



# COVID-19 Impacts and Responses: **The Indian Experience**

January - May 2020

[www.ndma.gov.in](http://www.ndma.gov.in)

**About this publication:**

This publication, prepared by the National Disaster Management Authority (NDMA), presents a preliminary account of the impacts of COVID-19 in India and the country's response from January to end of May 2020 i.e. the end of the last phase of nationwide lockdown.

**Disclaimer:**

This publication is a preliminary documentation as stated above. This is not a statement of Government of India policies.

**Contributors:**

National Disaster Management Authority (NDMA)

Ministry of Home Affairs (MHA)

Ministry of Health and Family Welfare (MoHFW)






Empowered Groups set up by Government of India for managing COVID-19

**How to refer this publication:**

Please refer to this publication as follows:

National Disaster Management Authority (2020). COVID-19 Impacts and Responses: The Indian Experience, January – May 2020, NDMA, India, 52 pages.

# Contents

	<b>Chapter 1: Introduction</b>	<b>4</b>
	<b>Chapter 2: The spread and impact of COVID-19 in India</b>	<b>9</b>
	• Overview of COVID-19 cases	12
	• Geography of mortality	13
	• Who is affected in India?	14
	• Socio-economic impact of COVID-19	16
	<b>Chapter 3: Evolution of the Indian response till date</b>	<b>17</b>
	• Overview	18
	• The Indian response	19
	• Phase 1 (January to early March)	19
	• Phase 2 (Early March to third week of March)	26
	• Phase 3 (Fourth week of March to 31st May)	29
	<b>Chapter 4: Key features of the Indian response to COVID-19</b>	<b>37</b>
	<b>Chapter 5: Early lessons, remaining challenges, and road to a safer future</b>	<b>42</b>
	<b>Box 1: What is COVID-19</b>	<b>7</b>
	<b>Box 2: Testing</b>	<b>32</b>
	<b>Box 3: Challenges faced by informal workers and the government's response</b>	<b>34</b>





# Introduction



For India, as for the rest of the world, COVID-19 has been a disaster of unprecedented proportions. As of 31st May 2020, COVID-19 had spread to more than 200 countries and territories, with nearly six million confirmed cases and 367,255 deaths.<sup>1</sup> At this time, the Ministry of Health and Family Welfare (MoHFW) of India reported 1,82,143 confirmed cases; of which 86,984 had recovered and 5,164 had lost their lives.

Comparisons are drawn between the Spanish flu of 1918 and the current pandemic. However, in early 20th century, our world was neither as interconnected nor as interdependent. While 'pandemic preparedness' has always been recognised as an integral part of disaster preparedness systems at the national and international levels, it took the world a few weeks to fully comprehend the dimensions of what was unfolding. With a lot of uncertainty about the nature of COVID-19—its transmission, its incubation period, and its possible treatment—the medical emergency management systems of even the most advanced countries struggled to get a handle on the problem.

In its scale and complexity, the response to this crisis has little precedent. While learning from the rest of the world, India has tried to develop its own approach, responding to its unique context, and, above all, building on the initiative, inherent resilience, resourcefulness and courage of its people. This preliminary report provides a look at the Indian response, with data and analysis from January till the end of May, when the final phase of country-wide lockdown ended. It is an account of challenges encountered, actions

taken and some early lessons. Subsequent reports will capture the post-lockdown phases when social and economic activities gradually resumed. We hope that this will provide a basis for future action, as India and the world continue to do battle with one of the deadliest threats known in modern times.

The world as we know it began to change on 31st December, 2019. The COVID-19 pandemic, potentially one of the most significant disasters in modern history, began when China first reported cases of pneumonia of an unknown origin in Wuhan city, Hubei province.<sup>2</sup> COVID-19, an infectious disease caused by Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), spread across China through January. As cases accelerated and the death toll mounted, images of emptied cities and mask-wearing citizens filled the news.

On 30th January 2020, COVID-19 was declared an epidemic of international concern—the same day the first Indian case was reported in the southern state of Kerala, by an individual with travel history to Wuhan. On 11th March, it was declared a 'controllable pandemic'. Spreading across Asia through Thailand, Japan, and Korea in January, it was reported in Europe by February, affecting countries like Italy, where a silent, rapidly increasing spread and high death toll were witnessed.<sup>3</sup> Spain soon followed suit. The virus hit the United Kingdom and the United States, where the latter's financial and cultural capital, New York City, became the epicentre of the pandemic by April.



<sup>1</sup>WHO, Coronavirus disease, (COVID-19) Pandemic. <https://COVID-19.who.int/>

<sup>2</sup>WHO, 22nd January, 2020, First situation report.

<sup>3</sup>'Silent spread of novel coronavirus in Italy went undetected for weeks', The Hindu, March 28th, 2020, <https://www.thehindu.com/sci-tech/science/silent-spread-of-novel-coronavirus-in-italy-went-undetected-for-weeks/article31192774.ece>

Approaches to mitigating the spread of the virus have varied. China mounted an aggressive campaign to safeguard its 1.4 billion against COVID-19, with a strict lockdown in virus-stricken Wuhan.<sup>4</sup> Many countries used similar if less strict lockdowns. Italy kept the country at home for two months, while Sweden avoided an enforced lockdown.<sup>5</sup> South Korea implemented high levels of testing and effective contact tracing and quarantines<sup>6</sup>, as did Germany. New Zealand, too, focused on early tracing and clear messaging, and started to ease its strict, early lockdown by April end.<sup>7</sup> Japan, with its high level of public awareness and disaster preparedness, relied mostly on its people's own initiatives to enforce social distancing without enforcing a strict lockdown. A cautious Singapore kept COVID-19 at bay initially, but migrant workers in crowded dormitories constituted most of the caseload of infections by May end.<sup>8</sup>

Meanwhile, trials for potential vaccines are underway. Experts suggest that the pandemic may continue for as long as two years.<sup>9</sup> Worryingly, COVID-19 threatens a global recession. The virus could cause a loss of around USD 8.8 trillion (ADB, May 2020).<sup>10</sup>

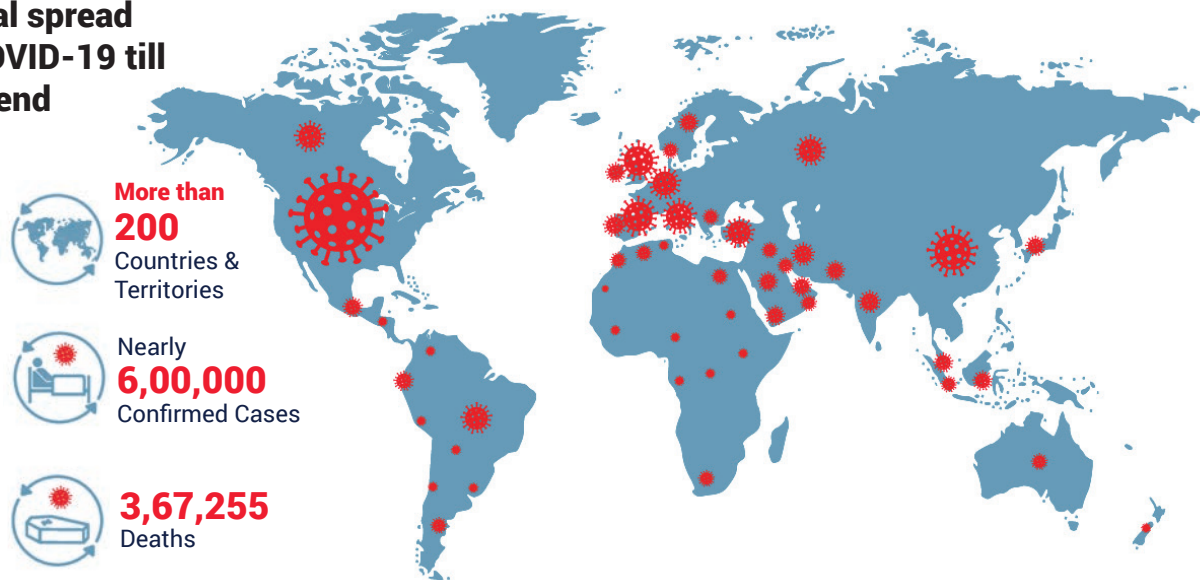
The Indian response to this disaster took shape by the middle of January and moved through different phases –

from graded border restrictions to preparing the ground for what was arguably the world's largest lockdown<sup>11</sup> and to ramping up the health infrastructure. People from all strata of Indian society came together in an unprecedented manner and participated in the effort to contain the spread of COVID-19. In both urban and rural India, across socio-economic groups, people adapted their day-to-day routine to the restrictions enforced under the lockdown.

Several challenges, most of them foreseen, were encountered. The well-being of migrant laborers directly affected by the lockdown emerged as a major concern. How do we balance the need for saving lives from the virus with saving livelihoods from the effects of preventive measures? The central and the state governments as well as the civil society responded to these concerns with a variety of means and approaches.

There have been some early successes as well as some early lessons. The outstanding challenges are also enormous. India, and even those countries that have claimed early success, will need to continue to work towards mitigating the spread of COVID-19 for the next few years. This report and its follow-up reports, we hope, will inform future action in India as well as other countries.

## Global spread of COVID-19 till May end



<sup>4</sup> 'China's Coronavirus Lockdown Strategy: Brutal But Effective', *The Guardian*, 19th March, 2020, <https://www.theguardian.com/world/2020/mar/19/chinas-coronavirus-lockdown-strategy-brutal-but-effective>

<sup>5</sup> A controversial decision given that Sweden was among the top 20 countries in terms of numbers of cases, in April. 'Coronavirus: Has Sweden Got Its Science Right?', *BBC News*, 25 April, <https://www.bbc.com/news/world-europe-52395866>

<sup>6</sup> Only 237 deaths and one of the lowest mortality rates, 2.23%, were recorded in April. 'Test, trace, contain: how South Korea flattened its coronavirus curve', *The Guardian*, 23rd April, 2020, <https://www.theguardian.com/world/2020/apr/23/test-trace-contain-how-south-korea-flattened-its-coronavirus-curve>

<sup>7</sup> New Zealand's five million reported fewer than 1500 cases and only 19 deaths. 'Coronavirus: New Zealand Claims No Community Cases As Lockdown Eases', *BBC News*, 27 April, 2020, [https://www.bbc.com/news/world-asia-52436658?ocid=wsnews.chat-apps.in-app-msg.whatsapp.trial.link1\\_auin](https://www.bbc.com/news/world-asia-52436658?ocid=wsnews.chat-apps.in-app-msg.whatsapp.trial.link1_auin)

<sup>8</sup> Singapore Was a Coronavirus Success Story—Until an Outbreak Showed How Vulnerable Workers Can Fall Through the Cracks', *Time*, 29th April, 2020, <https://time.com/5825261/singapore-coronavirus-migrant-workers-inequality/>; <https://www.moh.gov.sg/docs/librariesprovider5/local-situation-report/situation-report--31-may-2020.pdf>

<sup>9</sup> 'COVID-19: The CIDRAP Viewpoint', Centre for Infectious Disease Research and Policy, 30th April, 2020, Michael T Osterholm et al., <https://www.cidrap.umn.edu/sites/default/files/public/downloads/cidrap-COVID-19-viewpoint-part1.pdf>

<sup>10</sup> ADB Briefs, No 133; May 2020: An Updated Assessment of the Economic Impact of COVID-19. <https://www.adb.org/sites/default/files/publication/604206/adb-brief-133-updated-economic-impact-covid-19.pdf>

<sup>11</sup> Phase 1: 25th March to 14th April 2020; Phase 2: 15th April to 3rd May 2020; Phase 3: 4th May to 17th May 2020; Phase 4: 18th May to 31st May 2020; Phase 5: 1st June onwards to 30th June 2020.



## Box 1: What is COVID-19?

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was announced as the name of the new virus on 11th February 2020. The virus is genetically related to the coronavirus responsible for the SARS outbreak of 2003, but the two viruses are different. WHO announced 'COVID-19' as the name of this new disease on 11th February 2020 (FAO).<sup>13</sup>



COVID-19 has a varying mortality rate in each country, with an average global WHO estimate of 3.8%. It has an incubation period of 14 days, during which time it may not be apparent; many infected people may be asymptomatic. The elderly and the unwell are particularly vulnerable to it, particularly those who have heart and lung disease, diabetes, high blood pressure and/ or cancer. While its fatality rate may not be as high as some other viruses, it is highly contagious and insidious in its spread. Symptoms include fever, dry cough, and fatigue. While often mild, they may extend to a loss of taste or smell, aches and pains, headache, sore throat, diarrhea and nasal congestion, a rash on the skin or discoloration of fingers or toes. Around 80% recover without requiring hospitalization, but 1 out of 5 people can become seriously ill. They may experience shortness of breath, chest pain/pressure, or loss of speech and movement, and should seek medical attention immediately. At present, no COVID-19 vaccine exists, and scientists and medical professionals are still making new discoveries about this strain of the virus.<sup>12</sup>

<sup>12</sup> WHO, [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)



## Global Timeline

**31st December 2019:** The WHO China Country Office was informed of cases of pneumonia unknown etiology (unknown cause) detected in **Wuhan City, Hubei Province of China**. (WHO 22nd January 2020, First situation report).

**7th January 2020:** The Chinese authorities **identified & isolated a new type of coronavirus**

**12th January 2020:** **China** shared the **genetic sequence** of the novel coronavirus for countries to use in developing specific diagnostic kits.

**15th January 2020:** The Ministry of Health, Labour and Welfare (MHLW), **Japan** reported an **imported case** of laboratory-confirmed 2019-novel coronavirus (2019-nCoV) from Wuhan, Hubei Province, China.

**30th January 2020:** **India** reported **first case of COVID-19** in the state of Kerala with travel history to Wuhan.

**11th March 2020:** COVID-19 was declared an **'controllable Pandemic'**.

**17th March 2020:** **all countries of Europe** had confirmed at least one Covid-19 patient.

**20th April 2020:** Some districts in India began a partial exit from the lockdown, the Indian health ministry reported **17,656 cases, 559 deaths, 2,546 recovered and 1 migrated**. Globally, 23,14,621 cases and 1,57,847 deaths recorded, as per the WHO.

**1st January 2020:** The disease **first appeared in Wuhan, China** and was reported by World Health Organization (WHO).

**11th & 12th January 2020:** WHO received further detailed information from the National Health Commission of the PRC that the **outbreak is associated with exposures in one seafood market** in Wuhan City.

**13th January 2020:** the Ministry of Public Health, **Thailand** reported the **first imported case** of lab-confirmed novel coronavirus (2019-nCoV) from Wuhan, Hubei Province, China.

**20th January 2020:** National IHR Focal Point (NFP) for **Republic of Korea** reported the **first case** of novel coronavirus in the Republic of Korea.

**10th March 2020:** **first COVID-19 death in India** reported from **Karnataka**, 76 year old man with travel history to Saudi Arabia.

**13th April 2020:** COVID-19 has spread to **213 countries**, with **18,12,738 confirmed cases** and **1,13,675 deaths**. On the same day, India reported **8,988 active cases & 338 deaths**.

**30th April 2020:** financial and cultural capital of **USA, New York City**, becomes **epicentre** of the epidemic: announces fatalities total more than **18,000**.

**31st May 2020:** COVID-19 has spread to more than **200 countries and territories**, with nearly **6 million confirmed cases** and **3,67,255 deaths**.







# The spread and impact of COVID-19 in India

## The spread and impact of COVID-19 in India

COVID-19 cases in India began to rise after the pandemic had spread across many other countries.

The first case was reported on 30th January, in Kerala's Thrissur district, by a person with travel history to Wuhan, China. Subsequently, several more cases were recorded in the state in February. On 2nd March, cases were reported in Delhi and Hyderabad, and began to be reported across the country. Exponential increase began to become a concern when the first 'surge incident' was marked on 4th March, when 22 new cases were reported (including 14 Italian tourists) in Jaipur. Then, the first 'super spreader' was recorded. From 10th-13th March, a Sikh preacher with travel history to Italy and Germany was traced to 27 cases; 40,000 people were quarantined in 20 villages of Punjab, as a result. Subsequently, the Tablighi Jamaat hotspot emerged, resulting in 14,378 cases (30% of cases recorded till 18th April). Maharashtra saw the swiftest rise, and by the end of April, reported the highest number

of cases. From 32 cases on 15th March to 2,687 cases after a month, it recorded 12,063 cases by 30th April. While cases in Maharashtra grew exponentially, particularly in Mumbai, Sikkim recorded no cases till 23rd May, when some restrictions were eased outside of hotspots. Delhi also recorded a significant number of cases and numerous containment zones by the middle of May.

