

Inspection results showed that the Church Youth Camp was identified as the main cause of cluster infections.

- Busan also identified that other cluster infection cases took place at other institutions which originated from Oncheon Church. The city government traced contacts and conducted diagnostic testing. Confirmed patients found during the process were isolated for further observation.
- **(Asiad Nursing Hospital)** After a staff member tested positive (Feb. 22), an epidemiological investigation was conducted (Feb. 22), which showed that there was a high risk for transmission within the entire hospital building.
  - The city government and Yeonje-gu District Office designated that the hospital be placed under targeted control (Feb. 24). Epidemiological specialists and nurses from public health centers were dispatched to identify additional confirmed cases and put them under self-quarantine. Rigorous infection control was implemented to prevent further spread of the outbreak. The hospital was released from the targeted control measures once no further confirmed cases were reported (Mar. 11).
- **(Haeundae Sharing and Happiness Hospital)** After a staff member tested positive (Feb. 24), targeted infection controls were implemented (Feb. 25) on the 6<sup>th</sup> floor of the hospital where the confirmed staff worked. However another staff member was also identified to be infected (Feb. 26), which led Busan to conduct another epidemiological investigation on the entire facility and staff working on the 5<sup>th</sup> floor.
  - **The 1<sup>st</sup> quarantine was conducted and part of the hospital was closed down.** Admission of additional patients and visits were strictly limited while protective materials (masks, hand sanitizers, partitions, thermometers, rental cars) were promptly delivered. The hospital was released from targeted control once no additional cases were reported (Mar. 11).
- **(Suyoung Elementary School Kindergarten)** After a staff member tested positive (Feb. 26), the On-site Response Team was

dispatched to complete diagnostic testing on all faculty members and students.

- 4 more confirmed cases were reported among the staff who were placed under self-quarantine. In response, 450 kindergarten and elementary school students and faculties were placed under active surveillance while the entire kindergarten and school were quarantined and disinfected. No additional cases were reported after such efforts were made.
- (Three J Edu (language academy)) It was identified that a member of Oncheon Church, where the first cluster infection case took place in Busan, was associated with the academy. In addition, 4 more staff members who were placed under self-quarantine tested positive. In response, the remaining 35 staff at the academy received diagnostic tests and put under self-quarantined and the entire academy was disinfected. No additional cases were reported afterwards.

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**Promptly Establish Treatment Facility with Medical & Quarantine Facility**

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- Busan Metropolitan City government established a phased plan on the operation of screening clinics and secured negative pressure and isolation rooms even before the first confirmed case took place.
- A meeting of medical institution leaders (Feb. 20) was convened to fully prepare for a possible outbreak. The meeting called for concerted efforts to establish more screening clinics and expand implementation of diagnostic tests on suspected patients for early detection.
- \* (Prior to the outbreak of confirms cases) 34 screening clinics (16 at public health centers, 18 at private medical institutions), and 32 specimen collection centers (16 at public health centers, 16 at private medical institutions) were being operated.
- As the national infectious disease alert level was raised to the highest level (red, level 4), The **Meeting of Medical Institution Leaders and Heads of Related Institutions** was hosted to promote medical cooperation between private and public stakeholders (Feb. 24).

\* (Outbreak of confirmed case & alert level raised to red) 44 screening clinics (16 at public health centers, 28 at private medical institutions), 39 specimen collection centers (18 at public health centers, 21 at private medical institutions)

- Busan introduced 24-hour infectious disease response system at public health centers and expanded operation of screening clinics to private medical institutions. The city government also made efforts to fully utilize hospital beds, medical staff and patient transfer measures available at private institutions.

o The city government designated Busan Medical Center as a national infectious disease hospital to not waste precious time to initiate isolated treatment. Medical institutions joined forces to transfer all existing patients accordingly and to promptly respond to COVID-19.

\* (Transition of Busan Medical Center into a national infectious disease hospitals) 254 patient bed

\*\* (Transition of Busan Medical Center into a national infectious disease hospitals) 548 additional patient beds were secured (Feb. 28)

Patient Beds	Feb. 22	Feb. 23	Feb. 24	Feb. 25	Feb. 26	Feb. 27	Feb. 28
548	210(38.3%)	212(38.6%)	309(56.3%)	385(70.2%)	471(85.9%)	507(92.5%)	548(100%)

- Established 254 beds for isolation of infectious disease patients, pushed for transition of entire patient beds into negative pressure rooms

Target	Patient Beds in Negative Pressure Room			Transition Plan (After portable devices are secured)	
	2.28	3.3	3.17	3.24	3.31
254	48(18.9%)	106(41.7%)	165(65.0%)	223(87.8%)	254(100%)

o Busan established further plans to secure precious time for treatment which includes separation of COVID-19 patients from others.

