

**Working Paper  
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# **Kerala's Grass-roots-led Pandemic Response: Deciphering the Strength of Decentralisation**

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**Sarath Babu M.G., Debjani Ghosh, Jaideep Gupte,  
Asif Raza, Eric Kasper and Priyanka Mehra**

**June 2021**

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## **Summary**

This paper presents an analysis of the role of decentralised institutions to understand the learning and challenges of the grass-roots-led pandemic response of Kerala. The study is based on interviews with experts and frontline workers to ensure the representation of all stakeholders dealing with the outbreak, from the state level to the household level, and a review of published government orders, health guidelines, and news articles. The outcome of the study shows that along with the decentralised system of governance, the strong grass-roots-level network of Accredited Social Health Activists (ASHA) workers, volunteer groups, and Kudumbashree members played a pivotal role in pandemic management in the state. The efficient functioning of local bodies in the state, experience gained from successive disasters, and the Nipah outbreak naturally aided grass-roots-level actions. The lessons others can draw from Kerala are the importance of public expenditure on health, investment for building social capital, and developing the local self-delivery system.

## **Keywords**

Public health, health care, Covid-19, pandemic, decentralisation, Kerala, disaster management.

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## Executive Summary

Covid-19 is one of the biggest crises faced by our generation. With a high level of transmissibility and the absence of an effective vaccine, many states of the second-most populous country – India – focused on containment and mitigation processes. The South Indian state of Kerala's quick response to Covid-19 is a demonstration that epidemic preparedness does not start on the eve of an outbreak. The decentralised governance model has emerged as an advantage in the fight against the pandemic. Through community-based health groups, Kerala has ensured that high-quality care is accessible to all citizens close to home.

This paper presents an analysis of the role of decentralised institutions to understand the learning and challenges of the grass-roots-led pandemic response of Kerala. The study is based on interviews with experts and frontline workers to ensure the representation of all stakeholders dealing with the outbreak, from the state level to the household level, and a review of published government orders, health guidelines, and news articles. The state's response to Covid-19 is analysed in terms of the administrative, socioeconomical, and non-governmental factors. The interventions are mapped against the corresponding departments, institutions, and organisations to understand the extent of the stakeholders' engagement in planning and implementing interventions. The outcome of the study shows that along with the decentralised system of governance, the strong grass-roots-level network of Accredited Social Health Activists (ASHA) workers, volunteer groups, and Kudumbashree members played a pivotal role in pandemic management in the state. The efficient functioning of local bodies in the state, experience gained from successive disasters, and the Nipah outbreak naturally aided grass-roots-level actions. The lessons others can draw from Kerala are the importance of public expenditure on health, investment for building social capital, and developing the local self-delivery system.

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## Acronyms

ASHA	Accredited Social Health Activists
CDS	Community Development Society
Covid-19	coronavirus disease
DISHA	Direct Intervention System for Health Awareness
JPHN	Junior Public Health Nurses
NGO	non-governmental organisation
WHO	World Health Organization

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# 1. Introduction

Covid-19 is one of the biggest crises faced by our generation. The novel coronavirus first appeared in Hubei province of China in November 2019 and has spread across 213 countries, claiming millions of lives. With a high level of transmissibility and the absence until late 2020 of an effective vaccine, the pandemic triggered many states across India to focus on a containment and mitigation strategy. Kerala's quick response to Covid-19 is a demonstration that epidemic preparedness does not start on the eve of an outbreak and that the building of a citizen-centric governance model has emerged as an advantage in the fight against the pandemic. Through community-based health groups, the state has ensured high-quality health care is accessible to all citizens. The significant success in delaying the peak and reducing the fatality rate through the present health system was supported by the existing decentralisation of powers, an emphasis on local action, a focus on transparency and inclusiveness in communications, substantive citizen participation, women's empowerment, universal education, and strong existing systems of public health management. As of 31 October 2020, Kerala reported one of the highest incidences of confirmed Covid-19 cases (433,105), but one of the lowest case-fatality ratios (0.34 per cent) amongst Indian states (Ministry of Health and Family Welfare 2020). This paper presents an analysis of these institutional factors in Kerala's remarkably successful response to the Covid-19 pandemic.

## 1.1 Methodology

This study examines the early period of the pandemic response – January–October 2020 – which coincided with a period in which the research team was already working closely with city-level and state-level authorities on a research and capacity-building project focused on Kerala's participation in India's Smart City Mission. To understand Kerala's response to the pandemic, we made use of qualitative interviews of key stakeholders (Table 1.1), a review of media and grey literature sources, and observations of the response from the vantage point of our ongoing work with the relevant authorities.

These sources helped us to map the major interventions carried out by the various departments, institutions, and organisations. In so doing, we explored the linkages between institutional arrangements that had been put in place ahead of time based on experiences learned from successive disasters (floods and the Nipah virus) and the real-time actions of the various stakeholders as the state's response unfolded. We were able to identify a 'Kerala model' of crisis management, from which we highlight promising practices and insights for

scalability and replicability. It should be noted that some of the factors identified are inherent to the social and political context of the state and will not be easily replicated elsewhere. Nevertheless, the findings are relevant to understanding the role of institutional structures and dynamics – especially the existence of trust across society and government as well as channels of communication that are accessible to and inclusive of the majority of citizens – especially those who are marginalised and vulnerable.

While the study considers the entire state of Kerala, interventions at the district grass-roots level focused on Ernakulam district and Edakochi ward of Kochi Municipal Corporation.

### 1.1.1 Data collection

The data for the study consists of both primary and secondary sources. The secondary data ranges from government orders, notifications, and bulletins to articles and interviews published in both national and international media during the study period. The primary data consists of interviews with the key stakeholders involved in the Covid-19 response and observations by the research team. Ten key stakeholders (Table 1.1) were selected to ensure wide representation of the groups that responded to the outbreak from the state level to the household level. Semi-structured interview questions were designed to understand the effectiveness and efficiency of the approach adopted in the fight against Covid-19. Each interviewee was asked a different set of questions, to provide an opportunity to share their opinions and insights. The interviewee was informed their responses would be compiled as a report. The interviews were carried out using means appropriate to social distancing, including email, Zoom, Skype, and telephone calls.

**Table 1.1 Target group**

Hierarchy	Stakeholder group	Stakeholder type	Geographical spread	Number of interviews
State level	State-level experts	Government	Entire state (Kerala)	Two
District level	District collector	Government	District (Ernakulam)	Two
	Mayor	Elected representative	City (Kochi)	

(Cont'd.)

**Table 1.1 (cont'd.)**

<b>Hierarchy</b>	<b>Stakeholder group</b>	<b>Stakeholder type</b>	<b>Geographical spread</b>	<b>Number of interviews</b>
Community level	Ward councillor	Elected representative	Corporation Ward (No. 16, Edakochi)	Three
	Health inspector	Government official		
	Local community organisation	Non-governmental organisation (NGO)		
Household level	ASHA workers	Health worker		Three
	Kudumbashree member	NGO		

Source: Authors' own.

