consulting of 8,430 people suffering from psychological anxiety due to self-quarantine.

5) A total number of 13,620 were treated at 61 facilities including treatment facilities for patients with light symptoms, temporary spaces for people with symptoms, and temporary living facilities for travelers from abroad.

Operating the National Defense Rapid Support Group

The ROK Armed Forces supports restoration and stabilization efforts following natural or artificial disasters. To this end, local defense units and local governments maintain an Integrated Defense Committee, even throughout peacetime, serving to strengthen close cooperation. However, with the onset of COVID-19, local defense units were faced with new support tasks including requests from local governments that surpassed their current capabilities (e.g. nationwide transportation of masks, increased need for preventative measures in Daegu City etc.). Government authorities such as the Ministry of Food and Drug Safety requested personnel and equipment to aid enterprises in mask production and transportation. In response, the MND expediently backed up the 'National Defense Rapid Support Group' in order to increase the speed and efficiency of COVID-19 responses. Through this Rapid Support Group, the MND established a support system in terms of prevention, transportation, resources, and personnel, while designating units of responsibility for each region (Daegu and Gyeongbuk, Seoul and Gyeonggi, Chungcheung, etc.) in order to increase the accessibility of support. The Rapid Support Group was assessed to have maximized the speed and efficiency of support through its 'One-Stop Support System,' which integrated the evaluation of support needs and the employment of support methods.

Figure 8-7. Organizational Structure of the National Defense Rapid Support Group



Providing Publicly Funded Masks

Providing a sufficient number of masks to people was an issue of utmost importance amid the aggravating COVID-19 situation. Due to other countries' restriction on mask exports, the Korea's entire demand for masks had to be met by domestic companies. Moreover, the mask production rate for weekends was low at 70% lower than regular weekdays. To cope with these conditions, the National Emergency Management Agency asked the MND for personnel to support mask production and distribution. Upon this request, the MND not only provided production manpower to mask producers and but also deployed administrative personnel for mask wrapping and small-sized pharmacy support, shaping ideal conditions for mask purchasing.

The Military Manpower Administration introduced the social work system in 2008 to enhance fairness in carrying out obligatory military service and to respond to the rising demand for social services by utilizing the country's human resources. Social work personnel are the persons called up to serve in the fields of public interest to support social service duties and administrative duties related to social welfare, health, medical service, education, culture, environment, safety, etc. necessary for public interest issues pursued by State agencies, local governments, public organizations and social welfare facilities. With the COVID-19 outbreak in Wuhan, China in December 2019, and the growing pandemic, the Korean government raised the national crisis level to 'serious' on February 23, 2020. As a result, people began lining up outside pharmacies to purchase masks that could help prevent viral transmissions.

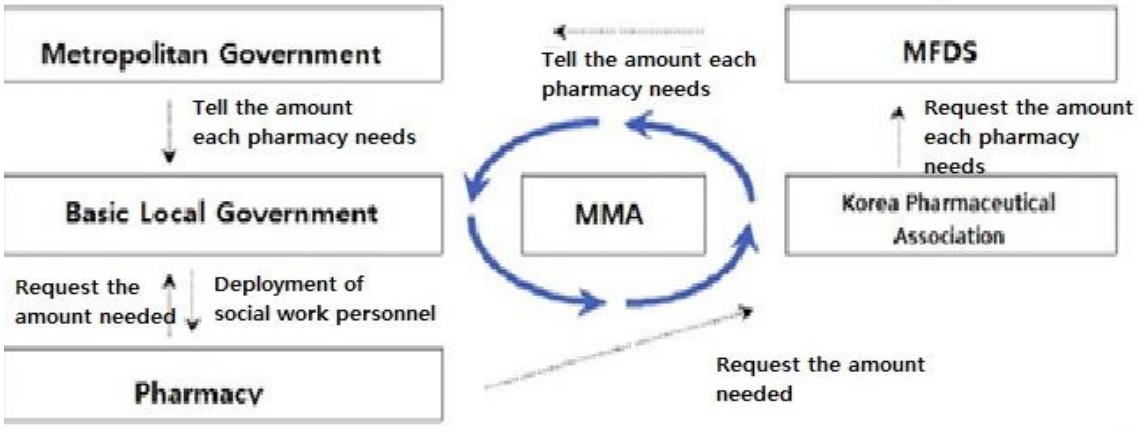
Against this backdrop, on March 8, 2020, the Headquarters for Central Disaster and Safety Countermeasures held a virtual meeting, where all relevant ministries recognized the need to work together as one to end the pandemic. On March 9, 2020, the government introduced the five-day rotation scheme to stabilize the mask supply.

Small pharmacies operated by just one pharmacist, however, were short-handed against the growing customer needs for masks in addition to preparing and selling general pharmaceuticals. Against such a backdrop, the Military Manpower Administration deployed social work personnel to support the pharmacies that were short-handed because of the five-day rotation scheme.

To protect the social work personnel from COVID-19, local governments provided protective gears such as masks and gloves, and those with chronic or underlying respiratory disease such as lung conditions or asthma were excluded from deployment. The social work personnel were deployed through the following process: the local governments assess the needs of the pharmacies in its jurisdiction and then selected potential staff from a pool of social work personnel. The Ministry of Food and Drug Safety, the Korean Pharmaceutical Association and local governments all worked together to provide personnel support, and the deployed staff would go to the organization he serves first and then to the designated pharmacy during busy hours to provide information to customers about the 5-day rotation scheme and to assist sales of masks.

With the deployment of social work personnel during the busy hours, people no longer had to wait in line at pharmacies to purchase publicly supplied masks. Efficient utilization of social work personnel during the times of national crisis to ensure wellbeing of the public built the public's credibility in the social work personnel system. About 60,000 social work personnel are serving with full commitment at health clinics, medical institutions, subway stations and other social welfare facilities. From March 11, 2020, a total of 346 social work personnel has been deployed to assist pharmacies selling publicly supplied masks and have directly contributed to the government's efforts to put an end to the COVID-19 pandemic.

Figure 8-8. Matching and placement of a social service worker



Transportation Support

Obtaining transportation vehicles was difficult in areas that have seen large confirmed cases like Daegu and Gyeongbuk because a 14-day quarantine was required for those areas upon entry. In response, the military distributed masks to citizens in a very timely manner by providing transportation teams. It also provided transportation with its aircraft to bring surgical gowns produced by Korean producer located in Myanmar when international delivery was limited. In addition, the military also provided timely transportation support for masks and decontamination suits for decontamination personnel, and supplies for self-quarantine facilities

Farming Support

Because domestic farmers had employed foreign laborers against the shortage of workers, the stricter regulations on immigration from COVID-19 posed difficulties for farms. Especially, as such condition continued throughout April a critical period in agriculture, Ministry of Agriculture, Food, and Rural Affairs and other local governments requested for temporary personnel support. Since then, MND has actively supported military manpower to domestic farms up to a level that would not damage the private job market, prioritizing areas with low infection probabilities.

8.2 Interdicting Infection within the Military

With many service members living communally, the military is especially vulnerable to the proliferation of infectious diseases and viruses. Thus, there is a dire need to not only prevent the initial infiltration of the services, but also to establish preventative measures in case confirmed cases do occur. In order to manage the situation, the Ministry of National Defense (MND) organized the ‘COVID-19 Response Center’ under the Minister’s purview to quickly review the status of military responses and implement timely measures including service and quarantine guidelines. In addition, sample pooling was adopted and utilized as an innovative diagnostic method, enabling the expedited testing of large groups such as trainees. Its efficiency was recognized was and officially adopted as the national health authority’s testing methodology.

Operating Countermeasures Headquarters

The MND installed the Countermeasures Headquarters under the purview of the Vice Minister on January 27. Initially, the relevant health offices managed the situation and oversaw coordination with related parties, with personnel, logistics, education and training, and public affairs playing a supporting role. However, following the aggravation of the situation, as it was seen by the elevation of the alert status from Orange to Red, the necessity for organizational expansion and reform of the response system came to the fore. Consequently, the MND has been given the Ministerial level within the government, and organized an additional control team for cooperation with Central Disaster and Safety Countermeasures Headquarters, constructing a system that enables focused and systematic situational responses.

Strengthened Service Management Standards

The MND implemented preemptive and strict unit management measures to stop the virus' influx into the military. Beginning February 22, all service members were restricted from using vacation days, off-base leaves (daytime and overnight), and visits. Such measures were conducted a month ahead of the health authority's 'Strengthened Social Distancing' guidance. Physical examinations for enlistments were also put on hold to suspend the influx of virus from new people. In addition, new enlistment from the Daegu and Cheongdo areas was suspended for two weeks. Residents from special infectious disease management areas were put in a two-week quarantine and could only resume participation in training based on their lack of symptoms.

Draft Physical Examination by the Military Manpower Administration

All male citizens of Korea must perform military service in accordance with the Constitution and the Military Service Act. Those eligible for military service undergo a draft physical examination when he turn 19 years old to determine whether he is capable of performing military service.

In 2020, the draft physical examination was conducted on about 300,000 persons starting on February 3. However, after the government raised its alert on COVID-19 to the highest level on February 24, all examinations were suspended. The Military Manpower Administration, which is responsible for these examinations, has been preparing to resume examinations to ensure a sufficient number of military personnel and to address civil complaints about those waiting for examinations.

As the number of new cases continued to decrease, a limited number of tests were performed starting on April 13. As the government relaxed its social distancing guidelines on April 20, all 10 of the examination centers around the country resumed their operation. Despite the seriousness of the COVID-19 situation, the Military Manpower Administration has prepared the following measures to safely provide draft physical examinations while limiting the possibility of transmission.