By 14th April, confirmed cases for all of India crossed 10,000; by the 22nd, this had doubled. By 6th May around 50,000 cases had been recorded; which doubled by the 19th (in less than a fortnight). By 31st May, 1,82,143 confirmed cases of COVID-19 were recorded. At this time, 86,984 had recovered, and 5,164 deaths were reported.

By the end of May, only Daman & Diu and Lakshadweep still recorded no cases.



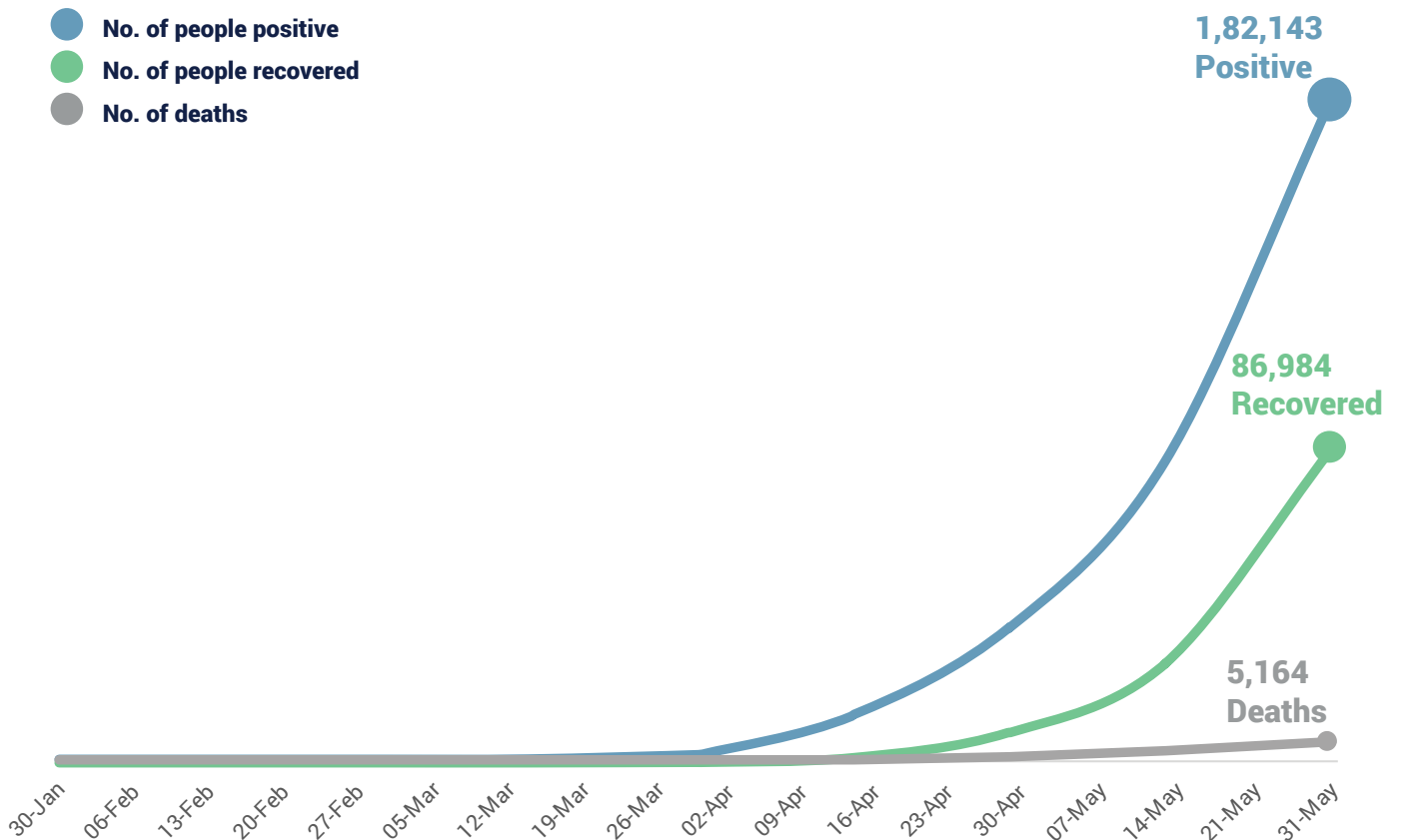




While no one can predict how India will be impacted by COVID-19 ultimately, every measure must be taken to reduce the potential damage the virus will wreak. In anticipation of potentially lifting the lockdown, India continues to monitor the progression of the virus closely.

## Cumulative Cases - Summary

- No. of people positive
- No. of people recovered
- No. of deaths

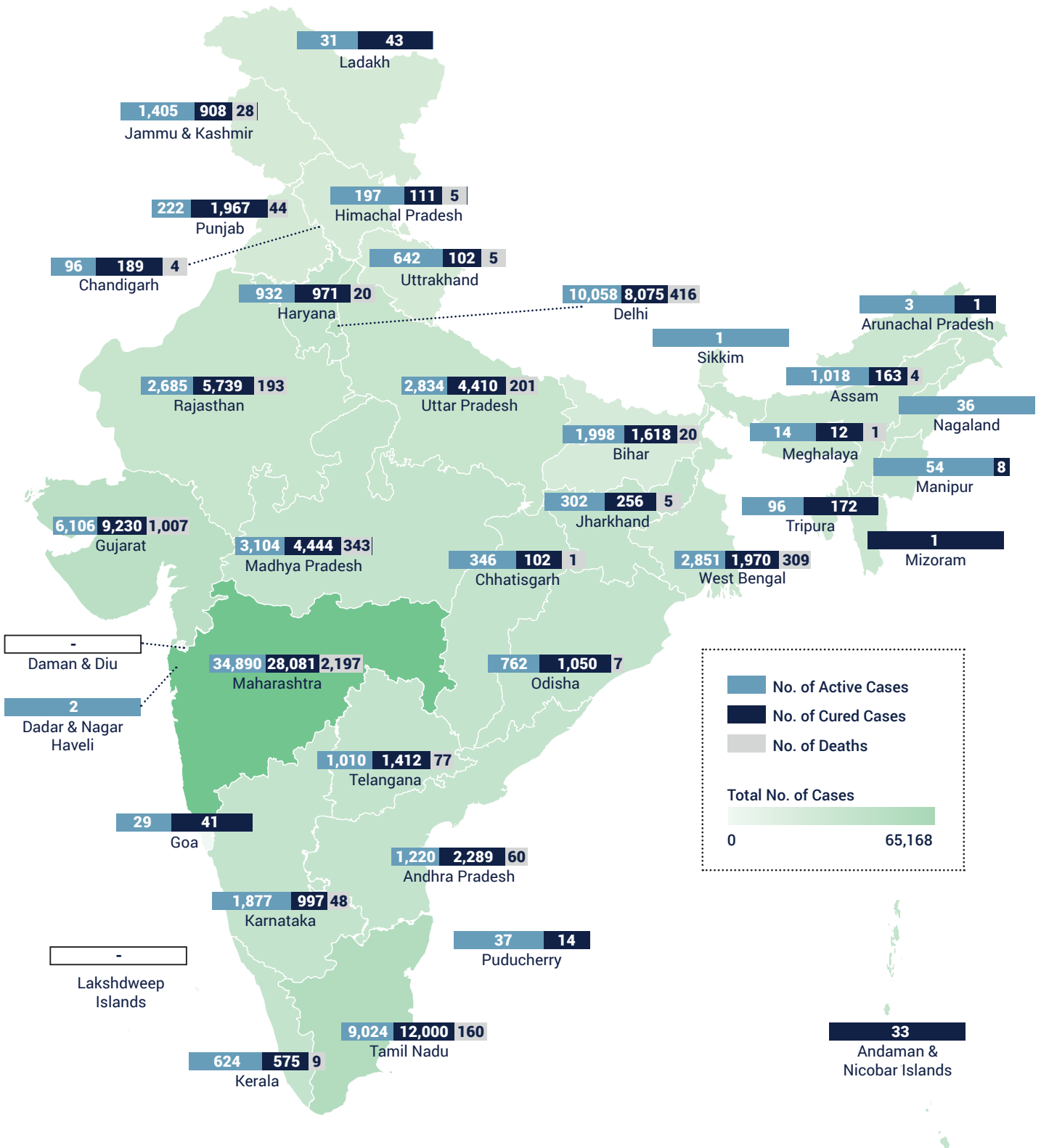




# Overview of COVID-19 Cases

As on 31<sup>st</sup> May, 2020

<b>89,995</b> active	<b>86,984</b> cured	<b>5,164</b> deaths
-------------------------	------------------------	------------------------



**Legend:**

- No. of Active Cases
- No. of Cured Cases
- No. of Deaths

**Total No. of Cases**

0 to 65,168

## Geography of Mortality

The country's first COVID-19 fatality was recorded on **12th March**, when a 76-year-old man with travel history to Saudi Arabia died in Kalburgi, **Karnataka**, testing positive two days after his death.

On **13th March**, a second death was recorded in **Delhi**: a 69-year-old woman with travel history to Italy.

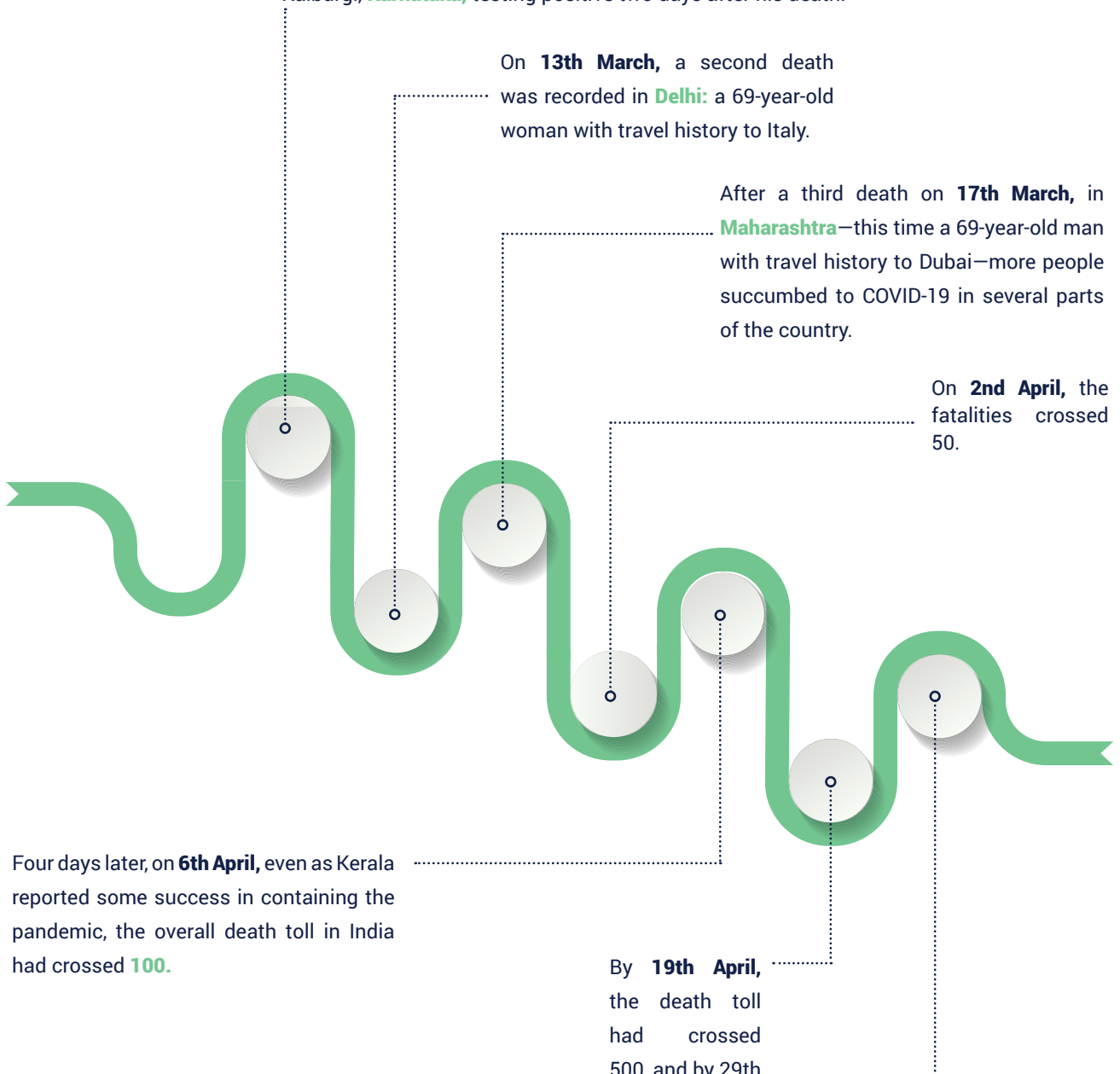
After a third death on **17th March**, in **Maharashtra**—this time a 69-year-old man with travel history to Dubai—more people succumbed to COVID-19 in several parts of the country.

On **2nd April**, the fatalities crossed 50.

Four days later, on **6th April**, even as Kerala reported some success in containing the pandemic, the overall death toll in India had crossed **100**.

By **19th April**, the death toll had crossed 500, and by 29th April, more than **1,000** people had died, across the country.

By the end of **May**, around **5,164 people** had died in the country.





## Who is affected in India?

### Age and sex disaggregated data on infections till date

Till date, as per the Health Ministry, COVID-19 has affected the male population more than the female population, in India. Indian men account for almost three-fifth of cases recorded till May end. This, however, does not necessarily mean that men are more susceptible to the virus than women. It may be a function of the level of exposure to the virus. Of the 1,82,143 confirmed cases of COVID-19 recorded in India till 31st May, men constituted 67.11%, women constituted 32.88% and the third sex accounted for the remaining cases.

The age group of 20-39 recorded the largest number of cases, at 43.15% (44.02% of all affected male, 41.39% of all affected female and 23.08% of all affected third sex).

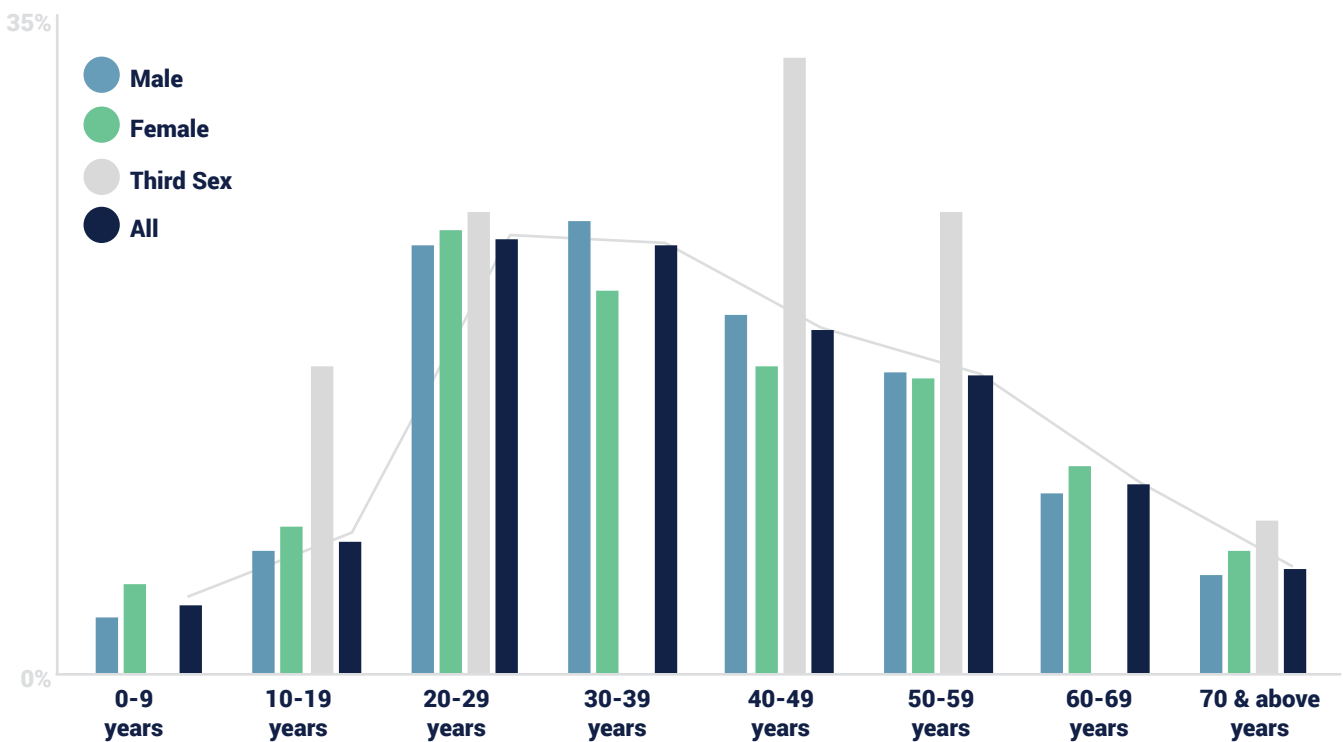
Next, 17.15% fell in the 40-49 category (18.01% of all affected male, 15.39% of all affected female and 30.77% of all affected third sex), and 14.99% (15.09% of all affected male, 14.79% of all affected female and 23.08% of all affected third sex) within the 50-59 category. This section of the population, between 20 and 59, collectively accounted for 75.29 of COVID-19 cases. The age group above 60 years accounted for a further 14.74% (13.86% of all affected male, 16.55% of all affected female and 7.69% of all affected third sex) of total cases. Remaining 9.97% cases (9.02% of all affected male, 11.90% of all affected female and 15.38% of all affected third sex) were below 20 years of age group.

