



STARTING AHEAD, STAYING AHEAD: SENEGAL'S RAPID RESPONSE TO COVID-19, 2019-2020

Leon Schreiber and Matthew Schofield drafted this case study based on interviews conducted with the help of Placide Mubigana in February, March, and June 2021. Case published August 2021. This case study was supported by the United Nations Development Programme Crisis Bureau as part of a series on center-of-government coordination of the pandemic response.

The views expressed in this publication are those of the author(s) and do not necessarily represent those of the United Nations, including UNDP, or the UN Member States.



SYNOPSIS

Senegal entered the COVID-19 pandemic with what seemed to be grave disadvantages, among them the inability of most households to adjust to prolonged lockdowns, given their dependence on wages they earned day to day. But the West African country also enjoyed an advantage: it was well prepared for an epidemic. In the years following the 2014 Ebola outbreak, Senegal had built a comprehensive health-care emergency response system, and when COVID-19 arrived in March 2020, Senegal moved fast. President Macky Sall declared a state of emergency and announced immediate restrictions to limit the spread of the virus. The country's emergency operations center became the headquarters for a dedicated COVID-19 Incident Management System, and the Dakar branch of the international Pasteur Institute helped develop a rapid diagnostic test. The government spent 7% of its gross domestic product—more than any other country in Africa—on socioeconomic support measures. The response team credited those measures with the successful containment of community spread during the first wave of the disease. During 2020, the numbers of ill people coming to hospitals and health facilities for treatment remained low, and disease models suggested that subsequent waves were generally of short duration—even after an October religious pilgrimage that had brought thousands together under crowded conditions.

INTRODUCTION

In the waning days of 2019, it was becoming clear that the event Dr. Abdoulaye Bousso had tried to prepare for during the previous four years was fast approaching. Bousso was the founding director of Senegal's health emergency operations center, established after the 2014 Ebola outbreak to help the country prepare for the next epidemic. With the December 2019 news that China had detected a novel coronavirus that was causing serious illness, Bousso's work was about to face the ultimate stress test.

Along with heading the operations center, Bousso was also deputy chairperson of the national epidemic management committee, an expert advisory council founded in the wake of the 2014 Ebola outbreak to advise the president and the cabinet on epidemic response policy. The director general of the health department, Dr. Marie Khemesse Ngom Ndiaye, chaired that committee. As the novel coronavirus continued spreading beyond China's borders in early 2020, Ndiaye and Bousso told senior political leaders they believed that the virus, later known as SARS-CoV-2, or severe acute respiratory syndrome coronavirus 2, would soon cross into Senegal, generating cases of the respiratory and inflammatory disease called COVID-19.

A lower-middle-income country of 16.7 million people, Senegal had an economy that had grown by at least 6% a year from 2014 to 2018, although growth had slowed to 4.4% in 2019.¹ The economic expansion was partly a result of the country's political stability and its strategic position on the west coast of Africa. But that success made it vulnerable to the impact of COVID-19. The number of foreign arrivals hit a record 1.7 million in 2019, including rising numbers of visitors from East Asia.² And China was Senegal's second-largest trading partner.³

The country already had key elements of its response in place—including a permanent operations center and a policy coordination system—based on lessons learned during previous epidemics. “In the 2014 Ebola epidemic, Senegal had only one case, but we had had a lot of experience in epidemic management before COVID-19 came,” Ndiaye said. That was because, according to Bousso, the country had learned from Ebola that it had to invest in a permanent health emergency response system that would be ready to go on Day One of the next epidemic.⁴

But COVID-19 was about to test the system unlike anything that had come before. For Ndiaye and Bousso, the main concern was how to respond quickly and effectively to contain the spread of infection before extensive community transmission could occur. In a country in which health infrastructure was limited, fast action to detect disease and limit its spread represented the main means of defense. However, prevention and containment required effective coordination between national ministries and local governments, as well as extensive public adherence to preventive measures.

The question was whether the structures, systems, and practices developed in response to Ebola were readily adaptable for containing the spread of a virus

that was airborne and more easily transmissible—and for which no effective therapies or vaccines were available.

At the same time, the Senegalese government, led by President Macky Sall, had to find ways of enabling citizens—including the estimated 38% of the population who lived on less than US\$1.90 per day⁵—to put bread on the table when emergency response measures limited their ability to earn a living.

THE CHALLENGE

Ndiaye, Bousso, and Minister of Health and Welfare Abdoulaye Diouf Sarr knew they would face tough challenges in confronting COVID-19. Senegal's government had long spent less than the recommended international threshold of 5% of gross domestic product on health.⁶ It had 7 doctors and 31 nurses per 100,000 population, and many of those medical professionals were clustered in the capital, Dakar, leaving people living in certain rural areas with a single doctor for every 46,000 people.⁷ By comparison, South Africa had about 80 doctors per 100,000 people, and the United States had about 260.⁸

Hospital beds and ventilator capacity, both of which Senegal would need to assist patients with serious cases of a respiratory disease such as COVID-19, were also in short supply. Senegal had about 30 hospital beds per 100,000 population, concentrated mainly in urban areas. It had only 86 intensive-care beds capable of providing oxygen.⁹ Even those numbers overstated capacity, however. At the start of 2020, only one hospital in Dakar was equipped to care for COVID-19 patients, and it had only 12 beds it could use for that purpose.¹⁰ The director of the Dakar branch of the Pasteur Institute, Amadou Sall (no relation to the president), said it was hard to get away from the notion that Senegal had entered the pandemic on a knife's edge, with little room for error.

Although the capacity shortages placed a premium on prevention, any policy that made extensive use of quarantines, curfews, closures, and other restrictions to prevent the spread of the virus would confront a second major challenge—that many people lived on the margins of subsistence. World Bank data indicated that in 2019, more than a third of Senegal's population still lived in poverty—despite the economic growth the country had enjoyed since 2014.¹¹

Stopping travel between regions would create an immediate problem for Senegal's nomadic livestock farmers and for informal agricultural workers, who traditionally moved between markets to sell their produce. Curfews jeopardized many other Senegalese informal workers, who made their livings selling such items as pickles and fish around the nightlife in the cities. Informal economy workers typically had less savings and smaller safety nets than formal economy workers did, and they were usually more difficult to find when aid was being distributed. Any restrictions imposed to limit the spread of the virus had to be accompanied by socioeconomic relief measures.

A third challenge was that a response to an infectious disease outbreak required extensive coordination across levels of government as well as between ministries. Senegal was divided into 14 subnational states, called *regions*. The 14

regions were further divided into 45 geographic units called *departments*, which were in turn composed of 167 urban communes and 370 rural local governments. With regard to the public health system, the 14 regions were divided into 79 medical districts. Every district housed local health posts, each of which was normally staffed by a nurse and a midwife and served as the first contact point for most people seeking medical attention and whose boundaries typically embraced multiple departments. Each region had its own hospital, which anchored district health centers.

At the community level, health development committees worked with residents and local elected officials to coordinate service provision. Although Bouso noted that 90% of health-care funding in the country came from government and that private health coverage was poor in areas outside Dakar, private health care was playing an increasingly important role in the country's capital.¹² The government thus had to find ways of coordinating its response with the private health sector.

At the national level, ministries had to work together across functions, as the public health response to the 2014 Ebola outbreak had made clear. The finance ministry was responsible for assembling resources and, often, for assisting with the procurement of supplies. The transportation and commerce ministries, as well as foreign affairs and interior, all had roles to play in controlling borders and maintaining safety and security. The customs service managed duty-free movement of special protective equipment and therapies. Public safety officials were responsible for preserving order and helping enforce rules. And social services ministries supported residents in quarantine or isolation.

Moreover, when department heads or local governments disagreed with each other, someone had to intervene and break the impasse—usually the president. Political will at the top was therefore essential for a successful pandemic response. In theory, with four years still to go in his second term as president, the president was less vulnerable to the immediate electoral implications of policies than many fellow political leaders were, and he could focus on the science. However, he still needed strong rapport with the public if lockdowns or other significant public restrictions became necessary.

Despite those challenges, Senegal also had a few things going for it. For instance, its population, like the populations of many African countries, was young. More than two-thirds of residents were younger than 29 years of age.¹³ If younger people were less prone to serious cases of the disease the coronavirus caused, as some early evidence suggested, then demands on the health-care system would be lower than they were in parts of the world without youth bulges. The government also had a coveted asset: a warehouse full of personal protective equipment (PPE) left over from the 2014 Ebola outbreak.

Finally, to better prepare the country for future epidemics, Amadou Sall had recently established a nonprofit called DiaTropix—a joint venture between the Pasteur Institute and partners in Germany, the UK, France, Spain, and other

nations in Africa—to develop improved testing capacity for diseases like Ebola and dengue fever. The investment in DiaTropix meant that by the time COVID-19 struck, Senegal would be ready to ramp up its testing capacity faster than many neighboring countries would.

FRAMING A RESPONSE

Two immediate tasks absorbed the attention of decision makers during January and February: the first was to refine the system that would help coordinate across government, and the second was to tailor a response strategy to the virus and the disease it caused. In the wake of the 2014 Ebola epidemic, a team from the World Health Organization had advised the government about how to streamline the division of labor between the institutions involved. And COVID-19 was about to test those structures and protocols. Both the national epidemic management committee and an emergency health operations center resulted from the reforms.

During a health emergency, the epidemic management committee had the job of providing expert policy advice for the president and the cabinet before the cabinet ministers made final decisions. The committee was housed in the health ministry. Bousso described the committee as “a multisectoral [one], where you have people from the Ministry of Health and Social Action but also from other ministries—for example, interior, livestock, environment, and the army. We use it to work together during an event.”

As cases continued to rise around the world during January and February, members of Senegal’s epidemic management committee built on their experience with Ebola to design appropriate response measures for the arrival of COVID-19. Based on emerging evidence from countries like China, Italy, and the United States, the committee discussed which measures would be appropriate for the airborne coronavirus compared with the Ebola virus, which is transmitted through contact with contaminated bodily fluids.