## 2. Kerala's response to the global pandemic

Kerala stands unique among the Indian states with a consistently higher level of social development. Key indicators such as the Human Development Index (0.84) (Global Data Lab 2020), infant mortality rate (12 per 1,000 live births) (NITI Aayog 2016), sex ratio (1,084 females to 1,000 males) (Census 2011 2021), and female literacy rates (92.07 per cent) (Census 2011 2021) are comparable to those of many developed countries. Despite having a low per capita income, Kerala has made remarkable improvements in quality-of-life indicators (Ravindranathan 2020). Kerala, with a population of about 35 million, has a high population density of approximately 860 people per km<sup>2</sup> (Census 2011 2021). Primary health-care services have been organised systematically with a network extending to the village level. There are 230 community health centres and 845 primary health centres (approximately one per 30,000 population) in the state (Menon *et al.* 2020).

Before the first positive case of coronavirus infection in India, authorities in Kerala had already prepared based on their awareness of the outbreak in China and their assessment that cases would be likely to occur at some point as the virus spread. Drawing on lessons learned from previous experiences with outbreaks (namely the Nipah outbreak of 2018), Kerala made preparations and initiated its response plan. By mid-January, Kerala had set up a State Emergency Operation Centre to review each case of Covid-19 as it emerged, to trace the contacts the sick individuals had made with others, to closely observe those who had been exposed, and to set up quarantine and isolation facilities. The strong local governance network and people's experiences of dealing with back-to-back historic floods in 2018 and 2019 helped ensure that the local-level response mechanisms were rapid and efficient. This section reviews the details of Kerala's early response to the pandemic.

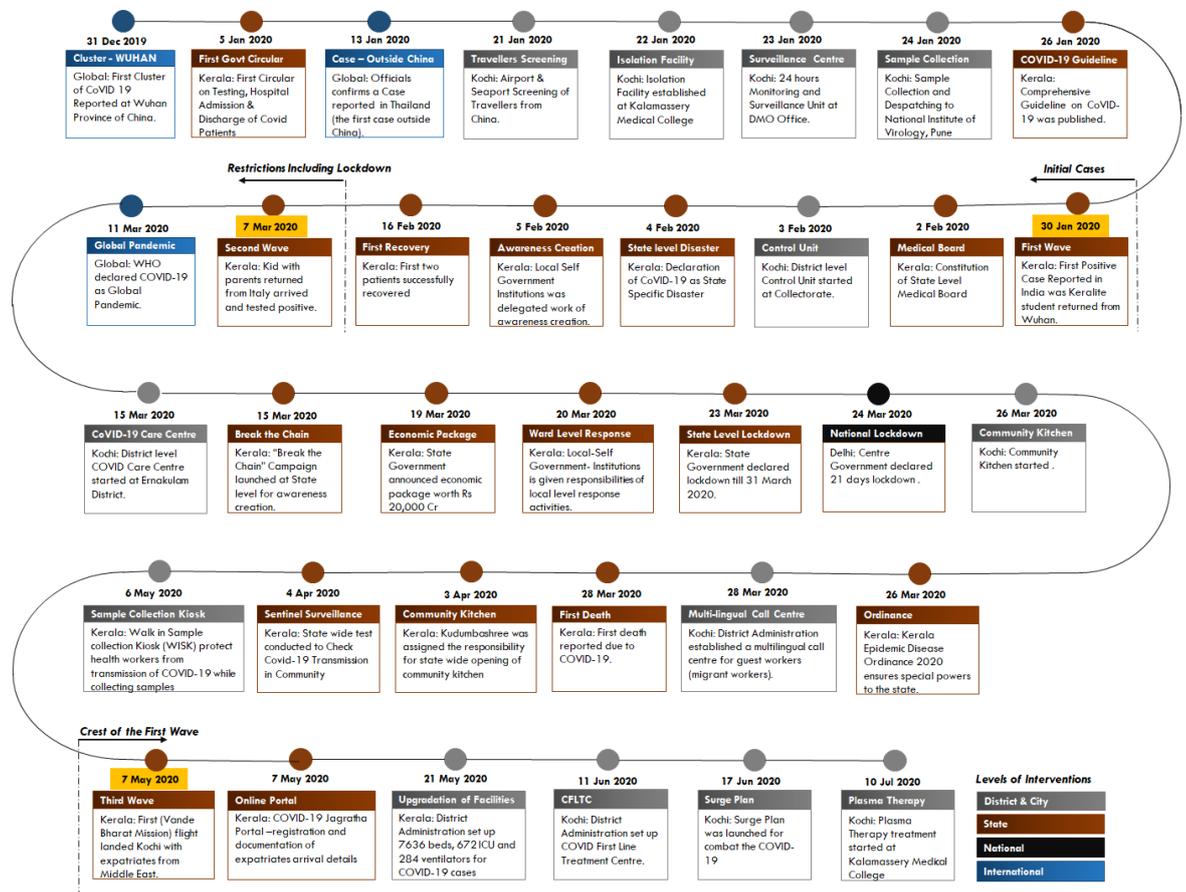
### 2.1 Chronology of events

According to Dr Joy Elamon, Director General of Kerala Institute of Local Administration, 'While cases were reporting at Wuhan, Local Self-Government institutions of Kerala were busy drafting the *panchayat* disaster management plan' (key stakeholder interview, August 2020). Kerala was the first state in the country to report a positive case of Covid-19. Early response and prompt containment efforts helped the state to delay and spread out the peak of the first wave of cases, according to respondents. The state was ready with detailed protocols to handle epidemics caused by unfamiliar pathogens; it has

comprehensive communication practices in place that cut across levels of government and parts of society; it was able to rapidly disseminate helpful information and counter misinformation; it created high levels of public awareness of preventative measures; and it quickly implemented a process for identifying, isolating, and tracing contacts for suspected cases. The timeline of key interventions by different actors of the state as a whole is divided into four parts for the convenience of the study. Figure 2.1 shows the timeline of key responses by multiple agencies at each level.

- **Early response:** The period before the reporting of the first Covid-19 case in India; the period from December 2019 to late January 2020.
- **Initial cases:** The period from 30 January to 7 March 2020, in which the state attempted to minimise transmission of the virus.
- **Restrictions including lockdown:** The period from 7 March 2020 to 7 May 2020. In this period, we discuss the intervention to support vulnerable populations during the lockdown.
- **Crest of the first wave:** This section explores how the state managed the surge of cases in the period from 7 May 2020 to early October 2020.

## Figure 2.1 Timeline of Kerala's key responses to the pandemic



Source: Authors' own.

## 2.2 Lessons learned from successive disasters

The state of Kerala has faced several disasters over the past few years. These included the cyclone Okhi in 2017, the Nipah outbreak of 2018, and the devastating floods of August 2018, followed by another flood in 2019. During each of these crises, Kerala relied on strong institutions of Local Self-Government<sup>1</sup> to act as the first line of defence.

