SPREAD AND CONTROL OF COVID-19
INDIAN EXPERIENCE

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With the outbreak of Covid-19 in India in February, 2020 the government of India adopted a policy of 'wait and watch' to ascertain likely impact of the virus in the country. It was known that the origin of the disease or the epicentre was Wuhan Province in China. Therefore, the spread of the virus was only possible through human to human transmission, from one human being to another. The virus had its source then outside India. It was clear that the travellers are like to bring the virus from abroad and infect an Indian who does not have it. It would eventually spread like wild fire from one state to another, from cities to villages, from the rich to the poor, from non-Indian to Indian and also from Indian settled abroad to those who live in the sub-continent. The question that needs to be answered is what exactly was the nature of transmission of Covid-19? How grave was the crisis? How did India tackle the problem of the virus infection? The first part of the Report deals with some of these questions. In the second part, I will examine the nature of containment and control of the disease in different parts of the country.

By the end of February, utmost care was taken to stop entry of travellers who were likely to carry the infection. As a first step most airports were informed to keep an eye on those entering the country with the disease. For surveillance a special control area was created at the airport to check each passenger. The method was introduced in all important airports like Mumbai, Kolkata, Chennai besides New Delhi, where passengers in large number arrive from abroad. However, this method was not enough to control Covid-19, a disease that can kill millions. Indian states responded differently. Some states like Kerala, Tamil Nadu were watchful right from the beginning by taking additional measures (like on the spot temparature checking) to ensure no person with the disease can manage to enter the country. Some were lackadaisical in their approach like Mumbai and Kolkata (to some extent Delhi). They were late in studying the

effect of the spread of virus and its likely impact on the public and made no effort to create infrastructure to deal with the disease.

Covid-19 Spreads

The first Indian Covid-19 case was detected on January 21, 2020. In February cases were reported from some Southeast Asian countries like South Korea, Thailand, Singapore. From the late February and early March the virus had spread to countries like Italy, Spain, France, U.K. and Germany. All these countries were not prepared at all to deal with the disease. Death rates began to climb, first in Italy and from there to Spain, France and U.K. It was kept under control in Germany as death rates there was significantly lower than the rest. It was quite evident that the next stop of the virus would be the other side of the Atlantic, the USA and Latin America. In USA it was particularly lethal as with inadequate infrastructure the death rate started rising over thousand on each day.

The spread of the virus showed no specific pattern. It was hurting most the countries which were less prepared and had a sizable elderly population. For example, in Italy, it was sudden, virus attacked the vulnerable sections and within a short time played havoc. It was too sudden for most European states. They were all unprepared for an attack of this kind. They lacked enough man power, medical practitioners, personal protection equipment (PPE) and other items required for the treatment like ICU, ventilators. By the time they went for lockdown and other kinds of restrictions, damage was done. The virus had spread far and wide. Italy, Spain, France, Britain all had been fighting a losing battle in late March and early April.

As the virus reached the United States, citizens there found medical facilities far from adequate. The virus had a free run again, from late February and early March news of death due to Covid-19 began to pour in from New York, California, Washington and so on, first in hundreds and then in thousands. The big cities went for lockdown. Medical facilities were just missing to face this big challenge. The media reported at length the death and devastation caused by Covid-19 in all these countries. This triggered an alarm in countries in Asia as they wondered if developed countries failed so miserably in dealing with the disease then how are they going to face the challenge.

From early March Indian were watching with bated breath all that was happening in Europe and USA. Indian government realized that it was just a matter of time for the virus to strike Indian cities. However, from the mid-February a large number of travellers began to arrive in

India where the virus caused havoc. No control was ordered, except screening of passengers from countries like China, Thailand, Korea and later Japan. This measure was too little and too late. Infected persons began to arrive in Delhi, Mumbai, Chennai, Jaipur and Kolkata airports. As the number of Covid-19 cases began to increase the Indian government took serious note of the matter. Experts were asked to assess the situation, Indian Council for Medical Research (ICMR) was requested to do all that they can to stop its spread in India. As a first step on the 22nd of March the Prime Minister announced one day 'Janata Curfew' or lockdown for one day. Then on March 24 a full-scale nationwide lockdown was declared for 21 days up to April 14 for 1.3 billion population of the country. On 14 April, lockdown was extended again up to May 3. On May 1, again the lockdown was extended up to May 17. Nearly two months of lockdown. In the final stage the country was divided into red, orange and green zones on the basis of the report on the spread of the virus.