67.11%

Males

32.88%

Females



## What is the pattern of mortality in India?

### Age, sex, comorbidities

Similar gendered trends are observed in the pattern of mortality in the country. As of 31st May, of the total 5,164 deaths in India, men constituted almost 66.13% (two-third) and women constituted 33.87% of deaths till May end. Higher mortality rates were recorded in the older population. Of the total deaths recorded in India till May end, the age group of 50-69 recorded the largest number of deaths, at 54.09% (54.23% of all male and 53.84% of all

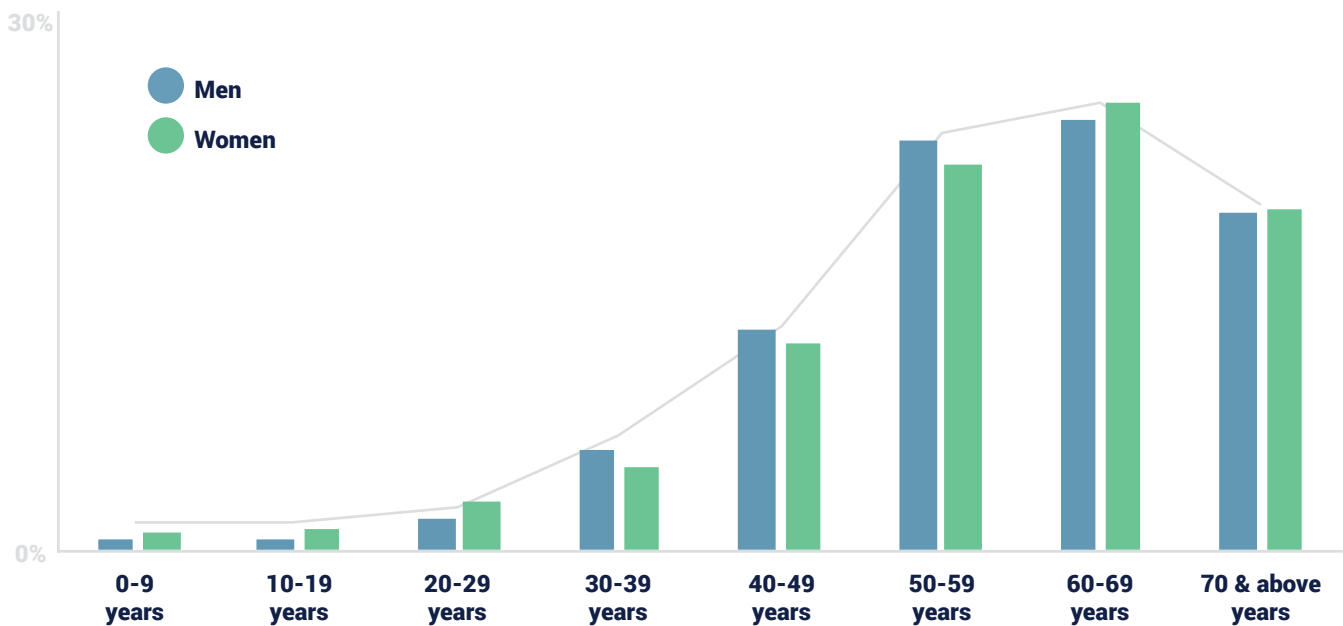
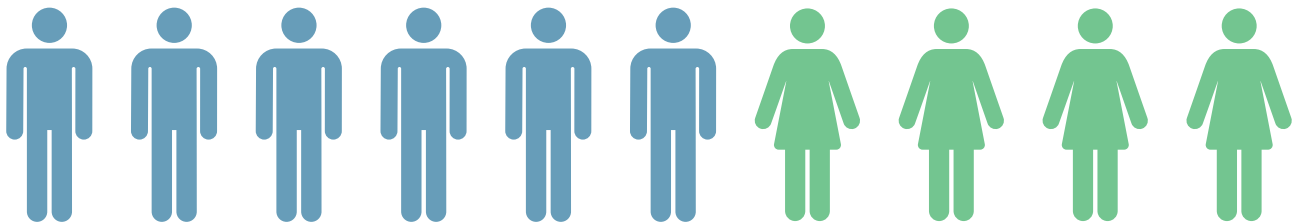
female who have died). Next, 21.93% fell in the above 70 years category (21.87% of all male and 22.04% of all female who have died), and 13.84% (14.13% of all male and 13.27% of all female who have died) fell within the 40-49 category. The age group 30-39 accounted for a further 6.14% (6.53% of all male and 5.37% of all female who have died) and the remaining 4.01% (3.25% of all male and 5.48% of all female who have died) are in the below 30 years age group.

66.13%

Men

33.87%

Women



## Socio-economic impact of COVID-19: disruption of economic sectors; impact on employment & livelihoods



The socio-economic impact of COVID-19 has been considerable. According to the International Labour Organization (ILO), full or partial lockdown measures have affected almost 2.7 billion workers worldwide till date (about 81% of the world's 3.3 billion strong workforce). The ILO report identifies some economic sectors—accommodation and food services, manufacturing, wholesale and retail trade, real estate, and business activities—that are labour intensive and employ millions of often low-paid, low-skilled workers, as amongst the worst affected. As a result, 1.25 billion workers worldwide (38% of the total) are facing a drastic reduction in working hours, wage cuts and layoffs.<sup>13</sup> A high proportion of these informal workers are without access to healthcare and social protection, particularly in low or middle-income countries.

India is no exception. Due to disruption in several economic sectors such as the construction industry, manufacturing units, industrial hubs and the hospitality industry, many workers, including unorganized workers, were directly affected. The well-being of workers in the informal sector,

particularly those who have migrated from rural areas to work in big cities, has emerged as a big concern for the government as well as civil society organizations. The state and central governments initiated direct bank transfers, and worked with civil society organisations in providing basic services, food and nutrition to migrant workers. Many migrant workers faced with uncertainty about their lives and livelihoods in cities wanted to return to their places of origin. The Indian Railways made arrangements for their transport. The state governments established quarantine centres for returning migrant workers and arranged transport to their villages. These measures, as well as lessons learned from this experience, are described in greater detail in the next section and Box 3.

In the formal sectors of the economy, like in the rest of the world, civil aviation, hospitality, and retail sectors have been severely affected. The government is in dialogue with stakeholders in these sectors to devise specific policy response and recovery strategies for these sectors.

<sup>13</sup>ILO Monitor: COVID-19 and the World of Work' (second edition), International Labour Organization, 7th April 2020.





**Evolution of the Indian  
response till date**



## Overview

India recognized the threat posed by COVID-19 early and accordingly responded in a graded manner in tandem with the progression of the pandemic. In the first week of January, the Ministry of Health and Family Welfare started to develop a multi-pronged strategy to prepare the country for dealing with this epidemic. From January onwards, the Cabinet Secretary, through regular meetings with secretaries of concerned ministries/departments, experts and other stakeholders, reviewed the evolving public health situation in China and worldwide and its possible implications for India. On 25th January, under the chairmanship of the Principal Secretary to the Prime Minister, an inter-ministerial meeting was held to take stock of the situation and to prepare all parts of the government—across various ministries and departments—to play a role in mitigating and managing the spread of COVID-19. The Prime Minister's Office (PMO) reviewed the situation and made constructive interventions as and when the need arose. For example, at an early stage, an 'all-of-the-government approach' was introduced. In a meeting held on 4th March 2020 it was impressed upon the Ministries that the Disaster Management Act 2005 envisaged that all Ministries and agencies had a role in response measures in a disaster situation. Another innovative approach was to form eleven Empowered Groups to take up speedy decisions and ensure effective implementation of various response measures, because it was recognized at an early stage that one or two ministries/agencies would not be able to cope with this unprecedented and uncertain situation affecting not only India but the entire world.

In its fight against the pandemic, India faced unique challenges: multiple land, sea and air entry ports including open land borders; large international and domestic tourist footfall; large population with high population density, particularly in urban areas; inadequate public health infrastructure; and socio-economic and cultural practices that require mass gatherings. The Indian response had to take the entirety of society along, with appropriate messaging for different socio-economic, occupational, and linguistic groups. The government began to monitor



international travel towards the end of January, issued travel advisories, imposed restrictions and carried out evacuation of Indians stranded in various countries. In March, large gatherings were curtailed.

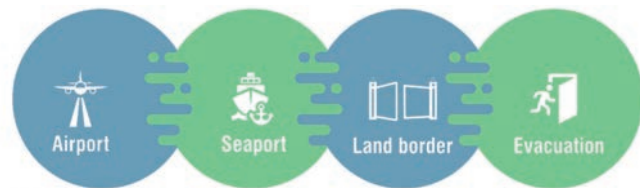
At an early stage, steps were taken to induct eminent experts to analyse possible scenarios and prepare a medical emergency plan, which helped with a systematic and effective response to the crisis. Given the large population, even if a small percentage of infected persons require hospitalisation or critical care, it would overwhelm the country's already stretched healthcare system. This meant that India needed to 'flatten the curve'<sup>14</sup> so as to allow sufficient medical attention for those who contracted COVID-19.

Between January and May, the Indian response to COVID-19 can be roughly described in three overlapping phases: restricting international travel and controlling movement across borders to limit spread of infection (up to the beginning of March); containing the subsequent spread of disease by tracing, testing and isolating primary and secondary contacts of travellers, as well as preparing the country for lockdown measures (up to the third week of March); and, implementing a nationwide lockdown to control the spread of the virus and enable ramping up of health facilities including testing arrangements, availability of critical medical supplies, adequate hospital infrastructure etc.

<sup>14</sup>[T]he idea of slowing a virus' spread so that fewer people need to seek treatment at any given time is known as "flattening the curve", Live Science, <https://www.livescience.com/coronavirus-flatten-the-curve.html>

## The Indian response can be divided into three overlapping phases

Phase 1:  
Controlling the borders to limit infections related to international travel (mid-January to early-March)



The Ministry of Health and Family Welfare (MoHFW) started following the outbreak of COVID-19 in early January, and began to devise the Indian strategic approach by the middle of January. A joint monitoring group under the Director General of Health Services met on 8th and 15th January to take stock of the evolving situation. The early emphasis was on minimizing the risk of spreading the virus, as directly related to international travel.

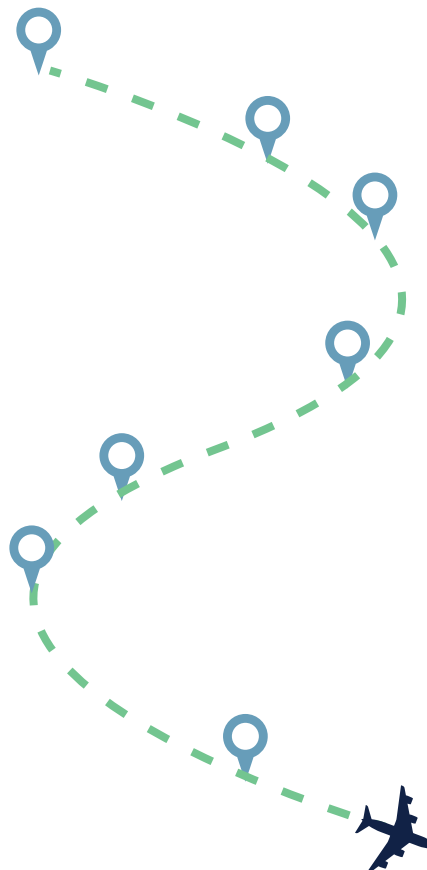
This included screening at the borders, changes in visa procedures for persons coming from certain countries, making arrangements for quarantine as well as community surveillance of incoming travellers and their contacts. On 17th January, MoHFW issued the first travel advisory.<sup>15</sup> On 25th January, MoHFW issued an advisory on contact tracing.<sup>16</sup>

### Government Response for travel and entry

#### Airports

In January, as news of COVID-19 spread, safety measures for the control of the borders began. By January end, major airports started thermal screening and self-declaration of passengers with travel history to China and Hong Kong in the last 14 days. This extended to passengers from Thailand, Singapore, Japan, and Korea by mid-February, and to Nepal, Vietnam, Indonesia and Malaysia by February end. By 3rd March, the government stopped issuing new visit visas, and existing visas to Italy, Iran, South Korea, and Japan were cancelled.

By 11th March, when COVID-19 was declared a 'controllable pandemic', stricter measures began to be considered.



On 13th March, it was announced that incoming travellers, including Indian nationals, who had travelled through or from China, Italy, Iran, the Republic of Korea, France, Spain and Germany after 15th February, had to be quarantined for at least 14 days. This soon extended to the UAE, Qatar, Oman, Kuwait, Afghanistan, the Philippines, Malaysia and beyond.

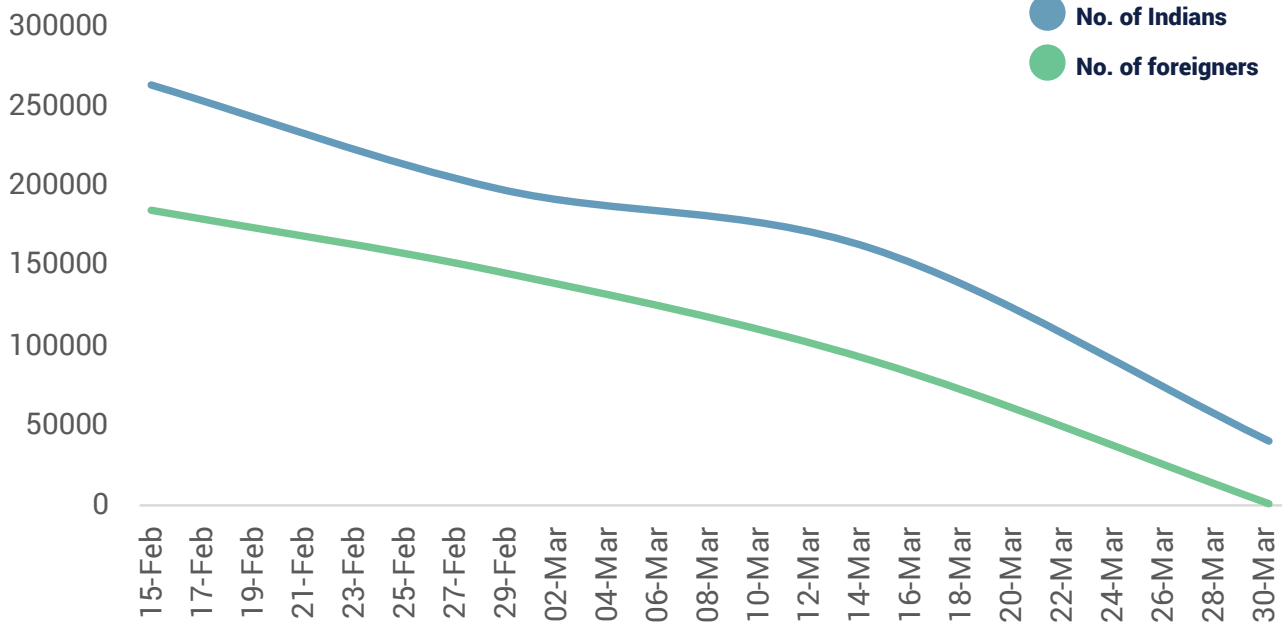
Finally, all international travel was disallowed. The nation-wide closure of flights began around 20th March: except for several repatriation flights relocating tourists or bringing back Indians stranded abroad, no international travel was permitted (while domestic flights have opened up, the international flight ban remained in place at the time this report went to print in July).