The flood experienced in 2018 killed more than 400 people and was the worst flood in Kerala in nearly a century. The elected representatives at the local level joined hands with community groups and organised response measures for saving thousands of lives. When floods hit the state again in 2019, local citizens and elected representatives used their extensive knowledge about the grass-

<sup>1</sup> Local Self-Government is term used to refer the formal local government institutions in Kerala. These are multitier decentralised institutions empowered to look after local planning, development, and administration of an area or small community such as a village, town, or part of a city. These institutions establish the democracy at the grass-roots level as it is at the state level or national level. Kerala is a unique example for empowerment of citizen through participatory democracy.

roots-level realities to implement rapid response measures. This helped to establish the norm of ensuring disaster response happens from the bottom-up. Drawing on these experiences, in December 2019 the state government mandated that all Local Self-Government institutions prepare local disaster management plans. Through a participatory process, local volunteers at the ground level were deployed to gather grass roots local-level data on sources of vulnerability. The local-level vulnerabilities were documented and incorporated in the disaster management plans, drawing on technical knowledge and experiences from the previous disasters. Resource mapping was also carried out extensively to identify the gaps which would need to be addressed through the annual planning process (Elamon 2020).

After the experience of the Nipah outbreak in 2018, the state developed protocols to handle future epidemics caused by unfamiliar pathogens. Dr Mohammed Asheel, Member of State Response Team, said that,

*If you look at the history of Nipah, when the first case reported in Kozhikode during 2018 claimed lives of 18 people, and in the next outbreak in the year of 2019 at Ernakulam the death rate was zero, which is a remarkable achievement when it comes to a disease like Nipah with a fatality rate of 75 per cent.*

(Key stakeholder interview, September 2020)

The consecutive Nipah outbreaks provided valuable opportunities to develop and hone skills for crisis management that would prepare responders for Covid-19. It served to strengthen the abilities of frontline workers to estimate risks posed by particular threats, to identify resources in the system that could be repurposed to deal with an emerging crisis, to be able to carry out track and trace procedures, to provide appropriate care management for highly infectious critical patients, to analyse data to determine how the epidemic is progressing, to prevent health-care-associated infections, to work with media to avoid panic, and to handle misinformation campaigns (Sadanandan 2020a).

All these experiences aided in developing a robust health protocol for Covid-19, which included rigorous contact tracing, identification of clusters of infections, mobilising communities, development of treatment protocols, deployment of resources, management of data, coordination between various departments and elected representatives, and the involvement of Local Self-Government institutions (Sadanandan 2020b). According to respondents, these efforts helped the state to build a strong foundation for handling public health crises. The lessons learned from these successive disasters appear to have helped the state in the fight against the current global pandemic.

## 2.3 Early screening, aggressive testing, and contact tracing

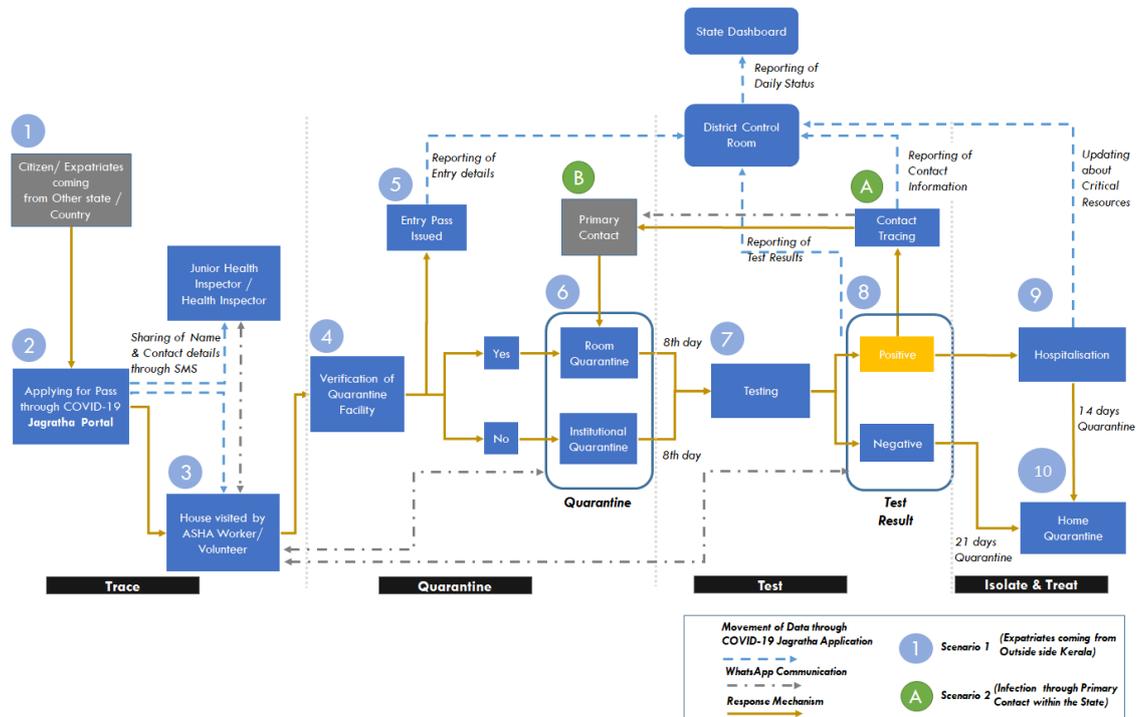
While the rest of India, along with countries such as the UK and the US, had yet to implement stringent steps for the identification of infected travellers, Kerala's four international airports started screening passengers in January 2020. All those passengers showing symptoms were taken to a government facility for testing and isolation (Masih 2020). Their samples were flown to the National Institute of Virology at Pune, 1,200km away, for testing. From early February, authorities also began screening all passengers entering the state via buses and trains (Faleiro 2020).

Kerala sought to proactively follow the World Health Organization's (WHO) recommendation on aggressive testing. However, in the state, as in the rest of India, testing was severely limited in the early days by a lack of laboratory testing capacities. Samples had to be sent to distant national institutes in other states, and there were limited supplies of testing kits. To make up for the limitations on testing, Kerala sought to strategically test as many suspected cases as possible, while also focusing extensive institutional action toward those patients who were symptomatic, and the individuals they had come into contact with (Srivastav 2020). Kerala established testing centres across the state during the period of initial cases (30 January–7 March 2020) to maximise the coverage of testing. According to respondents, the identification of the early Covid-19 infections along with the painstaking contact-tracing process – which involved gathering information from patients as well as their friends and neighbours – helped to limit the spread of the virus during the crucial early days of the outbreak (Ananth 2020). Documents showing the movements of people with confirmed infections were published<sup>2</sup> and, drawing on available data from patients and social media, the contacts of confirmed cases were traced (Biswas 2020). These efforts assisted frontline workers to identify primary and secondary contacts of each positive case. In addition, the state instituted a strict mandate for 28 days of home quarantine for any travellers arriving with a history of travel to any country with a high prevalence of Covid-19 or those with contact with persons with confirmed Covid-19 infection. Figure 2.2 shows the state's strategy in the fight against the pandemic.

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<sup>2</sup> See **Patient Flow Chart – Covid-19 – Pathanamthitta**, shared on the National Health Mission Pathanamthitta Facebook page, 10 March 2020.

**Figure 2.2 Data and information flows involved in testing, tracing and isolating in Kochi, Kerala**



Source: Authors' own.