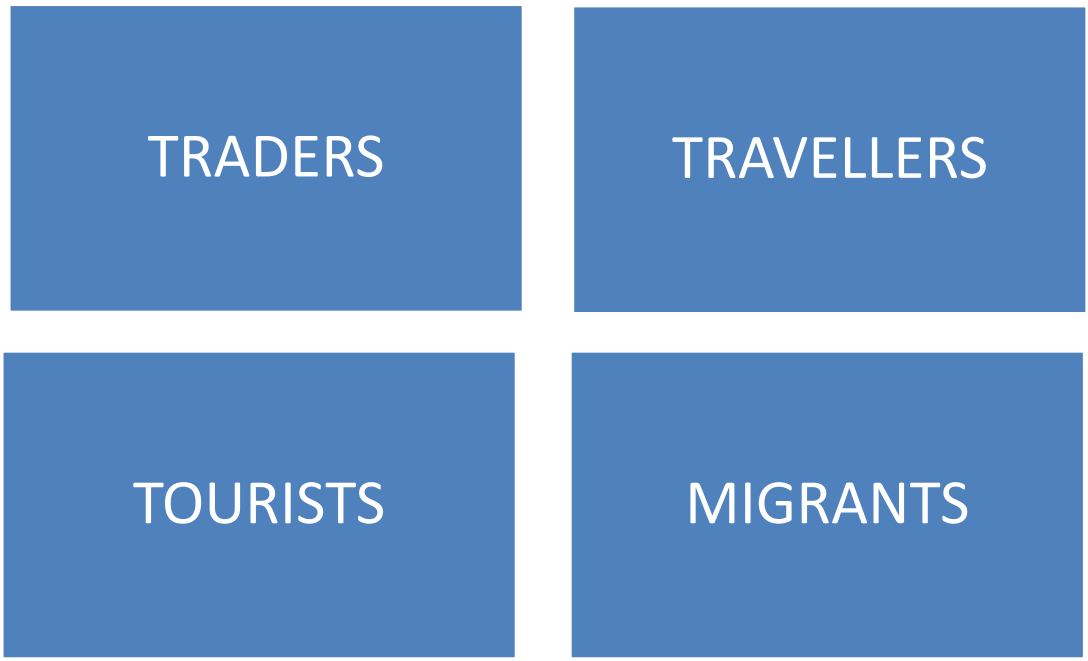
Arrival of travellers with the disease was the main cause of worry for the government. A large number of Indians lived in West Asia, in countries like Saudi Arabia, Kuwait, Dubai and the like. Countries in West Asia too were having Covid-19 cases among their citizens. From West Asian countries Indians were arriving in India with the disease. They went to Kerala and Mumbai and in other parts of the country. Several migrants from Kerala went to West Asia and their remittances helped Kerala to prosper economically. Kerala took an early call to examine each one of the migrants from West Asia. They maintained strict surveillance, suspected cases were sent to quarantine and for some conducted tests.. Kerala with better medical facilities and skilled man power managed to contain the spread from infected persons and fatality rates remained low. It was the first state to flatten the curve. 'Kerala model' became well-known all over the country. It was the first state that successfully followed the three cardinal principles to combat the disease, tracing, testing and treatment.

For trade and business many Indian from the middle class and lower middle class travelled to China for several years. Some of them were just middle men who negotiated deals for their employers in India. Nearly a 5 to 6 flights used to ferry them to China almost everyday from cities like Delhi, Mumbai, Kolkata and Chennai to Chinese cities like Guanzhou, Hanzhou, Shanghai, Beijing and other places. Many of them were not familiar with the spread of the Covid-19 and as a result they continued travelling. These travellers contracted the disease and carried them to India. In February and early March they were hardly detained at the airport for check up. Some of these lived in cities like Jaipur, Bhupal, Indore the places that became

hotspots of the disease. In March, reports of Covid-19 positive cases began to pour in from these cities.

Finally, European tourists to India from countries like Italy, U.K., France were also arriving in India to visit popular tourist destinations. One group of tourists from Italy were found infected with the virus in Jaipur in mid-March, they were immediately quarantined and treated. They interacted with several Indians, particularly with those involved in tourism business. Some tourists in Kerala too were found positive, they were sent to local hospital for treatment. One such tourist area that became hotspot was Jaipur in Rajasthan.