<sup>15</sup><https://www.mohfw.gov.in/pdf/TraveladvisorytotravelersvisitingChina17012020.pdf>

<sup>16</sup><https://www.mohfw.gov.in/pdf/Guidance%20document%20-%20202019-nCoV.pdf>



Number of people screened at the airport\*



 630   7691 Afghanistan	 2434   950 China	 8926   5338 Hongkong	 1306   490 Indonesia
 560   1162 Iran	 2709   7158 Japan	 46,605   19,485 Malaysia	 9160   8661 Nepal
 1480   3982 Republic of Korea	 65,810   23,445 Singapore	 65,532   17,838 Thailand	 21,554   37,702 UK
 2367   1727 Vietnam	 577   1016 Austria	 552   538 Denmark	 1195   2616 Finland
 6877   11,468 France	 13,831   19,228 Germany	 3578   3131 Italy	 3251   4472 Netherlands
 936   1800 Poland	 371   506 Spain	 668   527 Sweden	 2038   3576 Switzerland

\* Country-wise figures of Indians and Foreigners screened are as of 15th Feb 2020

## Seaports

By 10th March, restrictions began to be placed on international cruise ships which had visited COVID-19 affected countries, advocating thermal screening and self-declaration health forms.

On 16th March, the Directorate General of Shipping asked all Indian ships to develop a disease outbreak management plan for dealing with COVID-19, taking into consideration the interim guidance issued by WHO. It was also suggested that the hospitals onboard ships be used for isolating suspected cases until they had been disembarked and transferred to a healthcare facility. Adequate protocols were recommended for managing suspected cases on the vessel, including clinical management, cleaning, and disinfection of possible contaminated areas etc. Other recommendations concerned pre-boarding procedures, screening procedures, educating crew on how to recognize the signs and symptoms of the disease, reporting procedures etc. The disinfection of garbage which was landed ashore from vessels was also included in the mandate. All seafarers were asked to avoid availing of shore leave in infected regions, and to quarantine for the standard 14 days once on land.



On 18th March, all incoming passenger traffic at all 107 immigration check posts, which includes all airport ICPs, seaport ICPs, land port ICPs, rail port ICPs and river port ICPs, was prohibited.

On 21st April, the Ministry of Home Affairs included Indian seafarers among those who would need to intimate their travel and contact history for the last 28 days to the ship owner/RPS agency by email, as per procedure laid down by Director General of Shipping (DGS). The seafarer would be examined by a DGS approved medical examiner, as per the advisory, and processed to sign on if found asymptomatic for COVID-19. The local authority in their place of residence would be notified regarding their clearance for sign-on, and for issue of a transit pass, the guidelines added, from the place of residence to the place of embarkation on the shipping vessel. At the port of embarkation, the seafarer would be tested for COVID-19 and ready for sign-on only if the test was negative.

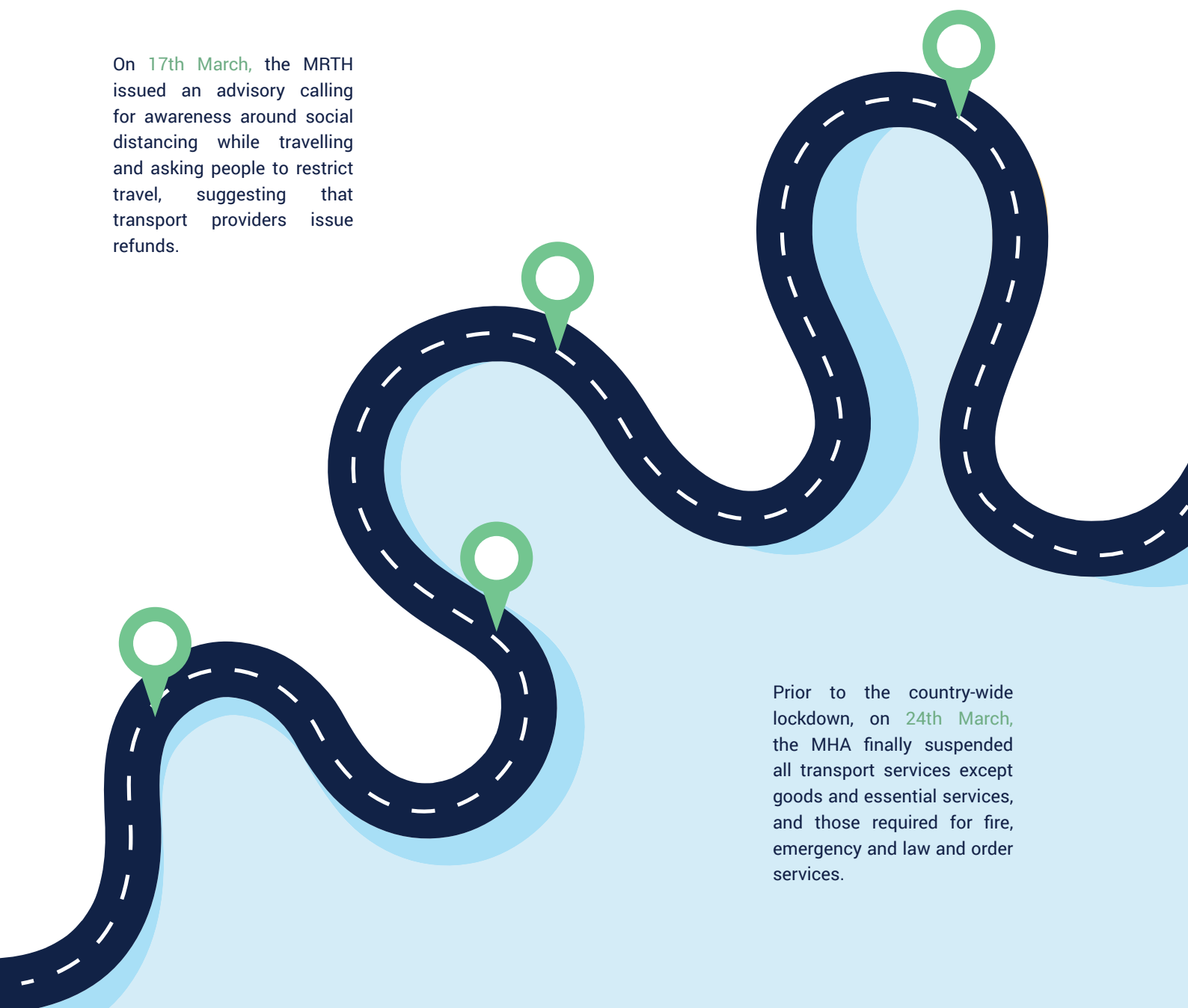
On 3rd April, the Directorate General of Shipping extended the validity of the Ship Sanitation Certificate of all Indian registered vessels operating on the coast of India up to 30th June.

## Land Borders

On 9th March, the Ministry of Road Transport and Highways (MORTH) called for increased hygiene and sanitation of bus interiors, terminals and stops.

On 13th March, the Ministry of Home Affairs' foreigner's division restricted international passenger traffic through land checkpoints in eight northern and north-eastern states from 15th March, in view of the spread of COVID-19. Except for Indian nationals and citizens of Bhutan and Nepal, it suspended passenger movements through land checkpoints and called for intensified health inspections quarantining anyone who was displaying symptoms of COVID-19 or had been to a number of 'outbreak countries'.

On 17th March, the MORTH issued an advisory calling for awareness around social distancing while travelling and asking people to restrict travel, suggesting that transport providers issue refunds.

A decorative graphic of a winding road with four green location pins. The road is dark blue with a dashed white center line, set against a light blue background. Four green location pins are placed at various points along the road's path.

Prior to the country-wide lockdown, on 24th March, the MHA finally suspended all transport services except goods and essential services, and those required for fire, emergency and law and order services.



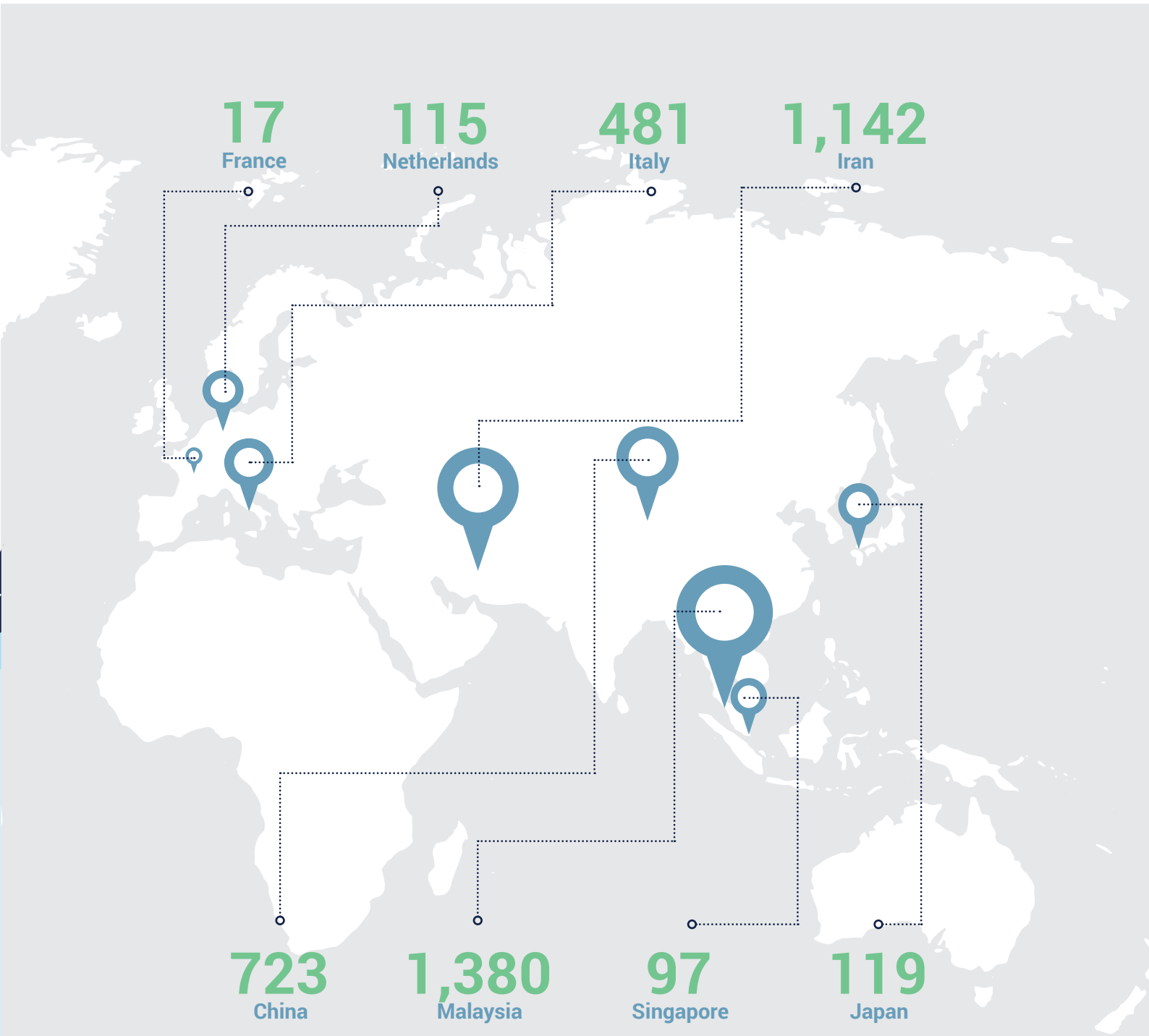
### Early evacuation of Indians from abroad

Early efforts were made to bring Indians stranded abroad to their home country, before May's initiative, the Vande Bharat Mission.

As per the Ministry of External Affairs on 9th April, India had evacuated a total of 2,465 Indian nationals and 48 foreign nationals from the Maldives, Bangladesh, China, Myanmar, South Africa, the US, Sri Lanka, Nepal, Peru, and Madagascar. Of these, 723 Indians (plus 43 non-Indians)

had been evacuated from China; 1,142 from Iran; 119 (plus 5 non-Indians) from Japan; and 481 from Italy.

Additionally, 1,609 Indians stranded in transit were brought home from third countries due to exemptions granted to commercial flights. Of these, 1,380 Indians were brought back while stopping in Malaysia, and the remainder from Amsterdam, Singapore, and Paris.



## Public communications

MoHFW launched an extensive programme of public communications to disseminate information on dos and don'ts related to COVID-19. The Health Minister himself used various channels – broadcast media as well as social media – to garner public support in the fight against COVID-19 and to raise awareness about what people should do to protect themselves and their families. Ringtones across all the mobile phone networks started issuing COVID-19 related advisories in local languages. State governments also devised massive public awareness campaigns. More traditional means – such as loudspeakers installed on garbage collection vans and other public service delivery vehicles – were also used by the state and local governments.

All ministries, from the Ministry of Civil Aviation to the Ministry of Home Affairs, used major channels of communications to keep the public informed.

On 3rd March, the Ministry of Information and Broadcasting reached out to all private satellite news TV channels and all private FM radio channels seeking their

assistance in reaching out to people across the country and disseminating COVID-19 related advisories issued by the MoHFW.

Civil Society Organizations played a key role in the awareness campaign launched across the country, especially in schools, colleges, and public fora about 'dos and don'ts' to prevent possible infection.

The government also used various channels of communication to inform the public about actions being taken for the mitigation and management of COVID-19, to raise public confidence and morale in the fight against COVID-19.

On 4th February, the NDMA advised all States and Union Territories to promote advisories on travel, hygiene and avoiding crowd contact. It suggested enhancing the capacities of isolation facilities in all districts.<sup>17</sup> The NDMA issued further advisories on related aspects including the need to provide psycho-social care and associating with Civil Society Organizations on 5th March and 17th March, before the national lockdown orders were issued.<sup>18</sup>



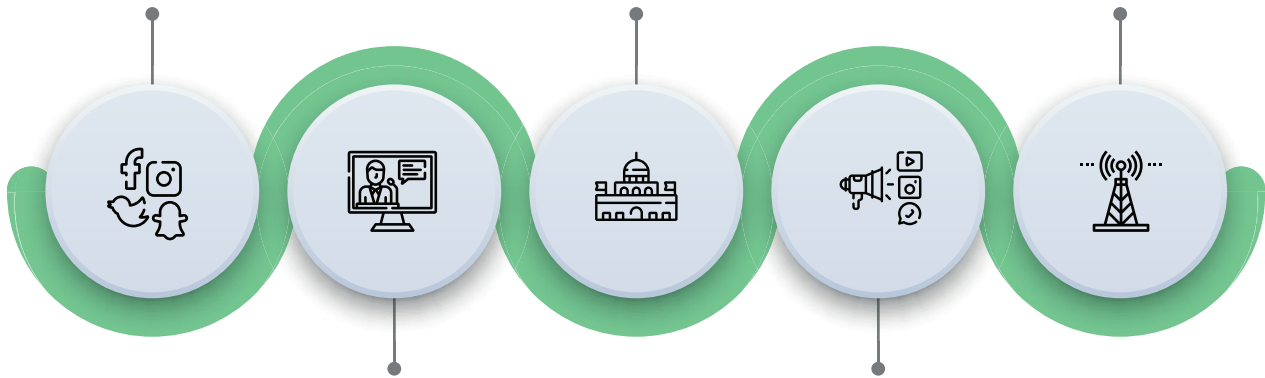
<sup>17</sup>NDMA advisory dated 4th February, 2020 <https://ndma.gov.in/images/covid/04022020.pdf>

<sup>18</sup>NDMA advisory dated 5th March, 2020 <https://ndma.gov.in/images/covid/05032020.pdf> and dated 17th March, 2020 <https://ndma.gov.in/images/covid/17032020.pdf>

The Health Minister himself used various channels – broadcast media as well as social media – to garner public support in the fight against COVID-19

All ministries, from the Ministry of Civil Aviation to the Ministry of Home Affairs, used major channels of communications to keep the public informed.