As Figure 2.2 shows, the strategy to contain the spread of the virus involved multiple stages of decision-making (including tracing, quarantining, testing, isolating, and treating) and multiple directions of information flows. For example, different information flows were required to test, trace and isolate people arriving in Kerala compared to those who were contracting the virus through community-spread (Scenario 1→10 and A→B respectively). We found that the information flows on the official 'Covid-19 Jagratha' data portal (shown by the blue dotted line) were complemented by informal data flows (on WhatsApp) at key stages that required quick and flexible coordination (shown by the grey dotted line).

Along with the decentralised system of governance, the strong grass-roots-level network (Table 2.1 and Figure 2.3) of Accredited Social Health Activists (ASHA) workers, volunteer groups (Samoothika Sannadhsena), and Kudumbashree members played a pivotal role in effectively implementing the guidelines for tracing out the contacts of a Covid-19 positive patient, ensuring the quarantine rules, arranging institutional facilities, and coordination for transferring patients to hospital. Visha Sujathan, ASHA worker of EdaKochi Ward, said,

*The currently assigned locality (350 households) is near to my home. This helped me to build bonding and providing special care to each household. I keep in touch with each household with quarantine patients, and most of the members of the household tell their*

*requirements (medicine, and food supplies) and people whom they contacted during the infectious period.*

(Key stakeholder interview, August 2020)

ASHA workers and Junior Public Health Nurses (JPHNs) are primarily responsible and ensured the good health and wellbeing of pregnant women, bed-ridden patients, destitute, and elderly individuals through teleconsultation and delivery of medicines and food supplies at their doorsteps.

**Table 2.1 Frontline workers at grass-roots level**

SI no.	Stakeholder group	Type	Description	Role in pandemic management
1	ASHA worker	Government volunteers	ASHAs, who are trained female community health workers instituted by the Government of India's Ministry of Health and Family Welfare as a part of the National Rural Health Mission.	ASHA workers play a crucial role in connecting households with the primary health-care system. ASHA workers are primarily responsible to ensure the good health and wellbeing of pregnant women, elderly individuals, destitute, and bed-ridden people. During the Covid-19 outbreak, each worker was in charge of 350 households' wellbeing and was an active member of ward-level Covid-19 rapid response team. In addition, workers were assigned to monitor the quarantined patients, and ensure the supply of food and medicine of people under quarantine/home isolation. During the early response phase, they were actively involved in awareness creation.

**Table 2.1 (cont'd.)**

SI no.	Stakeholder group	Type	Description	Role in pandemic management
2	Kudumbashree	Women self-help group (NGO)	A women self-help group with government support, it is one of the largest women empowering projects in the country. Kudumbashree chooses a family-based approach; it reaches the family through women and the larger community through these families. Neighbourhood groups are the lowest tier, consisting of 15–20 women members.	During the Covid-19 pandemic, Kudumbashree has started 1,144 community kitchens in cities, towns, and villages to address the hunger and shortage of food with the help of Local Self-Government institutes. Out of these, 379 have been started as budget hotels of Kudumbashree units (budget hotels provide meals at a meagre amount of ₹20/- (US\$0.27) per meal). The members of Kudumbashree actively engaged in making face masks, sanitisers, and assisted in doorstep delivery of free food supplies programme by the state government.
3	Samoochika Sannadhsena	Registered volunteers (NGO)	Samoochika Sannadhsena is an organisation of volunteers constituted with help of the Government of Kerala to assist people during crises.	The members of the Samoochika Sannadhsena catalysed most of the response activities at ground level. During the lockdown, they ensured the wellbeing of vulnerable populations, especially taking care of those bed-ridden. During lockdown, this volunteer force assisted in the supply of food packets and medicine to marginalised sections.

Source: Authors' own.

## 2.4 Containment strategy

Kerala was the first state to announce Covid-19 as a health emergency and to take steps for the immediate closure of schools, cinemas, and other public establishments. Declaring the health emergency allowed the Kerala State Disaster Management Authority to begin coordinating all Covid-19 response efforts across the state. Authorities and institutions across the state were put on high alert, and specific duties were assigned to each department. The Department of Home Affairs was put in charge of ensuring law and order, the Food Supply Agency was tasked with providing rations, the Ministry of Information Technology took charge of gathering and monitoring data as well as coordinating communication, the Labour Department worked to ensure the wellbeing of migrant workers, and the local self-government bodies coordinated actions at the grass-roots level.

Law enforcement agencies played a significant role in creating a conducive environment for the health workers and other frontline workers to engage with people. The disease invites social stigma and panic, with the potential for social unrest. Janamaithri police and ward-level committees jointly gathered intelligence, countering fake news, and ensured quarantine rules were enforced. More details on how these different actors coordinated to identify those most vulnerable (i.e. to stigma or destitution) can be found in sections 2.5 and 2.6.

The Kerala government promulgated an ordinance titled Kerala Epidemics Ordinance 2020 to unify and consolidate laws relating to the regulations and preventions of diseases. The ordinance provides several extraordinary powers to the government to deal with the Covid-19 outbreak, including restrictions on essential services and the introduction of a two-year imprisonment penalty. Based on interviews, these appear to have facilitated buy-in and compliance amongst the public.

## 2.5 Bringing together technology and local self-institutions for awareness and transparency

From the time of the first confirmed case of Covid-19, the Government of Kerala began a massive campaign to provide clear information and guidance to its citizens. The number of confirmed cases was updated daily and posted. The Hon. Chief Minister would provide a daily media briefing, which brought the entire state together to receive updated information, guidance, and encouragement (Vora 2020). This was achieved through even-handed leadership, transparency, and clarity. The public was kept informed of the details of new cases, countering misinformation while keeping the personal data of patients private. Mr Vinu Mohan, Junior Health Inspector, said, 'Based on my experience, the best story we can share about Covid-19 responses are very

strong action on ground, transparent and well-informed state' (Key stakeholder interview, September 2020).

Break the Chain was a mass handwashing campaign to inform people about the importance of public and personal hygiene and social distancing measures. Under this campaign, Local Self-Government institutions as well as volunteer groups installed sanitising facilities at public spaces, office spaces, shops, and more to promote behavioural change. This was in recognition of the fact that a lack of access to water and hygiene would lead to disproportionate risk for poor and marginalised groups. Ms Prathibha Ansari, Councillor of Eda Kochi Ward, said,

*Break the Chain campaign was an effective measure for the awareness creation about the use of masks, social distancing, and relevance of frequent hand washing. This campaign helped to ward off the community spread and number of positive cases in our ward.*  
(Key stakeholder interview, August 2020)

The Government of Kerala deployed robust information technology (IT) services to accelerate its health-care planning and response mechanism. GoK Direct app is a mobile application launched to share daily updates and to tackle fake news. Through the application, updates on government decisions and guidelines were easily conveyed. Kerala Health Online Training (YouTube channel), a digital platform, helped to provide all currently available scientific and general information about Covid-19 to the public and health-care personnel. Social media accounts were used as a platform for providing a remarkable compilation of updates on government steps to tackle Covid-19 and to disseminate advice and appeals to the people. The Covid-19 Dashboard launched by the government to share an update on daily reporting of positive cases, number of tests, outbreak locations, community kitchens, the number of destitute, and quarantine reports. Twenty four-hour control rooms and helpdesks were set up at the district level to monitor the entire situation and facilitate the coordination of field teams. The control room takes account of the situation twice a day and instructions are provided to the field team. An Online Supply Chain and Inventory Management Information Dashboard was developed to monitor the stock, demand, and supply of essential commodities during the lockdown. For recording and issuing entry permits to the incoming expatriates, Covid-19 Jagratha portal was developed. Mr S. Suhas, IAS, Collector of Ernakulam District, said, 'Every hospital knows what other hospitals are offering, each hospital was updating their data every four hours, and so we know what capability our district has at any given period' (key stakeholder interview, August 2020).

