

TC Document

1. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Innovative COVID-19 Response Using ICT Tools: Knowledge Sharing Between LAC and Korea in Public Health Emergency Preparedness
▪ TC Number:	RG-T3704
▪ Team Leader/Members:	Tejerina, Luis R. (SCL/SCL) Team Leader; Bagolle, Alexandre (SCL/SPH); Bermudez Plaza, Neili Carolina (SCL/SPH); Hwang, Euisu (SCL/SPH); Negret Garrido, Cesar Andres (LEG/SGO); Nelson, Jennifer A (SCL/SPH); Park, Mihwa (SCL/SPH); Silveira, Sheyla (SCL/SPH)
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	08 May 2020.
▪ Beneficiary:	IDB's borrowing member countries
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Korea Poverty Reduction Fund(KPR)
▪ IDB Funding Requested:	US\$1,000,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	24 months (execution period included)
▪ Required start date:	July, 2020
▪ Types of consultants:	Individuals; firms
▪ Prepared by Unit:	SCL/SPH-Social Protection & Health
▪ Unit of Disbursement Responsibility:	SCL/SPH-Social Protection & Health
▪ TC included in Country Strategy (y/n):	N/A
▪ TC included in CPD (y/n):	N/A
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Social inclusion and equality

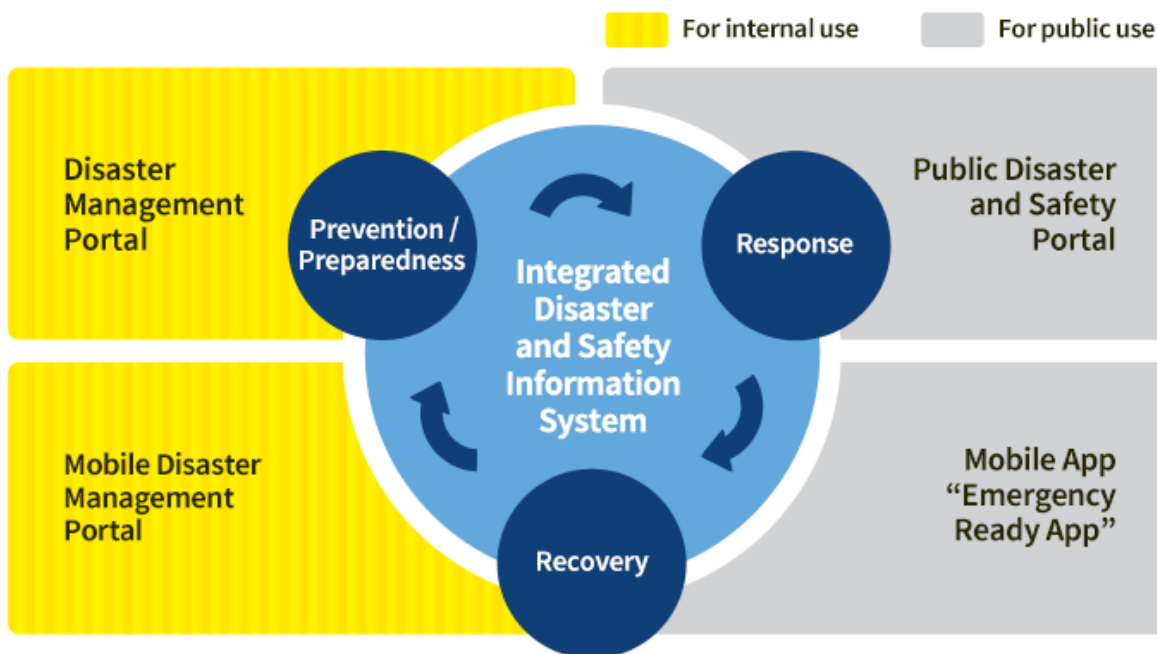
II. Objectives and Justification of the TC