Early recommendations by the committee also stressed the importance of educating the public about prevention measures, establishing an inexpensive testing program, securing funding to hospitalize everyone who tested positive, and isolating in hotels those who had come into contact with people who tested positive. Providing a treatment bed for each person who contracted the virus aimed to minimize the spread of the virus to families and communities. President Sall committed to providing whatever funding was needed and pledged that science would lead the effort.

The committee also decided to include the Private Health Sector Alliance in its meetings so that it could coordinate with the private sector at national and regional levels. The private sector was responsible for procuring its own supplies—including PPE—but its inclusion on the national epidemic management committee enabled it to align its plans with the government’s and to report information on diagnoses and contact tracing into the national database.¹⁴ (Exhibit 1)

Although the epidemic management committee was designed to act as the main policy advisory body to the president and the cabinet, the emergency operations center—headed by Bousso—was established as a permanent operational entity within the health ministry. In addition to dealing with health emergencies, the emergency operations center had the jobs of (1) establishing and maintaining a system of coordination between the health ministry and frontline facilities, (2) detecting emerging health risks, and (3) preparing to manage any emergency response.

During a crisis, the operations center provided a physical headquarters for the response; coordinated the organizations involved in disease prevention, detection, and care; supervised field operations; and ensured that information and policy decisions flowed quickly between the health ministry and the national committee on one hand and frontline responders on the other. The country's 79 medical districts, each headed by a chief doctor and with its own health center, were among those frontline responders.

During January and February, Bousso and his colleagues at the operations center began preparing a COVID-19 Incident Management System (IMS) dedicated solely to coordination of Senegal's battle against the disease. The IMS structure would separate Senegal's COVID-19 response from the rest of the overburdened health service, designate a single contact point for each main function, and coordinate all organizations around four task sections under its umbrella. According to Alioune Badara Ly, Bousso's deputy at the emergency operations center, the IMS allowed health minister Sarr and the rest of the ministry to focus on preserving other vital healthcare services, including mother and child healthcare, routine vaccinations programs, and antimalaria programs. (Ly added that Sarr also would occasionally chair meetings of the epidemic management committee).

On March 2, 2020, while a meeting of the national epidemic management committee was in progress, the Pasteur Institute diagnosed the country's first COVID-19 case in a man who had traveled from France to Dakar a few days earlier. Both the man and his wife tested positive, as did another person who had arrived recently from the United Kingdom.¹⁵ In response, the health ministry officially activated the IMS and designated Bousso as incident manager and Ly as deputy incident manager.

As incident manager, Bousso assumed overall control of implementing the COVID-19 health-care response in Senegal. The IMS model's command-and-control structure had set clear lines of authority for the different operational units and ensured that Bousso could quickly assess the statuses of all activities, could quickly learn the number of cases, and could quickly make decisions on operational matters and resource allocation. "We set up our [IMS] team with four sections: planning, operations, logistics, and administration and finance," Bousso said. The planning section was further divided into units for situational awareness and documentation, and the operations section's units focused on contact tracing, case management, laboratory services, intervention teams, and

psychosocial support services. The COVID-19 IMS also had an overarching team focused on communication, security, and liaison.

International partners—including WHO, the World Food Programme (WFP), the United Nations Children’s Fund (UNICEF), the United Nations Development Programme (UNDP), the US Centers for Disease Control and Prevention (CDC), the International Committee of the Red Cross, the United States Agency for International Development (USAID), the Alliance for International Medical Action (ALIMA), and the Clinton Health Access Initiative—played roles in the IMS’s operations and logistics units. “All those partners take part in the daily meetings, the deliberations, and the [operational] decisions,” Ly said. Throughout the pandemic, most of the support provided by international partners was coordinated through the IMS.

From the start in early March, Bousso established a daily rhythm with an IMS meeting at 8 a.m. and a media briefing at 10. (The IMS initially held meetings every afternoon as well but dropped the idea when it proved too onerous. As case numbers declined, the IMS met only every Monday.)

As the IMS got into the flow of its operational work, President Sall announced on March 15 the first set of containment measures designed by the epidemic management committee. Sall banned public demonstrations, halted cruise ship arrivals, introduced health checks at land borders, suspended school and university teaching, and halted religious pilgrimages.¹⁶ Sall followed up on all of that with a speech to the nation on March 23, during which he labeled the global response to COVID-19 a “world war.” With 71 patients receiving treatment in Dakar and the IMS already monitoring 1,561 contacts, Sall said the virus was “gaining ground.” In response to the spread of the virus, he announced his government’s decision to declare a state of emergency, effective from midnight on March 24.¹⁷ The government also undertook to provide a bed in a hospital or health center for every COVID-19 patient and test results within 24 hours.

To slow down community transmission of the virus, Sall introduced a daily curfew from 8 p.m. to 6 a.m., prohibited all mass gatherings, closed public spaces, and imposed strict national and international travel restrictions.¹⁸ However, under Senegal’s constitution, the state of emergency could remain in force for only 12 days and could be prolonged only with approval by parliament.¹⁹ On April 2, parliament passed a law granting the president the power to continue the state of emergency for three months.

President Sall kept the state of emergency in place until the end of June, as Senegal went through its first wave of infections, reimposing it in January 2021 amid a second upsurge in cases.

GETTING DOWN TO WORK

With a coordination structure and initial containment measures in place, Sall’s government got to work on rolling out the health-care response and socioeconomic support measures. The president established a dedicated cabinet

committee to source and disburse funding for both the health and economic responses. At the same time, the IMS team decentralized key aspects of the health response to the regional and district levels, established a data management system, rolled out a countrywide testing system, sourced critical supplies, built treatment capacity, repurposed accommodation facilities into quarantine sites, and rolled out a communications program to encourage behavioral change.

Funding health-care measures and critical supplies

Sall's first challenge was to secure the funding needed to mount a health-care response and to secure basic supplies, including PPE and such necessities as the fuel and food that would be needed to keep the country going during the pandemic. Sall established an ad hoc cabinet committee chaired by Amadou Hott, minister of economy, planning, and international cooperation, to lead the financial planning effort. The committee comprised relevant ministers whose duties involved social and economic spheres such as finance, community development, water, and sanitation, as well as the diaspora.

Sanjeev Gupta, a former senior International Monetary Fund (IMF) official and policy analyst at the Center for Global Development (CGD)—a Washington, D.C.-based research group focused on international development—said Senegal was in a strong position to tackle the sudden funding challenge presented by COVID-19. “Over a period of time, Senegal had been able to build capacity to spend . . . because it started to mobilize a lot more resources domestically. Its tax-to-GDP [ratio] had risen by over three percentage points over the past 16 or 17 years. It is a star performer,” Gupta said during an online event hosted by the CGD.²⁰

The government was determined to use its newfound fiscal space to spend as much money as needed to provide an adequate health response and buffer the impact of the pandemic on society. On March 23, during the same speech in which he declared a state of disaster, Sall announced the creation of the Force COVID-19 fund, composed of budget reallocations, support by international partners, and contributions from the private sector.

Senegal was one of the first 10 countries in the world to receive support from the IMF, which approved a US\$442-million disbursement on favorable repayment terms.²¹ During an interview with the Center for Global Development in May 2020, Hott pointed out that he was “amazed” that it had taken only three weeks of discussion to secure the requisite funding from the IMF, noting that it was “the fastest-ever” disbursement he had seen.²² The Force COVID-19 fund then secured an additional US\$18 million in tax-deductible contributions from private companies.²³

In total, the funding package that Sall announced on March 23 amounted to US\$1.6 billion, which was equal to 7% of Senegal's annual GDP. Of that total, the government allocated 64.4 billion West African CFA francs (US\$103 million) to support case detection, contact tracing, case isolation, improved prevention and infection control at health facilities, intensified crisis communication with

the public, and improved coordination of the health-care response.²⁴ The government set aside another XOF178 billion (US\$285 million) to secure basic supplies like PPE and foodstuffs while also maintaining food prices at pre-pandemic levels and absorbing the costs of supply disruptions and trade shocks.²⁵

Decentralizing the response

Bouso said that one of the first decisions the IMS made was to regionalize COVID-19 care by using the existing health infrastructure when possible. He added that on an operational level, running everything through Dakar would be impractical as well as slow and that he was keenly aware that a speedy response was vital. As a result, the districts—using the country’s 99 publicly funded health centers—were assigned responsibility for detection, isolation, sample taking, and sometimes transportation of patients to treatment centers.

Although each of the 14 regions established its own local IMS and had substantial leeway, the IMS in Dakar coordinated all of the country’s pandemic response activities. To ensure smooth cooperation between the health authorities and the regions, Ly said that, at the regional level, the governor—who was also in charge of the regional epidemic management committee—was designated as the incident leader, and the chief regional doctor was the incident manager. The same applied in each of the country’s 79 administrative districts: the head administrator became the incident leader, and the chief district doctor became the incident manager. “Thanks to WHO, the CDC, and UNICEF, all regional staff were trained” on the IMS operational model, Ly said.

To link the national IMS with the regions, “chief doctors were invited to the daily [national] IMS meetings,” Ly said. “Although not all regions sent representatives to attend the national meetings every day, incident managers were specifically asked to attend if there was an issue in their region,” Ly added. The same applied for the relationship between the regions and districts, where district incident managers could attend regional meetings.

“The second link between the different levels is that situation reports, which are produced at the national level, are shared with the other levels. The third link is that there is a daily report sent from each region to the [national IMS] daily, as well as a daily follow-up,” Ly added. If any of the three mechanisms pointed to a problem in a particular region or district—“whether it be surveillance, prevention, or another aspect—members of the national IMS team would be sent to support the region until the situation improves.”

Working through the IMS, the Pasteur Institute and international organizations such as the Red Cross and UNICEF helped quickly train workers at the nation’s 99 health centers on best practices such as handwashing, mask wearing, and physical distancing (Ndiaye said leaders abandoned the phrase *social distancing* because it raised memories of past leprosy campaigns.) The staff at the centers also learned how to perform tests and what to look for to identify serious cases.