Across each of these initiatives, there is a common theme of bringing together an appropriate use of technology with an effective institutional response. According to Dr Mohammed Asheel, Member of State Response Team,

*Geo-fencing technology was used by cyber police initially to identify the violation of quarantine rules. Nearly about 58 per cent of violations were identified by a cyber-wing of the police, 38 per cent was identified using health-care workers and other cases were reported by the locals.*

(Key stakeholder interview, September 2020)

Kerala has made use of IT, especially in producing an app for dissemination of information and in tracking Covid-19 positive cases and those who were exposed to them. However, the IT response had two important features, which should provide important lessons for other cities.

Firstly, Kerala did not look to technology alone to solve the crisis. In each of the initiatives described above, the technology was deployed alongside and as a supplement to existing institutions. The GoK Covid-19 Dashboard was merely an interface through which citizens could interact with existing institutions such as community kitchens. It would not have worked if citizens had not already trusted the government to accurately collect data and share it in good faith. The GoK Direct app was able to counter fake news, not because of its superior technology, but because citizens already had a level of literacy and discernment as well as a trust that government would guide them in a reliable way. But the app and the Dashboard also served to strengthen the institutions, creating even greater confidence amongst citizens that the government could be trusted to share information and that guidance was based on the best available evidence.

Secondly, where the first technology-centred responses to Covid-19 in many places have been for tracking and surveillance, Kerala has prioritised the use of technology for transparency. This turns on its head the assumptions many of us hold about what technology is for. Rather than merely collecting information so the government can make informed decisions in private, they have shared information as it was collected and let citizens see inside the workings of government – and even contribute to decision-making through decentralised action – which appears to have been even more valuable in crafting effective policy responses than a purely technocratic ‘data-driven’ approach would have been.

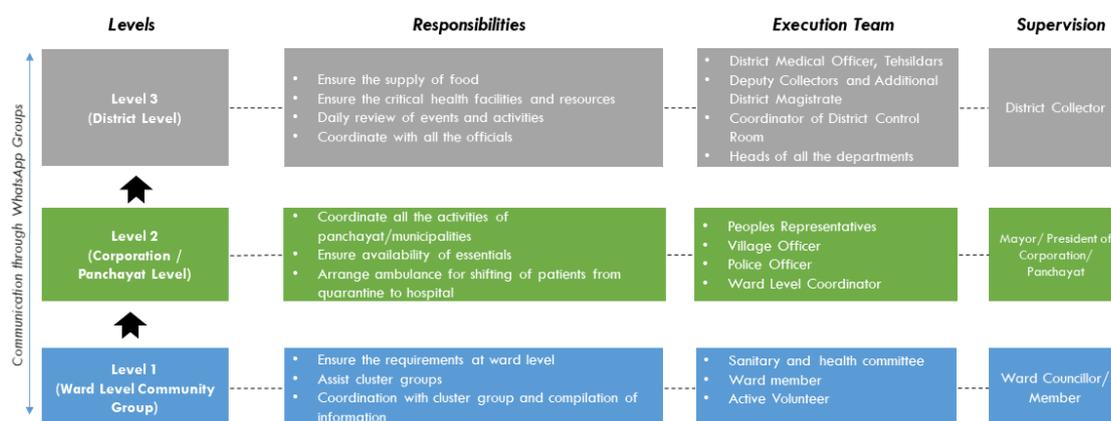
The lesson here should not be that Kerala already has in place unique institutions. Whatever institutions exist in a given context can be intentionally leveraged to make more effective use of technology – especially where the goal is to use the technology for transparency and inclusiveness rather than merely surveillance and control. And technology can be used intentionally to strengthen institutions as well, which requires authorities to think critically about what the technology is for – namely that technology is not an end in itself but a tool to be deployed for a purpose. Kerala demonstrates that success is possible where

social institutions include trust, awareness, and a sense of a shared stake in society's outcomes, to strengthen their purpose.

## 2.6 Support to livelihoods during lockdown

The government has put measures in place to ensure the wellbeing of people with special needs since the outbreak. Kerala was the first state in India to pass an economic stimulus package to address the hardships caused by the pandemic, as well as the stopping of economic activity (Krishnakumar 2020). The Government of Kerala also started distributing welfare pensions and free rations of food grains to all. This has helped prevent poor and marginalised people from having to choose between their health and their livelihoods and helped mitigate against exacerbating inequalities during the crisis.

**Figure 2.3 Bottom-up response mechanism**



Source: Authors' own.

Active community engagement has been a key feature of Kerala's response to Covid-19. Ms Soumini Jain, Mayor of Kochi Municipal Corporation, said, 'Ward level committees and different community groups have been in the frontline and are the face of the fight for Covid-19' (Key stakeholder interview, October 2020). The grass-roots-level execution teams have been formed to reach out to each and every household. Community groups and ward committee members have helped to collect data about people in palliative care, pregnant women, settlements of scheduled castes and tribal villages, fishing villages, slum dwellers, guest workers, daily wage workers, street vendors, people living alone, and the destitute. Where these groups have relied on ASHA workers and volunteers, they have received training to ensure the health and safety of people with special needs. In part through the community mechanisms mentioned in Figure 2.3, the government has appointed teams to address the requirements of people with special needs, including people with disabilities. Three levels of

execution teams were formed – ward-level community groups, corporation/*panchayat*, and district-level groups – to ensure government services reach the most isolated and marginalised groups. At each level, people came together to address the crisis – representatives from community-based organisations, *anganwadi* teachers, ASHA workers, health workers, Kudumbashree members, elected representatives, and other government officials – ensuring effective response. Strong communication networks at each level, some already in place and others newly created, were incorporated into the response and given responsibilities.

Direct Intervention System for Health Awareness (DISHA), a 24/7 telehealth helpline, has played an active role in providing general physical and mental health support. As part of a holistic approach by the state to help citizens to manage stress and maintain mental health during the outbreak, this helpline has also helped in communicating key information to citizens (John, Gunasekaran and M. 2020).

During the lockdown, the state was running more than 15,000 relief camps for housing migrant labourers, and more than 1,200 community kitchens have been set up throughout the state to distribute food packets (BQ Desk 2020). The networks of ASHA, Kudumbashree, *anganwadi* workers, and volunteers were closely involved in ensuring that the government services reach people at the grass-roots level. According to Ms Jancy Joseph, Kudumbashree Community Development Society (CDS)-West Chairperson,

*Since March 2020, Kudumbashree has been enthusiastically engaged in organising and managing the community kitchens. Our CDS distributed food material kits to households as part of support to the vulnerable population. Through providing loans to the Kudumbashree member, we have ensured the financial assistance to each of the vulnerable households.*

(Key stakeholder interview, September 2020)

Together, these efforts represent a proactively inclusive approach to the pandemic.