- 2.1 The objective of this technical cooperation (TC) is to strengthen overall public health emergency response systems and preparedness in Latin American and the Caribbean (LAC) countries to enable better management of the current and future outbreaks using digital tools. In doing so, this TC will fund knowledge sharing from South Korea's experience in strengthening its public health emergency response system. Furthermore, in order to develop a system that is suitable for the region, this project will fund hiring of a top entity from the region with the necessary expertise to vet potential technologies in their use and applicability for the region.
- 2.2 When COVID-19 hit the countries in LAC, few were ready with information systems in place to react and produce the necessary data to help authorities face the crisis. Countries like Uruguay and Argentina have developed chatbots to answer questions and provide information on COVID-19 to citizens. Colombia launched an informative platform to follow up with the evolution of COVID-19 in the country and an app to track it. Peru and Costa Rica developed dashboards and analytics to monitor the spread of the disease. However, the use of digital tools in the LAC region, in general, was limited due to lack of infrastructure, governance structures for a scenario like this one and

policies to back the use of digital technologies during pandemics. Furthermore, responses from various countries were heterogeneous and, in some cases, not led by the Ministries of health. Digital solutions were imported from other regions and implemented in a rush to respond to the challenge without vetting their applicability in the region or strategic planning regarding the role they played in the overall health system response to the pandemic.

- 2.3 Digital health interventions are commonly used tools to improve efficiency and quality of health care (Nelson et al. 2019) and they are also proven to be effective during public health emergencies (Allen et al. 2019). According to a recent IDB's [publication](#), in times of public health emergencies, stronger information systems are important, and digital tools have been used to serve as emergency response systems, client communication systems, public health and disease surveillance systems, and so on. The report also emphasized the importance of non-digital factors such as institutional capacity, and legal framework to maximize digital tools' effectiveness in times of public health emergencies (Park et al. 2020).
- 2.4 South Korea is one of the countries that had made the relevant investments and quickly reacted to manage the crisis using data and technology. South Korea regularly suffers contingencies that can have serious public health consequences, from yearly typhoons to infectious disease outbreaks, which have led to the development of public health emergency preparedness, response capacity, and strengthening its resilience (OECD, 2020). The country's response system has been especially strengthened after the Middle East Respiratory Syndrome Coronavirus disease (MERS) outbreak in 2015. Indeed, the MERS outbreak gave important lessons to South Korea as gaps in its health systems were discovered. Considering risks for public health, preparedness for public health emergencies became a key policy priority in Korea after the outbreak, and several legal and institutional reforms have followed –starting with its legal and institutional framework related to pandemic outbreaks and disasters.
- 2.5 Currently, South Korea's legal framework for public health emergencies is based on an all-hazard approach. The Framework Act on the Management of Disasters and Safety of 2015 clarifies the responsibilities of national and local governments across the risk management cycle, from prevention and preparedness, to response and recovery. The Act also provides instructions to all levels of government to establish both a Safety Management Committee for Policy Planning and Implementation, and a Disaster and Safety Countermeasures Headquarters (CDSCHQ) for operational response, as well as the development of Safety Management Plans in all local governments, corresponding with the national Master Plan for Safety Management developed every five years (OECD, 2020). Furthermore, Korea has established an Integrated Disaster and Safety Information System to support cross-government communication and collaboration for a rapid inter-agency response. Encompassing the areas of disaster and safety, the national disaster management information system handles all phases of a disaster in the most integrated manner. (Ministry of the Interior and Safety, 2020). See Figure 1.