First, viral transmission during examination is restricted by checking for symptoms in advance.

Those scheduled for examination are first contacted to fill out and submit a questionnaire on his symptoms before the date of his examination. The questionnaire includes detailed information on travel histories outside the country, possible contact with confirmed patients, and other health-related questions. Based on the questionnaire, those who may possibly be infected are notified that his examination will be postponed. On the day of the examination, those receiving examination are closely monitored at entry and during the examination to limit viral transmission.

① The Military Manpower Administration operates its own screening booths by installing temporary tents outside the examination centers.

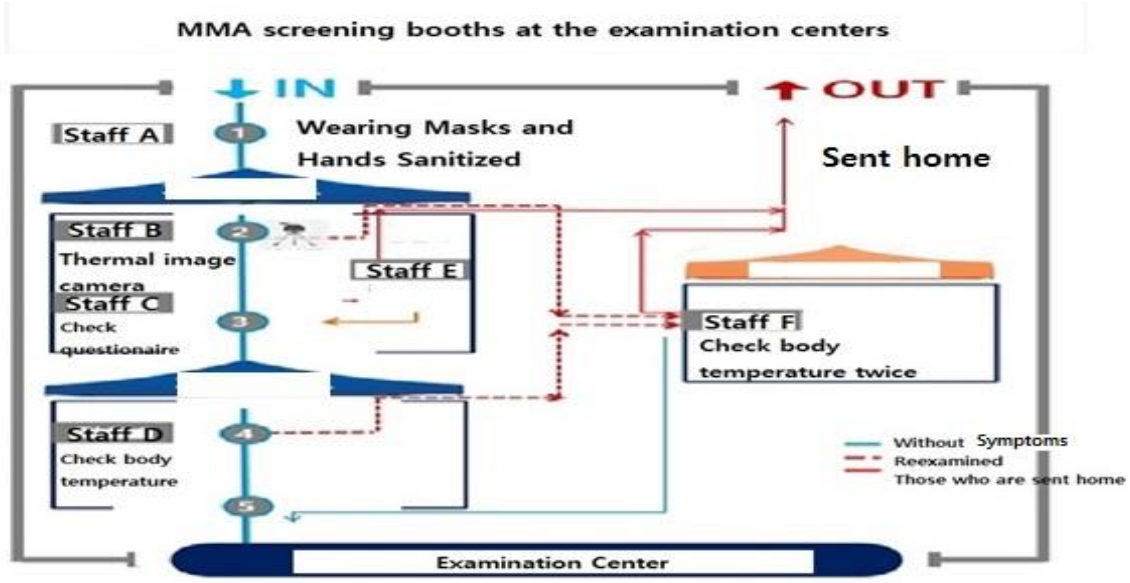
- Thermal image cameras are installed to measure body temperature, and those with a fever (over 37.5℃) are instructed to return home

- If someone is suspected to be infected, based on the questionnaire on health conditions including on travel history outside the country or to an area of mass infection, he is instructed to return home.

② All those performing and undergoing examinations are required to wear a mask (filter of KF80 or higher) and to sanitize their hands.

③ The body temperature of the staff performing the examinations are also measured twice a day (once before beginning his shift), and the measurements are recorded and managed systematically to prevent transmission among the staff.

Figure 8-9. Military System to sort out individuals who may be infected



Second, a safe environment is ensured throughout the examination process.

① In order to prevent viral transmission through droplets, a safe distance (at least one meter apart) is maintained at all times throughout the examination process, and partitions have been installed between the staff conducting the examination including medical staff, and those undergoing examination.

② The safety of those undergoing examination is ensured by providing masks, plastic gloves, hand sanitizer and other disinfectant materials. The covers used in eye examinations are replaced with paper covers, and a single-use sheet is placed on the scale when measuring height and weight.

③ In the examinations that require person-to-person contact, such as collecting blood samples, all participants are required to put on acrylic mask on top of the regular mask (KF80s filter or above).

③ Posters on personal hygiene guidelines (washing hands and coughing etiquette) have been placed around the examination centers.

⑤ Changing rooms, sinks, door knobs, handrails, computer keyboards are being cleaned frequently, and the building itself is also disinfected at least twice a day (morning and afternoon).

Third, person-to-person contact is minimized in the examination process for keeping with the social distancing guidelines.

① Those undergoing examination must keep a safe distance (at least one meter) with others.

② Instructions are given to allow only one person in the changing room at a time, and to space out the lockers used (at least four empty lockers in between). Those being examined are seated with a seat in between during the examinations for both physical and mental health, and in a zigzag line when waiting in line for x-rays and blood samples.

③ The wearing of a mask is monitored throughout the examination, and an isolation area is prepared to quarantine those with a fever (over 37.5℃) or respiratory symptoms.

Fourth, a guideline against COVID-19 is prepared for higher efficiency and the consistency of work.

These guidelines for the examination centers include:

① Tighter prevention measures such as the mandatory wearing of masks, strict personal hygiene measures including the washing of hands, the installation of partitions to prevent viral transmission through droplets and disinfection of the entire examination center (twice a day)

② Prevention of viral transmission within the examination centers by operating a screening center under the jurisdiction of the Military Manpower Administration

③ Social distancing measures throughout the entire examination process from entering the examination center, using the changing rooms, and undergoing physical and mental examination.

④ If someone undergoing examination shows suspected symptoms, all examinations must be stopped, and the said person must be tested for COVID-19. If a person undergoing the examination or others visiting the place test positive, all examinations must be stopped immediately, with a disinfection of the building and epidemiological study performed.

Applying Strengthened Quarantine Standards

The MND, considering that group life is a distinct characteristic of a military, has executed (as of January 27) a 'preventive quarantine' guideline. The guideline contains stricter standards than the ones by the health authorities and is meant to suspend the very source of group infection. This strict guideline put not only ① people who have had secondary contact with confirmed patients, ② people who have returned to base and shown symptoms and epidemiological relevance, ③ residents and visitors from special infectious disease management areas, but even ④ travelers from abroad and those who have had secondary contact with them in quarantine. Due to the execution of such a preemptive and proactive solution, the military was able to minimize the number of confirmed cases despite the units' group life. No additional confirmed cases have occurred in the ROK military since March 22.

Table 8-1. Standards and Methods of Quarantine

Category	Health Authority's Standard for Quarantine	MND's Preventive Quarantine
Quarantine Standard	① Confirmed patient ② Individual who has made contact with the confirmed patient ③ Individual who shows symptoms and is subject to investigation ④ Individual who has returned from abroad in fourteen days	① Individual who has had secondary contact with the confirmed patient ② Individual who returned to base with symptoms and has epidemiological relevance ③ Residents and visitors from the special infectious disease management areas ④ Individuals who visited foreign countries or has had contact with family members that visited foreign countries
Quarantine Method	One individual in one room	One individual in one room rule(cohort quarantine when limited), wear masks, monitor symptoms twice a day, take immediate action upon detecting symptoms

Emphasis on Hygiene Guidelines

Even with countermeasures in place, the spread of infection cannot be blocked if individuals do not adhere to hygiene guidelines. On February 27, the military created and disseminated preventative guidelines and instructions for a hygienic barracks culture tailored to the unique characteristics of military life. This was followed by the issuance of everyday guidelines for individual hygiene and infection prevention, as well as increased supervision guidelines for high-risk facilities within the military such as call centers, digital training facilities, and religious institutions. These guidelines were released on March 4 and March 13 respectively.

As the government's keynote of 'strengthened social distancing' was adjusted to 'social distancing' on April 20, the military handed down 'Barracks life 3·6·5' on April 22 as the basic guideline to be adhered to throughout the entire phases of 'social distancing' and the future 'daily decontamination(daily distancing).'

Table 8-2. Standards and Methods of Quarantine Basic Rules for Barracks Life 365

Unit Decontamination (3)	Public Decontamination (6)	Individual Decontamination (5)
① Designate decontamination mangers ② Practice flexible working hours ③ Build a visitor log system	① Daily ventilation and sanitization ② Locate and use hand sanitizers ③ Practice healthy distancing (1 ~ 2m) ④ Check temperature before entry onto a base ⑤ Put others first ⑥ Stay away from densely populated facilities	⑦ ① Wear masks daily ② Wash hands for 30 seconds ③ Adhere to coughing etiquette ④ Use your own items ⑤ Report once symptoms are found.

Introduction of Integrated Sample Analysis, an Efficient Way for Group Examination

The military had a special need for testing methods that could quickly diagnosis infections for enlistees as the enlistment of Daegu and Gyeongsangbuk-do residents resumed. The Defense Medicine Research Center proposed an introduction of a sample pooling method. This method was introduced to increase testing efficiency by mixing samples of four individuals at once, unlike the previous method that only test one sample. Apparently, there were skeptical views regarding this unfamiliar testing method. However, the military showed its impressive results and proposed that the Korea Center for Disease Control and Prevention (KCDC) to adopt it. As the Korean Society for Laboratory Medicine verified that up to 10 samples could be mixed for testing, the KCDC announced on April 9 that it would use the testing method for collective testing of regional societies, proving its usefulness.

Utilizing the Latest ICT in Response to COVID-19

The military has actively utilized the most advance technologies and ICT of the private sector to respond to COVID-19.