Building on the structure already in place at the emergency operations center, the IMS established a data management system to integrate regional and national information. Ibrahima Diatta, who headed data management for the response, explained that the system facilitated the organization and management of Senegal’s decentralized testing. When a lab confirmed a positive result, paper forms containing the personal information of the patient who tested positive, as well as the patient’s recorded contacts, were sent to the regional IMS, which then forwarded the forms to the emergency operations center. In Dakar, the information was entered into the COVID Tracker database.

Diatta added that there was “a second database at the regional level, where the [same] data gets entered.” Before sending the forms to Dakar, the regions entered the information into their own databases. “At the end of the week, we reconcile our data with the information received from the regions,” Diatta said. “If there’s a difference, we call the lower level and ask staff to verify the actual figure. . . . It’s built-in quality control.”

Testing

As early as the first week of January, Pasteur Institute director Sall was in touch with two committees within WHO, “discussing how we can get ready to give tests if [a pandemic] is happening and how we can be in a position to diagnose, should this happen to Africa or Senegal.” The country needed an accurate, easily administered diagnostic tool, trained personnel to carry out the testing, and labs to perform the analysis.

In collaboration with both British biotechnology firm Mologic and the French National Research Institute for Sustainable Development, the Dakar Pasteur Institute through DiaTropix began to create a fast and inexpensive diagnostic test for COVID-19, with the aim of producing it in Senegal. The parties agreed on two goals: (1) the tests had to be accurate and (2) the results had to be available within 24 hours.

Dr. Ndongo Dia, who was central to managing the Pasteur Institute’s lab and who oversaw the testing program for Senegal, was working with the institute’s international network to acquire as many reagents and testing supplies as possible and as quickly as possible. By February 1, Dia said, the test was ready, with DiaTropix set to manufacture the tests quickly and cheaply.²⁶

Sall’s foresight in establishing DiaTropix in the wake of the Ebola epidemic could hardly have been better timed. “The idea [behind DiaTropix] was to improve access,” Sall said. “While we were building the structure and getting the people trained and ready, COVID came. COVID was the perfect example of what [DiaTropix] should tackle.”

In tandem with creating cheap, fast, and accurate diagnostic tests and establishing the facilities needed to process them, the team had to train health workers to administer the procedures and evaluate the results. During February, Dia and the Pasteur team—with support from the Africa CDC and the WHO (coordinated through the IMS)—trained personnel at health centers throughout

Senegal on how to use the newly developed tests. The training proved so successful that Dia's group went on to train health officials in 23 other Francophone and West African nations.

By the time the first COVID-19 case was diagnosed in Senegal on March 2, the country had acquired ample supplies of a locally developed test along with the trained personnel needed to administer it.

During the first months of the response, the Pasteur Institute in Dakar was the only laboratory facility that could process COVID-19 tests. But the IMS steadily added laboratory capacity to military sites and hospitals. With US\$16.5 million received from the European Commission in support of rapid diagnostics and disease surveillance²⁷ and the help of WHO, the Islamic Development Bank, and the national government, the institute set up labs in 8 of Senegal's regions, later extending the system to include all 14 regions.²⁸ By late 2020, all 14 regions had their own laboratory services.²⁹ The key functions of testing and diagnosis were then handled at the regional level.

Securing and distributing supplies

Senegal was fortunate to have a warehouse of PPE left over from the 2014 Ebola outbreak—at a time when many countries were competing fiercely to acquire such equipment on tight international markets. Ministry of Health director general Ndiaye said the cache “provided us with some security: a stockpile of materials that was enough to get us through the beginning of the pandemic.”

According to Abdoulaye Diouf (not related to health minister Abdoulaye Diouf Sarr), head of the IMS's logistics team, the stockpile enabled the IMS to distribute 50 kits of PPE to treatment centers in the country's 14 health regions while still keeping some reserves at the national level. “By the time the first case appeared [on March 2], the centers had the minimum [supply] of equipment to cope,” Diouf said.

To build on the head start the stockpile provided, Diouf's 20-member logistics team—which included representatives from international partners like the WFP, WHO, ALIMA, the UNDP, and UNICEF—got to work on procuring additional supplies and setting up a distribution system for getting the supplies to individual treatment centers.

Under the system, regional IMS leaders were supposed to inform Diouf's national IMS logistics team when they needed supplies. But because the national IMS did not have the legal authority to place procurement orders directly, Diouf's team had to submit procurement requests to the health ministry's directorate of general administration and equipment, which placed the orders. Once supplies arrived at the health ministry's national warehouse in Dakar, regions were generally expected to arrange for pickup and transportation. If the ministry could not fulfill orders, partners like the UNDP and UNICEF used their networks and procurement systems to source supplies, and partners like the WFP helped with transportation.

But the system had kinks. Even though Diouf's team could track stock levels at the national level, it had no reliable system to monitor stocks in the regions, which meant it could not plan ahead—and often found out about needs to resupply regions only after stocks had run out.

And even though regions' daily reports to the national IMS improved the flow of information, Diouf said, staff often got overwhelmed and simply did not get around to checking all of the reports from all of the regions.

Moreover, the requirement that the IMS route supply requests through the directorate in the health ministry caused additional delays, sometimes further compounded by onerous verification checks and other procurement controls.

Then there was the fact that despite starting out with a warehouse full of PPE, the IMS team could not afford to rest. To make the most of the head start that Senegal had over many other nations that were now scrambling to obtain PPE, the IMS started placing advance orders for a time that its domestic supply of PPE stocks would eventually run out. To head off the anticipated supply shortage amid a near complete shutdown of cargo flights, Diouf said, the government sometimes chartered aircraft to pick up supplies in other countries. One of the few planes allowed to land in Senegal after the March border closing held a cargo of PPE from China. The plane contained masks, shields, gowns, gloves, and other equipment. And in another instance, Diouf said, a plane chartered by the government flew to Ghana to pick up supplies.

Another strategy was to try producing the needed supplies in Senegal. “The Ministry of Industry, acting on advice from medical technical experts, began to look at what could be done to manufacture masks here,” Ndiaye said. “The technical experts came up with a design: the ministries arranged for the materials, and local tailors started making the masks. There was also a factory [just outside Dakar] that now manufactures masks for all of Senegal.”

But it proved more difficult to manufacture more sophisticated products—like ventilators. “We tried to have such products produced locally, but it wasn't always possible, and it also took a lot of time,” Diouf said.

Treating patients, quarantining contacts

A defining feature of Senegal's early response strategy was the decision, announced by the president in March, that everyone who tested positive for COVID-19—regardless of the severity of symptoms—would be provided with a bed in a hospital or at a treatment center for isolation and observation. The government would pay the costs of quarantine for anyone who had been in recent contact with someone who tested positive.

“I think the first issue that was visible for everyone was the intensive-care bed capacity, because we were expecting a very big number of patients,” said Sall of the Pasteur Institute. “Based on what we saw in other countries, we [knew] the number of critical cases is going to be very high compared with the bed capacity in Dakar.”

Fortunately, Dakar—the largest urban center in the country and the area likely to become hardest-hit by the pandemic—had spare capacity in the form of newly constructed health centers that were not yet in use. By accelerating the completion of new facilities and repurposing unused hospital wings to serve as emergency COVID-19 units, the IMS team was able to build additional capacity in Dakar relatively quickly.

In one instance, a large new extension at the Dalal Jamm Hospital in the northern suburbs of Dakar was not yet in use. Senegalese officials placed 250 beds there, declaring it the primary COVID-19 center. In another case, a newly built wing at the National Children’s Hospital Center of Diamniadio, about 25 miles east of downtown Dakar, had not opened, and officials were able to arrange another 100 beds there. Other hospitals in Dakar maintained a few beds for emergency COVID-19 cases. In much of the rest of Senegal, a series of newly built dialysis centers were converted to COVID-19 care centers, said IMS incident manager Bousso. The IMS also added beds to the 99 existing health centers, bringing the total number of COVID-19 beds available in the country by late April to 1,500.³⁰

Bousso’s team also worked to create additional medically-staffed spaces where COVID-19 contacts could be quarantined. In a move that created safe isolation facilities while simultaneously providing financial support for the hospitality sector—which suffered a severe loss of income caused by restrictions on movement and international travel—the government rented empty space from accommodation facilities at a price of about US\$90 per room.³¹ More than 3,200 Red Cross volunteers joined efforts to care for contacts under quarantine.³²

The policy seemed to bear fruit during March and April. Sall of the Pasteur Institute said, “Isolation was almost perfect . . . That has been extremely efficient in monitoring and controlling the disease at the very beginning.”

But the policy was not sustainable—largely because of the costs of renting hotel rooms and, as case numbers increased, because of the difficulty of finding enough accommodation for every contact and for patients who were asymptomatic or only moderately ill. The policy also diverted resources that were needed for expansion of testing capacity to identify additional cases. By late May, the policy of isolation of all contacts had produced still more problems, some of them unexpected. In some instances, contacts were stigmatized for having been quarantined, and health officials worried that sick people or contacts would seek to avoid detection.³³ Bousso also mentioned that some people were eager to be quarantined because they wanted to experience the relative luxury of hotel life. “Young people would call their friends and say, ‘It’s nice here. They give you good food, you should try it,’” he said.

The hospitalization of people who tested positive but were largely asymptomatic created its own set of difficulties. “We also were hospitalizing a lot of asymptomatic people. We had issues with some young patients playing football at the medical centers,” Bousso said. Dia, head of laboratory testing at

the Pasteur Institute, added that 60% of those early isolation cases were asymptomatic, and most of them involved young people.

In June, President Sall revised the policy to require isolation or quarantine *at home*—for contacts—and hospitalization only for confirmed cases in which patients showed significant symptoms.³⁴ But even though there were clear reasons behind the decision to end the policy of isolating all positive cases and contacts under government supervision, the shift to home quarantine meant that the procedures that Sall described as “almost perfect” became much less so and created the risk of faster community spread in subsequent COVID-19 waves.