- The city government operated Emergency Medical Center,\* which focused on infection control implemented on emergency patients with severe symptoms (Dong-A University Hospital) (Since Mar. 12)

\* (Condition) ① Separated zone for isolated patients (5 beds or more)

② Classification of patients before entering emergency room

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## □ Secure Patient Beds to Prepare for Surge in Confirmed Cases

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- Public · private hospitals in Busan had a total of 95 patient beds in negative pressure rooms (for single patient) designed for treatment of infectious respiratory disease. Such patient beds were provided to COVID-19 confirmed patients as well as those suffering from respiratory diseases, including tuberculosis.
  - Central Disease Control Headquarters identified that negative pressure rooms' capacity could quickly fill when faced with a large-scale spread of infections. Considering an upward trend in **confirmed cases**, Central Disease Control Headquarters permitted the allocation of **severe·extremely severe patients** at general hospitals and **university hospitals** while allowing **mild patients to be accommodated in general patient rooms** under the condition that **they are separated from other general patients** (Feb. 23).
- The city government separated negative pressure rooms and isolation rooms to ensure efficiency of treatment. The city also secured more patient beds, both negative pressure rooms for hosting severe · extremely severe patients and isolation rooms for accommodating mild patients, at operating designated hospitals.
  - While making full use of available patient beds in Busan, the city government set up a plan to allocate patients to **negative pressure rooms or government designated hospitals** located in other nearby cities in case of shortages of beds.
  - For treatment of severe·extremely severe patients, the city government built temporary negative pressure rooms using portable negative pressure isolation devices. The city also provided protective gear and medical equipment including respirators.
  - For treatment of mild patients, the entire building of Busan Medical Center was emptied to secure space for negative pressure and isolation rooms. As such, the city government made efforts to promote efficient use of personnel and equipment while minimizing exposure to the source of infection.

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## 5 Operate Drive–thru Screening Clinics

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- While the number of confirmed cases soared throughout the country, so did a demand for diagnostic testing. The Korean government responded by establishing a number of **drive–thru screening clinics** to conduct safe, efficient and extensive specimen collection.
- While general screening clinics could collect specimen for two persons/hour and 20 persons/day, drive–thru screening clinics are capable of handling **6 cases/hour** and **60 cases/day**, as the time required for disinfection and ventilation could be reduced.

\* Number of specimen collection per hour: (General) 2 cases / (Drive–thru) 6 cases

- Busan operated a total of three drive–thru screening clinics\* which effectively reduced testing time and infection risks first in **Haeundae–gu District (Mar. 3)**, followed by **Buk–gu** and **Busanjin–gu District**.

\* 20 medical staff dispatched at drive–thru screening clinics in Haeundae–gu, Buk–gu, and Busanjin–gu District collected a total of 300 specimen/day

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## □ Prevent the Spread based on thorough Self–quarantine System

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- To contain community spreading based on early detection and prompt diagnosis, those who came in contact with confirmed patients were placed under self–quarantine for 14 days. The national • provincial government and police made concerted efforts to maintain and monitor those under quarantine.\*

\* 1:1 monitoring by a designated government official twice a day, officials in charge of the city and gu·gun district monitor the quarantine operation process

- **Busan Human Resources Development Institute**, a training institute for government officials, was designated and used as a temporary quarantine facility (64 rooms). Busan set up a plan to utilize private training facilities, including **Busan Bank Training Institute (69 rooms)** to prepare for further cases.

\* Up to 45 inpatients, 14 administrative staff, 2 medical staff (1 doctor, 1 nurse), 8 operation staff, 4 police officers

- Since Busan saw its first confirmed case (Feb. 21), a massive

cluster infection (55 cases) took place. The number of contacts surged accordingly, bringing the maximum daily figure to 2,261. However, the number went down considerably due to sustained and efficient control efforts.