On **3rd March**, the Ministry of Information and Broadcasting reached out to all private satellite news TV channels and all private FM radio channels



Government & Civil Society Organizations played a key role in the awareness campaign launched across the country,

On **4th February**, the NDMA advised all States and Union Territories to promote advisories on travel, hygiene and avoiding crowd contact.

## Early recognition, early action: role of leadership

The Indian leadership at the highest political and administrative levels recognized the challenge posed by COVID-19 at an early stage. On the instructions of the Prime Minister (PM), on 25th January 2020, the Principal Secretary to the PM chaired a meeting of secretaries from various ministries and departments. There were several other meetings in the following days and weeks to discuss various aspects of management and mitigation of COVID-19. The Prime Minister himself monitored the situation all along. On 3rd March, he undertook an extensive review regarding preparedness for COVID-19. 'Different ministries & states are working together, from screening people arriving in India to providing prompt

medical attention', his official account tweeted that day; 'There is no need to panic. We need to work together, take small yet important measures to ensure self-protection'. PM's messaging throughout continued to sound a note of reassurance, asking India to prepare and not panic; 'Say No to Panic, Say Yes to Precautions'.

While the MoHFW guided the Health Sector response, recognising the broader dimensions of the challenge that lay before the country and the need for a multi-sectoral response, the Cabinet Secretary held regular meetings with concerned ministries/stakeholders from January on.



### Phase 2:

Contain the spread of disease within the country through primary and secondary contacts of travelers (second and third week of March)

Although this phase of COVID-19 response was short, it was critical. It can be viewed as a preparatory phase for the country-wide lockdown. On one hand, it prepared

communities for the lockdown, on the other it included ramping up the capacities of the government on all fronts for dealing with the pandemic.



### Introduction of social distancing measures

In the first week of March, the government issued an advisory against mass gatherings. Soon after this, formal closure of educational establishments (schools, universities etc), gyms, museums, cultural and social centres, swimming pools and cinemas, as well as restrictions on conferences and events were announced. The term “social distancing” entered the public lexicon around the world and in India, by this time.

‘Social distancing is a non-pharmacological infection prevention and control intervention implemented to avoid/decrease contact between those who are infected

with a disease causing pathogen and those who are not, so as to stop or slow down the rate and extent of disease transmission in a community. This eventually leads to decrease in spread, morbidity and mortality due to the disease’, the Ministry of Health and Family Welfare (MoHFW) explained in an advisory published on 16th March.<sup>19</sup> The MoHFW advisory proposed specific measures for educational institutions, restaurants, sporting events, places of worship, hospitals, delivery services and other commercial establishments. In addition, it also encouraged States and Union Territories to prescribe their own social distancing measures as necessary. This was a precursor to more pervasive, large-scale measures that were implemented during the lockdown period.

### The Prime Minister’s call for community mobilisation against COVID-19



On 20th March, the Prime Minister, communicating directly with the people of India, invited them to observe the Janta Curfew on Sunday, 22nd March. This was a 14-hour community-led curfew extending from 7 a.m. to 9 p.m., with a five minute interlude at 5 p.m. for a collective expression of gratitude for the selfless service of frontline health workers. This was an innovative way to raise awareness of the threat posed by COVID-19, mobilise the entire country in the fight against the virus, and effect a practice run for the lockdown, which was to come a few days later. Other parts of the world emulated this innovation of community

mobilisation, communication and awareness generation and adapted it to their context.

During the same week, the Prime Minister also urged people to share technology-driven solutions for COVID-19 on MyGovIndia, the citizen engagement platform of the Government of India. He also announced the creation of ‘COVID-19 Economic Response Task Force’ under the Union Finance Minister, and advised citizens to avoid ‘panic buying’, assuring the availability of essentials.

Recognising COVID-19 as a common challenge for the SAARC nations, the PM called for SAARC nations to chalk out a strong strategy to fight the novel coronavirus, subsequently participating in video conferencing on 15th March and proposing the constitution of a SAARC fund for COVID-19 with an initial contribution of USD 10 million from India.



<sup>19</sup> Advisory – Social Distancing’, 16th March, 2020, <https://www.mohfw.gov.in/pdf/SocialDistancingAdvisorybyMOHFW.pdf>

<b>5th March 2020:</b> Advisory warning against mass gatherings; Govt of Delhi: All schools in Delhi shutdown.	<b>7th March 2020:</b> Schools in Jammu and Shamba districts closed.	<b>9th-10th March 2020:</b> Kerala, Karnataka and other state govts. Closed schools and colleges.	<b>11th March 2020:</b> Announcement of guidelines on use of masks by public and home quarantine.
<b>12th March 2020:</b> Delhi govt. closed all schools, colleges, cinema halls. Karnataka Govt. issued prohibitive order on weddings, party, pubs, malls etc.	<b>16th March 2020:</b> MoHFW advisory: Formal closure of educational establishments (schools, universities etc), gyms, museums, cultural and social centres, swimming pools and cinemas, as well as restrictions on conferences and events and guidelines advocating 1 metre distance between customers at commercial establishments.	<b>17th March 2020:</b> All visa suspended other than diplomatic and official visa. Indians returning from Covid-19 affected area were asked to self-quarantine.	
<b>20th March 2020:</b> Janta Curfew for 14 hours Announced COVID-19 Economic Response Taskforce formed.	<b>20th-24th March 2020:</b> Prohibitive orders in different states for most of the public spaces.	<b>22th March 2020:</b> 14 hours of Janta Curfew (first in India).	<b>24th March 2020:</b> 21-day lockdown announced - Phase 1.
<b>14th April 2020:</b> Phase 2: Lockdown extended, with some relaxation (selective restrictions) for unaffected areas, till 3rd May.	<b>4th May 2020:</b> Lockdown Phase 3 till 17th May with some relaxations for emergency transport movement and essential services in affected areas.	<b>17th May 2020:</b> Extension of nationwide lockdown till 31st May.	<b>31st May 2020:</b> End of Phase 4 lockdown and phased re-opening of unaffected areas with announcement of Unlock 1.

### Early successes in containing the spread

During this phase, the response also began to focus on areas where hotspots were emerging. Certain areas were identified as containment zones and were monitored closely.

An early success story was that of Bhilwara, Rajasthan, which reported 26 cases by 30th March (17 of them medical professionals). The town contained a potential outbreak by April, through a "ruthless containment" strategy, timely action, comprehensive screening and strict enforcement of curfew and lockdown restrictions'.<sup>20</sup> Similar successes were reported from other parts of the country such as Agra, Uttar Pradesh where after six patient

tested positive in early March, the administration took a proactive approach characterised by door-to-door surveys, identification of infected cases, and strict quarantine measures. In Kerala, a community-based strategy involving a three-member committee – medical doctor, ASHA worker and Anganwadi worker – under the overall leadership of Gram Panchayats undertook close monitoring of persons under home quarantine.

### Scaling up of public communications

In addition to several major announcements by the Prime Minister, especially those leading up to the nationwide lockdown, state governments were asked to issue advisories. These requested senior citizens and children

<sup>20</sup> 'Delhi has tested a higher proportion of its population than any other state', 17th April, 2020, <https://www.indiatoday.in/india/story/bhilwaras-ruthless-containment-to-contain-coronavirus-model-centre-wants-other-cities-to-learn-1664111-2020-04-07>



below the age of 10 to stay home, and enforced work from home for the private sector except for those working in emergency or essential services.

In some places, the police used their own unique forms of

communication to convey the urgency of practicing social distancing and wearing protective masks, to prevent the spread of COVID-19 – from wearing coronavirus headgear in Chennai to dance performances, urging caution.

**Senior citizens and children below the age of 10 requested to stay home**

**Enforced work from home for private sector except for emergency or essential services**

**Police used own communication from wearing coronavirus headgear to dance performances**

### Phase 3:

## Nationwide lockdown to contain local/ community transmission (25th March – 31st May)

Recognising the magnitude of the problem and the risk posed by COVID-19 to India's 1.38 billion people, the government, for the first time, invoked the relevant provisions of the Disaster Management Act, 2005 to implement a countrywide lockdown from 25th March onwards. While some of the social distancing measures were already in place, it was felt that more stringent and expansive social distancing measures needed to be implemented for a further period so as to effectively contain the spread of COVID-19. All socio-economic activities were suspended except what were deemed essential services, such as those performed by medical workers, telecom service providers, public utilities, grocery stores, some delivery workers and media personnel.

Keeping India's 1.38 billion people at home was a unique challenge, posing significant socioeconomic and cultural difficulties. Guidelines were issued to implement the lockdown measures. In response to specific feedback from the ground, these guidelines were modified on 25th March, 27th March, 2nd April, 3rd April, 10th April and thereafter, to ensure smooth flow of essential supplies, delivery of basic services, and inter-state and intra-state transportation of goods while ensuring the effectiveness of lockdown measures. The government moved to secure the availability of essential commodities early on, invoking the provisions of the Essential Commodities (EC) Act 1955 on 8th April, fixing stock limits, capping prices, enhancing production, calling for the inspection of accounts of dealers and other such actions.<sup>21</sup> On 10th April, states and UTs

were directed to ensure strict compliance measures and not allow any social/ religious gatherings or processions.<sup>22</sup> Lockdown was further extended and guidelines issued from time to time with graded opening of activities outside the containment zones. Effective from 1st June, Unlock1 guidelines were issued, allowing the opening up of more activities and limiting the lockdown to containment zones.

Lockdown measures in India impacted informal labourers and migrant workers in certain urban areas such as Delhi and Mumbai significantly. Many of them wanted to return to their homes in rural areas.<sup>23</sup> The government directed states to provide medical facilities, food, drinking water and sanitation for migrant workers at relief camps/shelters across the country, as well as trained counsellors and/or community group leaders of all faiths.<sup>24</sup> Comprehensive steps were taken to cater to the needs of informal workers (see Box 3).

The main purpose of implementing the lockdown measures was to disrupt the chain of transmission and slow the spread of COVID-19 in the country. At the same time, the lockdown was meant to provide additional time to ramp up capacities at all levels for a pharmacological response. The lockdown affected all aspects of life in the country. Managing the lockdown, ensuring that the needs of the most vulnerable were met during the lockdown, and using the time to ramp up medical capacities required an all-of-society and all-of-government approach.

<sup>21</sup>MHA writes to States to ensure availability of essential goods, by invoking provisions of the Essential Commodities (EC) Act 1955, under Lockdown to fight COVID-19, 8th April, 2020, <https://www.mha.gov.in/sites/default/files/Invoking%20provisions%20of%20Essential%20Commodities%20%28EC%29%20Act%201955.pdf>

<sup>22</sup>MHA directs all States/UTs to ensure strict compliance of lockdown measures to fight COVID-19 and not allow any social/religious gathering/procession', 10th April, 2020, [https://www.mha.gov.in/sites/default/files/Religiousfunctionsfestivals\\_10042020.pdf](https://www.mha.gov.in/sites/default/files/Religiousfunctionsfestivals_10042020.pdf)

<sup>23</sup>ILO Monitor: COVID-19 and the World of Work' (second edition), International Labour Organization, 7th April, 2020

<sup>24</sup>MHA writes to all States/ UTs to ensure compliance of Supreme Court directions on Welfare of Migrant Labourers housed at Relief Shelters/Camps', 12th April, 2020, [https://www.mha.gov.in/sites/default/files/HSLettertoStatesRedressalofgrievancesofmigrantlabourersinReliefShelters\\_12042020.pdf](https://www.mha.gov.in/sites/default/files/HSLettertoStatesRedressalofgrievancesofmigrantlabourersinReliefShelters_12042020.pdf)

## Government's policy response for managing the effects of lockdown

The government, in an unprecedented move in the history of disaster management in the country, constituted eleven Empowered Groups of officers, each dealing with a specific set of issues, and led by at least a Secretary rank officer from the relevant ministry or department. Members of each Empowered Group were drawn from various ministries and agencies. These groups were empowered to identify problem areas and provide effective solutions. Their brief was to 'delineate policy, formulate plans, strategize operations and take all necessary steps for effective and time-bound implementation of these plans/policies/strategies/decisions in their respective areas'. The Empowered Groups were encouraged to work across the system, work closely with the states, think creatively, reach out proactively to other Groups and adopt a problem solving approach in fulfilling their mandate.

The eleven groups were as follows:

1. Medical Emergency Management Planning
2. Availability of Hospitals, Isolation and Quarantine Facilities, Disease Surveillance and Testing and Critical Care Training
3. Ensuring Availability of Essential Medical Equipment such as PPE, Masks, Gloves and Ventilators; Production, Procurement, Import & Distribution
4. Augmenting Human Resources & Capacity Building
5. Facilitating supply chain and logistics management for availability of necessary items such as food and medicines
6. Coordination with civil society, private sector and international organisations
7. Economic and welfare measures
8. Information, communication and public awareness
9. Technology and data management
10. Public grievances and suggestions
11. Overall strategic issues relating to lockdown

Following are snapshots of outcomes of this approach:

### Medical equipment and supplies

The lockdown was intended to slow the spread of Coronavirus. It was imperative that the 'additional time' offered by the lockdown was used efficiently to ramp up the capacity of the health system to deal with impending challenges. This was an enormous task, where the entire end-to-end value chain had to be established to scale up

the capacities exponentially, not just incrementally. This required not just coordination by the government but also the entrepreneurial spirit of the industry, ingenuity of scientific and technical institutions and efficiency of standard setting organisations. Following are some of the results:

- **PPE Kits:** At the beginning of the crisis, India imported PPE kits. In three months, India became a net exporter of PPE kits. Over this period, India has set up an end-to-end system for the production of PPE kits: the manufacturing of technical textiles, testing facilities, development of Indian Standards for 'Coverall for COVID-19' (namely IS 174323, a certification system), and a procurement and delivery system. The country's combined daily production capacity stands at 500,000 PPE kits per day. What is practically a whole new industry of PPE production has been created.


- **N95 Masks:** In February, the production of N95 masks in the country was negligible. Now, the N95 masks production capacity is nearing 500,000 per day. Here again a whole system – from lab to factory – has been set up.


- **Ventilators:** Before the onset of the crisis, India depended on imports to meet the requirement of ventilators. The projected requirement for managing COVID-19 was 75,000. The government worked closely with private sector players – such as medical equipment manufacturers Skanaray and Agva, automobile makers like Maruti and Mahindra & Mahindra, and many other industrial units – and mobilized the research and development capacities of organisations such as DRDO to promote the indigenous manufacturing of ventilators with minimum dependence on imported spare parts. At present, in the context of nearly 61,000 orders for ventilators, domestic manufacturers are fulfilling 97% of demand.


- **Diagnostic kits:** India imported testing kits for COVID-19; even the product value chain for polymer swabs was import dependent. The lockdown in India and other parts of the world disrupted these supply chains, however. In the face of rising global demand for testing kits, the country faced not only delayed delivery of kits but also



issues with their quality. The Department of Health Research and ICMR worked closely with the domestic players to start manufacturing testing kits in India. Now almost all components of the diagnostic kits are being made in India: 100% of the demand for 400,000 Viral Transport Media kits is being fulfilled by domestic manufacturers at half the earlier unit cost; the country is producing 200,000 swabs every day at one-tenth the earlier cost; the RNA Extraction Kits, which were earlier the weakest link in testing and were all imported, are not only being produced in the country to fulfill 95% of the demand but are also of better quality; the RT-PCR kits, where procurement was 100% from abroad, are being produced in the country and domestic manufacturers are meeting 50% of demand even though the demand is exponentially higher when compared to three months ago.

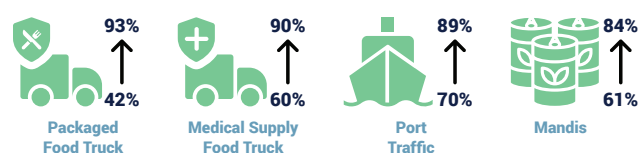
### Human Resources and Capacity Development

Doctors, nurses, ward boys, sample collectors, lab technicians, cleaners of health facilities, managers of health facilities and a range of professionals and volunteers – in clinical and non-clinical settings – are on the frontlines of COVID-19 response. The Government has prepared a master database of healthcare professionals and volunteers, which has 15.9 million records, under 57 different categories. The States, Union Territories, and district administration use this database to plan their human resource deployment in the context of COVID-19 response. The management of COVID-19 requires that a certain set of new skills and knowledge be imparted to professionals and volunteers. For this, the government has set up an Integrated Government Online Training (iGOT) portal, which offers 55 specific training courses in 11 regional languages besides Hindi and English.