1) A doctor in charge of improvements in information or medical treatment at the Armed Forces Medical Command utilized his personal expertise to develop the ‘COVID Severity Categorizer’ app. This app helps medical staff easily categorize patients based on guidelines provided by the Central Disaster and Safety Countermeasures Headquarters. He also developed an app for regular individuals, the ‘Corona 19 Check-up App,’ a self-diagnostic app that informs an individual whether he or she should take a diagnostic test at screening centers or public health centers based on their symptoms. These two apps were selected as two of the ‘Ten Global Corona-Related Technologies’ by the US ICT Works (foreign Investigation community).

2) The efforts of the Medical Command extended to the development and operation of the 'Health Defender' application, an app that helped build a system for individual health management through regularly sharing of staff's health conditions with administrators, which enables the administrators to manage the conditions of their people without additional care.

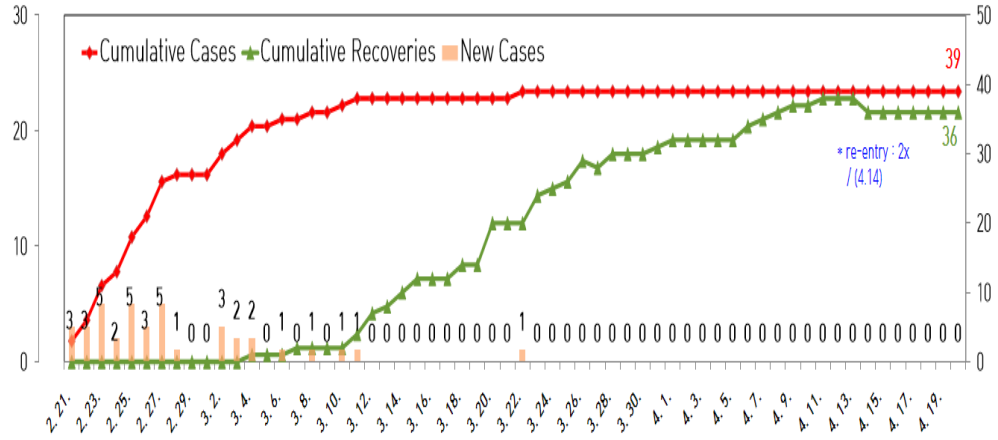
3) The military was already undergoing a project on remote medical services by introducing fixed-type and movable-type remote examination equipment. The movable-type remote examination equipment is a system built on a LTE wireless communication network that enabled remote medical services even in patient transit in an ambulance. As the need for remote medical service, which is a non-contact services, also increased in the private sector due to the outbreak of the coronavirus, the military expanded the range of its use to include individuals for screening care and individuals in preventive quarantine for suspension of further infection.

4) In only one day, the military has moved a clinic-level treatment facility to Cheonan and Jincheon temporary living facilities, where Korean residents from Wuhan spent their time in quarantine. This increased preparedness for general examination and treatment needs in emergent situations. Moreover, along with movable clinics, the military installed remote medical service equipment for remote care. By doing so, a pregnant woman was able to receive remote treatment consultations with an obstetrician from the Armed Forces Capital Hospital.

(Example Case) Results of Intercepting Infection Within the Military

Thanks to robust preemptive measures, the military was able to substantially reduce infections within its ranks. New cases were identified at a rate of 26 people over a period of seven days in mid-February, March saw the curve beginning to stabilize and after March 23, there were no more confirmed cases.

Figure 8-10. Status of Confirmed COVID-19 Cases Within the Military



8.3 Maintaining Military Readiness

Under any circumstances, the military must complete its fundamental mission to safeguard national security, as well as the lives of the people. As such, variety of measures were implemented to maintain a steadfast readiness posture even as COVID-19 continued to spread. Rigorous preventative mechanisms were put into place for critical elements of operations, and operational activities were modified to best fit the circumstances of each unit. Furthermore, units in overseas deployment were afforded stable employment via waterproof preventative measures and smooth rotations.

Implementation of Prevention Measures for Operational Elements

Intensive prevention and interdiction measures were put into place for critical military facilities including C2 offices and emergency standby offices. In addition, backup facilities were arranged so that C2 and emergency standby operations would continue smoothly even following contamination of their original facilities.

Standby assets and surveillance and response assets were preemptively separated by time and location so that partial contamination would not compromise the entirety of the force on standby.

Figure 8-11. Defense Minister at a Senior Leader Conference on COVID-19 Response (March 9, 2020)

Modified Execution of Operational Activity

Operational activities were selectively executed under the discretion of general officer-level commanders.

1) Counter-infiltration and localized provocation response training were held on base and under the strict observance of preventative guidelines. The timeframe, scale, and methodology were tailored to the circumstance of each unit.

2) Monitoring and circulation at all levels were carried out mostly by commanding officers to minimize personnel movement. Response measures to the warming season and subsequent growth in shrubbery were taken incrementally while avoiding civilian contact and implementing strict preventative measures.

3) Other off-base operations also planned to minimize contact with civilian presences, and essential tasks such as reinforcement construction for the onset of spring and natural disasters common during summertime were pursued selectively.

Figure 8-12. Army, reviewing security operations of the DMZ (April 6, 2020)

Support for Units Deployed Overseas

Robust prevention measures including emergency response training and base decontamination, as well as the continuous issuance of COVID-19 prevention guidelines, were implemented for the approximately 1,000 personnel deployed overseas for the purposes of UN peacekeeping activities (South Sudan Hanbit Unit, Lebanon Dongmyeong Unit), participation in multilateral forces (Somalia Cheonghae Unit), and defense exchange and cooperation (UAE Akh Unit). Each unit continued basic operations such as surveillance, reconnaissance, and restoration support, while limiting other activities like civilian-military operations in order to distance the units from the surrounding environment. Medical resources including masks, COVID-19 testing kits, and protection suits were also supplied in a timely manner. Moreover, service conditions were improved for mitigating stress levels stemming from prolonged isolation and strict control. Sports and entertainment equipment were provided and ships received increased video call capacity. In addition, close coordination with the UN, host nations, and transit nations allowed the swift return of the Hanbit Unit, allowing service members' right to participate in the 21st general election in Korea and the scheduled discharge of some of the members. All this was achieved at a time when host nations were limiting movement as a result of the global spread of COVID-19. In order to ensure safety during personnel rotation, future rotations will be placed in isolation for over two weeks before deployment and all members will receive PCR tests.

Figure 8-13. Base decontamination (March 20, 2020)

Figure 8-14. Wearing masks on duty (March 27, 2020)

8.4 Other Action Measures

Military Medical Consultation for Korean Citizens Abroad

Many of the Korean citizens abroad were not able to move from their residences due to movement controls that followed the global spread of COVID-19. In countries with deficient medical resources, they could not receive medical treatment and had to stay home even after they were confirmed to be infected. To protect Korean citizens abroad, the Ministry of Foreign Affairs requested ‘tele medical consultation’ from the MND to utilize military doctors. Upon request, the military doctors at the Armed Forces Medical Command doctors exclusively designated for remote medical care utilized video calls to provide ‘tele medical consultations.’ Through video calls, the military doctors checked the health conditions of confirmed patients, provided detailed information about the disease, gave public health education for the prevention of infection, and held general disease consultations to play a family doctor role for Korean citizens abroad. The military doctors started giving these ‘tele medical consultations’ to residents in Shandong, China, then to Germany, the United States, the UAE, Russia, and more. They have additional plans to hold medical consultations in the future as well.

Nationwide Support Campaign

The ‘SNS Relay support’ that began at the graduation and commissioning ceremony of the ROK Air Force Academy developed further into the ‘nationwide support campaign.’ This support campaign, in conjunction with the slogan ‘#Cheer up Korea’ originated at the ROK Air Force Academy and was carried over to the Korea Military Academy, Korea Army Academy at Yeong-Cheon, Korea Armed Forces Nursing Academy, then ultimately to global stars BTS. This later grew into a nationwide campaign participated in by many celebrities including soccer player Son Heung-min, film director Bong Joon-ho, and DJ Bae Cheol-soo

9. Testing time for resilience

9. Testing time for resilience

9.1 Sports

Korea prepared various measures to support the sports sector against the COVID-19 pandemic. Many sports organizations put their seasons on hold or ended the season early. Basketball and volleyball seasons were cancelled, while soccer and golf leagues postponed the opening of a new season.

Baseball, the most popular league in Korea, responded more carefully, monitoring the pandemic. The Korea Baseball Organization was to begin its regular season on March 28 under normal circumstances, but had to put its season on hold due to the spread of the coronavirus. As the daily increase of new cases fell to around 10 mid-April, the KBO started preparing the new season opening on May 5.

The KBO first prepared a comprehensive manual to prevent transmissions of COVID-19 and shared it with the athletes and league authorities. This manual included guidelines on 1) measuring temperature and using hand sanitizer when entering public areas such as the stadium, living quarters, locker rooms, etc., 2) minimizing contact while dining together by sitting in a line facing one way, in a zigzag line, or in smaller groups, 3) requiring mask wearing except during games or in training, and 4) minimizing contact among the athletes as well as other workers by separating the entry and exit routes. In addition, a system was prepared to test and put under quarantine someone who develops symptoms.

Prior to the season opening, the KBO began practice games for a week from April 21 to 27. Each of the 10 teams played 4 games against one another. A total of 20 practice games were held without spectators, but were broadcasted online.