\* (As of March 25) 2,893 confirmed cases, 2,675 fully recovered, 2,675 released, 218 under treatment

- Volunteers for each gu/gun district were dispatched to deliver relief kits (food, infectious disease prevention kits) to those under quarantine. (since Mar. 8) The city government applied strict rules to those under self quarantine. For instance, those who violate the rules or leave the quarantine area could face prosecution. Furthermore, **Busan raised the efficiency of self-quarantine using the Self-Quarantine Safety Protection App\*\***

#### **Self-Quarantine Safety Protection App**

\* (For Violators) ① Immediate notified by phone ② Requested to return (3 times) ③ Forced to return by police and fire authority ④ Reported to police

\*\* (Safety Protection App Installation) Out of 131 persons under quarantine, 78(60%) installed the application. (As of 14:00, Mar. 18)

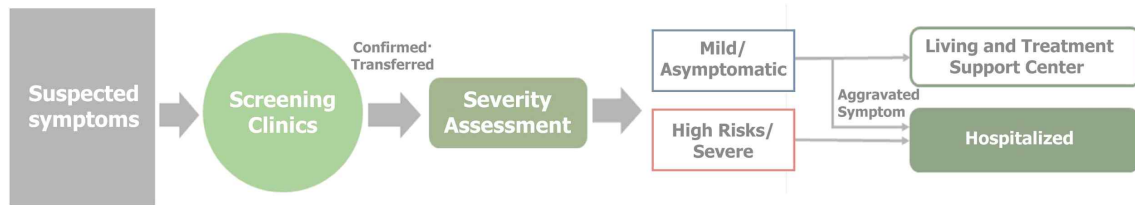
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### **□ Realign Treatment System in Response to Community Spread (Living and Treatment Support Center)**

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- To be better prepared for the community spread of COVID-19 in Korea, the city government decided to **maintain a early detection strategy** and employ measures to minimize severe · extremely severe patients (**Mar. 1**).
- Busan launched the **Patient Management Team** in charge of **allocating patient beds based on severity** in an aim to **operate an efficient patient treatment system**.
  - \* Confirmed cases are expected to increase continuously while speculation suggests community spreading would further increase.
- **Rapid spreading** and **high early transmission rate** of COVID-19 led to a surge in the number of patients in a short period, and **the majority of confirmed cases showed mild symptoms**.
- 81% of confirmed cases showed mild symptoms which didn't require hospitalized treatment, while **critical conditions** might have quickly lead to aggravated symptoms or **fatalities**.

- Initially, with limited patient beds, **all confirmed patients were hospitalized for treatment without taking severity of symptoms into consideration.** This caused **shortages in patient beds** and some patients developed aggravated symptoms or died while waiting to be admitted, as proper care was not provided during the waiting period.
- Medical system could only be sustained when the **limited medical supplies are successfully delivered to patients in need of treatment and medical staff are protected from infection.**
- In this regard, the city government established a system to:
  - Give **priority for hospitalized treatment to severe and extremely severe patients** to prevent aggravation and fatality.
  - **Monitor mild patients** promptly and provide medical support in case of emergency.
- \* Korean Hospital Association reviewed measures to treat patients with light symptoms at public institutions under medical staffs' supervision.
- With a continuous increase in the number of confirmed patients, the city government made efforts to **secure as many patient beds as possible** while assigning **asymptomatic and mild cases for treatment at living and treatment support centers**, where prompt medical services are provided **instead of being hospitalized.**
- Patient Management Team (7 medical staff in 2 teams) classifies patient based on severity. Moderate·severe·extremely severe patients are immediately hospitalized for treatment (in negative pressure rooms or national infectious disease hospitals)
- **Patient Management Team (Severity Classification Team)** classifies patients into category of **mild, moderate, severe and extremely severe** based on medical diagnosis and test results. 2 doctors and 2 nurses
- **Patient Bed Allocation Team** transfers **mild patients to living and treatment support center** when chance of aggravated symptoms are low.
- **Moderate·severe·extremely severe patients** are **immediately hospitalized** at national infectious disease hospitals (Busan Medical Center) or government-designated institutions for hospitalized treatment ▷ 1 doctor and 2 medical staffs.



- Busan established plans for each stage of the outbreak, including operation of **living and treatment support centers** to isolate mild patients and provide medical support when **150 or more confirmed cases** are reported (Mar. 3).