CHART 1 CARRIERS OF COVID-19



No official data is available on the entry of the travellers, traders, tourists, migrants and others who entered to India in the month of February, although officials kept tacking them from March, 2020. But by then it was quite late, the virus had spread to a large number of places. With the publication of reports in the media of detailed cases of individuals who were infected and then arrived in India, it was possible to know how the disease was brought by the travellers and

from them went to others, how their cases were detected, and what kind of treatment they received. The case of some Italian tourists who went to visit Jaipur was reported at length in both print and electronic media. Similarly, the story of a student who arrived in Kolkata from the U.K. also received media coverage. The student arrived in Kolkata from London with the infection with infection, stayed with his family and interacted with others, in spite of having symptoms of the disease. He was sent to quarantine, tested positive and was admitted in the local hospital for treatment. This was the first case of Covid-19 in the city of Kolkata. In Delhi a Muslim sect called Jamat Tablighi organized a congregation in which a large number of travellers from countries like Malayasia, Indonesia attended. They too carried the disease and infected many attendees. Some of the infected persons in the congregation went to Kerala, Tamil Nadu, Maharashtra, West Bengal and Karnataka. They then infected others in the community.

People and Space

One important aspect of the transmission of Covid-19 is that relatively better off section of the society were the carriers of the disease and people who belong to poorer strata contracted the disease from them and suffered most. All those who served the rich travellers, the porters, taxi drivers, food suppliers, chemists, beauty parlour staff, cleaners, couriers, maids and many such service providers were the first to catch the disease. The doctors, other medical staff were also under risks. The worst of all, several infected travellers visited the shopping mall and infected the shop owners, the other buyers and the rest. All those who interacted with the infected person were identified and sent to quarantine for two weeks in some cases. To trace infected persons is not an easy task. In most case the doctors and other medical service providers relied on oral statements of the main infected person. However, there were some exceptions in tracing the infected persons. In Delhi, one lady who went to Saudi Arabia in early March returned with the virus. She was unwell and went to a Mohalla Clinic (neighbourhood clinic established by the Delhi government) for treatment. The lady was tested positive. The doctor who treated her and all the patients who came in contact with her were tracked down from the Clinic's well-maintained ledger where names and addresses of each visitor were kept systematically. Nearly 40 persons including the doctor were sent to quarantine. Subsequently, the doctor was found Covid-19 positive, the rest had no infection. Tracing of contact persons in India is a humongous task as a result community spread of the disease was unavoidable.

Covid-19 is a cunning disease, it infects as many persons as possible, sometimes without showing any symptoms like fever, cough, headache and the like. This created enormous problem because asymptomatic persons never know that they were carrying the virus and the infecting persons next to him. According to the Delhi Chief Minister, as many as 75% cases in the city were asymptomatic. This caused the virus to spread easily from the travellers to all those who were at the receiving ends. Once the lock down began on March 26, people belonging to all knew that Covid-19 was a deadly infectious disease.

The lockdown had caused double trouble for the working class, migrants in the city. On the one hand, they were without jobs and source of earning and on the other they had fear of contracting the disease. The day after the lockdown was declared, thousands of migrants gather at one point to return to their home. It was a huge unmanageable crowd that followed no social distancing norm. No appropriate steps were taken for their travel.

Migrants hoped to board buses for home on the outskirts of New Delhi.
Source: *New York Times* 7.5.2020

The migrants lived in big cities in search of jobs. They worked as plumbers, masons, electricians, or as manual labourers in the construction sites and lived in congested working class neighbourhoods or in slums. Their exact number is not known, but there are millions of them in Indian cities. Delhi alone has nearly 5 million such labourers, if not more. Their concentration is high in cities like Delhi, Mumbai, Chennai, Surat, Hyderabad, Bangalore and the like. They arrived from places like Rajasthan, Buhar, Odisha, West Bengal, Kerala. One wonders why in a place like Delhi there was no systematic repatriation of the migrants to their place of origin before lockdown. This would have solved the problem of their safe return and controlled the spread of infection. Some of the migrants carried the virus and infected persons at the place of destination. With the migrants the virus had travelled from cities to villages. Villages, especially those located near big cities were affected by the short-distance migrants. Villagers in some cases resisted entry of all those who were arriving from cities.