## 3. Comprehensive assessment

### 3.1 Analysis of the stakeholder interview

The current analysis provides a holistic view of the state's pandemic management with the help of a framework designed to understand the interdependency of institutional arrangements. The response mechanism and interventions at each level have been consolidated in the framework (Table 3.1) in an organised manner, which elaborates the involvement of various stakeholders and departments in the fight against the pandemic. The rows highlighting the various activities/interventions are grouped under three main activities/interventions: health strategy, support to livelihood, and transparency and information dissemination. The stakeholders are grouped into three in the columns based on their level of engagement, namely community, city and district, and state level. The involvement of each stakeholder mapped against response measures/interventions with coloured dots as a representation of their type of responsibility: the darkest colour [dark blue] represents primary responsibility, the medium colour [orange] denotes secondary, and the lightest colour [grey] denotes tertiary responsibility. The mapping of activity/intervention against stakeholders is based on inferences gained from stakeholder interviews and different orders, guidelines, and bulletins published by the government.

Table 3.1 Overall assessment

Activities/Interventions			COVID-19 Response Mechanism																	
			Community Level					City & District Level				State Level								
			ASHA Worker	Kudumbashree Member (NGO)	Registered Volunteer (NGO)	Ward Councillor	JPHN/ JHI/ HI	City Corporation	District Administration	District Medical Officer	CDO (NGO)	Health	LSG	Police	Revenue	Civil Supplies	PRD	TV Channels	Social Media	
Health Strategy	Trace	Screening & Quarantining of Travellers																		
		Contact Tracing	●			●	●				●	●								
	Quarantine	Room & Home Quarantine	●			●	●													
		Ensuring Effective Quarantine Rules	●		●	●	●							●						
	Test	Establishing Testing Centres									●	●								
		Coordination for Testing	●			●	●													
		Informing Test Results	●			●	●													
	Isolate and Treat	Hospital Transfer	●			●	●					●								
		Establishing CFLTC & CSLTC			●	●	●	●				●	●		●					
		COVID-19 Hospital										●	●							
		Sentinel Surveillance					●					●								
		Patient Treatment										●								
Home Quarantine of Discharged Patients		●			●	●	●							●						
Support to the Livelihood	Universal Rations	Distribution of Rations			●	●										●				
		Food Kits (Raw Material)	●	●	●	●			●							●				
		Cooked Food Packets	●	●	●	●			●							●				
	Shelter and Community Kitchen	Relief Camps for Guest Workers (Migrant Workers)	●		●	●	●		●	●					●					
		Community Kitchen		●	●	●		●				●				●				
	Financial Stimulus Package	Distribution of Pensions									●									
		Distribution of Loans		●																
Special Care	Doorstep Delivery of Medicine	●		●								●								
	DISHA Call Centre (24/7)																			
Transparency and Informed Dissemination	Awareness Creation	Break the Chain Campaign	●		●	●	●	●	●	●	●	●	●	●						
		Installation of Sanitization facilities	●		●	●	●	●	●	●	●	●	●	●						
		Sanitation of Public Spaces & Making of Face Mask				●	●	●	●	●	●	●	●	●						
		Training of Frontline Workers & Volunteers					●	●	●	●	●	●	●	●						
	Transparency	Daily Briefing																●	●	
		Dashboard					●											●	●	
		Use of Social Media & Live Streaming	●		●	●												●	●	
		Countering Fake News	●		●	●												●	●	

● Primary Responsibility     JPHN: Junior Public Health Nurse of Primary/Family Health Care Centre     JHI: Junior Health Inspector     HI: Health Inspector     NGO: Non Government Organisations     CDO: Community Development Organisation  
● Secondary Responsibility     LSG: Local Self Government Department     PRD: Information and Public Relations Development     CFLTC: COVID-19 First Line Treatment Centre     CSLTC: COVID-19 Second Line Treatment Centre  
● Tertiary Responsibility

Source: Authors' own.

The aggregation of coloured dots highlights institutional interlinkages and level of coordination in the execution of various response measures. The table reveals that the interventions are effectively cross-sectoral and cross-organisational, involving collective action from the grass-roots level to the state level. The density of dots at the community and district levels reveals that the state has focused on grass-roots-level interventions. The ASHA workers, registered volunteers, junior health inspectors, health inspectors, and JPHNs were used as key linkages to people even in remote locations. This brigade of the first line of defence collects data that observes developments in their localities and reports to their immediate higher authorities. Most of the decisions are taken at lower levels, taking into account local actors' awareness of the realities on the ground. The community-level response mechanism has its roots in the prevailing social, economic, and political institutions, which have created favourable environments for collective action. The decentralisation of power and the efficient functioning of local bodies in the state, effective learning and refining of institutions after successive disasters, and the experience gained from Nipah, resulted in a conducive environment for responding to the Covid-19 pandemic. According to the respondents in this study as well as our observations, the state's bottom-up approach made all the difference.

### **3.1.1 Leveraging local networks for grass-roots-level actions**

The state does not have a flourishing industry, successful agriculture, or an abundance of minerals. Still, it managed to delay the peak of Covid-19 infections and keep the fatality rate low in an efficient, low-cost way. At the core of Kerala's fight was setting up the community-based strategy under the guidance of local self-institutions. The networks of frontline workers have been organising awareness campaigns, arranging food, medicine, and other means of support including counselling. Kerala invested heavily in training grass-roots-level health workers to provide quality treatment and regular health monitoring for citizens. Through community-based health groups, Kerala has ensured high-quality care is accessible to all citizens close to home. During our interaction with stakeholders, we came to know that there were efforts to revive the existing ward-level committees on health and sanitation, and repurpose the existing emergency response teams constituted under the local-level disaster management plan into a Covid-19 rapid response team. Ward-level community groups, formed under the leadership of the elected representative and comprising of health inspector, ASHA workers, and Kudumbashree members, were constituted to gather information on marginalised groups to ensure support to life and livelihood. The network of ASHA workers in the state ensures that 85 per cent of beneficiaries can access primary care.

ASHA workers provide the first line of care for infants and pregnant women in Kerala. Together, they make up a network of more than 27,000 workers, and

they make more frequent home visits than any other organisation or institution in the state. The ASHA workers of Kerala have been central to the effort to monitor and provide care to quarantined patients. They also provide accountability and enforcement where patients fail to abide by quarantine restrictions. This network has ensured consistent access to care for potential Covid-19 patients, and it has gone a long way to countering inequalities and health disparities faced by marginalised groups.

Kudumbashree Mission, a network of community-based organisations, or neighbourhood groups, comprised of women workers has been used to ensure the 'last mile connectivity' of government services. With a vast network across the state with a total of 4,491,834 members, it plays a significant role in creating a strong sense of people-centric governance and grass-roots-level action in communities. In addition to ensuring that communities are connected to public services, the Kudumbashree network has been deployed for the rapid production of facemasks and hand sanitisers, as well as helping the city government operate community kitchens.