Communicating

A strong communications strategy constituted another essential part of the response that started well before Senegal’s first case. The IMS’s communications committee was led jointly by Ngone Gueye of the national health ministry, Dr. Khady Seck of the ministry’s community health unit, Ousmane Gueye (not related to Ngone Gueye) of the national health education and information service, and Bineta Bocoum of the health emergency operations center.

One of the committee’s primary responsibilities was to handle the daily morning media briefings that followed IMS meetings. Besides providing the latest information on COVID-19, the briefings aimed to demonstrate that the government was being transparent and to promote a sense that everyone was working together in the effort against the disease. In addition to announcing new developments in the public health response, the briefings announced the daily new case numbers and deaths. The announcements also deliberately conveyed a feeling of compassion. Every time a death was announced, the announcer would pause to provide the age and gender of the deceased and to send the health minister’s condolences to the deceased’s family.³⁵

The communications team also launched a messaging campaign to help people better understand how to protect themselves. It used data on mobile phone ownership, television viewing, and computer ownership so that media would target urban neighborhoods that varied widely in access to different types of technology.³⁶ In addition to using radio, television, and social media—a top-down approach—team members mobilized community health workers to listen and learn at the local level and worked bottom-up. They also engaged social anthropologists who adapted messaging to respond to people’s concerns by identifying the types of appeals that would resonate with specific audiences.

Ngone Gueye said the team met with the heads of 200 community radio stations, the most widely read and respected bloggers in the nation, representatives of a union of health-care journalists, and the publishers and owners of the major media outlets. The IMS experts explained how the virus spread, talked about the disease it caused, and emphasized the precautions people should take to avoid it. The outreach resulted in dedicated broadcasts that explained COVID-19 on many of the country’s biggest media platforms. In

total, the government also sponsored more than 1,000 informational radio spots during the early months of the response.

Dr. Lucile Imboua-Niava, WHO representative for Senegal, said that past challenges in dealing with diseases ranging from AIDS to Ebola had led many people to fear the worst.³⁷ “In the beginning, the stigma was there,” Imboua-Niava said. “It happened in all social contexts. Some people refused to be tested. Some people even blocked access to their homes, refusing to be tested. But this changed as high-level people, famous people, testified about the disease, about their being sick. They told people what to do and how to cope with the measures, and the population was willing to listen to that more.” In addition, a group of Senegalese music artists released a collection of popular music videos in March 2020. The videos featured masks, handwashing, physical distancing, and a rapper in full protective gear—and attracted hundreds of thousands of views on YouTube.³⁸

Daouda Sembene, economic adviser to President Sall, said the government took direct action against promoters of falsehoods and misinformation. “On social media, you saw denialists trying to make people believe that discussion about this pandemic was a way to scare them and that the virus did not exist,” he said. Although it was impossible to act against anonymous individuals, in a few instances “high-profile personalities, too, publicly denied COVID existed,” he said. In those cases, “they ended up issuing public apologies after being summoned to appear before the police to explain themselves.”

Supporting vulnerable households

From the start of its effort to combat the pandemic, the government understood that health interventions alone would not be enough to contain the spread of the virus. It was only with sufficient socioeconomic support measures in place that many Senegalese would be able to afford to comply with health restrictions that affected their ability to earn a living.

As part of the instructions it received from the president, Hott’s interministerial cabinet committee had to create a Social and Economic Resilience Plan for mobilizing the remainder of the US\$1.6 billion Force COVID-19 fund to provide support for vulnerable households and businesses so they could comply with lockdown restrictions (Exhibit 2).

The interministerial committee published its plan in early April, outlining the government’s estimate that the pandemic would slash economic growth for 2020 to just 2.8% from the earlier estimate of 6.8%, with sectors like transportation and hospitality likely to decline by 8.8% and 60.7%, respectively.³⁹ However, those projections were based on the plan’s general assumption that the pandemic would “last for three months, with a slow recovery in the third quarter and a return to normal in the fourth quarter of 2020.”⁴⁰ The projection turned out to be overly optimistic. The country sank into recession and GDP contracted by 0.7% for the year.⁴¹

In addition to the US\$103 million already allocated directly to fund the health-care response and the additional US\$285 million set aside for securing basic supplies, the plan allocated US\$160 million to direct social and economic support for vulnerable households.

This program included XOF69 billion (US\$110 million) to purchase food for the one million poorest households in the country. Starting in April 2020, each of these households would receive a one-time supply of basic foodstuffs valued at US\$125, including oil, pasta, rice, sugar, and soap. In addition to receiving food relief, Hott said, “300,000 [households] also benefited from the usual quarterly [cash transfer] payments that the government had been making for the past seven years.”⁴²

Sembene explained that the government used an existing database that established in collaboration with the World Bank to identify needy families. “The database was originally set up to distribute unconditional cash transfers to about 300,000 vulnerable households,” Sembene said. “During COVID, the registry was further expanded through surveys and used to provide food support.”

To identify the additional 700,000 households the plan aimed to reach, “we worked with mayors and local communities,” Hott added.⁴³ The government effectively decentralized the distribution of the remaining 700,000 food parcels to the municipal level—called *communes* in Senegal. Sembene said he regarded this approach as a smart move because “municipalities that are given the opportunity to provide that type of in-kind assistance to their constituents are usually very keen” to distribute it quickly. In the process, the names of the 700,000 newly identified beneficiaries were added to the central government’s welfare database.

To further enable households to safely obtain food supplies, the Rapid Entrepreneurship Delegation, a US\$50-million fund set up in April 2018 to offer equity financing and other support to women and young entrepreneurs, provided loans to transportation companies so the companies could deliver fresh bread from bakeries directly to households.⁴⁴ The Sell Me Your Bread service enabled customers to order bread deliveries online or over the phone, and it proved especially popular during the month of Ramadan in April and May, when Senegalese often flocked to bakeries to buy bread to break the daily fast.⁴⁵

Hott’s plan further allocated XOF18.5 billion (US\$30 million) so the government could pay electricity bills on behalf of 975,522 households, and water bills on behalf of 670,000 households during May and June. The government worked directly with Senelec, the national electricity agency, and Sen’Eau, the country’s main water distribution company, to identify and settle the bills of eligible households that consumed less than a certain amount of electricity and water.

Finally, the social and financial resilience component of the plan provided XOF12.5 billion (US\$20 million) in support to members of the Senegalese

diaspora, who lived mainly in France, Spain, and Italy and normally served as major sources of foreign currency remittances to their families and others. Sembene said the ministry of foreign affairs ran the diaspora program through the country's embassies and consulates. Senegalese living abroad who were impacted by the pandemic could "register online and submit supporting documentation to their local embassy or consulate, which then used this list to provide cash support to them directly," he said.

Protecting businesses and jobs

The Social and Economic Resilience Plan also included a host of measures designed to keep businesses afloat and protect against job losses during the lockdown. The macroeconomic and fiscal measures put in place to protect the economy totaled more than US\$1.052 billion and accounted for 66% of the US\$1.6 billion Force COVID-19 fund. According to the ministry of finance and budget, the spending was designed to "inject liquidity," and tax and customs measures were "intended to strengthen the cash flow of companies and individuals to promote investment."⁴⁶

On April 23, President Sall signed an ordinance drafted by the finance ministry that introduced a range of extraordinary tax measures. The order deferred the payment deadline for all outstanding taxes from June 15 until July 15 for all companies with turnovers of less than XOF100 million (US\$160,000) that had been affected by the measures to combat the pandemic. The ordinance also allocated XOF200 billion (US\$320 million) toward partial forgiveness of tax debts incurred by companies and individuals before December 31, 2019.⁴⁷ The Senegal Revenue Authority further extended the deadline for the payment of value-added taxes by 24 months and granted tax rebates.⁴⁸

The measures applied to companies in a broad span of industries—tourism, catering, accommodation, transportation, education and higher education, construction and public works, agriculture, fishing, breeding, culture, and media—as long as entities in those industries agreed to continue paying 70% of the monthly salaries of all of the employees who had lost their jobs as a result of the pandemic. Subject to the same condition, companies operating in other economic sectors could also qualify for the relief measures if they could demonstrate that the lockdown had caused work stoppages, had reduced their turnovers by a third, had forced them to close down their business premises, or had forced them to lay off at least half of their staff.⁴⁹

Hott's plan allocated a further XOF100 billion (US\$160 million) to provide cash support directly to companies operating in economic sectors most directly affected, and another XOF302 billion (US\$483 million) to continue paying the government's own suppliers.⁵⁰ Finally, in cooperation with the Central Bank of West African States and the commercial banking sector, the plan aimed to provide low-interest loans that would keep companies afloat for the duration of the pandemic.⁵¹

Adapting

Ndiaye said that by early May there were signs that Senegal’s relatively youthful population was beginning to lose patience with the restrictions. Despite the comprehensive socioeconomic relief measures Hott’s team introduced, it had always been clear that Senegal would not be able to sustain the relief measures indefinitely. In addition to the economic strain the restrictions were causing, the three-month legal authorization granted by parliament for the state of emergency was set to expire in early July.

Bouso said government and outside experts remained extremely concerned about COVID-19, even though the numbers of deaths and serious cases—especially among the young—were not living up to the initial fears. Although case numbers were still rising, by early June Senegal had yet to have a day with more than four COVID-19 deaths.