As mentioned earlier, within the cities certain spaces were ideal breeding ground of Covid-19. The urban slums, congested neighbourhoods, markets, shopping malls, places of entertainment, places of worship, clubs, gymnasium etc. are described as "hotspots" within the urban space. The place of religious congregation played an important role in infecting many. Two examples would help us to understand the problem. As mentioned earlier, religious congregation of the Muslims in a mosque in New Delhi became a hot spot. A Muslim sect called Jamati Tablighi convened an international congregation. Participants came from various parts of India and from Indonesia, Malayasia and other Islamic states. Some carried with them the virus which had spread first among all the members of the sect. Second, a religious congregation of the Sikhs in Maharashtra was also a source of spread of the infection. The virus went from Maharashtra to different parts of Punjab. Even in South Korea, the disease had spread in Seoul from among one Christian religious sect the members of which went to Wuhan in China for religious congregation and carried the disease back home. The identification of the ghetto of this particular sect and tracing and testing had helped Seoul authorities to contain the disease.

One more urban space (also in rural areas) merits attention. This particular space is called *bazaar* or market which includes *mandis* or whole sale market for food items mainly for fruits and vegetables. Two *mandis* that infected several buyers and sellers are Azadpur in Delhi and Koyambadur in Chennai. These places were declared as hotspots, tracing and testing took place in these *mandis* on a large scale. Any space where buyers and sellers meet, who are not known to each other, it became a danger zone for the virus to spread. Reports of spread of infection also arrived from markets and malls. As a precaution, most markets and malls were closed as

soon as the lockdown was declared. *Mandis* had to be kept open to supply essential fruits and vegetables to city dwellers.

During the last two decades home delivery of goods by well-known suppliers like Amazon, Flipkart, Snapdeal became extremely popular. They ushered in the age of 'on-line shopping' in the country. Books, stationaries, furniture, food and other household consumption items are now delivered at the doorstep of the consumers. Thousands of workers are employed to deliver goods by these outlets. Besides, there are a large number of fast food sellers like Domino Pizza, KFC, Zomato, Swiggy that use workers to deliver food. In this case too, the buyers and delivery boys are unknown to each other. The transmission of Covid-19 virus from buyers to deliver boys did take place. In Delhi the media carried reports of how a delivery boy with Covid-!9 positive but asymtomatic infected buyers of food items. Therefore, the transmission of the virus in India took place in a complicated manner.

The medical specialists in the country predicted that the community transmission of the virus will take place in the month of March or little later and containing the spread then would be extremely difficult. Community spread poses threat to all those living in the same neighbourhood and share common public space. Slums, working class localities, neighbourhood of others are all an integral part of the community. From the end of March the news of the spread of infection began to pour in from Dharavi, Asia's mostly densely populated slum located in Mumbai. Some 700000 persons stay in an area of 520 acres. In 1896 plague affected the residents of Dharavi and half of the population of the slum died. Covid-19 cases from Dharavi began to appear from late April and the number kept increasing. As of now, some 1000 residents tested positive, thousands are under quarantine. By the middle of May, Covid-19 cases in Maharshtra crossed 20,000 highest in the country. In Delhi, working class localities like Jahangirpuri, Seelampuri had more than 100 cases. They were identified as containment zone for quarantine, testing and sanitization.

Health workers tracing and quarantining people who came into contact with a coronavirus patient in the Dharavi neighborhood of Mumbai last month. Atul Loke for The New York Times

Source: New York Times, 15.05.2020

Controlling Covid-19

Compare to many countries in Europe and Asia, testing for Covid-19 remained extremely low in India for the simple reason that the testing kit was not available in the country. With the arrival of Chinese testing kit conditions began to improve. But the imported testing kits were not enough to cover a sizable population for testing. Second, high price of testing kit made it difficult for the poor to go for testing (prices were reduced after High Court's intervention). Third, private clinics, hospitals and pathological centres were not allowed to test for the virus (the decision was reversed later). Testing remained the main bottle neck in dealing with the disease.

India had had experience in dealing with many infectious diseases like, plague, cholera, tuberculosis (Das and Dasgupta 2000). The country has successfully eradicated small pox, polio and had done well in controlling SARS, HYV in recent years. The main difference between all these diseases and Covid-19 is that the later is extremely infectious and spreads at

a rapid rate and has high fatality rate. Only disease that caused such havoc in the Indian subcontinent during the colonial period was cholera. Even after Independence the incidence of cholera was reported from time to time, especially at the time of Bangladesh Liberation War in 1971. With vaccine and different types of oral rehydration therapy cholera was brought under control. In the absence of vaccine and suitable medicines the battle against Covid-19 is tough and unpredictable.