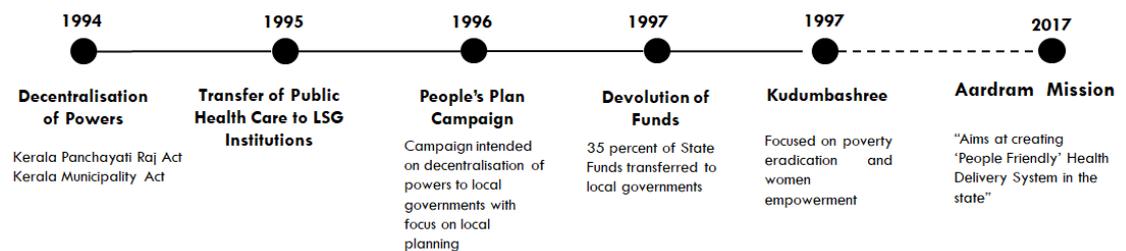
Samoothika Sannadhsena (registered volunteer) is a volunteer community 'civil defence force' formed for disaster response at the local level. The Samoothika Sannadhsena helped set up and implement ward-level disaster mitigation plans. Since the beginning of the Covid-19 outbreak, they have coordinated activities in wards. Ward committees successfully mobilised the volunteers for support in containing the spread of the coronavirus. The Sannadhsena volunteers have helped assess and meet the needs of households, including the supply of medicines and food (i.e. from the community kitchens).

### 3.1.2 Decentralised governance model

Kerala's quick response to Covid-19 contrasts sharply with the experience of many other states and is a demonstration that epidemic preparedness does not start on the eve of an outbreak. The building of a citizen-centric governance model has emerged as an advantage in the fight against the pandemic. The effective decentralisation of powers and resources in the state became a reality in the late 1990s (Figure 3.1). The state launched the People's Plan Campaign in 1996 to empower grass-roots-level planning from ward *Sabha* meetings to the district planning committee. As a result, 25–30 per cent of plan funds have been made available to the local bodies for planning and resource mobilisation at the local level. Kudumbashree, intended for poverty eradication and women's empowerment, is one of the most renowned achievements of democratic decentralisation. At the same time, primary and secondary health care have come under the direct purview of Local Self-Governments (Benson Thomas and Rajesh 2011). To fulfil this role, Kerala recently launched the Aardram Mission to

make the health-care-delivery system more people-friendly. Such efforts helped to develop strong accountability and better facilities at primary health centres over time.

## Figure 3.1 Timeline of decentralisation of powers in Kerala



Source: Authors' own.

Kerala is exceptional in the high levels of participation in these local-level institutions of democracy, imbuing them with strong capacities and legitimacy. The experience of Kerala demonstrates that empowered Local Self-Governments, to whom powers are devolved, are an effective way to address challenges in times of crisis. Attempts to follow Kerala's example would face particular challenges in other contexts. However, we suggest that forms of decentralisation that provide substantial resources along with substantial powers to effective local actors should create conditions for more effective emergency response.

## 4. Discussions

Kerala has achieved a unique and uniquely effective response to the Covid-19 pandemic. This achievement has been grounded in its decentralised and participatory institutions for health-care provision and governance. During the pandemic, Kerala leveraged its institutional strengths together with thoughtful use of innovative technologies to ensure one of the best-coordinated and effective responses – saving lives and strengthening public trust.

Since the inception of the state, Kerala has consistently spent heavily on developing its health infrastructure, facilitating the delivery of modern health-care services. The success in handling the pandemic through the present health system was supported by the existing decentralisation of powers, a focus on local action, a focus on transparency and inclusiveness in communications, substantive citizen participation, women's empowerment, universal education, and strong existing systems of public health management. These resources had been strengthened based on lessons learned from the previous successive floods and 2018 Nipah outbreak, ensuring them and the state were prepared for the Covid-19 pandemic when it occurred. Successive elected governments have helped develop the network of government hospitals – ensuring that holistic health care is valued, wellbeing is grounded in effective institutions, and that these fundamental issues remain unpoliticised. The history of progressive measures undertaken by the state in the past are now paying off, as Kerala strives to contain the spread of Covid-19.

While the prompt and organised effort to tackle the Covid-19 outbreak received much praise in the first wave, Kerala eventually had to face the same rise in cases faced almost everywhere. For more than a year now, the state's entire machinery, including the frontline workers, has been in action 24/7, irrespective of the festivals and holidays. Carrying on at this level of intensity is a challenge as it requires the vigilance of people. As a result, fatigue is developing among people in action. The government institutions, including local self-institutions, were using the financial resources from the plan fund for Covid-19 management. The stopping of economic activity and lockdown impeded a financial crisis in the state. Further, elections to the local body are due, which means at some point elected representatives have to back out. The surge of cases following the relaxation of restrictions, local festivals, and recent monsoon, is ongoing at the time of writing this paper. All these pose a unique challenge to the pandemic management of the state.

The state's current pandemic management needs a revised strategy to overcome these challenges. Public awareness campaigns are required to rejuvenate the energy of teams. The public health emergency should not curtail

the democratic rights of the people; containment effort and election should go in parallel, with new innovative solutions to be adopted to conduct elections. The business establishments need to be strictly monitored for compliance with Covid-19 protocols. The state needs to curtail the surge of cases within the threshold of health resources, as the state health system is strengthened to the level that can handle up to 10,000 cases per day.

Kerala's success in handling Covid-19 has been dependent on many factors, such as the prevailing political, economic, and social fabric of the state, including strong public health systems that were nurtured over years. Other states and local governments can learn many important lessons from Kerala's experience. Not everywhere will have effective decentralised institutions in place, given that these take a long time to build and require particular social and political circumstances. However, the key lesson from Kerala's success is that, where there is a political will, an effective, life-saving response to a pandemic crisis can be achieved without excessive expense and without relying on technologies to provide a miracle cure.

Additional lessons others can take from the state are the importance of public expenditure on health, investment in building social capital, and developing the local self-delivery system. Key available technologies can be used to leverage whatever effective public institutions exist, and these can be most effectively deployed by focusing on transparency and inclusiveness, not surveillance and technocratic control. In this way, it is possible to foster citizen buy-in, solidarity, awareness, and collective action; and you can counter tendencies for crises to drive wedges through society at existing fault lines. Rather than misinformation, panic, and social fraying during a time of stress, this approach may help achieve an effective, coordinated response that brings people together, saves lives, and nurtures the kind of inclusive society citizens can be proud of.