But the lockdown restrictions had taken a severe toll on the ability of many Senegalese to earn a living. Violent protests erupted during the first week in June, when mostly young people in Dakar, the southern Kaolack region, and the holy city of Touba took to the streets to demonstrate against the policies.⁵² The lockdown measures had put livelihoods at risk, and as time wore on, desperation grew. One resident of Dakar told a Reuters reporter, “Coronavirus is an infectious disease, but Macky Sall must know that here in Senegal, most people are poor. We are poor. Three months at home is too much.”⁵³

The president responded in a speech to the nation three weeks later. On June 29, Sall announced a marked change in the government’s approach to the crisis. He opened his address by heralding the country’s success in responding to the health crisis, reporting that Senegal had thus far conducted a total of 78,338 tests, with 6,698 positive results. A total of 4,341 had recovered, 108 had died, and 2,248 were still receiving treatment.⁵⁴ Sall stressed that Senegal’s case fatality rate at the time was 1.5%—well below the African average of 2.5% for the same period and the global average of 5.2%—and that 64.8% of infected Senegalese had recovered compared with the African average of 48% and the global average of 50%.⁵⁵

Sall stressed the need to revive the economy: “Just as we cannot leave our lives and our health to the virus, neither can we leave to it the life and health of our economy.”⁵⁶ He reported that government projections were showing that GDP growth in 2020 was set to weaken to 1.1%—less than half the growth rate that had been predicted in April and far below the original estimate of 6.8%. (The 1.1% projection was still overly optimistic, because the economy ultimately contracted by 0.7%.) While stressing the importance of both individual and collective behavioral change as the factors that would ultimately determine “the outcome of our struggle against our common enemy,” Sall announced the suspension of the state of emergency beginning the next day.⁵⁷

Even though requirements like mask wearing, a ban on indoor gatherings, and mandatory weekly cleaning of public markets remained in place, suspension of the state of emergency meant that most other stringent lockdown measures

fell away. And although land borders would remain closed, international flights would be allowed to resume on July 15, 2020 subject to health protocols.

OVERCOMING OBSTACLES

Following the suspension of the state of emergency, health experts in Senegal started ringing the alarm about the absence of restrictions for large outdoor gatherings—especially the Grand Magal of Touba, an annual religious pilgrimage planned for early October that was known for drawing millions of members of the indigenous Senegalese Muslim brotherhood, the Mourides. A letter published in medical journal *Travel Medicine and Infectious Disease* on September 17 by a group of international infectious disease experts—Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang, and Cheikh Sokhna—brought international attention to the Grand Magal’s potential to spread COVID-19. The letter warned that “surveillance studies conducted on Grand Magal pilgrims over recent years have demonstrated that respiratory tract infections are among the most frequent causes of consultations at health care structures during the event” and added that “common coronaviruses were the most frequently acquired respiratory viruses” at the Grand Magal.⁵⁸

The authors expressed concern that the Grand Magal was proceeding at a time when other mass gatherings around the world, such as the Olympics, had been postponed. They noted that pilgrims traveled to Touba, a city in central Senegal, on overcrowded buses, often stayed in overcrowded houses of families or spiritual guides, and shared dishes of food, all of which were “very likely to favor the transmission of respiratory pathogens.”⁵⁹ The letter further said, “the medical resources available during the event are suboptimal.”⁶⁰

The authors’ concern, shared by many of the organizations involved in or studying Senegalese health, was that the pilgrimage was a superspreader event waiting to happen. Imboua-Niava, WHO representative for Senegal, said, “The fear was that two weeks after [the Grand Magal] there would be an upsurge in cases.”

Existing preventive measures included only the continued closure of land borders to reduce numbers of international pilgrims, the provision of hand sanitizer, and a request that pilgrims wear masks and maintain physical distancing.

News videos of the gathering on the closing day of the pilgrimage showed crowds of pilgrims bunched together.⁶¹ Some of the attendees properly wore N95 masks—considered one of the best protections against COVID-19—but others wore less-effective masks and only around their chins or under their noses. Some pilgrims wore no masks at all.⁶²

For reasons that remained unclear in 2021, the health community’s worst fears about the event were not realized. A follow-up article published in January 2021 in the *International Journal of Infectious Diseases* by the four authors of the letter—and others—said that not only did the event *not* become a superspreader event but also the incidence of COVID-19 cases in Senegal in the weeks

following the pilgrimage actually *decreased*—from approximately 100 to 120 daily cases at the end of August to about 30 daily cases by the end of November.⁶³ The article concluded that “no significant increase in COVID-19 cases was therefore observed at the national level in the weeks following the Grand Magal.”⁶⁴

A year after the pandemic began, experts could not agree on a reason for the surprising result. One theory was that researchers had failed to identify the positive cases that had spread from the event and that the health-care system was continuing to miss them for the next two months. However, as the post-pilgrimage journal findings noted, “Although it cannot be excluded that some cases were not captured by the surveillance tools implemented by Senegal authorities and our team, these data provide no evidence that the [mass gathering] triggered a drastic rise in cases in Senegal.”⁶⁵

A second suggested explanation was that the anti-COVID-19 measures put in place—and thought to be insufficient or, at best, risky for a mass gathering like the Grand Magal—actually worked. For example, Ndiaye praised religious leaders at the event for underscoring the importance of efforts to reduce transmission by publicly washing his hands, wearing a mask in public, and telling pilgrims that “they had to listen to the health authorities in order for the Magal to work.”

Dr. Massamba Sassoum Diop, head of S.O.S. Médecin Sénégal—an emergency medical provider in Dakar—offered a third possibility: that Senegal may have developed herd immunity from April through July. To support his theory, he noted that the Feast of Eid al-Adha, a major Muslim holiday period, began on July 30 and ended on August 3, with the same non-results as the Grand Magal, which had taken place two months later. Diop noted that although most people in Senegal gathered to celebrate the Eid with family—“with very little protection”—the increase in the rate of positive tests was small, and within weeks, “the positivity rate went down rapidly.”

Ly, Bousso’s deputy at the emergency operations center, agreed that the area around Touba may have achieved herd immunity because the virus had begun spreading there earlier than in most other parts of the country. But Ly also speculated that Senegal may have enjoyed some form of cross-immunity based on the high number of other coronaviruses present in the country.

Further complicating the efforts to understand why the Grand Magal did not become a superspreader event was the fact that Senegal did see a spike in infections during a second wave of COVID-19 cases from December 2020 to April 2021.⁶⁶ The second wave was markedly worse than the first, with confirmed cases doubling from January to April 2021, daily new cases peaking at 460 in mid-February, and the case fatality rate increasing from 1.5% in June 2020 to 2.75% in April 2021.⁶⁷ In response, President Sall imposed a “state of health disaster” in January. A newly passed law gave the president the power to impose curfews, travel restrictions, and other restrictions in response to a health or natural emergency—without obtaining approval from parliament—for a

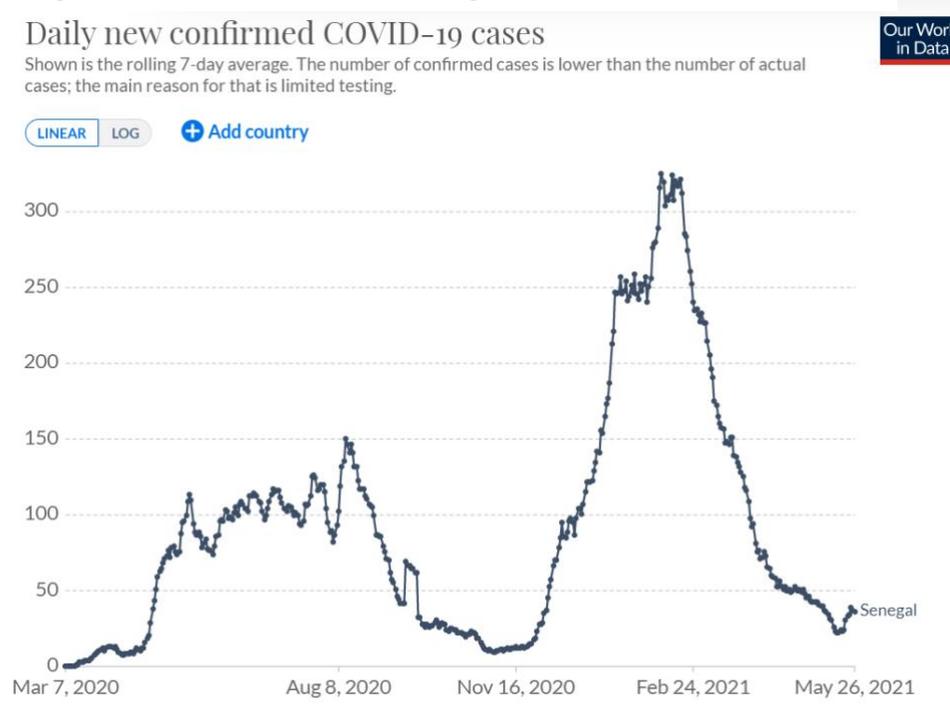
period of two months at a time. Sall’s new measures included a nightly curfew in the regions of Dakar and Thiès, two of Senegal’s most-populous regions, which together accounted for more than 90% of cases.⁶⁸ Mask wearing was also made mandatory, and large gatherings banned.

The new measures immediately triggered violent protests when young people clashed with security forces on the streets of Dakar on the first night of the new curfew.⁶⁹ Steadily rising public resentment over lockdown measures fused with political grievances following the March 3 arrest of a prominent opposition politician on rape charges. In the days that followed, Senegal experienced some of its worst unrest in years, as thousands of people took to the streets to protest. The violence led to the deaths of at least eight people.⁷⁰ On March 19, the government lifted the curfew and suspended the state of health disaster.

ASSESSING RESULTS

Although official case numbers were likely undercounted, during 2020 the numbers of confirmed COVID-19 cases never exceeded 250 per day—even during the worst periods. The high point of the surge in early 2021 was 462 cases per day, and the spike in infections diminished rapidly despite protests over new restrictions. The proportion of cases that ended in death was also low compared with figures in Europe, the United States, and many other parts of the world. Although the government’s response likely contributed significantly to Senegal’s success during the period, the country’s relatively youthful population had to have been a significant factor (Figure 1).

Figure 1: Epidemic curves in Senegal



By early 2021, *Foreign Policy* magazine's COVID-19 Global Response Index ranked Senegal second among the 36 countries it tracked—behind only New Zealand.⁷¹ The index stated that “Senegal’s COVID-19 policy response has been very strong across the board, buoyed by strong public health directives and a reliance on science and facts.”