- In addition, **the city government promptly realigned its treatment system. The Busan Human Resources Development Institute (64 rooms) was designated as a level 1 facility** to dispatch personnel to provide medical services and operation on demand and secure medical equipment. The city also designated additional level 2-3\* living and life treatment centers in preparation for further increases in confirmed cases of 300 or more.

\* (Level 1) Busan Human Resources Development Institute - 64 rooms

(Level 2) Busan Youth Hostel Arpina - 100 rooms

(Level 3) Green Narae Hotel - 73 rooms

- Busan mapped out a plan to relocate a temporary quarantine facility to the Busan Bank Training Institute once a living and treatment support centers was established at the Busan Human Resources Development Institute. The city government also reviewed precautions on the transferring of those subjected to quarantine, secured administrative officials and medical staff to be dispatched when necessary, and drew up measures for delivery of medical equipment and daily necessities, quarantine, disinfection and waste treatment processes (Mar. 10).

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### **Safe medical system: Public Relief Hospital & COVID-19 Emergency Medical Center**

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- The Busan government **has designated and begun operating public relief hospitals** in order to establish a safe and efficient medical system during the pandemic, as well as ease anxiety of the citizenry (Mar.7).

\* Public Relief Hospitals: 34 (6 Hospitalization & Outpatient, 28 Outpatient)



- The Busan Metropolitan City Government has designated and begun operating emergency medical centers in order to provide required medical services to severely-affected patients in a timely manner.

\* COVID19 Emergency Medical Center: Dong-a University Hospital

- Busan has designated and begun operating **special medical rooms for respiratory patients (outpatient/hospitalization)** in order to reduce the risk of infections and provide swift and safe treatment.

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#### **Inspection and intensive management of long-term care hospitals**

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- The Busan government has set out a safe management plan for high risk facilities, including long-term care hospitals, as well as prepared **cohort quarantine measures** in order to prevent sporadic infection clusters.

– 167 hospitals, patients (28,445), staff (13,667), caregivers (4,094)

- The city government has conducted a complete enumeration survey to check Chinese caregivers and their immigration history, and has excluded those caregivers from work. As well, the city has limited the number of visitors and conducted coronavirus tests on pneumonia patients. The Busan Metropolitan City Government has established a response system for cluster infections through overall and continued monitoring.

– Tested 21 pneumonia patients (All negative)

– Excluded any staff/caregiver who visited risky regions (overseas & Daegu) from work for 14 days (2 staff)

\* (Asiad Hospital) Since 1 Staff was confirmed positive (Feb.23), the hospital was placed under cohort quarantine for two weeks and afterwards lifted without any further infections. This was reported as an exemplary cohort quarantine case.

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#### **Intensive management of ‘Shincheonji’ church and cooperation with religious groups**

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- The virus has started to rapidly spread in Daegu and Gyeongbuk regions due to the outbreak at ‘Shincheonji’ church. **The City of Busan has put utmost measures to prevent any infection from the church in a preemptive manner (Feb.20).**

- The city government has announced the closing of all ‘Shincheonji’ related facilities in Busan at a press briefing (Feb.21). During the weekend of Feb.22~23, the Busan Metropolitan City Government inspected and closed all the facilities.
- Around 50 public officials take part in checking and inspecting the closed facilities everyday. The Busan Metropolitan City Government has also announced an intensive management period (Feb.26~Apr.5). As a result, among confirmed patients, only 6 were from the Shincheonji church.
  - Shincheonji: 17,057 (members + trainees)  
Conducted a complete enumeration survey (Feb.28~Mar.14)  
1:1 Monitoring of 3 positive cases
  - Specially managed and tested 347 members of the church who worked at medical facilities and/or high risk facilities (kindergartens):  
1 positive cases
- As the risk has been growing from religious activities, **the Busan Metropolitan City Government, the City Council, and 5 major religious groups urgently held an emergency workshop** and agreed to fully cooperate in conducting epidemiologic surveys and suspending religious activities (Feb.24).