## Annexe 1 Government orders and health advisories

nCorona Virus Outbreak Control and Prevention State Cell, Health & Family Welfare Department, Government of Kerala (2020) *Addendum to the Testing, Quarantine, Hospital Admission and Discharge Criteria for nCoV*, 5 January (accessed 20 August 2020)

Department of Health and Family Welfare, Govt of Kerala (2020) *nCorona – Guidelines*, 26 January (accessed 20 August 2020)

Government of Kerala (2020) *Order dated 4 February 2020* (accessed 20 August 2020)

Government of Kerala (2020) *Order dated 20 March 2020* (accessed 20 August 2020)

Government of Kerala (2020) *Order dated 26 March 2020* (accessed 20 August 2020)

Government of Kerala (2020) *Order dated 3 April 2020* (accessed 20 August 2020)

## Annexe 2 Details of stakeholder interviews

SI no.	Name and description	Date and time of interview	Duration	Interview platform and language
1	<b>Dr Mohammed Asheel</b> Executive Director – Social Security Mission, Public Health Expert, Member of State Response Team	5 September 2020 12:15pm	50 minutes	Zoom English
2	<b>Dr Joy Elamon</b> Director General, Kerala Institute of Local Administration	25 August 2020 12:30pm	40 minutes	Skype English
3	<b>Ms Soumini Jain</b> Mayor, Kochi Municipal Corporation (KMC)	15 October 2020	N/A	Mail English
4	<b>Mr S Suhas, IAS</b> District Collector, Ernakulam District	25 August 2020 2:30pm	30 minutes	Zoom English
5	<b>Ms Prathibha Ansari</b> Councillor (Eda Kochi) and Chairperson, Standing Committee for Health - Kochi Municipal Corporation	27 August 2020 11:00am	35 minutes	Telephone Malayalam
6	<b>Ms Jancy Joseph</b> Chairperson Kudumbashreee, (CDS-West)	17 September 2020 11:30am	23 minutes	Telephone Malayalam
7	<b>Mr Vinu Mohan</b> Junior Health Inspector Eda Kochi South Ward	17 September 2020 2:00 pm	25 minutes	Zoom Malayalam
8	<b>Ms Visha Sujathan</b> ASHA Worker Eda Kochi South Ward	29 August 2020 10:00am	53 minutes	Telephone Malayalam
9	<b>Ms Priya Prasad</b> Kudumbashree Member Eda Kochi South Ward	4 September 2020 2:30pm	16 minutes	Telephone Malayalam

10	<b>Mr Anthony Santhosh</b> Volunteer – Covid-19 Ward level committee	9 September 2020 3:00pm	26 minutes	Telephone Malayalam
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## Annexe 3 Dashboards and mobile applications

SI no.	Description	Link
1	GoK Direct mobile app	Android: <a href="https://play.google.com/store/apps/details?id=com.qkopy.prdkerala&amp;hl=en_IN">https://play.google.com/store/apps/details?id=com.qkopy.prdkerala&amp;hl=en_IN</a>  iOS: <a href="https://apps.apple.com/in/app/gok-direct/id1502436125">https://apps.apple.com/in/app/gok-direct/id1502436125</a>
2	Kerala Health Online Training (YouTube Channel)	<a href="https://www.youtube.com/channel/UCSE0zP8darFGvDn3CyC2ERg">https://www.youtube.com/channel/UCSE0zP8darFGvDn3CyC2ERg</a>
3	GoK Covid-19 Dashboard	<a href="https://dashboard.kerala.gov.in/">https://dashboard.kerala.gov.in/</a>
4	Online Supply Chain and Inventory Management Information Dashboard	<a href="http://www.sims.kerala.gov.in/?fbclid=IwAR3EsWG8FCeJgTSxeDNtovXA1KLMApKP3RgBpp6JhCwtINDUs6FhHsiU7GQ">http://www.sims.kerala.gov.in/?fbclid=IwAR3EsWG8FCeJgTSxeDNtovXA1KLMApKP3RgBpp6JhCwtINDUs6FhHsiU7GQ</a>
5	Twitter	CMO: <a href="https://twitter.com/CMOKerala?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor">https://twitter.com/CMOKerala?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor</a>  Health Minister: <a href="https://twitter.com/shailajateacher?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor">https://twitter.com/shailajateacher?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor</a>

## References

- Ananth, V. (2020) '**As Covid-19 Cases Rise in India, "Covtech" Based Surveillance Intensifies**', *The Economic Times*, 30 March (accessed 23 April 2021)
- Benson Thomas, M. and Rajesh, K. (2011) **Decentralisation and Interventions in Health Sector: A Critical Inquiry into the Experience of Local Self-Governments in Kerala**, Working Paper 271, Bangalore: Institute for Social and Economic Change (accessed 23 April 2021)
- Biswas, S. (2020) '**Coronavirus: How India's Kerala State "Flattened the Curve"**', *BBC News*, 16 April (accessed 23 April 2021)
- BQ Desk (2020) '**Coronavirus Lockdown: Kerala Has 69% Of India's Government-Run Relief Camps For Migrant Workers**', *Bloomberg | Quint*, 9 April (accessed 20 April 2021)
- Census 2011 (2021) **Kerala Population Sex Ratio in Kerala Literacy Rate Data 2011–2021** (accessed 30 March 2021)
- Elamon, J. (2020) '**Kerala Model: How the State Fought the Deadly Coronavirus**', *Policy Circle*, 13 April (accessed 20 April 2021)
- Faleiro, S. (2020) '**What the World Can Learn from Kerala About How to Fight Covid-19**', *MIT Technology Review*, 13 April (accessed 20 April 2021)
- Global Data Lab (2020) **Subnational Human Development Index (4.0)** (accessed 30 March 2021)
- John, C.E.; Gunasekaran, I. and N, R.M. (2020) '**Covid-19: Taking Heed From Kerala's Mental Health Interventions**', *The Wire Science*, 27 March (accessed 20 April 2021)
- Krishnakumar, R. (2020) '**Kerala Model**', *Frontline*, 10 April (accessed 23 April 2021)
- Masih, N. (2020) '**Aggressive Testing, Contact Tracing, Cooked Meals: How the Indian State of Kerala Flattened its Coronavirus Curve**', *Washington Post*, 14 April (accessed 23 April 2021)
- Menon, J.C.; Rakesh, P.S.; John, D.; Thachathodiyl, R. and Banerjee, A. (2020) '**What was Right About Kerala's Response to the Covid-19 Pandemic?**', *BMJ Global Health* 5.7: e003212 (accessed 23 April 2021)
- Ministry of Health and Family Welfare (2020) '**India's Case Fatality Rate (CFR) Falls Below 1.5%**', *PIB Delhi*, 31 October (accessed 20 April 2021)
- NITI Aayog (2016) **Infant Mortality Rate (IMR) (Per 1000 Live Births)** (accessed 30 March 2021)
- Ravindranathan, P. (2020) '**Covid-19: Kerala Model is the Success of Decentralised Democracy**', *Policy Circle*, 10 April (accessed 23 April 2021)
- Sadanandan, R. (2020a) '**Kerala's Response to Covid-19**', *Indian Journal of Public Health* 64.6: 99–101 (accessed 23 April 2021)
- Sadanandan, R. (2020b) '**Managing Covid-19: Lessons From Kerala's Nipah Outbreak**', *Bloomberg | Quint*, 18 March (accessed 20 April 2021)
- Srivastav, T. (2020) '**Why India has the Upper Hand Against Covid-19**', *World Economic Forum*, 17 April (accessed 20 April 2021)
- Vora, R. (2020) '**Covid-19 and Lesson from Kerala**', *India Development Review*, 1 April (accessed 20 April 2021)





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