India began in controlling Covid-19. This is why it was reported:

> India so far has managed to contain the infection, with three students from Wuhan diagnosed with Covid-19 in Kerala leaving quarantine after being cured. Since the last case was diagnosed 26 days ago in India, none of the close contacts have developed Covid-19, which has an incubation period— the time taken to develop symptoms after getting infected – of up to 14 days (outliers up to 28 days), but its high population density and mobility within states makes it one of the world's hotspots for emerging zones.(*Hindustan Times*, march 2, 2020)

But the report cautioned:

> India's patchy and overburdened public healthcare infrastructure, may make containment tough in states like Uttar Pradesh and Bihar, where health infrastructure and outcomes are two-and-a half times lower than in Kerala, according to NITI Aayog's State Health Index 2019. The outcomes of poor public health infrastructure are starkly evident when outbreak occurs. For example, while Kerala clinically controlled a potential outbreaks of the Covid-19 and highly-fatal Nipah virus disease, Bihar is still struggling to prevent deaths from annual acute encephalitis syndrome over the past 40 years. (*Hindustan Times*, march 2, 2020)

Nevertheless, India did take several basic steps like quarantine the likely cases along with tracing and testing. The following measures were recommended:

(a) ENSURING A SAFE WORKSPACE: A guide that enlists the best practices companies and workers should deploy to ensure offices remain safe spaces.

(b) NEVER CONCEAL SYMPTOMS: Do not take a paracetamol before boarding the plane to avoid getting picked up in thermal screening at airports. If you have symptoms, report it to authorities immediately.

(c) TAKE SELF-QUARANTINE SERIOUSLY: Home quarantine is key to ensure infections don't spread. So if you've come in contact with a confirmed patient, you must avoid all physical contact with others for 14 days.

(d) DON'T BE AFRAID OF ISOLATION WARDS: For those who get infected, hospital isolation is vital. Evading isolation wards means you are putting not just your life, but also the lives of others in danger FOLLOW STRICT HYGIENE Washing hands with

soap or an alcohol-based hand rub is very important. Following cough etiquette such as coughing/sneezing into your elbow is also key.

(e) CUT OUT NON-ESSENTIAL TRAVEL Mass gatherings and travel through high-footfall areas can be hot-bed for spreading or contracting infection, which is why government advises to refrain from both 1 3 5 2 4 STEPS MUST TAKE

Steps were taken for: (a) aggressive and random testing is crucial, even for people who show no symptoms. (b) Since Indian cases were largely travel-related, strict screening was needed at air, sea ports, etc. (b) Increasing labs, procuring more test kits and better equipping hospitals will and to rope in private sector as India's private sector has a massive and well-equipped network of labs to carry out viral testing. Private hospitals can also be used to ease burden of overloaded govt hospitals International travellers, contacts of positive were strictly followed up even after their initial tests in order to pick up people who develop symptoms early. (c) Lockdown. China's area-specific lockdown has nearly wiped out new cases in the country. It is a model that has also been applied in other countries such as Italy and Iran.

TABLE TOP 10 STATES INDIA COUNT: 74,281(2,415DEATHS)
(on 14.04.2020)

Number of COVID-19 Cases	States	% of the Total
24427	Maharashtra	37.3
8718	TamilNadu	13.1
4126	Rajasthan	06.3
1914	Punjab	02.4
3986	MP	06.1
3664	UP	05.7
7639	Delhi	11.8
8903	Gujarat	13.05
2173	West Bengal	03.4
Total 65,550		

Source: Indian Express 14.05.2020

Conclusions

By the middle of May, over 65,000 cases were reported from most affected areas of the country. On May 16, the number rose to 82,000. The number tells us that the battle is far from over. At present the most affected states are Maharashtra, Tamil Nadu, Delhi. But where do we go from here? Like many other countries, two schools of thought have emerged in India. One is favour of relaxation and the other is for restrictions, more lockdown. In the midst of all these the government of India has come out with three different zones to divide the physical space of the country: red, orange and green (red being the hotspot and green free from Covid-19 cases). But all these colours are in a flux, different shades of each colour are emerging day by day.

India's battle with the disease is far from over. Doctors have expressed different views as to when it will reach the peak, and when flattening of the curve will take place. But one thing is certain, once it comes to an end, physical scientists, social scientists, politicians, administrators will get time to reflect on the disease and lessons can be learnt. These lessons will guide us to deal with the future crisis, if it takes place again.

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