### Management of Supply Chain and Logistics of Essential items

Ensuring that fruits, vegetables, milk, food grains, medicines, and other essential items were readily available for 1.38 billion people across the length and breadth of the country, throughout the lockdown, was a mammoth task. The country witnessed unprecedented coordination between the central government, the states, the industry stakeholders and transporters. This included collaborative policy formulation as well as on-the-ground troubleshooting by the concerned ministries and departments at the national and state levels. The outcome of this effort was

impressive. When we compare and contrast the situation in the first week of the lockdown (30 March) and towards the last week of lockdown (3 June): the proportion of packaged food trucks operational rose from 42% to 93%; trucks with medical supplies from 60% to 95%; port traffic from 70% to 89%; and mandis from 61% to 84%. By 3rd June, 73% Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) distribution centres were fully operational.



These efforts included careful planning and coordination as well as swift response to feedback from the ground. For example, to ease the movement of trucks, the driving license of the driver was considered a permit for movement. More than 2,700 dhabas and 2,100 repair shops were kept open to serve the truckdrivers. Even the far-off corners of the country – such as the remote districts of the Northeast or hill states – were well-served. Despite the lockdown, the country witnessed increased procurement of wheat in 2020.

While commercial air traffic was suspended during the lockdown, the Ministry of Civil Aviation in coordination with state governments, operated lifeline flights – UDAN – for transporting essential medical supplies and testing.

Overall, management of the supply chains during the lockdown is a success story that needs to be studied, codified, and emulated in similar situations.

### Mobilizing the private sector, the civil society organisations, and the international organisations

The government proactively reached out to a range of private sector players – MSMEs, e-commerce companies, tourism and hospitality, aviation, manufacturing units, retailers association, and chambers of commerce – to address their concerns and seek their support in responding to COVID-19. Frequent and open dialogue with these actors helped the government fine tune its policy response to COVID-19 so as to minimize the negative impact of the lockdown. The government reached out to 92,000 NGOs and mobilized their support in assisting the local administration in awareness generation campaigns, supporting vulnerable groups, and providing psychosocial care. The government engaged with international organisations to seek their views and inputs on different aspects of the response and to access global best practices.



## Box 2: Testing

An appropriate testing strategy is key to controlling the spread of COVID-19. When a person tests positive for COVID-19, everyone who has come into contact - and has thus possibly been exposed to the virus - needs to be identified, quarantined, and, as required, tested. This strategy can disrupt the chain of transmission and help contain the spread of the disease. Testing can also be part of a plan to ease lockdown measures or to apply them more rigorously in certain locations. It must be followed by specific actions – isolation, treatment, contact tracing, and quarantine of the contacts. The entire public health system should be geared towards implementing those actions.

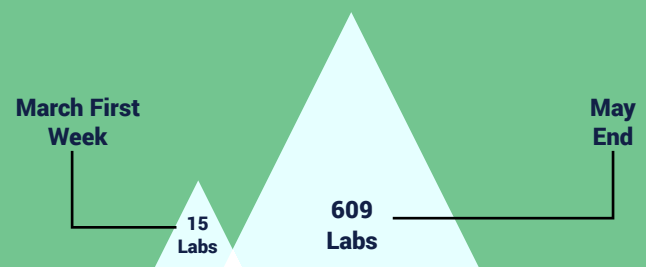
Testing strategy needs to be appropriate for the context. One of the key benchmarks which are often cited is the number of tests per million people. There is a large variation across different countries in this regard. For example, on the higher end of the spectrum, South Korea conducted more than 22,000 tests per million. For a large country like India, an approach that aims to achieve this level of testing at the same time across the entire country, irrespective of the stage of the pandemic, would be neither practical nor useful. Conducting testing levels similar to South Korea would mean conducting 29 million tests, which is more than the population of 145 countries of the world, and would consume a very large proportion of the global testing capacity.

India evolved its own risk-based, geographically targeted, testing strategy that was in sync with this phase of the pandemic and worked within the constraints of testing capacity and related supply chain issues. Some of these constraints were overcome rapidly and the testing rate was ramped up exponentially over three months beginning in March. Systems were put in place for managing data emerging from the tests so that appropriate trend analyses could be undertaken at the district, state and national levels.

In the first phase, lasting up to the end of March, the strategy pursued by the ICMR focussed on testing related to travel and local transmission. This included testing symptomatic individuals who had undertaken international travel in the last 14 days as well as symptomatic contacts of laboratory confirmed cases and healthcare workers, and hospitalized

patients with Severe Acute Respiratory Illness (fever AND cough and/or shortness of breath), plus asymptomatic direct and high-risk contacts of a confirmed case, to be tested once between day 5 and day 14 of contact with a hotspot or cluster. The testing criteria was gradually expanded. Besides persons with symptomatic Influenza Like Illness (ILI-fever, cough, sore throat, runny nose), testing was extended to frontline healthcare workers, sanitation workers, police personnel, migrants, vegetable vendors, drivers, cleaners, pharmacists, security staff, etc.

In the first week of March, only 15 laboratories were testing for COVID-19. By the end of March, India had a total of 106 Virus Research & Diagnostic Laboratories (VRDLs). As the requirement for testing grew, private labs were roped in. By end May, India had a total of 609 labs (431 public, 178 private) and still more labs were being set up. By June end, the number of labs had reached four digits.



At the beginning of March, only a few hundred tests were being conducted every day. By the end of May, the country was testing nearly 140,000 samples every day. In the public sector, capacities of a variety of scientific and technical institutions including NCDC, DBT and CSIR were mobilised to scale testing capacities. In order to develop testing in districts with no modern virology laboratories, many states have been working with National Tuberculosis Elimination Programme (NTEP) to deploy TrueNAT machines for COVID-19 testing.

As different parts of the country move through different stages of the pandemic, India will need to continually evolve its testing strategy. The ICMR and Department of Health are also working towards expanding and diversifying the testing capacity to include rapid testing methods and pool testing. In addition to viral tests to detect current infections, antibody tests to identify previous infections, are also being carried out.

## Research on COVID-19

In addition to the diagnosis, by the end of February, ICMR had isolated and sequenced the SARS-Cov2 virus and the scientists at ICMR were engaged in planning research studies to give insights into the virus, the disease, and its prevention and management. The ICMR was also collaborating with other science and research agencies (DST, DBT, CSIR, DRDO, DAE, ICAR) for developing research solutions to the COVID-19 situation. Internationally, ICMR also decided to collaborate with the World Health Organization for public health emergency Solidarity Trial – an international randomised trial of additional treatments for COVID-19 in hospitalised patients.<sup>25</sup> Under the leadership of the Office of the Principal Scientific Advisor (PSA), India's approach to COVID-19 related research and applications has been multi-disciplinary. The PSA's Office has not only brought together expertise from across public and private institutions in India but has also established crucial linkages with state-of-the-art institutions across the world.

## The Government's Fiscal and Monetary Measures, including support to vulnerable groups<sup>26</sup>

Fiscal and monetary measures offering support to vulnerable groups have included direct and indirect tax measures. Also, employment-related measures such as frontloading the first instalment of the direct benefit transfer, which pays farmers INR 6000 through the PM-KISAN minimum income support scheme, benefits 86.9 million of them immediately. Under the Pradhan Mantri Garib Kalyan Anna Yojana food scheme, which covers two thirds of the population, citizens were allocated five kilos of wheat and rice for free in addition to the current five kilo allocation for the next three months, as well as one kilo of a pulse of choice, based on regional preference.<sup>27</sup> Additionally, 200 million woman Jan Dhan account holders were allotted an ex-gratia amount of INR 500 per month for

the next three months, and women in 83 million families below the poverty line covered under Ujwala scheme were allocated free LPG cylinders for three months.

For 630,000 Self-help Groups (SHGs) aiding 70 million households, the government doubled collateral-free loans to Rs 200,000. State governments were directed to use the welfare fund for building and construction workers, and the District Mineral Fund, worth about INR 310 billion, was allocated for those facing economic disruption because of the lockdown. On the organized worker front, the Employees Provident Fund Organization (EPFO) announced that contributing employees could withdraw up to 75 percent of the account balance or 3 months' basic salary and dearness allowance, whichever was lower. For those establishments employing up to 100 people, 90 percent of whom earn up to INR 15,000 per month, the government announced that it would pay the EPF contribution of both employer and employee (12 per cent each) for April to June 2020. Additionally, EPFO extended the due date for the contribution for wage month of March 2020 by a month, moving it to 15th May 2020.

Some immigration regulations were also relaxed, due to the crisis. As per the circular issued by the Ministry of External Affairs, the exit of foreign nationals stranded in India during the COVID-19 crisis (with visas expiring between 1st February and 30th March 2020) was granted without levy of overstay penalty.<sup>28</sup>

Economic stimulus measures took the form of free ATM transactions, reduced bank charges for digital trade transactions, an increased threshold of default to INR 10 million, among other relief measures applying to liquidity and repayment of loans (a three month moratorium on loans outstanding as of 1st March, 2020).

Importantly, medical equipment necessary for dealing with COVID-19, such as ventilators and COVID-19 testing kits, were exempted from customs duty and health cess (from 9th April – 30th September 2020).

<sup>25</sup>ICMR Scales Up Its Capacity to Fight COVID-19, Indian Council of Medical Research, 6th April, 2020, [https://main.icmr.nic.in/sites/default/files/press\\_release\\_files/Press\\_Brief\\_6April2020.pdf](https://main.icmr.nic.in/sites/default/files/press_release_files/Press_Brief_6April2020.pdf)

<sup>26</sup>Information for this section is taken from KPMG's overview of government and institution measures in response to COVID-19, April, 2020, <https://home.kpmg/xx/en/home/insights/2020/04/india-government-and-institution-measures-in-response-to-covid.html>

<sup>27</sup>Distributed through the Public Distribution Scheme (PDS) and availed of in two installments.

<sup>28</sup>They were granted automatic extensions till 30th April following an online application. All these changes were extended till 3rd May 2020, and applicable for up to two weeks beyond this date.

### Box 3: Challenges faced by informal workers and the government's response

Soon after the lockdown began on 25 March, many migrant workers in some major urban centres – such as Delhi, Mumbai, and Hyderabad – felt uncertain about their livelihoods; they began to move back to their home states. The government issued instructions to employers to pay salaries for two months and also to house owners not to collect rent for one month, which was extended for another month. Despite these measures and assurances from the administration that arrangements would be made – such as provision of food, shelter, cash grants – to alleviate distress caused by the lockdown, many wanted to be home with their families during the lockdown. The full magnitude of the challenge they posed became clear within a couple of days of the announcement of the lockdown: when thousands of migrant workers came to bus stations in search of transport. Some decided to set out on foot. Images of large numbers of people – women, children and the elderly – walking on the highways caused huge concern within both the government and the civil society.

Steps were taken to establish in-situ relief camps in states – some along the highways – with provision of food, water and sanitation, and measures for social distancing. It was also stipulated that migrant people, reaching their home states/ home towns, must be kept in the nearest quarantine for a minimum period of 14 days. On 28th March, the Central Government allowed the use of State Disaster Response Fund (SDRF) for the implementation of these measures. The Central Government released, in advance, an amount of Rs 11,092 crores of SDRF funds to all States. These measures, undertaken in the last week of March and early April, alleviated the distress of migrant workers to a large extent.

After the lockdown was extended in mid April, intra-state movement of migrant workers was allowed to work places on 19th April; ten days later, inter-state movement of migrant workers was allowed by buses following a Standard Operating Procedure to ensure health safety. From 1st May, the inter-state movement of migrant workers was allowed by trains. The NDMA established a GIS dashboard to facilitate coordination between the states sending the migrant workers and states receiving them. The Central Government set up helplines for the migrant workers. Between 2nd and 18th May alone, 22,568 calls were received with respect to 213,330 stranded migrant workers. MHA also coordinated the movement of migrant workers through special Shramik trains. Between 1st May 2020 to 21st June 2020, Indian Railways ran 4,550 Shramik trains and carried 62.15 lakh workers from all over the country to their native states. In addition, more than 41 lakh workers moved through road transport.

The movement of migrant workers in the wake of COVID-19 represented a huge challenge – first of all for the affected people themselves but also for the local administration, state governments, central government as well as for the civil society organisations and the industry. There are many lessons to be learned with regards to planning, coordination and communication that need to be carefully analysed and imbibed. Looking ahead, the reverse migration also represents opportunities for rural areas, where new opportunities for employment can help local development and economic growth. State governments and the central government are making concerted efforts in this regard.





## Use of technology: Aarogya Setu app

The Aarogya Setu app, launched on 1st April, is a mobile application developed by the Government of India to connect essential health services with the people of India in the fight against COVID-19. Available in 12 languages and with more than 60,000 followers on Twitter, as of 26th May, the Aarogya Setu app had over 114 million users as per the Ministry of Electronics and Information Technology.<sup>30</sup> The key pillars of Aarogya Setu have been transparency, privacy and security. In line with India's policy on Open Source Software, the source code of Aarogya Setu has now been made open source. Aarogya Setu was embraced by the industry and private sector establishments as well. It is now one of the key tools by which businesses assess the risk to individuals. Aarogya Setu app coupled with ITIHAS system has also been used for hotspot/cluster projections.

Besides the Aarogya Setu app, the government provided digital technology back up for streamlining testing sample collection and reporting procedure. Technological solutions were also implemented for geographically targeted messaging, geofencing of quarantined persons, hotspot forecasting and disease surveillance.



## Public communications

Timely and reliable public communications is the cornerstone of any disaster response. Over the lockdown period in April and May, the government provided information through 86 media briefings, 71 dedicated COVID-19 bulletins, and 1,838 press releases. Press briefings provided a daily update on action taken on all fronts through the relevant Ministry/Department representatives and also provided a platform to the Empowered Groups to highlight the work done in their respective areas. In order to contain the spread of mis-information, the government set up a dedicated Fact Check Unit, which replied to or countered more than 5,700 cases over April and May.

The government made extensive use of the broadcast media, through tailor-made programmes, for raising public awareness on dos and don'ts related to COVID-19. The government's Twitter handles also disseminated myth-busters, fact checks, live telecasts, success stories, people's initiatives and hashtag campaigns. The public broadcaster re-ran popular shows of yesteryears to provide at-home entertainment during the lockdown. There was an innovative use of animation, short films, infographics, posters, and banners. Additionally, the role of corona warriors, and the role of frontline workers (ASHA, ANMs, teachers, Swachhagrahis, etc) was highlighted through the print and broadcast media.



'COVID India Seva', an interactive platform harnessing Twitter to aim for direct, real-time channel of communication between citizens and the government during the pandemic, was also launched in April.

<sup>30</sup> 'Aarogya Setu is now open source', Ministry of Electronics & Information Technology dated 26th May 2020, [https://static.mygov.in/rest/s3fs-public/mygov\\_159050700051307401.pdf](https://static.mygov.in/rest/s3fs-public/mygov_159050700051307401.pdf)



### Prime Minister's direct outreach

Throughout, the Prime Minister maintained direct communication with the people of India, Chief Ministers of all states and different segments of society, as well as his counterparts in other countries. During these interactions, he communicated about government actions and also invited new ideas, listened to emerging concerns on the ground, and encouraging people to be an active participant in the fight against COVID-19.

On 24th March, in his second address to the nation, while announcing the first lockdown, he reminded the public: *'You have to remember that Jaan hai toh Jahaan hai.'* He emphasized: *'this crisis has especially brought on a very difficult time for the poor. Along with the Central and State Governments, social organisations and people from civil society are continuously striving to reduce the problems of the poor. Several people are coming together in their efforts to help the poor.'*

On 26th March, at the Virtual G20 Leaders' Summit, when G20 countries committed to inject over USD 5 trillion into the global economy to counter the social and economic impact of COVID-19, the PM noted the alarming social and economic cost of the pandemic. He called on leaders to help usher in a new globalization, for the collective wellbeing of humankind. On the same day, the government announced a financial package of INR 1.7 lakh crores focusing on emergency cash transfers for the poor and including a three month free supply of food grains, pulses and gas under the Pradhan Mantri Garib Kalyan Yojana, to support them due to the unemployment arising out of the COVID-19 lockdown.