In addition to health metrics, a standout feature of Senegal’s response was that the government had devoted a much higher share of GDP—7%—to support the response, including targeted support payments to the poor and businesses, than had any other country in sub-Saharan Africa or in Latin America. The Senegalese government prepared quickly, handled public messaging effectively, and adapted skillfully throughout as circumstances changed, the magazine reported.

Sall of the Pasteur Institute said that strict initial lockdown—although unsustainable over the long term—had been very important because it bought the response teams the time they needed to fully prepare. “We never had a really complete overwhelming of the health system,” he said. “What happened was that gradually, the health system got more and more beds, more ventilators. Gradually, we expanded capacity. We had three months when things were really, really restricted, and that helped avoid a sudden surge of cases. It gave us time to build whatever we needed: testing capacity, beds, masks.” The government fulfilled its public pledge to provide a hospital or health center bed for every COVID patient and test results within 24 hours.

The IMS coordination system generally worked well, but there were problems with data management. Both Elhadji Mbengue, information technology manager at the emergency operations center, and Diatta, who headed data management in the overall response, pointed out that the use of a multiple data-collection systems slowed reporting and sometimes caused discrepancies between the regions and the national level. Diatta flagged the need for “a system for online data entry in each region where it goes straight into the server”—without the need for additional manual processing.

Mbengue said the response also could have made more-extensive use of a digital tool called mInfoSanté, a Web and SMS-based communication system that was built during the Ebola response to connect health staff and providers. “It would have enabled individuals to screen themselves by sending a WhatsApp, Telegram, or SMS message with the keyword *corona* and then answering a set of questions [on symptoms and contacts].” By tracking self-reporting, mInfoSanté “could have been an early warning system. IT [information technology] is very important but often neglected,” he opined.

Diouf, head of the IMS’s logistics team, and Diatta also flagged human resources constraints. Diouf said his logistics team had insufficient personnel and that the resulting workload was overwhelming, with the team often working until 3 in the morning before having to report again at 8 for the IMS meeting. Diatta agreed: “The workload is really overwhelming. In a week there can be

10,000 cases, and we need more staff and better software to [adequately] deal with this.”

The need to juggle the trade-offs between public health and economic prosperity was a persistent and vexing problem. Despite the government’s attempt to provide comprehensive socioeconomic relief, the country still repeatedly grappled with violent protests fueled partly by the financial hardship caused by curfews, travel bans, and other economic restrictions, during which responses by security forces sometimes resulted in protestors’ deaths.

The introduction of a new law about health disasters was another source of criticism because it effectively bypassed the constitutionally defined provisions for a state of emergency, which required parliamentary approval for any restrictions on civil liberties beyond 12 days. Article 19, a British human rights organization named after Article 19 of the UN’s Universal Declaration of Human Rights and dedicated to promoting freedom of expression, criticized the new legislation for giving “overbroad powers to the executive to restrict the rights to freedom of expression and assembly in the absence of a declaration of a state of emergency.”⁷²

REFLECTIONS

Looking back on the first major test faced by the health emergency preparedness system he helped build, Dr. Abdoulaye Bousso urged his counterparts to heed the importance of becoming adequately prepared *before* an epidemic strikes. “I’m confused about Africa: Every time we say we are not ready. And we are not,” he said. “We had Ebola in 2014. We were not ready. Billions of dollars were donated to help in that outbreak, yet now we have COVID, and we are not ready. Why? Because we failed to heed the lessons we must learn.

“I think even the strategy that international organizations and some countries use is just like a firefighter. You have to come. You have to stop the incident. And then you go back home,” he said. “My concern for my country—and Africa—is to follow the lessons learned here. We need to really focus on these lessons and not to be endlessly restarting the process of getting prepared.”

Bousso flagged one lesson in particular: “Rebuilding our PPE stocks is very key because we know that we’ll have, after COVID, another outbreak.” Abdoulaye Diouf, who headed the logistics unit at Senegal’s COVID-19 Incident Management System, agreed. “In a routine situation, build up supplies, because epidemics will always occur. If the equipment is not available, the response won’t work.”

But Bousso added that COVID-19 did differ from previous disease outbreaks in at least one important respect. In his previous experience, Senegal could count on assistance from the global community to help with localized disease outbreaks. But this time around, he said, “All huts were burning,” and the country had to take complete ownership of the response.

In turn, Amadou Sall, director of the Dakar branch of the Pasteur Institute, flagged decentralization as a key characteristic of Senegal’s success. “This has

made setting up of laboratories and sample collection [locally] in most regions possible, cutting down on transportation delays” to distant laboratories, he said.⁷³ The decentralization made it possible to get test results within 24 hours.

Health ministry director general Dr. Marie Khemesse Ngom Ndiaye, who oversaw the national epidemic management committee, said Senegal “worked hard on this pandemic, and fortunately, we had time to get ready. We had time to get prepared, and we prepared in each of the 14 regions. We took advantage of this pandemic to build capacity. We now have labs in all of our regions. And there was a lot of training for the staff.”

In a February 2021 address to the World Economic Forum, President Macky Sall summed up Senegal’s experience. “The main lesson of the lockdown for me was go early, go hard and keep it simple.” He added: “We benefited from a rapid and economical COVID test with a 24-hour turnaround for results; the requisitioning of hotels to quarantine victims; and clear communication, directed where most needed, using different platforms for the range of different communities we had to address.”⁷⁴

“Rising early makes the road short, as we say in Africa, and moving quickly was critical in our first encounter with this pandemic,” he concluded.⁷⁵

Exhibit 1: Senegal’s COVID-19 coordination system

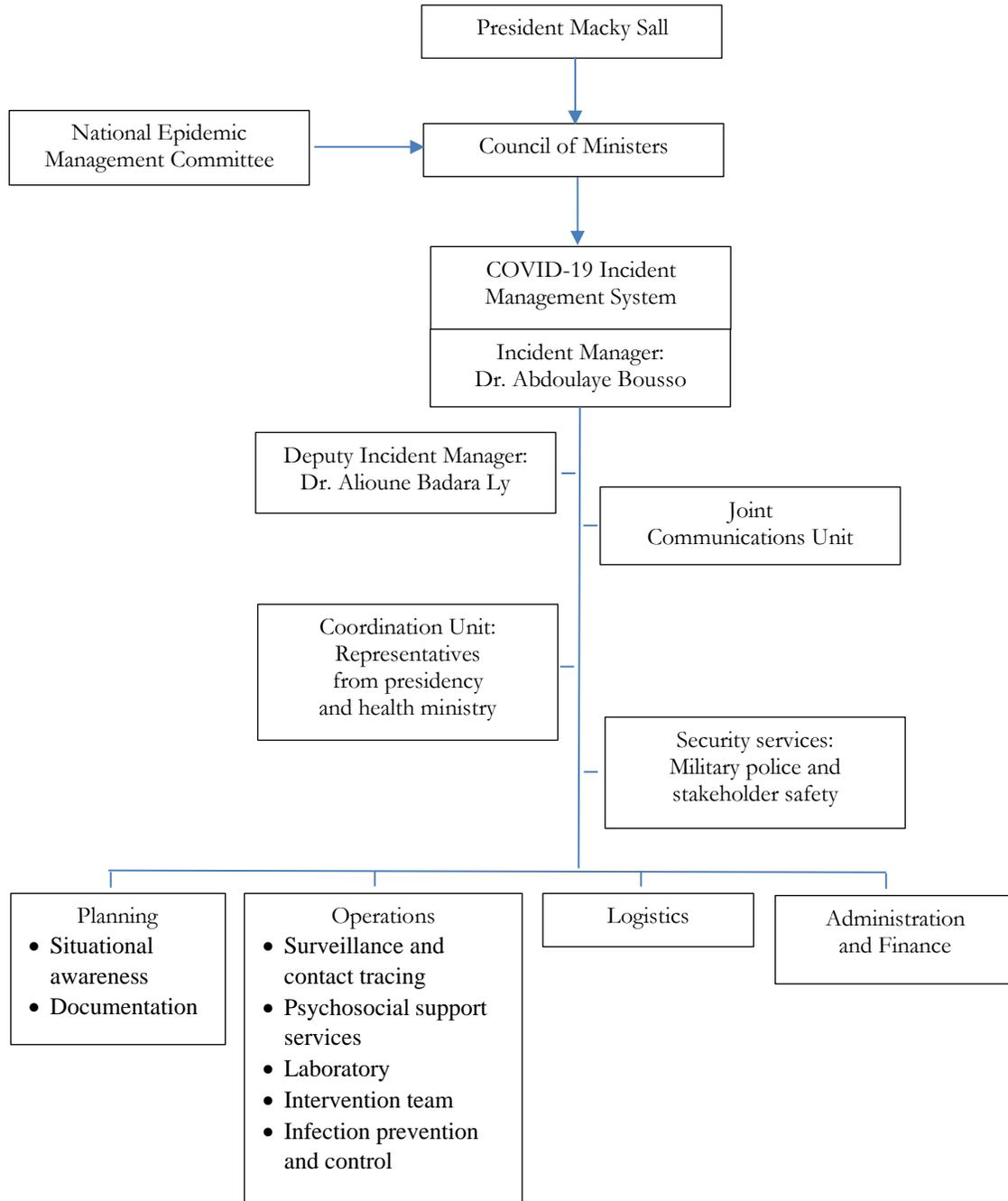


Exhibit 2: The four components of the US\$1.6-billion Social and Economic Resilience Plan

Component 1: Strengthening the health system (total: US\$103 million)	
Conduct fund case detection, contact tracing, case isolation, prevention, and infection control at health facilities; crisis communication with the public; improved coordination of the health-care response	US\$103 million
Component 2: Securing fuel, medical, pharmaceutical, and other basic supplies (total: US\$285 million)	
Secure basic supplies—including fuel, PPE and foodstuffs while also maintaining food prices at pre-pandemic levels and absorbing the costs of supply disruptions and trade shocks	US\$285 million
Component 3: Enhancing socioeconomic resilience (total: US\$160 million)	
Supply and distribute food to vulnerable households	US\$110 million
Offer financial support to members of the Senegalese diaspora	US\$20 million
Pay electricity and water bills for vulnerable households	US\$30 million
Component 4: Providing macroeconomic stability for project jobs (total: US\$1.052 billion)	
Offer partial forgiveness of tax debts	US\$320 million
Provide direct cash support for affected businesses	US\$160 million
Provide funds to continue paying government suppliers	US\$483 million
Extend value-added-tax deadline	US\$24 million
Offer individual tax exemptions	US\$3 million
Offer low-interest loans to companies	US\$62 million