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#### Intensive management of high-risk facilities

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- There has been a growing concern towards facilities that are exposed to **cluster infections** as sporadic cluster infection cases have been reported in Daegu and Gyeongbuk regions.
  - Reported 268 confirmed cases from long-term care homes, Gyeongbuk
- Hence, **the city has conducted intensive monitoring (Jan.29) of 381 multi-purpose facilities, including medical facilities and long-term care hospitals,** and temporarily closed social welfare facilities (Feb.28~Apr.8).
  - Providing 33,000 masks to the disabled (Feb.28), free lunch services for elderly (Feb.24~), fumigation equipment
  - \* Conducted a complete enumeration survey & on-site inspection (Feb.6~)

- The Busan government **has intensively managed the facilities to maintain inspections and secured additional staff to mitigate the absence of current caregivers.**
  - Controlling entrance/exit, checking temperatures and symptoms twice per day, managing staff entrance, strengthening fumigation, and allocating special budget for additional staff
- **Cluster infections in long-term care hospitals have been reported, so the Busan government has strengthened management,** especially staff and caregivers, as the occurrence of a viral outbreak may lead to a high death rate.
  - Established an active monitoring system: designating a manager for fumigation, banning entrance/exit of visitors, checking symptoms daily, and removing any staff members who exhibit symptoms

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**Intensive management of high-risk businesses and multi-purpose buildings**

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- **Sporadic cluster infection cases from hospitals and call-centers have been reported in central regions** while the overall spreading of the virus has slowed.
  - \* Call center (Mar.8~ , Mar.17, 134 cases), church (Mar.9~ , Mar.17, 47 cases)
- In order to preemptively prevent such infections, the city government has carried out **special inspections of multi-purpose buildings.**
  - **Special Inspection Period** (Mar.12~27)
    - \* Designating a public official for managing 14,278 multi-purpose buildings, conducting on-site inspections, and fumigating
- As well, the city of Busan has conducted **special inspections of businesses that are high-risk** in order to prevent similar cases as reported from call centers in Seoul.
  - Inspecting hygiene practices, regularly fumigating facilities, checking temperature twice per day, keeping a safe distance within offices, and recommending remote work and flexible working hours
- The Busan government has inspected entertainment facilities and private educational academies, and provided tailored financial support for those businesses closed as a result of the virus.
  - Intensive inspection and fumigation of 1,618 sports-related facilities

- As the central government has postponed the start of the new school year, **the Busan Metropolitan City Government, the City Council, and the Busan Office of Education held an emergency joint meeting (Mar.3)** and discussed contingency measures.
  - \* Postponement of new school year: 1<sup>st</sup> (Mar.2~Mar.6), 2<sup>nd</sup> (Mar.9~Mar.20), 3<sup>rd</sup> (Mar.23~Apr.3)
  - Joint on-site inspections (Mar.6~8): 902 facilities
  - Emergency workshop with private educational academies (Mar.8): agreement to close academies
  - On-site inspection (Mar.10) led by the Office of Education and thorough inspections of opened facilities (Mar.12~14)
- **Religious groups have agreed to voluntarily stop activities, however, some small churches have continued their services.**
  - The Busan government has continuously asked religious groups to voluntarily partake in preventative measures and follow health and safety guidelines, instead of implementing forced measures as this may cause a violation of religious freedom.
  - Recommended adoption of online services, ban group dining, regularly fumigate, and provide safety guidelines
  - While strengthening cooperation with religious groups, the City of Busan has investigated 75 big and 1,546 mid-small churches, conducted on-site inspections and fumigated the facilities.

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## Chinese foreign students

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- In early February, the number of confirmed patients from Hubei province rapidly increased and secondary transmission was reported in Korea.
  - As Chinese students are expected to come back for the start of the new school year, the City of Busan has prepared relevant preemptive measures.
  - Investigating residences of Chinese students (5,453 Chinese students, 14 universities, Jan.30~), operating a support center (Jan.28~,SNS), and sharing information (establishing emergency contact list)
- The city government has established an online group chatting system throughout SNS in order to gather feedback from and **closely cooperate with universities**, in addition to providing **robust**

### **administrative and financial support.**

- Management of foreign students, operating an airport pick-up service (Feb.29~), supporting fumigation at universities (Feb.18) and residences of students (Feb.19~).
- Provision of masks (12,400), protective equipment (144), thermal cameras (11), fumigation equipment, meal boxes (10 universities), and monitoring of staff (Mar.2~)
- Providing self-quarantine facilities to those who do not have a proper residence, and monitoring all visitors from U.S. and Europe beginning Mar.22