Figure 9-1. Practice game on April 27 without spectators and a camera man broadcasting it online

Figure 9-2. Full disinfection of a stadium before a game

The KBO has held the season opening on May 5 without spectators and the agency plans to closely monitor the daily increase of new cases to allow the gradual admission of spectators. Understanding that continuing games with no spectators may shake the foundation of the baseball industry, the KBO decided to allow admission to about 20 to 25% of the total capacity of the stadium once the COVID-19 spread subsides, and to increase the number of admissions step-by-step. The KBO also established clear principles to strictly regulate viral transmissions by 1) thoroughly disinfecting the stadium, 2) requiring spectators to wear a mask at all times, and 3) keeping a safe distance in queue.

The KBO cancelled the All-Star festivities originally scheduled for July, and reduced the scale of postseason semifinals from a best-of-five to best-of-three series. The KBO has decided to maintain the number of games at 144 for each team, while reviewing an alternative plan to reduce the number if someone is to test positive during the season. As explained above, the Korean government and the sports industry are preparing step-by-step plans while closely monitoring the COVID-19 situation.

9.2 Support for small and medium enterprises

The Korean government also prepared measures to support small and medium enterprises (SMEs) against the damage they face with exports. The global spread of COVID-19 led to the cancellation of key exhibits*, and prevented Korean nationals from travelling, which resulted in various challenges for exporters.

In response, the government is working with export-related government agencies (the Korea SMEs and Startups, the KBIZ Korea Federation of SMEs and the Korea International Trade Association) to host virtual consultations to support companies affected by the cancellation of exhibits and other promising SMEs in their expansion abroad.

The government is planning to hold the virtual consultations online for 400 SMEs meeting at least twice a month (a total of 10 times) over the period of four months from April to July. The government plans to invite 30 to 40 buyers from abroad and 30 to 50 SMEs to each session and to effectively match buyers to SMEs, as well as to provide consultation and follow-up measures.

More specifically, the support measures include 1) a virtual meeting system to support consultations for exporters and connect them with buyers abroad, along with translation service provided by a trade-specialist, 2) distribution services to help SMEs ship samples abroad, and 3) an expert on exporting to provide advisory services to assist the process after the meeting (e.g. contract signing, reselling through an online shopping mall, etc.)

Table 9-1. Outline of virtual consultations to support exporters

Period	April to July (10 times over the 4 months, at least twice a month)
Participants	Approx. 400 companies (20 to 50 buyers and 30 to 50 exporters per meeting)
Details of the Consultation	Virtual consultation of exporting activities and the follow up measures regarding signing contracts, etc.

The first virtual consultation meeting for export was held on April 23 at the Korea SMEs and Startups Agency and the Korea International Trade Association. The first session was open to the five most promising companies for consumer goods, disinfection companies and K-beauty companies that lead the new Korean wave. A total of 22 buyers from 9 countries, including Suning, the largest online and offline retailer in China, Jindong, the second largest e-commerce company in China, and Interbat, the 5th largest pharmaceutical company in Indonesia, participated. These buyers were particularly interested in testing kits, anti-contamination clothing, and other goods related to the COVID-19 situation, and had a lively meeting with 50 Korean SMEs.

Table 9-2. Key buyers that participated in the first virtual consultation meeting for export

No.	Buyer	Business Type	Country	Key Sourced Items
1	苏宁易购 suning.com	Online/Offline Retailer	China	Largest online and offline retailer in China *Products against the pandemic (Goods to prevent transmission)
2	JD.COM	E-commerce	China	Largest e-commerce company in China *Products against the pandemic (Goods to prevent transmission)

3	Interbat Industri Farmasi	Import/Distribution	Indonesia	Fifth largest pharmaceutical company in Indonesia *Health and beauty products
4	Hanjoy	Distribution of general goods	Vietnam	Subsidiary of Tay Ninh Corp, a trading company *Korean foods and beauty products

The Korean government hopes that these consultation meetings will offer a solution against difficulties the SMEs face in expanding and promoting their products abroad, and help regain vitality in exports.

Figure 9-3. Virtual meeting with buyers

9.3 Promotion of local produce: drive-thru shops

There has been a campaign throughout the country to purchase local produce through drive-thru stations. Supported by local governments, this supports local vendors of agricultural products who faced a huge drop in their sales because of the COVID-19 situation. It provides a win-win situation for both the vendors and local residents, as the vendors sell their products in this difficult time and consumers can purchase local produce at a discounted price, all without concerns over COVID-19 transmission.

The Korea Forest Service operated a drive-thru for wild edible greens at a public parking lot from April 27 to 29 in Daejeon city. Because most of the produce that is in season from April to May is sold through local festivals, the COVID-19 pandemic and the cancellation of the festivals left the local businesses in crisis. To combat this situation, the Korea Forest Service decided to support local businesses through drive-thru stations that allow them to sell their produce while maintaining a safe social distance.

Seosan city in Chungnam province operated a drive-thru for local agricultural produce from March 25 to 27 to promote consumption of eco-friendly produce, which could no longer be used in school lunches since schools were closed because of COVID-19, and strawberries that could no longer be exported. It was a local resident's idea to hold such an event, and others helped promote the event through social media. Local government agencies such as the Seosan city government, the local Office of Education and the Junior Chamber purchased large amounts of produce to help local farmers.

Goyang city in Gyeonggi province operated a drive-thru for eco-friendly agricultural products in March. The eco-friendly vegetables and mushrooms sold at the drive-thru were all sold out within an hour. Gimpo city put together a BBQ set with Korean Beef and vegetables at its drive-thru event.

Pohang city in Gyeongbuk province, located by the ocean, worked with the local fish farm association to prepare and sell raw fish dishes at an open square near the beach. Cars lined up even before the sales began, and everything was sold out very quickly. The sharp drop in fish prices had caused financial hardships but this event helped provide economic relief to the local fishermen.

Figure 9-4. Drive-thru sales of fishery products (Pohang city)

Figure 9-5. Drive-thru sales of agricultural products (Korea Forest Service)

9.4 Transportation

Social distancing in the transportation sector includes recommending the users to purchase tickets without face-to-face interactions, and installing additional ticketing machines to meet rising demand. In addition, when someone makes a reservation, the person is seated to the window seat to maximize the distance to other riders.

Near the end of March, **Gyeonggi province** installed ticketing machines for its residents returning to Korea and taking the bus to Gyeonggi province (a total of 6 machines with 3 at each terminal of the Incheon International Airport) to prevent spread of the virus. Users are given a bus ticket home after submitting the area of residence, time and seat requests, in addition to the resident registration number or the passport number to verify their identity. If the user needs further transportation services to return home from a base point terminal, the system also provides the option to make reservations for additional transportation methods. It is expected to minimize human-to-human contact and therefore reduce the possibility of transmission.

Figure 9-6. Ticketing machine for buses to Gyeonggi province at Incheon Airport

Korea Rail (KORAIL) minimized the possibility of seating two persons next to each other by seating everyone in window seats to meet the social distancing guidelines. Such actions will reduce the possibility of transmission by keeping a safe distance between users.

Figure 9-7. A couple seated 2 seats apart because window seats were given to users.

9.5 Religious Activities

The Korean government has also implemented social distancing policies against religious activities. The government restricted religious group from meeting in person to eliminate possible mass infection, and instead recommended services be held online or as drive-in. Online services are where the religious service is held online through channels such as YouTube. The members of the congregation join the channel to listen to religious messages. Drive-in services are held when the members of the congregation stay parked in a parking lot and tune into the radio stations in their cars. To support virtual religious services, the government offered technical training via phone on how to record and send video clips and data services (in cooperation with the telecommunication network) to religious groups with fewer than 200 members. To support drive-in services, the government temporarily allowed small power radio stations. Thanks to these efforts, many churches and other religious bodies held online and drive-in services on April 12, the Easter Sunday.

Figure 9-8. Online services and drive-in services at a church in Seoul

9.6 Dining

The government is also promoting policies to avoid transmissions and keep a safe distance when dining at restaurants. Some of the local governments held campaigns for restaurants to keep a safe space between tables.

Pocheon city in Gyeonggi province began this campaign to keep a safe distance between tables in 200 restaurants near the residence of a confirmed patient. The local government handed out paper placemats to guide customers where to sit to keep a safe distance from others. This allowed customers to sit on one side of the table and to keep at least a 2-meter distance from other customers.

Figure 9-9. Sample paper tablemat placed on restaurant tables in Pocheon

The Korean government implemented diverse set of social distancing policies to prevent the further spread of COVID-19.