Source: Ministry of Economy, Planning, and Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrrls/sites/www.un.org.ohrrls/files/senegal.pdf>

References

- ¹[https://www.worldbank.org/en/country/senegal/overview#:~:text=Senegal's%20econom%20grew%20by%20more,down%20from%206.2%25%20in%202017.&text=It%20is%20estimated%20that%20growth,tourism%20and%20transport\)%20and%20exports](https://www.worldbank.org/en/country/senegal/overview#:~:text=Senegal's%20econom%20grew%20by%20more,down%20from%206.2%25%20in%202017.&text=It%20is%20estimated%20that%20growth,tourism%20and%20transport)%20and%20exports)
- ² World Bank. <https://data.worldbank.org/indicator/ST.INT.ARVL?locations=SN> 2019 numbers not reported but available at Xinhua http://www.xinhuanet.com/english/2020-01/07/c_138683930.htm.
- ³ Africa Risk Consulting, Senegal Monthly Briefing March 2020. Access via Lexis-Nexis.
- ⁴ Jen Kirby, “How Senegal Stretched Its Health Care System to Stop COVID-19,” Vox, April 28, 2021. Accessed at <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ⁵ https://databank.worldbank.org/data/download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/AM2020/Global_POVEQ_SEN.pdf.
- ⁶ Elisabeth Paul, Youssoupha Ndiaye, Farba L. Sall, Fabienne Fecher, and Denis Porignon, “An Assessment of the Core Capacities of the Senegalese Health System to Deliver Universal Health Coverage,” Health Policy Open. Elsevier, *Science Direct*, <http://dx.doi.org/10.1016/j.hpopen.2020.100012>.
- ⁷ For basic data, see World Bank, World Development Indicators <https://data.worldbank.org/indicator/SH.MED.NUMW.P3?locations=SN> and <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=SN>.
- ⁸ https://www.oecd-ilibrary.org/docserver/health_glance-2017-52-en.pdf?expires=1620674509&id=id&accname=guest&checksum=B9252DF74272F3A889C779E2BD59E60.
- ⁹ Jen Kirby, “How Senegal Stretched Its Health Care System to Stop COVID-19,” Vox, April 28, 2021. Accessed at <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ¹⁰ Jen Kirby, “How Senegal Stretched its Health Care System to Stop COVID-19,” Vox, April 28, 2021. Accessed at <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ¹¹ https://databank.worldbank.org/data/download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/AM2020/Global_POVEQ_SEN.pdf.
- ¹² https://www.shopsplusproject.org/sites/default/files/resources/Senegal%20Private%20Health%20Sector%20Assessment_Selected%20Products%20and%20Services.pdf.
- ¹³ USAID Country Development Cooperation Strategy, September 21, 2020–September 20, 2025; [CDCS-Senegal-August-2025.pdf](https://www.usaid.gov/sites/default/files/asset_document/2020-09/2020-2025_CDCS-Senegal-August-2025.pdf).
- ¹⁴ <https://www.abtassociates.com/who-we-are/news/feature-stories/involving-private-providers-in-the-covid-19-response-in-senegal>.
- ¹⁵ https://wwwnc.cdc.gov/eid/article/26/11/20-2615_article.
- ¹⁶ Recueil des principaux textes émis depuis le début de la crise sanitaire liée au Covid-19, Ministry of the Economy, Planning and Cooperation, accessed July 25, 2021; <https://www.economie.gouv.sn/sites/default/files/2021-01/Detail-des-textes-reglementaires-Covid-19-v170520.pdf>.
- ¹⁷ *Recueil des principaux textes émis depuis le début de la crise sanitaire liée au Covid-19*, Ministry of the Economy, Planning and Cooperation, accessed July 25, 2021; <https://www.economie.gouv.sn/sites/default/files/2021-01/Detail-des-textes-reglementaires-Covid-19-v170520.pdf>.
- ¹⁸ *Recueil des principaux textes émis depuis le début de la crise sanitaire liée au Covid-19*, Ministry of the Economy, Planning and Cooperation, accessed July 25, 2021; <https://www.economie.gouv.sn/sites/default/files/2021-01/Detail-des-textes-reglementaires-Covid-19-v170520.pdf>.
- ¹⁹ *Senegal's Constitution of 2001 with Amendments through 2016*, article 69, Republic of Senegal, accessed July 25, 2021; https://www.constituteproject.org/constitution/Senegal_2016.pdf?lang=en.

- ²⁰ “Senegal’s Response to COVID-19,” Center for Global Development, May 29, 2020, accessed June 24, 2021; <https://www.cgdev.org/event/senegals-response-covid-19>.
- ²¹ “IMF Executive Board Approves for Senegal a US\$442 Million Disbursement Under the Rapid Credit Facility and Purchase Under the Rapid Financing Instrument,” *International Monetary Fund*, April 13, 2020, accessed June 24, 2021; <https://www.imf.org/en/News/Articles/2020/04/13/pr20152-senegal-imf-exec-board-approves-us-442-million-disbursement-under-rcf-and-purchase-under-rfi>.
- ²² “Senegal’s Response to COVID-19,” Center for Global Development, May 29, 2020, accessed June 24, 2021; <https://www.cgdev.org/event/senegals-response-covid-19>.
- ²³ Ministry of Economy, Planning and International Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrrls/sites/www.un.org.ohrrls/files/senegal.pdf>.
- ²⁴ African Development Bank, accessed June 24, 2021; <https://www.afdb.org/en/countries/west-africa/senegal/senegal-economic-outlook>.
- ²⁵ Ministry of Economy, Planning and International Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrrls/sites/www.un.org.ohrrls/files/senegal.pdf>.
- ²⁶ <https://qz.com/africa/1816621/coronavirus-rapid-test-kits-to-be-made-in-senegal-with-uk-help/>.
- ²⁷ “COVID-19: EU working on all fronts,” ENP Newswire, February 24, 2020. Accessed through Lexis-Nexis.
- ²⁸ <https://www.afro.who.int/news/enhancing-diagnosis-beat-covid-19-senegal-0>.
- ²⁹ <https://www.bbc.com/news/world-africa-54388340>.
- ³⁰ <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ³¹ <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ³² <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ³³ <https://www.vox.com/22397842/senegal-covid-19-pandemic-playbook>.
- ³⁴ <https://reliefweb.int/report/senegal/senegal-covid-19-situation-report-06-29-may-22-june-2020>.
- ³⁵ <https://www.npr.org/sections/goatsandsoda/2020/05/17/856016429/senegal-pledges-a-bed-for-every-coronavirus-patient-and-their-contacts-too>.
- ³⁶ Ben Leo and Catherine Winn, “Localized communication plans help Senegal control COVID-19,” *Brookings Africa in Focus*, November 10, 2020. <https://www.brookings.edu/blog/africa-in-focus/2020/11/10/localized-communication-plans-help-senegal-control-covid-19/>.
- ³⁷ <https://www.afro.who.int/node/12559>.
- ³⁸ <https://www.youtube.com/watch?v=06YbY1MLp4A>.
- ³⁹ Ministry of Economy, Planning and International Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrrls/sites/www.un.org.ohrrls/files/senegal.pdf>.
- ⁴⁰ Ministry of Economy, Planning and International Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrrls/sites/www.un.org.ohrrls/files/senegal.pdf>.
- ⁴¹ African Development Bank, accessed June 24, 2021; <https://www.afdb.org/en/countries/west-africa/senegal/senegal-economic-outlook>.
- ⁴² “Senegal’s Response to COVID-19,” Center for Global Development, May 29, 2020, accessed June 24, 2021; <https://www.cgdev.org/event/senegals-response-covid-19>.
- ⁴³ “Senegal’s Response to COVID-19,” Center for Global Development, May 29, 2020, accessed June 24, 2021; <https://www.cgdev.org/event/senegals-response-covid-19>.
- ⁴⁴ “DER Senegal: Innovative Government Funding for African Entrepreneurship,” *ICT Works*, December 19, 2018, accessed June 24, 2021; <https://www.ictworks.org/der-senegal-government-innovation/#.YNR6ry2w1QI>.
- ⁴⁵ Estelle Ndjandjo, “To Halt COVID Spread, Senegal Launches Bread Delivery during Ramadan,” *Voice of America*, May 9, 2020, accessed June 24, 2021; <https://www.voanews.com/covid-19-pandemic/halt-covid-spread-senegal-launches-bread-delivery-during-ramadan>.