Figure 1: Integrated Disaster and Safety Information System

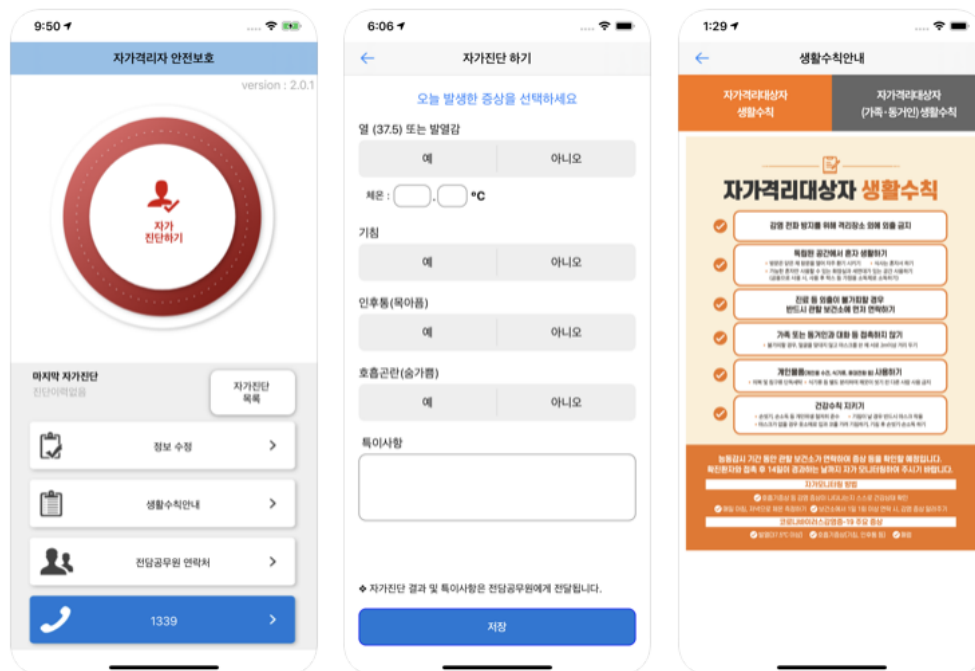


- 2.6 To respond to the current COVID-19 pandemic, South Korea has been using various innovative tools. There are three important stages. The first stage aims at stopping the inflow of the disease by strengthening monitoring and quarantining at entry points. The second stage collects samples efficiently while minimizing in-person contacts (“drive-thru” or “walk-thru” centers were introduced). The next stage tests the samples, followed by a quick diagnose. During this pandemic, not only government agencies but also private healthcare facilities have been conducting diagnosis tests for COVID-19, which has significantly increased the national testing capability. This was a result of the country’s health legal and institutional reform that followed the MERS outbreak in 2015.
- 2.7 In South Korea, Information and Communication Technology (ICTs) played a vital role in responding to COVID-19. Mobile devices were used to support early testing and contact tracing. Advanced ICTs were particularly useful in spreading key emergency information on the virus and helped to maintain extensive ‘social distancing’. Testing results and latest information on COVID-19 were made available via national and local government websites. The government provided free smartphone apps flagging infection hotspots with text alerts on testing and local cases. These tools enabled early testing. Test-kits for COVID-19 quickly became widely available and played a major role in eliminating uncertainties in the early stages of the viral spread. As of now, five diagnostic reagent companies have obtained emergency use authorization and are producing RT-PCR reagents in Korea. Furthermore, Artificial Intelligence (AI) has played a significant role in supporting researchers and healthcare professionals in the diagnosis and screening of patients with severe symptoms, as well as in developing appropriate responses based on a thorough analysis of the situation on the COVID-19 spread.
- 2.8 Contact tracing and surveillance is another area that widely utilized digital tools in COVID-19 response in the country. The Korean Ministry of the Interior and Safety developed a self-quarantine safety protection app to effectively support the monitoring

of people under self-quarantine. This app also features a location tracker; once a self-quarantined subject leaves a previously registered quarantine area, an automatic alert is sent to the case officer. In addition, the Ministry of Land, Infrastructure, and Transport developed a COVID-19 Smart Management System (SMS) that enables epidemiological investigation through Smart City technologies. Through this tool, infectious chains can be traced through automatic analysis of the investigated positive cases navigating routes and contact tracing, shortening human analysis time from 24 hours to 10 minutes.

- 2.9 While these tools are being used, the South Korean government ensures personal information protection and follows strict measures to ensure cybersecurity. The data is anonymized, limited in duration and scope, and carefully disclosed to the public, which others can use to determine whether they may have been in contact with any confirmed positive case. In doing so, the Korean government strictly controls access to the COVID-19 data platform, which is used to track and analyze all confirmed cases (See Figure 2). All stored personal data will be deleted once the outbreak is over. After the 2015 MERS outbreak, the collection of personal data was initially authorized in case of a public health emergency. The amended infectious disease control laws limit the scope of collection, usage, and dissemination of personal data to the public. In order to prevent excessive disclosure of private information of COVID-19 patients, the National Human Rights Commission of Korea called for the authorities to implement measures to ease the public's concerns and protect patients' privacy. In response, the Korea Centers for Disease Control and Prevention (KCDC) published detailed guidelines with time frames and the scope of publicly accessible information to protect patients' privacy. These guidelines were adopted by all levels of the government and applied to surveys or disclosures of any necessary information. Korea has endeavored to strike a balance between public health concerns and personal data protection (Ministry of Foreign Affairs, 2020).