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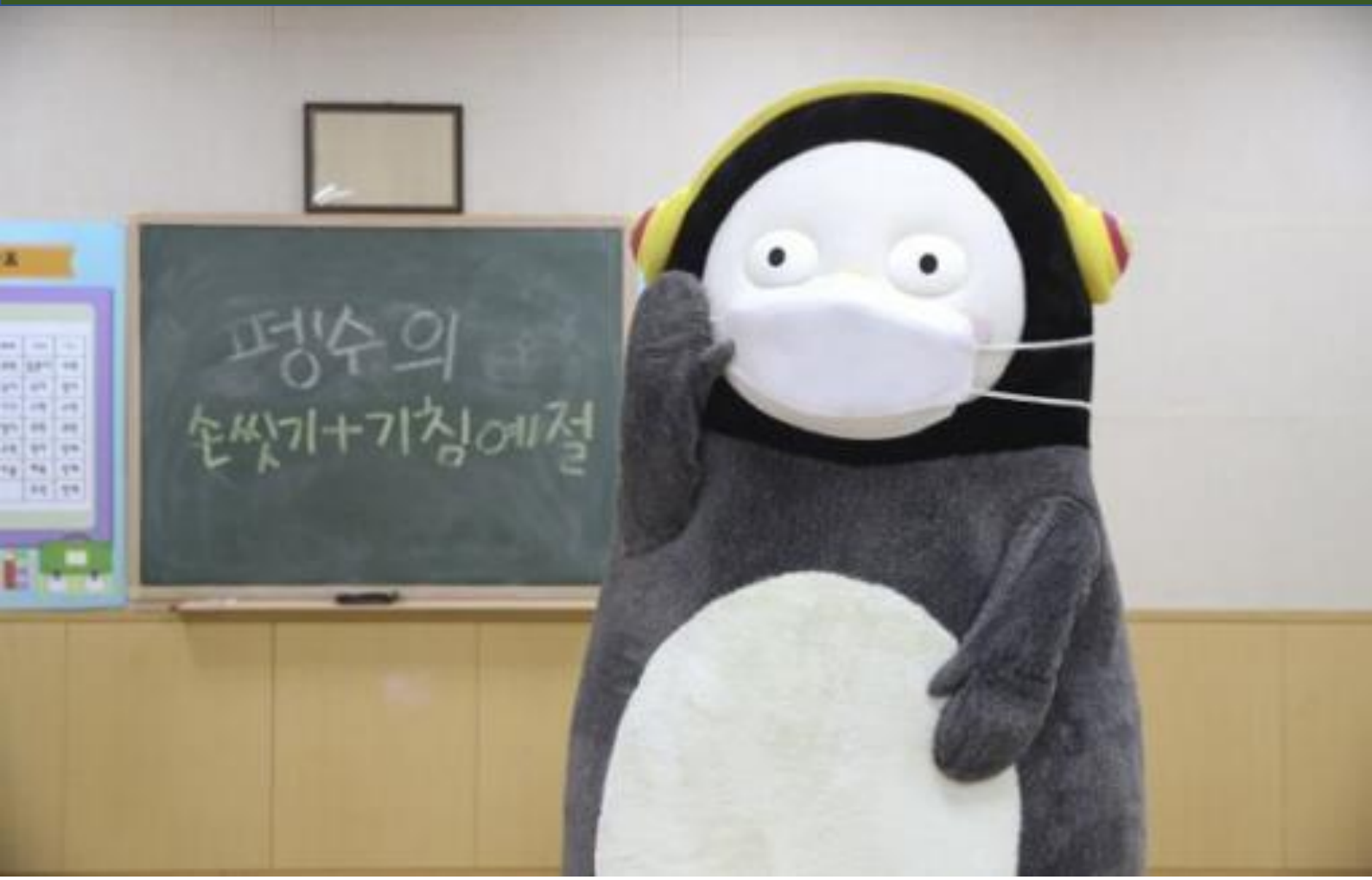

1. FOLLOW-UP MEASURES OF SOCIAL DISTANCING

1. Social distancing in daily life : Businesses

EMPLOYEES

- Stay home if symptoms appear
  - Check to make sure the body temperature is below 37.5 degrees Celsius and that there are no respiratory symptoms (cough or sore throat) before going to work.
  - Those with a fever or respiratory symptoms, and those with travel history abroad in the past 14 days should take sick leave or a leave of absence.
  - Those with the symptoms of the coronavirus should inform the employer and go home.
  - Take advantage of remote work or flexible work hours, as well as paid time off such as family care leave, annual leave or sick leave.
- Keep a healthy distance from others
  - It is advised that workshops or employee training are held online or via video conferences. Personal hygiene guidelines should be followed when holding in-person meetings.
  - Keep a two meter distance from their co-workers.
  - Refrain from carrying out team-building activities or other activities that involve speaking loudly.
  - Sit in rows or in a zigzag pattern, avoid conversations where possible, and cover their mouths when talking while eating with co-workers
- Ventilation and disinfecting surfaces are essential.
  - Surfaces such as tables, keyboards, telephones, etc. should be regularly disinfected.
  - Office and working areas should be well ventilated.
- Wash hands as often as possible and observe coughing etiquette
  - Wash their hands (with soap or sanitizer), comply with respiratory coughing etiquette, and avoid touching their face with unwashed hands.

- Avoid body contact, including shaking hands, with other workers.
- Use personal mugs, teaspoons, and other individual items.

- Maintain close relationships despite physical distancing
  - Avoid small group gatherings, club activities, or corporate dinners, and return home soon after work.
  - Resting areas should not be used by several people at once.

EMPLOYERS

- Stay home if symptoms appear.
  - Businesses must require employees to check their body temperature using noncontact-type thermometers or Thermal Imaging Cameras (TIC).
  - If someone in the workplace has a fever or respiratory symptoms, or has returned from an overseas travel or an overseas business trip in the past 14 days, they should be allowed to work from home, take sick leave or a leave of absence, and be absent from work.
  - When necessary, these guidelines should be incorporated into employment rules.
  - If someone has suspected symptoms at work, employers should send them home immediately.
  - Employers should allow employees to use flexible working hours or vacations without any penalties.

- Keep a sufficient distance between workers
  - Restrict domestic or overseas business travel.
  - An online platform or video conference can be used for holding workshops, education or employment training. Employees should follow personal hygiene guidelines during in-person meetings.
  - Employees should maintain a distance of two meters, or at least one meter, from each other by adjusting the location or direction of monitors, tables, workstations, or using idle spaces.
  - Employees should be discouraged from performing activities at work that may involve the expulsion of droplets of spit, including team-building vocalizing activities.
  - Companies should set up transparent dividers between seats in the company restaurant and request that workers sit in rows or in a zigzag pattern if possible.
- Companies should ventilate and disinfect their offices.
  - Personal cleaning or disinfectant equipment must be distributed or made available.
  - Companies must ventilate or disinfect work places two times every day, in consideration of the size of the office or workplace.
- Employers must also wash their hands and practice coughing etiquette.
  - Companies are required to post bulletins or instructions or provide education on hand washing, the use of hand sanitizer, and respiratory hygiene and cough etiquette.
  - Given the current circumstances, companies can choose to either distribute/provide masks and hygienic items or provide financial support for employees to purchase them.

- Maintain close relationships despite physical distancing

  - Companies must create a work environment that minimizes small group gatherings, club activities or corporate dinners and encourages employees to return home soon after leaving work.

  - Rest lounges should not be used by many employees at the same time.

  - Companies may set up a temporary conference room to receive outsiders who visit their work centers.

- Employers should designate a department or person in charge of quarantines.

  - Employers need to establish communication channels for quarantine cooperation. For example, they could appoint a person in charge of quarantines or contact officials in charge at public health centers.

  - If more than five employees become sick with coronavirus symptoms at work, companies should instruct them to be tested for COVID-19. If there are additional confirmed patients, they must report the possibility of group contagion.

  - The employee who is responsible for managing quarantines at work should create quarantine guidelines by taking into account the company's level of confinement, density, and work procedures.

2. Social distancing in daily life : Meetings

■ General principles

- ○ Video conferences or conference calls should be used if possible.
- ○ Companies should improve the working environment to make it possible to hold video conferences or conference calls.
- ○ For in-person meetings, companies should choose a spacious location that is easy to ventilate and can guarantee physical distancing.
- ○ A small number of participants and a quick pace will shorten the time required for a meeting.

■ Please stick to the following guidelines for in-person meetings or conferences.

- ○ Attendees who have traveled overseas in the past 14 days or have a fever or respiratory symptoms such as a sore throat, coughing, breathing difficulties, lethargy, a headache, or muscle pain, should be asked not to participate in meetings.
- ○ The organizer or moderator should check the participants for a fever or respiratory symptoms prior to a meeting.
- ○ Bodily contact such as shaking hands prior to or after a meeting is not permitted.
- ○ An easy-to-access hand sanitizing station should be provided so that participants can use the hand sanitizer as often as possible.
- ○ Participants should use a wide meeting room that is well ventilated, and the room should be ventilated before the meeting.
- ○ Attendees should keep a distance of two meters from each other. Even if the space is narrow, leaving at least a one-meter space between people is required.
- ○ If the one or two meter distancing or hourly ventilation is not possible, in-person meetings should be avoided. When there is no choice but to hold a face-to-face meeting, all participants should be required to wear a mask and keep it on while talking.
- ○ As long as participants are one or two meters away from each other and ventilation is practiced, it is up to each individual person to choose whether to wear a mask.

3. Social distancing in daily life : Civil petition windows

■ Civil servants or employees

- ○ Workers in charge of civil services or petitions are required to wear a mask.
- ○ Civil petitioners or workers meeting face to face with petitioners should stay two meters, or at least one meter, away from each other.
- ○ Government agencies must ventilate their offices more than twice every day.
- ○ Workers should minimize their risk of infection by strictly following the behavior guidelines and personal hygiene practices.
- ○ For instance, this includes wearing a mask, washing hands frequently and avoiding contact with anyone with a fever or respiratory symptoms.
- ○ If a worker in charge of civil petitions is suspected of having caught the coronavirus, has a fever or cough or has been overseas in the past 14 days, the government agency may request that the given employee not show up at the office. In this case, the worker will work remotely or be allowed to take a leave of absence.
- ○ The given civil servant will go to work upon recovering after observing the symptoms for three or four days.
- ○ Body temperature should be checked more than twice a day at work. If a person appears to develop coronavirus symptoms, he/she will consult with health authorities and seek medical treatment.
- ○ The office needs to establish a reporting system to identify employees with suspected symptoms or maintain a file of work details in preparation for the occurrence of a confirmed case.
- ○ Employees should be allowed to freely use flexible working hours and annual leave. Government agencies will offer alternative work arrangements for quarantined employees.