- ⁴⁶ Ministère des Finances et du Budget, “Guide sur les mesures fiscales et douanières,” June 19, 2020, accessed June 25, 2021; [https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020\[1\]_0.pdf](https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020[1]_0.pdf)
- ⁴⁷ Ministère des Finances et du Budget, “Guide sur les mesures fiscales et douanières,” June 19, 2020, accessed June 25, 2021; [https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020\[1\]_0.pdf](https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020[1]_0.pdf)
- ⁴⁸ Ministère des Finances et du Budget, “Guide sur les mesures fiscales et douanières,” June 19, 2020, accessed June 25, 2021; [https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020\[1\]_0.pdf](https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020[1]_0.pdf)
- ⁴⁹ Ministère des Finances et du Budget, “Guide sur les mesures fiscales et douanières,” June 19, 2020, accessed June 25, 2021; [https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020\[1\]_0.pdf](https://covid19.economie.gouv.sn/sites/default/files/articles/Guide%20sur%20les%20mesures%20fiscales%20et%20douanie%20res%20du%20PRES_Version%20du%2019%20juin%202020[1]_0.pdf)
- ⁵⁰ Ministry of Economy, Planning and International Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrlls/sites/www.un.org.ohrlls/files/senegal.pdf>.
- ⁵¹ Ministry of Economy, Planning and International Cooperation, *Programme de Résilience Économique et Sociale*, April 5, 2020, accessed June 24, 2021; <https://www.un.org/ohrlls/sites/www.un.org.ohrlls/files/senegal.pdf>.
- ⁵² “Coronavirus protests rock Senegal capital and holy city Touba,” Al Jazeera, June 2, 2020, accessed July 29, 2021; <https://www.aljazeera.com/news/2020/6/4/coronavirus-protests-rock-senegal-capital-and-holy-city-touba>.
- ⁵³ <https://www.usnews.com/news/world/articles/2020-06-03/coronavirus-protests-rock-senegal-capital-and-holy-city-touba>.
- ⁵⁴ “Message À La Nation Du Président De La République - Levée De L’état D’urgence Instauré Dans Le Cadre De La Lettre Contre La Maladie À Coronavirus Covid-19,” *Présidence Du Sénégal*, June 29, 2020, Accessed July 29, 2021; <https://www.presidence.sn/actualites/message-a-la-nation-du-president-de-la-republique-levee-de-letat-durgence-instaure-dans-le-cadre-de-la-lettre-contre-la-maladie-a-coronavirus-covid-19-2032>.
- ⁵⁵ “Message À La Nation Du Président De La République - Levée De L’état D’urgence Instauré Dans Le Cadre De La Lettre Contre La Maladie À Coronavirus Covid-19,” *Présidence Du Sénégal*, June 29, 2020, Accessed July 29, 2021; <https://www.presidence.sn/actualites/message-a-la-nation-du-president-de-la-republique-levee-de-letat-durgence-instaure-dans-le-cadre-de-la-lettre-contre-la-maladie-a-coronavirus-covid-19-2032>.
- ⁵⁶ “Message À La Nation Du Président De La République - Levée De L’état D’urgence Instauré Dans Le Cadre De La Lettre Contre La Maladie À Coronavirus Covid-19,” *Présidence Du Sénégal*, June 29, 2020, Accessed July 29, 2021; <https://www.presidence.sn/actualites/message-a-la-nation-du-president-de-la-republique-levee-de-letat-durgence-instaure-dans-le-cadre-de-la-lettre-contre-la-maladie-a-coronavirus-covid-19-2032>.
- ⁵⁷ “Message À La Nation Du Président De La République - Levée De L’état D’urgence Instauré Dans Le Cadre De La Lettre Contre La Maladie À Coronavirus Covid-19,” *Présidence Du Sénégal*, June 29, 2020, Accessed July 29, 2021; <https://www.presidence.sn/actualites/message-a-la-nation-du-president-de-la-republique-levee-de-letat-durgence-instaure-dans-le-cadre-de-la-lettre-contre-la-maladie-a-coronavirus-covid-19-2032>.

Contre-La-Maladie-A-Coronavirus-Covid-19 2032.

- ⁵⁸ Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang, and Cheikh Sokhna, "The 2020 Grand Magal of Touba: Senegal in the time of the COVID-19 pandemic," *Travel Medicine and Infectious Disease* 38, September 17, 2020, accessed July 30, 2021; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7494441/>.
- ⁵⁹ Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang and Cheikh Sokhna, "The 2020 Grand Magal of Touba: Senegal in the time of the COVID-19 pandemic," *Travel Medicine and Infectious Disease* 38, September 17, 2020, accessed July 30, 2021; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7494441/>.
- ⁶⁰ Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang, and Cheikh Sokhna, "The 2020 Grand Magal of Touba: Senegal in the time of the COVID-19 pandemic," *Travel Medicine and Infectious Disease* 38, September 17, 2020, accessed July 30, 2021; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7494441/>.
- ⁶¹ <https://www.dw.com/en/grand-magal-pilgrimage-to-touba-in-times-of-the-pandemic/av-55193724>.
- ⁶² <https://www.dw.com/en/grand-magal-pilgrimage-to-touba-in-times-of-the-pandemic/av-55193724>.
- ⁶³ Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang, Cheikh Sokhna, Hubert Bassene, and Philippe Parola, "The Grand Magal of Touba was spared by the COVID-19 pandemic," *International Journal of Infectious Diseases* 105, April 1, 2021, accessed July 30, 2021; [https://www.ijidonline.com/article/S1201-9712\(21\)00011-4/fulltext](https://www.ijidonline.com/article/S1201-9712(21)00011-4/fulltext).
- ⁶⁴ Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang, Cheikh Sokhna, Hubert Bassene, and Philippe Parola, "The Grand Magal of Touba was spared by the COVID-19 pandemic," *International Journal of Infectious Diseases* 105, April 1, 2021, accessed July 30, 2021; [https://www.ijidonline.com/article/S1201-9712\(21\)00011-4/fulltext](https://www.ijidonline.com/article/S1201-9712(21)00011-4/fulltext).
- ⁶⁵ Philippe Gautret, Ndiaw Goumballa, Van Thuan Hoang, Cheikh Sokhna, Hubert Bassene, and Philippe Parola, "The Grand Magal of Touba was spared by the COVID-19 pandemic," *International Journal of Infectious Diseases* 105, April 1, 2021, accessed July 30, 2021; [https://www.ijidonline.com/article/S1201-9712\(21\)00011-4/fulltext](https://www.ijidonline.com/article/S1201-9712(21)00011-4/fulltext).
- ⁶⁶ "Senegal: COVID-19 Situation Report – #11 (01 January-20 April 2021)," *ReliefWeb*, accessed July 29, 2021; <https://reliefweb.int/report/senegal/senegal-covid-19-situation-report-11-01-january-20-april-2021>.
- ⁶⁷ "Senegal: COVID-19 Situation Report – #11 (01 January-20 April 2021)," *ReliefWeb*, accessed July 29, 2021; <https://reliefweb.int/report/senegal/senegal-covid-19-situation-report-11-01-january-20-april-2021>.
- ⁶⁸ Diadie Ba, "Senegal Imposes New State Of Emergency And Curfew As Covid Cases Surge," *Timeslive*, January 6, 2021, Accessed July 29, 2021; <https://www.timeslive.co.za/news/africa/2021-01-06-senegal-imposes-new-state-of-emergency-and-curfew-as-covid-cases-surge/>.
- ⁶⁹ "Protests erupt in Senegal over new Covid-19 measures," *Africanews*, accessed July 29, 2021; <https://www.africanews.com/2021/01/07/protests-erupt-in-senegal-over-new-covid-19-measures>.
- ⁷⁰ <https://qz.com/africa/1982109/senegal-protests-reflect-anger-over-covid-19-economic-fallout/>.
- ⁷¹ The COVID-19 Global Response Index, *Foreign Policy*, accessed July 29, 2021; <https://globalresponseindex.foreignpolicy.com/country/senegal/>.
- ⁷² "Senegal: COVID-19 response violates rights," *Article 19*, June 28, 2021, accessed July 29, 2021; <https://www.article19.org/resources/senegal-covid-19-response-violates-rights/>.
- ⁷³ "Enhancing Diagnosis To Beat Covid-19 In Senegal," World Health Organization, October 22, 2020, Accessed July 30, 2021; <https://www.afro.who.int/news/enhancing-diagnosis-beat-covid-19-senegal-0>.
- ⁷⁴ Macky Sall, Address to the World Economic Forum, "Go Early, Go Hard and Keep It Simple: How Senegal is Staying Ahead of the COVID-19 Pandemic," February 3, 2021; <https://www.weforum.org/agenda/2021/02/senegal-covid-response-macky-sall/>.

⁷⁵ Macky Sall, address to the World Economic Forum, “Go early, go hard and keep it simple: how Senegal is staying ahead of the COVID-19 pandemic,” February 3, 2021; <https://www.weforum.org/agenda/2021/02/senegal-covid-response-macky-sall/>.

Innovations for Successful Societies makes its case studies and other publications available to all at no cost under the guidelines of the Terms of Use listed below. The ISS Web repository is intended to serve as an idea bank, enabling practitioners and scholars to evaluate the pros and cons of different reform strategies and weigh the effects of context. ISS welcomes readers' feedback, including suggestions of additional topics and questions to be considered, corrections, and how case studies are being used: iss@princeton.edu.

Terms of Use

Before using any materials downloaded from the Innovations for Successful Societies website, users must read and accept the terms on which we make these items available. The terms constitute a legal agreement between any person who seeks to use information available at successfultsocieties.princeton.edu and Princeton University.

In downloading or otherwise employing this information, users indicate that:

- a. They understand that the materials downloaded from the website are protected under United States Copyright Law (Title 17, United States Code). This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.
- b. They will use the material only for educational, scholarly, and other noncommercial purposes.
- c. They will not sell, transfer, assign, license, lease, or otherwise convey any portion of this information to any third party. Republication or display on a third party's website requires the express written permission of the Princeton University Innovations for Successful Societies program or the Princeton University Library.
- d. They understand that the quotations used in the case study reflect the interviewees' personal points of view. Although all efforts have been made to ensure the accuracy of the information collected, Princeton University does not warrant the accuracy, completeness, timeliness, or other characteristics of any material available online.
- e. They acknowledge that the content and/or format of the archive and the site may be revised, updated, or otherwise modified from time to time.
- f. They accept that access to and use of the archive are at their own risk. They shall not hold Princeton University liable for any loss or damages resulting from the use of information in the archive. Princeton University assumes no liability for any errors or omissions with respect to the functioning of the archive.
- g. In all publications, presentations, or other communications that incorporate or otherwise rely on information from this archive, they will acknowledge that such information was obtained through the Innovations for Successful Societies website. Our status and that of any identified contributors as the authors of material must always be acknowledged and a full credit given as follows:

Author(s) or Editor(s) if listed, Full title, Year of publication, Innovations for Successful Societies, Princeton University, <http://successfultsocieties.princeton.edu/>.