Figure 2: Self-quarantine Safety Protection App by MOIS



- 2.10 As of May 6th, 2020, South Korea has started a process of return to normal life from the prior social isolation/ distancing phase. In this new phase, offices have opened as normal; however, employers and employees should follow guidelines provided by the government. In order to facilitate “business as usual” while minimizing the spread of COVID-19, the government developed preventative and response measures. As a preventative measure, the CDSCHQ has distributed detailed guidelines for 37 different types of businesses, which distributes responsibilities to different ministries. As a response measure, the government implemented the response guideline for mass transmission in a workplace. These guidelines were used when centralized transmissions occurred in a call center in Seoul in March 2020 and contributed to minimizing further spread of the virus. When a person was confirmed from the center, the Korea Center of Disease Control and local government formed a joint response team and launched an epidemiologic investigation with contact tracing. The government ordered immediate shutdown of the building and offered testing to all occupants. Confirmed case-patients were isolated, and negative case-patients were mandated to stay quarantined for 14 days.
- 2.11 **Strategic Alignment.** This TC is consistent with the Update to the Institutional Strategy (UIS) (AB-3190-2) and is strategically aligned with the development challenge of: Productivity and Innovation by increasing efficiency and quality of the public health emergency response system in the region. The TC is also aligned with the cross-cutting theme of: Institutional Capacity and Rule of Law by empowering management skills of public institutions related to public health emergency response. The TC is also aligned to the Corporate Results Framework (GN-2727-12) through the indicator #2 “Beneficiaries receiving health services” and the indicator #26 “Agencies with strengthened digital technology and managerial capacity”, since this technical cooperation supports public health emergency system to better manage pandemics and epidemics. In addition, the TC is squarely aligned with the following priority actions set out in the Health and Nutrition Sector Framework Document (GN- 2735-7) by supporting countries’ efforts to strengthen their preparation and response capacity to address public health emergencies through use of resources and strengthening key sector management capacities. Finally, the TC is aligned with the Korea Poverty Reduction Fund (GN-2373-3) through the area of strengthening national capacity to monitor, evaluate, and design programs based on empirical evidence, including the generation of the appropriate data in a sustainable and comprehensive manner.

III. Description of activities and budget

- 3.1 According to Mexico’s COVID-19 public dashboard, Mexico has reported 216,852 cases and 26,648 deaths. Mexico has reported the highest percentage of positive test in the region, indicating a high potential of contagion levels, especially in recent dates when the country has been opening and trying to return to normal activities. This makes Mexico a good candidate to learn from for components 1 and 2. The case of Colombia was also prioritized for component 1 because of it provides a more advances model to compare results, since it is the third country in South America in performing genomic studies on SARS-CoV2. These analyses make it possible to determine transmission chains, determine genetic variability and viral evolution for understanding the disease and the design of diagnostic tests and vaccines, and to identify the dynamics of viral spreading.
- 3.2 **Component 1. Overall Public health emergency response system strengthening (US\$300,000).** This component will fund the public health emergency response system strengthening in Mexico and Colombia. Through this component, public health