■ Civil service or petition windows

① Appoint a department head who is responsible for civil petitions as the head of quarantine management. He/she will have full responsibility for managing quarantine and preventive measures.

✓ If more than five employees are suspected of having coronavirus symptoms, they will be tested for COVID-19. It is important to make sure that the possibility of group contagion is reported to a nearby public healthcare center if more suspected cases occur.

✓ Government agencies should have hygienic items such as hand sanitizer on hand at civil service reception decks, automatic machines, shared spaces, or restrooms. The best precautionary practices agencies can take are to disinfect entrance doors on a regular basis and put an anti-virus film on the door.

✓ Civil service offices and shared spaces should be disinfected more than twice per week. It is important to keep the floors safe and clean with disinfectant.

* For more information on how to use disinfectants or disinfect surfaces, please refer to the ‘guidelines on disinfecting group facilities or multi-use facilities in response to COVID-19.’

✓ Government bodies may implement measures in line with their specific circumstances, but such measures should involve fixing a transparent partition to civil service windows, restricting entrance from visitors not wearing a mask (if necessary, providing disposable masks), and locking down entrances except for the main door.

✓ Thermo body temperature cameras are used to check body temperature. There should be a waiting room for anyone with a fever. It may be necessary to keep a ledger of such individuals.

② Working closely with related government agencies

✓ Public institutions, such as public healthcare centers, police stations, fire stations, and medical institutions, should maintain emergency contact systems and respond immediately to contingencies.

✓ If a person at a civil service office becomes sick, report it to a public healthcare center in the district and ask the person to wait in an isolated space.

✓ If workers at civil service centers test positive, report it immediately to a public healthcare center in the district. In order to limit the further spread of the coronavirus, implement every possible quarantine measure, including the temporary closure of facilities, entrance prohibitions, self-isolation, and use disinfectants.

* For more information refer to measures for facility quarantines on Page No. 125.36 of the 'guidelines in response to COVID-19' published by the Central Disaster and Safety Countermeasures Headquarters (CDSCHQ).

③ It is important to reduce in-person contact by promoting the use of automatic services for issuing civil documents, including Government 24 Hours, unmanned machines or electronic certificate issuers.

■ Training or posters outlining hygienic guidelines for employees should be posted at civil service windows for visitors

○ All workers at civil service windows should be trained in COVID-19 preventive guidelines, hand washing and complying with coughing etiquette.

○ Leaflets or posters should be posted in key locations throughout facilities to educate people about hygienic principles such as hand washing and cough etiquette in order to prevent the spread of the virus.

* For such bulletins, make use of the materials updated by the Korean Centers for Disease Control and Prevention (KCDC).

※ For any other aspects of quarantines or disinfecting services, refer to the third comprehensive version of the 'Response guidelines for using group or multiple-use facilities in response to COVID-19' published by the CDSCHQ on March 25 or the '3-1 comprehensive version of the 'Response guidelines for disinfecting group or multiple-use facilities for tackling COVID-19' published by the CDSCHQ on April 2.

4. Social distancing in daily life : Public transportation

■ Passengers

- ○ People suffering from a fever or respiratory symptoms or who have travelled internationally in the past 14 days should stay inside and avoid the non-essential use of public transport, They should also wear a mask when travelling via public transportation to go to a hospital where necessary.
- ○ Those at high-risk for severe illness from COVID-19 are: pregnant women, people 65 years and older, and people with chronic illnesses. They should avoid using public transit except for when absolutely necessary.
- ○ When these people take public transportation, they must follow the quarantine guidelines. Otherwise, they are not allowed to use public transit.
- ○ When using public transit, wear a mask if possible and follow coughing etiquette.
- ○ For public transport with reserved tickets, purchase a ticket for a seat with an empty seat on the left or right.
- ○ Maintaining a two-meter, or at least one-meter, distance from others is required.
- ○ Masks are compulsory for passengers on public transit, where it is difficult to maintain distance from others.
- ○ Try to avoid expelling any droplets of saliva by refraining from talking loudly or shouting, taking non-essential telephone calls, or engaging in conversations in train compartments, vehicles or elevators.
- ○ Strictly follow personal hygiene practices such as washing hands properly or using hand sanitizer before and after using public transportation.
- ○ While on board public transport, passengers should comply with instructions from employees, such as putting on a mask.
- ○ When taking a taxi or using a delivery service, choose an app payment method or non-contact delivery.
- ○ Wait for the next train when carriages are full during rush hour.

- All staff and persons in charge
  - A representative in charge of quarantines should be appointed. This person should establish cooperation channels for quarantines by, for example, obtaining an emergency contact number for the person in charge at a local public healthcare center.
  - If an employee experiences a fever or respiratory symptoms or has travelled overseas in the past 14 days, the person is not allowed to come to the office. An employee with coronavirus symptoms should be asked to leave work immediately.
  - Staff should be given greater scheduling freedom under flexible work arrangements (including flexible working hours or legally mandated vacation days) if possible or replacement workers should be utilized.
  - When travelling via public transportation, passengers are asked to stay two meters, or at least one meter, from each other. Passengers on overcrowded buses or trains are instructed to keep a safe distance as much as possible.
  - If a train cabin or bus is crowded and it is difficult to maintain a one-meter distance, passengers are advised to take the next train or bus.
  - Masks or disposable gloves are compulsory for public transit operators who come into contact with passengers. Employees at call centers or offices should keep a physical distance from their co-workers or sit in cubicles separated by partitions.
  - For seat allocation, leave a seat in between seats for passengers travelling via railway, airliners, or express/intercity buses by allowing priority access to window seats.
  - To reduce overcrowding on public transport, identify rush hours and adjust the train or bus allocation schedule accordingly.
  - For transport facilities or public transit, shorten the quarantine cycle if possible.
  - Enforced quarantines should be implemented during rush hour and it is important to disinfect surfaces such as entrance doors and chairs.
  - For public transit where ventilation is feasible, ventilate regularly for more than 15 minutes before or after operation.
  - Hand sanitizer gel should be available in public transport facilities, and such facilities should be disinfected or ventilated frequently.
  - When reserving a ticket or calling a taxi, passengers are encouraged to switch to automatic payments that do not involve in-person contact.
  - Freight transport, including delivery, should be shifted to non-contact delivery methods if possible.
  - Passenger guidelines for preventing coronavirus transmissions can be conveyed via electronic displays or announcements.

5. Social distancing in daily life : Restaurants, cafes, and study cafes

■ Users

- ○ Users must abide by posted quarantine guidelines and instructions from facility managers, or else they may be asked to leave such facilities.
- ○ Visitors should limit their time spent in restaurants or cafes.
- ○ Keep a safe distance of two meters, or at least one meter, while queuing.
- ○ Take precautions to maintain a gap of two meters, or at least one meter, between seats, and stay away from others who are not part of your group.
- ○ Visitors are recommended to sit in a row or zigzag pattern instead of across from each other.
- ○ It is safer to order takeout food or use food delivery services.
- ○ Before or after eating or after using the bathroom, please be sure to wash your hands, follow coughing etiquette, and avoiding touching your face with your hands.
- ○ Do your best not to talk while eating, or cover your mouth while doing so.
- ○ Use your own personal plate to eat served food.

■ All staff and persons in charge

- ○ An appointed staff member charged with quarantines should establish channels for quarantine cooperation, such as emergency contact numbers.
- ○ Managers should post quarantine recommendations in their facilities and instruct visitors to follow such guidelines.
- ○ Any employee who is sick with COVID-19 symptoms such as a fever or respiratory problems or who has travelled overseas in the past 14 days is required to stay out of the workplace.
- ○ Employees may use annual leave if needed with their employer’s consent, while employers are required to find sufficient replacement staff.
- ○ If more than five workers show symptoms over a four or five day period, these suspected patients should be tested for COVID-19. Places with a number of suspected cases should report the possibility of a group contagion to a public healthcare center in their district.
- ○ Staff who serve guests are required to wear a mask.

- There should be a gap of two meters, or at least one meter, between visitors and workers. Non-contact equipment or a transparent partition will help them avoid sitting face to face.

- Establishments are advised to increase the distance between tables by up to two meters, or at least one meter, set partitions between tables, or prohibit the use of same fixed-type tables.

- Establishments should help visitors sit apart by erecting partitions on tables or placing chairs facing the same direction or in a zigzag pattern.

- Large-scale events are recommended not to be held.

- Restaurants should play it safe by promoting takeout or conducting as much 'non-contact' food delivery as they can.

- When customers come to wait in line, restaurants can use numbered tickets or suggest keeping a distance of one meter from others waiting in the line.

- Provide public sinks where visitors can wash their hands with soap and water, and help them find the location.

- As the threat from the coronavirus grows, provide hand sanitizer gel throughout facilities so that staff and guests can use it regularly.

- Staff should be provided with training regarding effective personal hygiene and the need for social distancing.

- Restaurants should provide personal plates, ladles, or tongs so that customers can each serve their own food.

- When natural ventilation in these settings is possible, keep windows open at all times. When it is impossible to keep the windows open, ventilate the room by opening the door and windows regularly (more than two times every day).

- Cafes or restaurants should disinfect surfaces, facilities, and equipment that is often touched by people, including tables, chairs, and the doorknobs of entrance doors.

- All surfaces in the facilities must be thoroughly sterilized more than once per week.