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### **Strengthening emotional resilience**

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- **The city government established the ‘COVID-19 Emotional Support Center’ (Feb.13), composed of experts since the beginning of the outbreak.**
  - Under the city government, mental health care welfare centers (16 centers, 215 staff) operate a support center service in order to provide mental healthcare to those in need.
- **Fear and anxiety in citizens have risen as the virus began to spread (Feb.21). This has weakened the overall vitality of society.**
  - In order to ease the anxiety of citizens, the city of Busan has established support measures and conducted an emergency survey of the emotional health of citizens (Mar.5~9, online survey: 1,030 citizens)
- **The Busan Metropolitan City Government has started a ‘Clean Zone Campaign’, and sought to raise morale of medical staff and citizens, promoted the need for volunteers, and sent out positive messages throughout the whole of society.**
  - Providing mental health care services, not only for those quarantined, but also for their families and expanding organizational support
  - Conducting campaigns, collaborating with community hospitals, and promoting campaigns

### 3. Preemptive Emergency Financial Support Measures

#### Emergency Financial Support Response Headquarters

- WHO declared 'public-health emergency of international concern' in order to implement global responses against COVID-19 (Jan.30).
  - Since the declaration, countries, including the US and Japan started to ban entry from China and other virus-hit nations.
  - The ROK government also banned foreign nationals from Hubei Province (Feb.4) in order to stop the virus from spreading.
- The city of Busan has established an '**Emergency Financial Support Response Headquarters**' in a preemptive manner in order to prevent the economic hit and minimize economic damage, especially in the tourism and export sectors.
  - 40 institutes from 5 avenues : Export·Import·Tourism·Port/Logistics·Local Economy
  - The Mayor of Busan directly orders the headquarters to support the local economy, as well as designated the Vice Mayor of Economic Affairs as a deputy-head to minimize negative impacts on local economy.
- The Busan government held its **1st Emergency Financial Support measures meeting (Feb.4)** in order to check the current status of the local economy and discuss response measures.
  - Mayor, Chairman of City Council, heads of relevant institutes and organizations, and entrepreneurs **agreed to jointly respond to the crisis.**
  - More importantly, the Busan Credit Guarantee Foundation has started to provide **emergency financial grants to small and micro businesses regardless of credit ratings.**
    - \* For tourism·MICE, festival related businesses: KRW 10B (max 50M for each business), interest rate: under 2.9%, guarantee rate: 0.5%, special grant (100M) for micro-small businesses, etc.

#### Rejuvenating the Local Economy

- As the local economy has started to be impacted from the sluggish global economy, the Busan Metropolitan City Government urgently held the **2<sup>nd</sup> joint Emergency Financial**

**Support measures meeting (Feb.12)** to review the situation and discuss practical measures in a detailed manner.

- Consumption sentiment shrunk, various events/festivals canceled, tourism industry and import/export businesses from China have been severely hit
- The Busan government operates **domestic and international support centers** (Shanghai, Cheongdo, China) in order to monitor real time circumstances, and established an ombudsman system.
- **As well, financial grants have been specified.** A 2.9% special guarantee measure has been adopted to **provide financial grants for all hard-hit businesses regardless of credit ratings**, especially for tourism and small·micro businesses.
- The city government has also **supported businesses to diversity target markets** as the situation is projected to prolong. As well, the City Government **has conducted campaigns for floral businesses** that have been struggled due to recently canceled events.
- **For tourism/MICE businesses**, directly hit by the virus, the city government has requested the central government to provide **emergency support**, such as easing collateral conditions, so that businesses can rapidly receive credit loans.
- Despite such efforts, the difficulties facing the tourism industry have deepened. In order to set out additional measures, the city government held the **3<sup>rd</sup> joint Emergency Financial Support measures meeting (Feb.20)**.
  - The city government and a major local bank, BNK Busan, **have agreed to provide financial grants and tax support to businesses connected to city events·festivals.** As well, they decided to **provide a total of KRW 400B grants to tourism-related businesses (100M max each)** and suspended local tax submissions.
- For small·micro businesses, the city government held **the 4<sup>th</sup> joint Emergency Financial Support measures meeting (Feb.26)** in order to draw up tailored support measures.
  - Total of 30 leaders from related institutes and government organizations participated and discussed support measures.
- **The city government and BNK have jointly established KRW**