On 11th April, while interacting with all chief ministers via video conferencing to extend the lockdown by two weeks, the PM marked a change in strategy, saying, *'Our mantra earlier was 'jaan hai to jahaan hai' but now is 'jaan bhi jahaan bhii'.*

On 14th April, the PM's fourth address to the nation in four weeks marked the extension of lockdown in India till 3rd May. *'It is only because of your restraint, penance and sacrifice that, India has so far been able to avert the harm caused by corona to a large extent. You have endured immense suffering to save your country, save your India,'* he said. *'I am well aware of the problems you have faced -some for food, some for movement from place to place, and others for staying away from homes and families. However, for the sake of your country, you are fulfilling your duties like a disciplined soldier. This is the power of 'We, the People of India' that our constitution talks about.'*

On 19th April, the PM made some observations on LinkedIn: *'It has been a topsy-turvy start to the third decade of this century. COVID-19 has brought with it many disruptions. Coronavirus has significantly changed the contours of professional life. These days, home is the new office. The Internet is the new meeting room. For the time being, office breaks with colleagues are history. I have also been adapting to these changes. Most meetings, be it with minister colleagues, officials, and world leaders, are now via video conferencing. To get ground level feedback from various stakeholders, there have been video conference meetings with several sections of society.'*



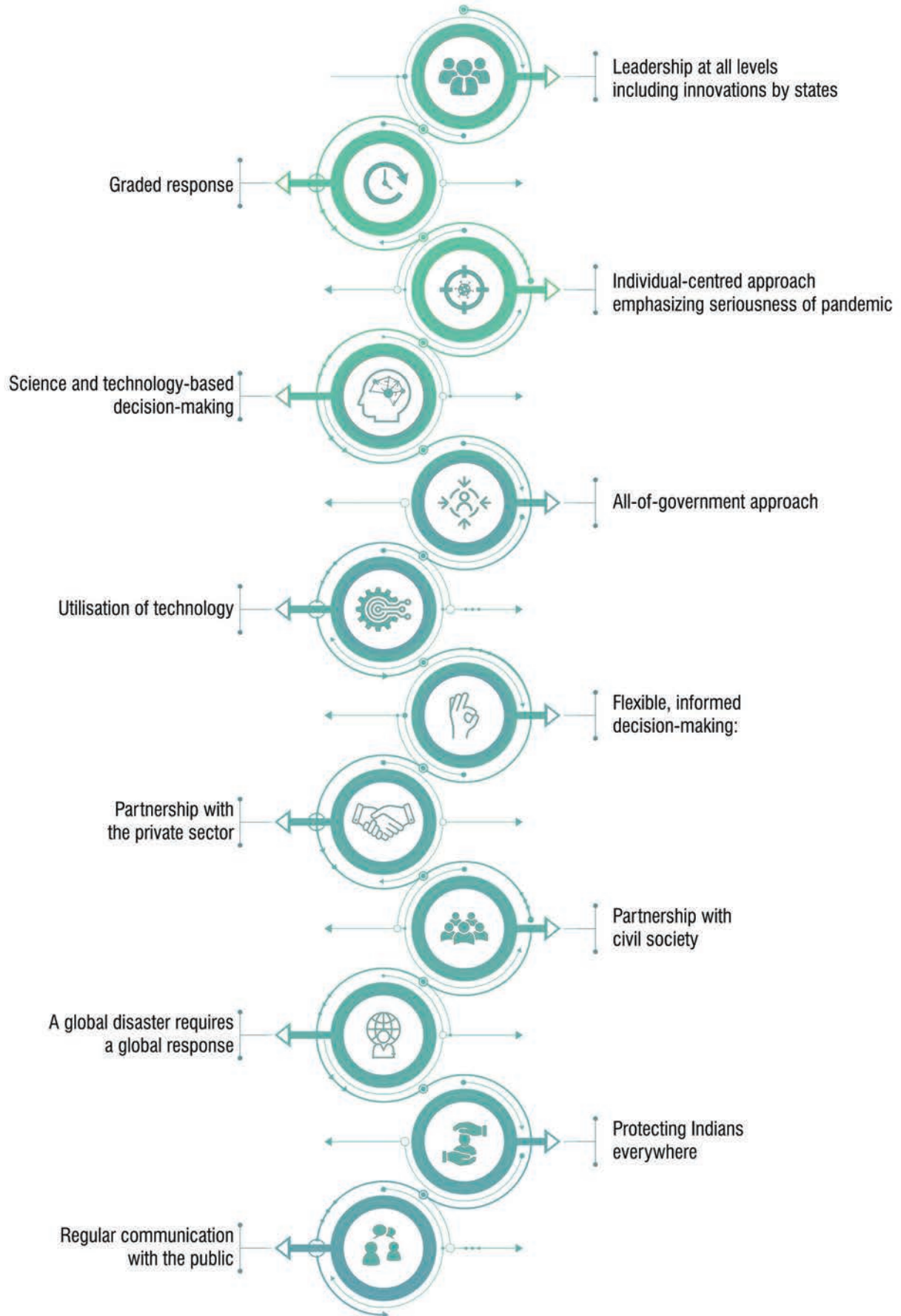
Hon'ble PM interacting with public health professionals





**Key features of the Indian response to COVID**

## KEY FEATURES OF THE INDIAN RESPONSE





### a. Leadership at all levels including innovations by states

While the Prime Minister has been leading the response, his ministerial colleagues – in health, aviation, road transport and all other ministries – have also been hands-on in ensuring that their departments and ministries are part of a coherent national response. The response to COVID-19 has reinforced the spirit of cooperative federalism. Prime Minister and all the Chief Ministers have come together on seven occasions to take stock and collectively determine the national response.

At the state level, Chief Ministers have been playing a critical role in guiding meticulous planning and implementation. In states like Kerala, for example, the state acted swiftly to trace and contain the virus, though hit first, and attended to the needs of migrant workers efficiently. At the local level, the municipal bodies, and district collectors have been leading the government's response. Individual citizens have also been leading initiatives, within local frameworks.

### b. Graded response

Starting at the end of January, India launched a graded response to COVID-19. Despite a lot of uncertainty about the characteristics and likely progression of the disease, the emphasis was on identifying, implementing, and increasing/ amplifying right actions at the right time. The timing of measures such as screening our borders and implementing a lockdown has proven right and the approach sensible, focussing on different measures at

different times. We will evaluate its effectiveness over time.

### c. Reaching every individual

It was recognised early on that the success of India's fight against COVID-19 will depend upon the degree of individuals' participation. As this was a race against time, there was not always sufficient time to prepare for lockdown measures, but efforts were made to prepare the public (the Janta Curfew, for example). Awareness measures such as health advisories recorded as individuals' caller tunes and broadcasts highlighting the importance of social distancing, staying home, wearing masks and washing one's hands, were all targeted at the individual, as were national expressions of appreciation for healthcare workers.

### d. Science and technology-based decision-making

Given the "newness" of the novel coronavirus, and the characteristics of the disease caused by it, the government sought scientific and technical inputs from multiple disciplines, ranging from epidemiological modelling to mathematical modelling, and including public health engineering, virology, information technology and geospatial technologies. At times, this information came with many qualifiers attached to it, and at others, it came in contradictory forms. However, the government was open to receiving inputs from all institutions across India and even internationally. Every effort was made to make all decisions based on best available scientific evidence.



Hon'ble PM and Chief Ministers discussing the COVID-19 situation

### e. All-of-government approach

Early on, it was recognised that while the Ministry of Health and Family Welfare would have to lead the response to this public health emergency within the overall disaster risk management framework of the country, they need to be supported by multiple ministries. The constitution of 11 Empowered Groups was an expression of this all-of-government approach. Capacities from across the board – disaster risk management, pharmaceuticals, textiles, aviation, road and transport to environment – were mobilized. At the State level, teams were led by Chief Secretaries and the district level teams led by Collectors managing all aspects of the situation.

### f. Utilisation of technology

From the outset, the government tried to promote the most optimal use of technology for mitigating and preventing the burden of disease. The Central Government's Aarogya Setu app was implemented to support disease surveillance as well as enable self-assessment. Many states launched their own apps to meet their own specific needs. The NDMA established a GIS dashboard to track the geography of risk as well as the movement of migrants.

### g. Flexible, informed decision-making

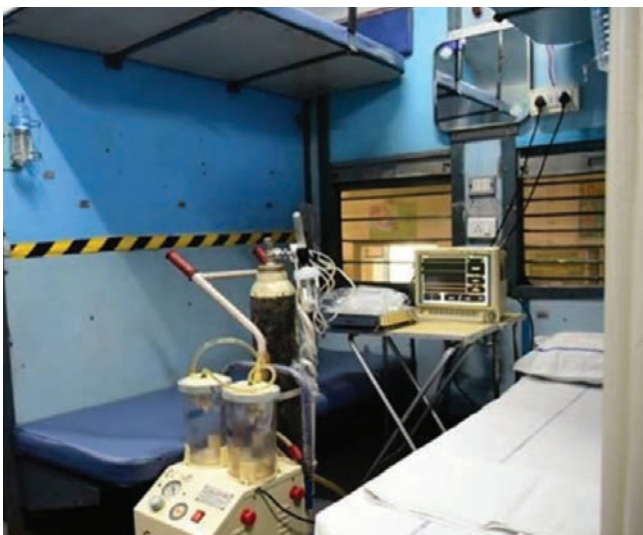
The government aimed to quickly respond to the situation on the ground and feedback from the public, revising orders and advisories when necessary (in relation to the use and production of masks and sanitizers, for example; communicating when masks had to be worn and by whom, and deciding alcohol manufacturers should use their resources to produce sanitizers when it was in short supply). In an emergency of this scale – spanning the entire country, all sectors of economy and all stratas

of society – it is almost impossible to anticipate all the unintended consequences of government actions. Rather than being rigid, the government adjusted its decisions to achieve maximum effectiveness towards containment of the diseases as well as to ease people's day-to-day life as much as possible. When the vulnerability of migrant workers became increasingly apparent, for example, corrective measures were undertaken; relief packages, buses and trains were organized to assuage distress, and to take workers to their rural homes.

The response to combat the virus emerged from a coordinated approach based on extensive consultation with state governments. At different stages of infection progression and imposition of lockdown measures, inputs were received from States and action plans/strategies curated collectively in the spirit of federalism. Best practices were also shared across the States.

### h. Partnership with the private sector

From the first phase of the lockdown onwards, the government established a continuous dialogue with a wide range of private sector players, including private testing labs, private hospitals, software companies, chambers of commerce, tourism sector players, the airline industry, retailers' associations and software companies. This helped to involve them actively, increasing their contribution towards the fight against COVID-19 and helping to inform the graded easing of restrictions and planning of a support package for industry. Wherever required handholding support was given to private players. Regulatory approvals for diagnostic and treatment options were fast tracked and manufacturing licences/ marketing authorizations were granted expeditiously.







### i. Partnership with civil society

Civil society organisations—both humanitarian and development NGOs—have played a leadership role in the Indian response to COVID-19 and served as a force multiplier. They have not only supported awareness generation activities but also been frontline service providers – e.g. through the provision of cooked food for those in need, crowdfunding and distributing relief packages – during the lockdown. They have also played a key role in the training of local level frontline health workers.

### j. A global disaster requires a global response (G20, SAARC, India's bilateral support)

Recognizing the regional and global dimensions of the pandemic, the Prime Minister advocated for active regional and international cooperation for the Indian COVID-19 response. He suggested the idea of a SAARC COVID-19 response fund, capitalizing it with an initial contribution of 10 million dollars. At the same time, called for a G-20 response on the same. In addition, India sent medical supplies to more than 50 countries across the world.

### k. Protecting Indians everywhere

From the early days of the onset of the epidemic, the government mobilised a response to ensure the well-being of Indians abroad. The Indian missions worked round the clock to ensure that Indian citizens abroad were cared for. In the initial phase, for Indian citizens – students, pilgrims, tourists, workers – in countries that were badly affected by COVID-19, the Government of India sent quick response teams along with testing kits to test our stranded citizens on site and support them through evacuation and quarantine. During the third phase of evacuation, 123,435 Indian citizens were evacuated from 46 countries under Operation Vande Bharat.

### l. Regular communication with the public

From early on, the government communicated regularly with the public. The Prime Minister spoke directly to the people of the country on several occasions and highlighted the challenges ahead, the cooperation required from everyone and the government actions being taken. The Hon'ble Health Minister too addressed the media from time to time. The Ministry of Health provided daily briefings on the state of the pandemic's spread in the country and the actions being taken.



Hon'ble PM meeting with SAARC leaders



**Early lessons, remaining challenges, and road to a safer future**



The Indian response to COVID-19—encompassing the efforts of its citizens, civil society organizations, the private sector and the state and central governments—has been rigorous, wide-ranging and calibrated. In response to the specific demands of different phases of the pandemic, the government has carefully tracked the progression of COVID-19 globally as well as in India, examined strategies that other countries have adopted, and evolved strategies

suited to the Indian context to mitigate and manage the impact of the pandemic. This is an unprecedented disaster. Therefore, it is inevitable that, in retrospect, we will identify areas where the Indian response to COVID-19 thus far could have been improved.

This section highlights some of the principal benefits of the Indian response thus far, early lessons, and elements of a future strategy.

## Principal benefits or positive outcomes of the Indian strategy

In the early phases of the spread of COVID-19, the Indian response attempted to control the ingress of the virus into the country through border control, screening of persons entering the country, follow-up surveillance and contact tracing. This was followed by a series of countrywide lockdown measures: Lockdown 1 (25th March to 15th April), Lockdown 2 (16th April to 3th May) and Lockdowns 3 and 4 (4th May to 17th May, and then through May 31st).

Instituted and publicized by the central government under the Disaster Management Act of 2005, these lockdowns varied in scope and nature, depending on the situation on the ground. The central government has been in constant dialogue with the state governments and tried to reach out as much as possible to all other stakeholders to receive their feedback and collaboratively design responses to different challenges as they emerge. So far, this strategy seems to have worked in reducing the impact of COVID-19.

### It has yielded three principal benefits:

01

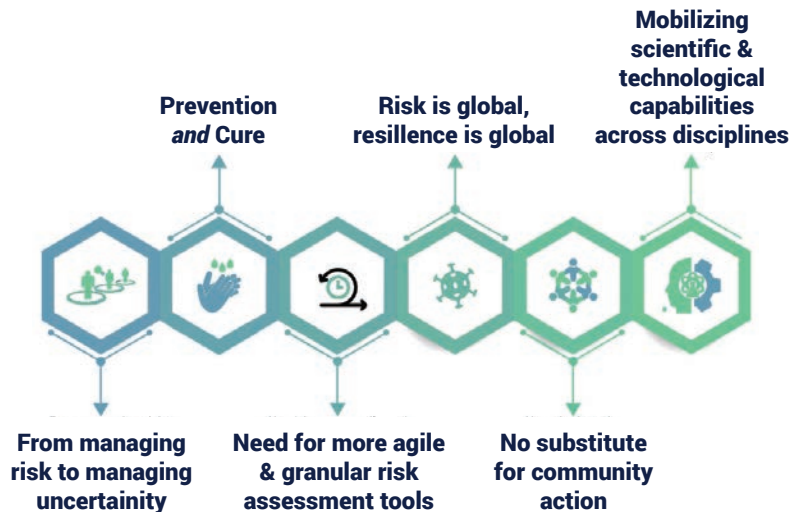
The rate of infection, the positivity rate among those tested, doubling rate, case fatality rate, as well as recovery rate, are all more favorable than ALL the epidemiological predictions made at the beginning of Lockdown 1. Even when compared to many other countries with much stronger public health systems, India seems to be faring better on this front.

02

This reduced immediate impact has bought us precious time to strengthen the preparedness of our public health systems. On all parameters—availability of critical care beds, PPE, testing facilities and tracing mechanisms (such as the one facilitated by Aarogya Setu)—we are better prepared than at the beginning of Lockdown 1, and there are constant strides to improve on all fronts.

03

Importantly, our response has raised awareness. The importance of physical distancing and better hygiene has been understood by most of India's 1.38 billion and adopted by many. Masks and sanitizers have become ubiquitous in the far reaches of the country. Prime Minister's repeated emphasis on "Do Gaz Doori" – or maintaining a distance of two yards – has become a mantra of social distancing. There has been an unprecedented mobilization, especially at the local level where ASHA workers, anganwadi workers, community based organisations and volunteers are playing a leadership role. This is the bedrock of our efforts to contain COVID-19 in the country.