6. Social distancing in daily life : Large distribution facilities

* Department Stores, Large Supermarkets, Multi-shopping Complexes, Supermarkets, and Outlets

VISITORS

- ○ Those with a fever or respiratory symptoms, and those with travel history outside the country in the past 14 days should not visit the facilities.
- ○ High-risk individuals (who are pregnant, over 65 years of age, or chronically ill) should refrain from visiting.
- ○ Visitors must fully participate in quarantine measures (getting their temperature checked, wearing a mask, and using hand sanitizer) before entering these facilities.
- ○ Visitors should keep a two-meter distance with others, or at least one-meter distance while wearing a mask, when browsing or waiting in line to check-out.
- ○ The number of shoppers per household should be kept at a minimum (1 person from each household if possible).
- ○ Use hand sanitizer or gloves before handling shopping carts or baskets.
- ○ Refrain from testing cosmetic products directly on the face or lips. Instead, test on the back of one's hand, and sanitize or wash your hands afterwards.
- ○ If possible, use electronic forms of payment through the mobile, QR codes, NFC or credit cards).
- ○ Follow practices to prevent viral transmission by washing hands frequently and observing coughing etiquette.

※ Also follow the above guidelines when visiting restaurants or cafes within these facilities.

Workers and Managers

- ○ Those with a fever or respiratory symptoms, and those with travel history outside the country in the past 14 days should not come into work, or go home as soon as symptoms appear (temperature and other health conditions should be checked twice a day).
- ○ Allow flexible working hours and time off.
- ○ Designate someone for infection control and build an emergency contact network with health clinics and hospitals in the region.
- ○ If more than five of the workers show symptoms within 4 to 5 days, they should be

instructed to be tested. If more workers start showing symptoms, report the possibility of mass infection.

○ Check for a fever or respiratory symptoms at the gate.

- Restrict visitors with a fever or respiratory symptoms at entry

- Advise visitors to keep a two-meter distance from others

○ Refrain from events that can attract a crowd of visitors (e.g. limited offers, signing events)

- If such an event is necessary, find ways to disperse the crowd.

○ Refrain from actions that can lead to droplet transmissions such as loud soliciting, and instead, use intercom announcements and information leaflets.

○ Workers must wear a mask at all times and keep a one-meter distance when in contact with visitors.

○ Suspend or minimize sampling of food, beverages and cosmetic products.

- Take necessary measures to properly discard sampling waste (e.g. toothpicks, cups, napkins, etc.) to avoid viral transmission.

○ Use floor decals and other signs to advise visitors to keep at least a two-meter distance from others at entry and at check-out

○ Instruct workers to also keep at least a two-meter distance from shoppers and install clear partitions if necessary.

○ Leave hand sanitizer at gates, bathrooms, elevators, escalators and lobbies, and near shopping carts/baskets for customers to use.

○ Frequently sanitize surfaces regularly touched by customers (buttons, handles, etc.), including shopping carts/baskets.

○ Recommend the use of electronic or non-contact payment methods.

○ Minimize the use of play areas and other community spaces within the facility. Make sure that distances are kept between visitors if spaces are used.

7. Social distancing in daily life : Outdoor activities

○ Those with a fever or respiratory symptoms, and those with travel history outside the country in the past 14 days should not visit an amusement park.

- ○ High-risk individuals (who are pregnant, over 65 years of age, or chronically ill) should refrain from visiting such places.
- ○ Visitors should keep a two-meter distance with others, or at least 1-meter distance while wearing a mask, when outside, or when in line.
- ○ Follow practices to prevent viral transmission by washing hands frequently and observing coughing etiquette.
- ○ Refrain from body contact (handshakes or hugs) and other actions that can lead to droplet transmissions (singing or screaming).
- ○ Participate in quarantine measures (checking for fever or respiratory symptoms) when entering.
- ○ Buy tickets online in advance.
- ○ Refrain from using public facilities with risk of transmission (e.g. drinking fountains).
- ○ Avoid crowded areas and unnecessary contact with others.
- ○ Keep to the right to avoid crossing path with the person coming the opposite way.

※ Also follow the above guidelines when visiting restaurants or cafes within these facilities.

8. Social distancing in daily life : Public toilets

USERS

- Keep the place clean for others.
- Wear a mask when the bathroom is crowded and keep a two-meter (at least one-meter) distance when waiting in line.
- Those with a fever or respiratory symptoms, and those with a travel history outside the country in the past 14 days should refrain from using public bathrooms.
- Follow personal hygiene practices to prevent viral transmission (i.e. washing hands and observing coughing etiquette)
- Wash hands with soap under running water for more than 30 seconds.
- Close the toilet lid before flushing to prevent the possible spread of droplets.
- Flush waste materials in the toilet. Things that cannot be flushed should be discarded in the waste bin to keep the place clean.

FACILITY MANAGER

- Disinfection and other measures to prevent viral transmission
  - Designate the facility manager as the person responsible for preventive measures.
- If possible, consign disinfection work to a specialized company
  - Frequently disinfect both inside and outside of the facility to prevent viral transmission.
  - Do not use spray disinfectants as this may aerosolize infectious pathogens.
  - Instead, wipe using a cloth wet with disinfectant (Sodium hypochlorite diluted to 500ppm to 1000ppm) to ensure covering all the surfaces.
  - Disinfect all areas frequently touched (door knobs, light switches, toilet cover and lid, toilet flush buttons, sinks, faucets, hand dryer, diaper changing stations, and handles for accessible toilets) as well as the floors, windows and walls.
  - Disinfect from one end to the other end, making sure not to contaminate the area already disinfected.
  - Allow enough time to dry the disinfectant before reopening the facility.

- ○ Notify users that the facility is being cleaned with a sign or a line outside.

■ Sanitation and facility management

- ○ Furnish additional waste bins and empty them frequently.
- ○ Regular cleaning and management of the facility (urinals, toilet bowls, sinks, diaper changing stations, and hand dryers)
- ○ Make sure soap, paper towels, and hand sanitizer are always stocked.
- ○ Ventilate frequently.
- ○ Frequently make sure the facilities are functioning.

◈ This guideline must be followed when cleaning and disinfecting a bathroom used by a confirmed patient. The said facility must reopen only when all infectious pathogens are cleared (the time may vary depending on the type of disinfectant used).

■ PR

- ○ Actively promote personal hygiene practices to users.

  - Washing hands with soap under running water for over 30 seconds, keeping the bathroom clean, wearing a mask in public bathrooms, maintaining a two-meter distance when waiting in line, closing the lid before flushing the toilet, and requesting suspected patients refrain from using the facilities.
  - Use floor decals to mark the two-meter distance while waiting in line.
  - If space allows, it is recommended that a partition be installed to separate entrance and exit routes.

- ○ Train janitors to follow appropriate sanitation guidelines (through documents instead of unnecessary group meetings).

9. Social distancing in daily life : Museums and art galleries

Visitors

- Those with a fever or other respiratory symptoms, and those with a travel history outside the country in the past 14 days should not enter.
- High-risk individuals (who are pregnant, over 65 years of age, or chronically ill) should refrain from visiting.
- Visitors should keep a two-meter distance with others, or at least a one-meter distance, while viewing or when in line.
- Follow practices to prevent viral transmission by washing hands frequently and observing coughing etiquette
- Participate in quarantine measures (checking for fever or respiratory symptoms) when entering.
- Refrain from body contact (handshakes or hugs) and other actions that can lead to droplet transmissions.
- Keep distances in crowded areas such as lounges, cafes, or shops.

WORKERS AND MANAGERS

- Those with a fever or respiratory symptoms, and those with a travel history outside the country in the past 14 days should not come into work, or go home as soon as symptoms appear.
- Designate someone for infection control and build an emergency contact network with health clinics and hospitals in the region.
- If more than five of the workers show symptoms within 4 to 5 days, they should be instructed to be tested. If more workers start showing symptoms, report the possibility of mass infection.
- Check for fever or other respiratory symptoms at the gate.
- Ban entry of those showing symptoms and those with a travel history outside the country in the past 14 days, and advise the high-risk individuals (who are pregnant, over 65 years of age, or chronically ill) to refrain from visiting.
- Allow flexible working hours and time off.
- Prevent a crowd by limiting the number of visitors through a reservation system
- Install signs advising visitors to keep at least a two-meter distance from others.
- Offer online services using relevant equipment and staff training.
- All workers must wear a mask and instruct visitors to wear a mask.
- Avoid contact with visitors and prepare a guideline for workers to keep a two-meter distance from others.
- Leave hand sanitizer, tissues and lid-less waste bins at gates and around the building to allow visitors to dispose of used tissues without touching the bin.
- Frequently sanitize surfaces regularly touched by visitors (buttons, handles, etc.).
- Refrain from special events but when necessary, participants must keep a two-meter distance between seats.
- Advise workers to use personal electronics (e.g. laptops, tablet PCs).
- Open the windows and ventilate for 15 minutes every morning and night.
- Instruct workers to give some time before using common areas such as the staff lounge after one another.
- Set up a quarantine space for visitors or workers showing symptoms, and prepare a code of conduct for when there is a suspected patient.
- Inform workers on the necessity of social distancing and personal hygiene.