emergency response systems will be selected and analyzed in terms of detection, prevention, response, and recovery. The component will also include knowledge sharing from South Korea. A study of Korea's approach to strengthening its public health emergency response system and preparedness will be conducted, and a policy recommendation paper for ways to strengthen the system in the beneficiary countries. This study will include a specific analysis of policies and measures regarding workplace when returning to normal life. **Component 2 COVID-19 testing capacity building (US\$200,000).** This component will fund tools for strengthening testing capacity in LAC countries, it will include: (1) COVID-19 universal laboratory education and training video; (2) Summary of current testing and laboratory capacity assessment for specimen collection, transportation, patient and healthcare protection, laboratory management and risk protection, and quality control of selected laboratories and professionals in Mexico; (3) Reviewing and developing national and community-based testing strategies in the context of reopening society; and (4) designing and developing tailored COVID-19 technical curriculum for laboratory managers. Furthermore, this will include technical consultation sessions for laboratory professionals using real testing results and identified error cases. **Component 3. Digital tools for pandemic response (US\$500,000).** This component will finance the development of tools for strengthening digital responses to the pandemic. First, the TC will fund a study that will select the most common types of technologies available for use in response to the pandemic (such as the ones developed by Korea, Singapore, and Israel) and will analyze their applicability in the LAC region. The technologies will include those for population outreach, case management, contact tracing and epidemiology, resource management (human, labs, inputs), business intelligence and systems for the recovery stage (immunity certifications, alerts for new cases, etc). The study will develop a typology of digital pandemic response systems for the region considering available infrastructure, budgets, and human resources. This typology will include the types of systems that a country should have in place and the types of services that should be available for it to make sense to use different technologies in a LAC country. Second, the technical cooperation will also fund a study that will validate technologies being implemented in the region for telemedicine and contact tracing. Third, this component will fund knowledge sharing by hiring a firm that will develop a study to share the Korean experience in terms of cybersecurity and policies being implemented in the region for telemedicine and contact tracing. Fourth, the component will fund an economic analysis of the decisions taken by the South Korean Government regarding testing. This will include cost-benefit criteria used for the testing strategies used in Korea taking into consideration the benefits of testing in terms of avoided infections, preventable hospitalizations. Finally, the technical cooperation will fund a study to validate a readiness model for telemedicine in the region. All the products financed by this TC will include toolkits, guides, and manuals that will be usable and replicable for all the countries in the region. If activities in one of the participating countries are required, the team will obtain the country's no objection before the start of activities. The total cost of this TC will be US\$1,000,000, which will be financed by the Korea Poverty Reduction Fund (KPR). This execution and disbursement period will be 24 months

Indicative Budget (US\$)

Activity/Component	Description	IDB/KPR	Total Funding
Component 1. Overall Public health emergency response system strengthening	This will fund beneficiary countries' public health emergency response system strengthening.	300,000	300,000
Component 2. COVID-19 Testing capacity building	This component will fund COVID-19 testing capacity building for LAC countries.	200,000	200,000
Component 3. Digital tools for pandemic response	This will finance the development of digital tools for pandemic response in the LAC region.	500,000	500,000
Total cost		1,000,000	1,000,000

IV Executing agency and execution structure

- 4.1 The Technical Cooperation will be executed by the Bank due to its regional character and because the logistics for execution will depend on direct contact between the Bank and the Republic of South Korea. In addition, sustainability of the project will not be affected by the Bank being the executing unit as it is expected that the Bank itself will disseminate and implement the learnings from this TC in future projects and will further coordinate directly with beneficiary institutions.
- 4.2 The TC execution, supervision, and annual reporting will be under the responsibility of the SCL/SPH sector specialist Luis Tejerina (luist@iadb.org). The focal points in the Country Offices will be the SCL/SPH sector specialist in Mexico, Colombia, and each beneficiary country.
- 4.3 **Procurement.** All activities to be executed under this TC have been included in the Procurement Plan (see Annex IV) and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature and; (c) GN-2303-28 for logistics and other related services.

V. Major issues

- 5.1 Among the risks identified is the tools developed do not generate adequate ownership on the side of teams that will be in charge of projects' designing and executing. Particular emphasis will be put to have team leaders as collaborators of any tool that is designed and tested and to make sure that their input is built into the design so that tools are easy to understand and simple to implement while at the same time maintaining their relevance in being informative to investment decisions. Other risk for the TC is that given the current emergency the people who have relevant information will not be available to provide information, for this reason the firm will be required to use methods that do not require any interviewees to commit to long sessions by sharing asynchronous forms and questions.

VI. Exceptions to Bank Policy

- 6.1 There are no exceptions to the bank policy.

VII. Environmental and Social Strategy

- 7.1 According to the Environmental and Safeguards Compliance Policy (OP-703), Indigenous Peoples (OP-765), and Gender Equality (OP-270). The TC will not finance infrastructure or civil works. The proposed interventions are expected to cause minimal to no negative impacts. This TC is classified as category "C", see [SPF](#) and [SSF](#).

Required Annexes

[Results Matrix_66092.pdf](#)

[Terms of Reference_88964.pdf](#)

[Procurement Plan_21532.pdf](#)