## Early lessons

In some parts of the country, it appears that a peak has been reached in terms of the caseload of new infection. In some parts of the country, the daily number of cases reported is declining. In others, it continues to increase, albeit at a slower rate. In hotspots, it is difficult to say with any degree of certainty when we will observe a peak and a

subsequent declining trend in new infections. Importantly, at the national level, the numbers of infections as well as lives lost continue to rise. There is a need for sustained efforts in both less affected areas as well as hotspots.

Based on the experience thus far, six principal lessons can be drawn:

### From managing risk to managing uncertainty

The traditional disaster risk management paradigm is attuned to using the analyses of past events—their frequency, intensity, and impact—to quantify risk and devise risk management strategies for the future. In contrast, the COVID-19 pandemic is riddled with a lot of uncertainties. While the characteristics of the strain of coronavirus causing COVID-19 have been studied, there are many uncertainties about how COVID-19 progresses. There are contradictory reports about its effects on different age groups, the effect of temperature, humidity and sunlight, the effectiveness of different treatment protocols, the likelihood of a population achieving herd immunity, and the likely development of a vaccine within a year. There are even greater uncertainties about local drivers of risk and local-level manifestations of the disease. Policymakers have to make decisions in an environment of great uncertainty. Inevitably, there may be unintended consequences of their decisions. This requires operating from the first principles of disaster risk management and taking an iterative approach that continuously responds to feedback from the ground.

### Prevention and cure

The traditional maxim of *'prevention is better than cure'* is true for COVID-19 as well. However, in the face of a disaster whose characteristics are relatively less understood, with potentially inadequate understanding of the local drivers of its spread, the choice between “prevention” and “cure” becomes a false one. In India as well as in other countries, even with the best preventive efforts, the public health system was quickly overwhelmed with a large number of people requiring quarantine, testing, isolation and treatment. No part of India or any other country could have standing capacity to deal with such a large caseload. The best outcomes were achieved in places where the public health system is nimble and is able to scale its capacities by augmenting as well as repurposing. This is a key lesson for the future development of public health systems around the world. They will need to be flexible, with the ability to scale and repurpose in the face of a large-scale disaster.

## Risk is global, resilience is local

COVID-19 is affecting the entire world. In some senses, everyone lives downstream. The emergence of the virus and actions taken (or not taken) elsewhere are leading to its spread. Global interconnectedness is a major driver of the spread of this disease. However, in the current scenario, how this disease is impacting different locations seems to be determined by how resilient its communities are and how robust the local-level public health systems. For the scale of the disaster that is COVID-19, there is relatively little global cooperation in terms of proactively sharing good practices: efficient surveillance systems, treatment protocols, methods for repurposing existing resources to fight COVID-19. For the future, this has two implications: one, greater investment in local level resilience and self-reliance; and two, much greater emphasis on international cooperation towards fighting a global disaster.



## No substitute for community action

Some states in the country have done better than others in mitigating and managing the effect of COVID-19. Their relative success stands on the bedrock of community and local-level action. As COVID-19 is caused by an invisible agent and the virus has insidious ways of jumping from one host to another, while an efficient test-isolate-treat regime is essential for containment, in a populous country like India there is no substitute for community action. In states where communities are active drivers of surveillance rather than subjects of the system, efficiency in containing the spread of COVID-19 is higher. Greater community involvement and leadership also enables the government to keep an ear-to-the-ground, anticipating unintended consequences of policy decisions and taking corrective steps.

## Need for more agile and granular risk assessment tools

As COVID-19 progressed in India, a range of efforts have been made by various district, state, national and international institutions to anticipate its spread as well as its impact over the short term (up to seven days) and the medium term (over a few months). The objectives of such analyses have varied from simply providing the order of magnitude of the burden of disease in the country, to estimating specific requirements such as the provision of medical equipment and supplies. Methods range from simple mathematical projections based on observed trends to epidemiological modeling.

Some of these efforts have been useful in visualizing the broad trajectory of the disease, although not necessarily

its magnitude. These have also been useful in raising awareness among non-specialist decision makers and helping them take a slightly longer view of mitigation and management of COVID-19. These assessments informed significant decisions such as the lockdown. However, most of these risk assessments have not been able to support specific sub-national or local decisions. This is primarily for three reasons: one, the standard risk assessments tools provide standard outputs, and are not nimble enough to speak to the specific requirements of decision makers; two, these tools are not informed by granular, local-level data; three, these risk assessments do not adequately take into account local drivers of risk such as local patterns of mobility.

## Mobilizing scientific and technological capacities across disciplines

In the wake of the spread of COVID-19, India was able to mobilize its scientific and technological capacities across multiple disciplines, ranging from medical research (potentially in the development of a vaccine, among other areas of focus), defence research and mathematical modeling to information technology. This played an

important role in ramping up capacities for testing, disease surveillance, production of medical equipment and supplies, and treatment and care. The country's system of scientific and technological innovation is an asset. It requires more investment and greater trans-disciplinary and problem-solving orientation.



## Challenges Ahead

Although the number of infections and number of deaths is lower than was earlier expected, we cannot be complacent.<sup>31</sup> Particularly as India is emerging out of its full lockdown and moving to contain clusters of infection, new challenges are emerging. As mobility across the country gradually increases, the infection may reach areas that were less affected or unaffected until now. Even with a slow doubling rate, as we are working with a high present caseload, we may have to deal with a large number of cases in the weeks (and perhaps months) to come. There is uncertainty about when the peak for the country as a whole will be achieved. There is also uncertainty about when the infection will peak in the existing hotspots. The hotspots may connect and lead to flare-ups in large regions.

Metropolitan regions—Delhi, Kolkata, Chennai and Mumbai—have a very large and expanding caseload. Till the end of May, Mumbai topped the list, with large clusters in its crowded urban space, particularly in Dharavi, one of Asia's largest slums. In the face of rising number of infections and deaths in India—as in the rest of the world—the battle against COVID-19 is likely to be a long drawn-out one.

As more activities are gradually allowed to restore livelihoods, we need to deepen our mitigation and management strategies at the local level. Restrictions and physical distancing need to continue to break the cycle of infections.

The country also faces the challenge of managing other disasters during the pandemic. For example, responding to floods and cyclones during COVID-19 requires that both exposed communities as well as emergency responders practice social distancing. This means that the Standard Operating Procedures need to be revised to new conditions, and the existing response resources need to be augmented. For example, in the cyclone prone areas, with social distancing measures in place, the effective capacity of cyclone shelters has been reduced by at least fifty per cent. On 20 May, cyclone Amphan in West Bengal, and later on 2 June, cyclone Nisarga in Maharashtra made landfall. Through the coordinated efforts of communities, State governments and the Central government, preparedness, early warning and evacuation worked well and the human losses could be limited to a significant extent. Despite these preparations, after cyclone Amphan, more than 100 NDRF personnel tested positive for COVID-19. At the time of writing this report, all of them have recovered.

<sup>31</sup> As we write, end of May, the total number of people affected by COVID-19 in India has crossed 1,80,000, and the death toll is around 5,164. The number of infected cases is increasing and doubling almost every 15 days.



## Short, medium and long-term strategies

This section presents short, medium and long-term strategies to address the outlined challenges.

### a. Short term strategies

**Swift, effective dissemination of relief to those immediately vulnerable due to the lockdown:** The plight of newly unemployed migrant workers/informal labourers—who either stayed in their urban homes or traveled to their rural homes by foot, cycle or bus—was widely reported fallout of the lockdown. Statistics are still emerging but reports and anecdotal evidence suggest that there is an urgent need to get relief as soon as possible for those who are immediately vulnerable, who are not receiving relief swiftly, effectively or at all. Hunger, health concerns and the lack of security are major concerns that need to be allayed at the short-term level, as much as it needs to be addressed in the medium and long term.

**A careful combination of top-down and bottom-up approach with increasing emphasis on the latter:** While some of the core decisions—restrictions on big conferences, the closure of cinema halls, inter-state mobility, testing strategy—will need to be continued to be made at the national level to provide the overall framework, the district and state levels should be increasingly responsible for undertaking their own risk assessment and implementation of context-specific response measures.

**Districts as units of planning in the next phase:** While the central government has already provided the red, orange and green zonation at the district-level, there is increasingly a need for more granular mapping of containment zones as well as at-risk areas within districts. Districts need to have access to technical support to undertake such mapping

and develop local-level, context-specific quarantine, tracing, testing, isolation, and treatment strategy. They need to have greater access to equipment, protective gear, and medical expertise. Under the broad guidelines of the national and state governments, districts could regulate physical distancing measures and restrictions on travel. They should be able to use the existing government programmes and new emergency resources to implement a wide range of social protection measures which include the MNREGA, food grains distribution through the public distribution system, nutritional support for vulnerable groups, subsistence grants and community kitchens.

**Strengthening district-level surveillance:** Consistent with the directives issued by the Ministry of Health & Family Welfare (MoHFW), district-level surveillance can be improved through multiple means of checking the spread of infection, using both technology as well as human surveillance. At the district level, appropriate restrictions can be imposed upon the movement of all people residing therein. Stronger restrictions can be enforced in those geographical areas with the maximum number of positive cases (this could include what kinds of businesses are open given the number of cases, etc.). Further, the primary and secondary contacts of Covid-19 patients can continue to be quarantined in their homes. A multi-tier system of surveillance would be an effective deterrent to the spread of Covid-19.



**Involving local self-government institutions:** The local self-government, as represented by the Municipal Corporations, Zilla Parishads, and Panchayats, can continue to play an important role in COVID-19 strategy going forward. It can take the responsibility for the physical distancing campaign, and provide masks, soaps, sanitizers, and cleaning supplies at the local level.

**Constitution of a well-trained village-level task force:** Such a task force would include: a registered medical practitioner, local health centre functionary, ASHA and Anganwadi workers, community volunteers, a village accountant, beat police constable and the leader of the local women's self-help group. Care should be taken to see that task forces are trained to deal with containing the spread of the infection without stigmatizing persons who may test positive for COVID-19.

**Risk communication campaign:** All health and non-health measures need to be taken in conjunction with a risk communication campaign, for which the district administration can seek the help of local governments,

NGOs, and the private sector. The stronger the communication campaign, the better the compliance on the part of people at the local level.

**Boost to village economy:** As a large number of skilled workers have returned or are in the process of returning to their native villages, there is a need for the Panchayati Raj Institutions (PRIs) or Urban Local Bodies (ULBs) to undertake an analysis of the persons who are intending to return to their places of work and those who want to take up alternative economic activities near their original homes. Identifying local demand and establishing micro-enterprises at villages and small towns in agriculture/horticulture processing and other related areas can be a good way of re-engineering the local economy with the help of the returned migrant labour. Similarly, attempts need to be made to revive goods and services while maintaining physical distancing norms. The district authorities need to be strengthened to promote these activities, by deriving support from the packages announced by the State and Central Governments.





## b. Medium term strategies

**National Socio-economic recovery:** While the exact ultimate impact of COVID-19 is uncertain, many experts are planning for the worst and taking active steps to combat unemployment. The balance is delicate and difficult to achieve between protecting Indians from the spread of COVID-19 until a vaccine is available (or herd immunity is achieved) and restarting the economy sufficiently so as not to equally endanger lives. While a global recession is a potential eventuality, and countries such as Japan are already witnessing one, some are optimistic for India with measures undertaken following April and the end of the full lockdown.

The government has begun a calibrated opening, which will provide the impetus for resuming economic activities. This, in turn, will lead to employment opportunities and the workforce will start returning to their jobs soon. This is the first step towards normalizing the situation. The focus today has to be on both lives and livelihoods. We have central ministries and state governments working together on this situation.

**Atmanirbhar Bharat package:** In May, the PM outlined the Atmanirbhar Bharat package, a plan for a self-reliant India movement, to protect India's economy in the medium term following the economic fallout of the lockdown.

The government announced a special economic and comprehensive package of Rs 20 lakh crores—equivalent to 10% of India's GDP—intended to cater to various sections including cottage industry, MSMEs, labourers, middle class, and industries, among others. Direct support to farmers and the rural economy, post-COVID-19, will be capitalized on. These include: providing 3 crores farmers with agricultural loans of INR 4.22 lakhs crores with a 3 months loan moratorium; 25 lakh new Kisan Credit Cards (KCC) sanctioned with a loan limit of INR 25,000 crores; 63 lakh loans of INR 86,600 crores approved in agriculture

between 1st March and 30th April; the refinancing of INR 29,500 crores provided by NABARD, to cooperative and regional rural banks in March; support of INR 4,200 crores provided under the Rural Infrastructure Development Fund to states during March for rural infrastructure; and working capital limit of Rs. 6,700 crores sanctioned for procurement of agriculture produce to state government entities since March.

### Continued need for social protection for the poor.

As part of the plan for Atmanirbhar Bharat, the government permitted state governments to utilise the State Disaster Response Fund (SDRF) for setting up shelter for migrants and providing them with food, water, etc. The central government also released INR 11,002 crores of its contribution in advance to all states on 3rd April, to augment their SDRFs. With effect from 28th March, three hygienically prepared meals were provided for the residents of Shelters for Urban Homeless (SUH) per day, during the lockdown; and 12,000 Self-Help Groups (SHGs) have produced 3 crores masks and 1.20 lakh litres of sanitizers, giving additional employment opportunity to the urban poor. The disbursal of a Revolving Fund (RF) to SHGs was on-boarded on PAiSA Portal in April, on a pilot basis in Gujarat; it is now being rolled out across all states in May. Between 15th March and May, 7,200 new SHGs have been formed amongst the urban poor.

Importantly, overdue labour reforms implementing improved benefits for migrant workers have been outlined in Atmanirbhar's plans. This includes such measures as: annual health check-ups, formalization of work through appointment letters, and the universalization of the right to minimum wages and timely payment of wages to all workers including unorganized workers (presently minimum wages are applicable to only 30% of workers).





### c. Long term strategies

**Improving the public health system:** It is likely that the Coronavirus will be in the populations for some years. The public health system needs to take a long view and scale its capacities in terms of COVID-19 units, testing facilities, medical equipment and supplies, and expansion of health care workforce. During the COVID-19 pandemic, management of many non-communicable diseases has been somewhat neglected. This is clearly not sustainable and needs to be corrected by expansion of the capacities of the health care system.

**Efforts to develop a vaccine: Indian Initiatives and international collaboration:** The Indian private sector vaccine industry is the world's largest supplier of vaccines by number of doses. The range of products/technologies is limited, but where available, very low-cost, high volume products have changed routine childhood immunization globally. Since the SARS-CoV2 pandemic started, Indian companies have sought out international and a limited number of domestic partners to find candidates for development.

The Ministry of Science and Technology is supporting R & D efforts for some major Indian vaccine manufacturers and several early stage candidates from academia. Additional essential support for animal models, assays, adjuvants, and clinical trials is available or planned.

Of the >100 vaccine development programs globally, India has about 10-12 significant approaches across many technology platforms within industry. Three major companies - Serum Institute of India, Biological E and Bharat Biotech - have agreed that if any of their programmes fail, they are willing to undertake co-development or

manufacturing for any globally licensed vaccine. It should be noted, however, that like with all vaccine development efforts, there is always some uncertainty about the final outcome.

The manufacturing capacity of Indian vaccine companies is a significant advantage but there are concerns in the international community, particularly those leading international vaccine development efforts, regarding the size of India's population and its own requirements.

A successful vaccine or highly effective treatment is the only way out of the pandemic; hence vaccine R & D must be strengthened and accelerated. Government is working with industry to facilitate regulatory approvals and engaging with the Access to COVID-19 Tools (ACT) Accelerator launched by the WHO and partners. The Coalition for Epidemic Preparedness Innovations (CEPI) and the Gavi Alliance, which lead the vaccine pillar of the ACT Accelerator, are the leaders in vaccine development, other than the US Government's Warp Speed program. Support of Indian industry for rapid development must parallel global partnerships and potentially at-risk investments for new manufacturing platforms, to decrease timelines to vaccine availability.

**New sectors to expand on for growth:** As the economic recovery from COVID-19 begins, the Prime Minister has already set out the future direction in the form of Atmanirbhar Bharat. There is an opportunity to exploit India's comparative advantage in many sectors and to reduce dependency on global supply chains, thereby building the resilience of the country's economy to such shocks in the future.