2. COVID-19 TIMELINE IN KOREA

Dec 31, 2019	Cluster of cases of pneumonia of unknown origin was reported to China National Health Commission
Jan 3, 2020	Korean government raised the alert level to Blue(level 1 out of the four-level national crisis management system)
Jan 12, 2020	Coronavirus was named 2019-nCoV, and Chinese scientists shared the genetic sequence of the virus internationally.
Jan 20, 2020	First confirmed case of Coronavirus, a 35-year-old female, Chinese national, residing in Wuhan, Hubei province. She was detected with fever upon arrival at Incheon International Airport, and was confirmed positive for coronavirus.
Jan 20, 2020	Korean government raised the national alert level to Yellow (level 2)
Jan 23, 2020	Chinese government locked down Wuhan, the center of the outbreak.
Jan 28, 2020	Korean government raised its infectious disease alert level to Orange (level 3).
Jan 30, 2020	WHO declared the coronavirus a global public health emergency
Jan 31, 2020	COVID-19 test kits based on the virus' genetic code released by China are distributed to local government labs across Korea.
Feb 4, 2020	Korea began banning the entry of all foreign nationals who had been to China's Hubei province in the past two weeks
Feb 7, 2020	COVID-19 test kits became available in private hospitals.
Feb 12, 2020	WHO declared an official name for the new coronavirus - COVID 19
Feb 20, 2020	Number of confirmed cases in Korea reached 100, and the first death occurred.
Feb 21, 2020	Korean government declared 'Special Management Region' in Daegu and Cheongdo.
Feb 23, 2020	Korean government raised its infectious disease alert level to Red(level 4) and ordered schools to start the new semester one week later on Mar 9, from March 2.
Mar 1, 2020	Korean government divided confirmed patients into four groups and only the sickest and elderly were sent to hospitals. The young and asymptomatic went to dormitories.
Mar 2, 2020	Korean government delayed the start of the new semester to March 23.
Mar 4, 2020	Korean government proposed an 11.7 trillion won extra budget bill.
Mar 5, 2020	Korean government declared a 'Special Management Region' in Gyeongsan.
Mar 9, 2020	Korean government applied special entry procedures for those from Japan.
Mar 10, 2020	A cluster of confirmed cases appeared in a Seoul call center.
Mar 11, 2020	WHO declared COVID-19 a pandemic
Mar 17, 2020	Korean government delayed the start of the new semester until April 6.
Mar 19, 2020	Korean government applied special entry procedures for all foreigners.
Mar 22, 2020	Korean government began implementing stricter rules on social distancing

3. LIST OF ECONOMIC MEASURES

1. Small- and medium-sized enterprises (SMEs) and Micro-business owners

Fiscal support	Tax relief
• Support programs provided to normalize the operations of affected stores that were visited by confirmed patients • Support for rental fees for micro-business owners (providing a 50% tax relief cut when building owners reduce rental fees for micro-business owner tenants, and rental fees cut for buildings owned by the government and public organizations) • Emergency relief fund for affected SMEs • Provision for maintaining employment and labor costs	• Extending the deadline of filing and paying internal and local tax returns, postponing tax investigations, and applying a grace period for collecting taxes and any arrears • Reducing the tariff for the emergency procurement of key parts via airlines
Financial support	**Administrative support and other support**
• Expanding lending support (via loans and guarantees) • Underwriting greater level of accounts receivable insurance and lowering insurance premiums • Enlarging the size of P-CBO issuance and relaxing its requirements	• Expediting customs procedures for raw and sub-materials, and helping to identify alternative procurement services • Streamlining importing screenings • Extending contract/delivery periods for goods procured by the government

2. Export Industries

Fiscal support	Tax relief
• Offering exporting vouchers • Helping to establish online exhibitions	• Prolonging the deadline for tariff collections, and allowing payments in installments • Expediting tax refunds • Putting off tariff investigations
Financial support	**Administrative support and other support**
• Reprieving bankruptcies filed by insolvent exporting companies • Reducing the spread on deferred payments of bills bought in foreign currency • Extending the expiration period of import L/C	• Operating trouble-shooting help centers

3. Local Economy

Fiscal support	**Tax relief**
・Emergent budget execution in local areas for the first of this year ・Issuing additional local gift certificates and offering a larger discount on them ・Designating areas for special management such as Daegu and Gyeongbuk Province, and providing special support worth 1.7 trillion won	・Suspending tax investigations in local areas ・Helping to pay local taxes in installments and postponing due dates for tax payments
Financial support	**Administrative support and other support**
・Applying the prime rate on initial lending ・Backing local governments and municipalities that are propping up local SMEs (through loans and guarantees)	・Reducing the bidding time period when purchasing masks ・Running an on-site center and an inspection force for reporting unfair practices pertaining to sanitary aid and quarantine products

4. Airline and Shipping Industries

Fiscal support	**Support for fees and penalties**
・Lowering the usage rate of port and airport facilities ・Reducing rental fees for passenger terminals	・Extending the deadline for penalty payments newly incurred by airliners ・Longer period for reducing fees for Aircraft Certification Systems (ACS)
Financial support	**Administrative support/Miscellaneous**
・Emergency lending targeting LCCs, passenger ships, and stevedoring companies ・Introducing a public guarantee program on operational leases for airliners ・Injecting liquidity when companies confirm a reduction in freight or cargo volume	・Postponing the retrieval of unused operation rights/slots, and increasing per-time slots ・Distributing operational rights for medium and long- distances, and helping to open non-service routes ・Extending the due date for vessel screenings

5. Tourism, Restaurant and Service Industries

Fiscal support	**Tax relief**
• Pushing ahead with modernizing facilities including tourism special zones and cultural properties • Easing requirements for subsidies for employment stability • Providing disinfection services to companies that confirmed patients visited	• Cutting asset taxes imposed on accommodative facilities • Extending the due date of patent rights payments from duty free shops and permitting installment payments
Financial support	**Administrative support/Miscellaneous**
• Temporarily introducing preferential non-collateral financing • Greater coverage for general loans and applying the prime rate to more borrowers	• Helping to address disputes related to cancellations and requesting refunds • Distributing posters explaining tailored responses to dining industries

6. Workers / Consumers

Fiscal support	**Tax relief**
• Adopting five consumption coupons (for jobs, vacation, cultural events, tourism, and childbirth) • Providing support for living expenses for vulnerable groups • Expanding support for employees suffering from delayed wages • Granting living expenses for the self-quarantined	• Temporary increases in tax relief for the special excise tax and income tax • Putting off the period of value-added tax refunds targeting hotels accommodating foreign tourists • Easing the burden of social security insurance premiums and electricity bills
Financial support	**Administrative support and other support**
• Strengthening financing for living expenses for job seekers	• Escalating support for costs related to civil litigations for pursuing unpaid wages • Further vocational training for job seekers

4. FREQUENTLY ASKED QUESTIONS (FAQs)

Q (TRACE) What is the criteria for classifying someone as a "contact" (a person who has been in contact with a confirmed case)?

☞ The criteria is determined based on an exposure assessment conducted by the Epidemiological Investigation Team. The scope of exposure starts on the day before the confirmed patient started showing symptoms, taking into account the symptoms of the confirmed patient, whether the confirmed patient was wearing a mask, and the risk level of exposure (location of contact, duration of contact, etc.).

Q (TRACE) What happens if you are classified as a contact?

☞ You should isolate yourself for 14 days from your last potential exposure. You will receive a self-quarantine notice from the Head of the Health Service, be informed of the self-quarantine guidelines, and be assigned a clerk who will check in with you twice a day to check for fever and other symptoms until you are released from self-quarantine.

Q (TRACE) What are the self-quarantine guidelines?

☞ First, separate yourself from other people and frequently ventilate rooms by closing the doors and opening the windows. If possible, stay in a place where you can have a separate bathroom and wash basin to yourself.

☞ If you use a public bathroom or wash basin, make sure you disinfect the area with bleach or other household disinfectants before other people use them. Use your own personal items, including towels, dishware, and mobile phones. Wash your clothes and bedding separately. Eat alone and make sure to separate your dishware from everyone else's.

Q (TRACE) Is violating a self-quarantine order punishable by law?

☞ Failure to cooperate with quarantine orders may result in a criminal penalty (maximum fine of three million won). Upon the promulgation of the Infectious Disease Control and Prevention Act (passed by the National Assembly on February 26, 2020), violators may be penalized by a prison sentence of up to one year or a fine of up to 10 million won.

Q (TRACE) Are living expenses provided during the self-quarantine period?

☞ Yes, your expenses will be covered during the self-quarantine period and you will be on paid leave. For details, contact your Community Service Center.

Q (TEST) Who is eligible to get tested?

☞ In accordance with KCDC guidelines, patients classified as suspected cases and Patients Under Investigation (PUI) may get testing. There is no need to get tested out of simple anxiety. We ask that you trust the expert advice of your physicians.

Q (TEST) Difference between a suspected case and a Patient Under Investigation?

☞ Suspect cases are people with high risks of having been infected after coming into contact with a confirmed case. Although the risk level is not as high as PUIs, people are classified as suspected cases based on their travel history and physician's opinion.

☞ PUIs must report their symptoms. Even though an epidemiological survey will not be conducted and a self-quarantine notice will not be issued, Patients Under Investigation must follow the same measures as confirmed patients.

Q (TEST) Where can I get tested?

☞ You can get tested at COVID-19 screening centers that are equipped to collect samples. The following link provides a list of COVID-19 screening centers (in Korean) where you can get tested. (Link) http://www.mohw.go.kr/react/popup_200128.html or call the 1339 hotline.

Q (TEST) How is the test performed?

☞ Samples are collected by physicians, nurses, and medical technicians at designated locations (COVID-19 screening centers). Nurses and medical technicians will collect samples under the guidance of physicians. Two types of samples are collected, during which you may experience some discomfort/pain.

Q (TEST) How long does it take to get the test results back?

☞ You can expect to get your results back one or two days after testing.