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**Management of the COVID-19 pandemic in
Kerala through the lens of state capacity and
clientelism**

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Abstract: During the first wave of COVID-19 infections, Kerala, a state in southern India, successfully managed to contain the pandemic. As a result, the Kerala model of managing the COVID-19 pandemic was celebrated as a success across the globe. However, at the time of writing, it looks like the celebrations were a bit premature and the failure to contain the spurt in COVID-19 infections in the state in a second wave also ascertains this fact. While the rest of India recovered from the second wave of COVID-19 infections, Kerala struggled to bring the pandemic under control. This paper examines the state capacity in terms of health infrastructure before and during the pandemic. The paper also investigates the reasons behind the unravelling of the Kerala model of pandemic management. We analyse the role and impact of clientelism and political hegemony of the Left Democratic Front (LDF) in Kerala over COVID-19 mitigation strategies. We also investigate how Kerala's effective pandemic response created a sort of performance legitimacy for the LDF government.

Key words: COVID-19 pandemic, state capacity, political hegemony, clientelism, Kerala model

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1 Introduction

Various experiences from countries that have dealt with COVID-19 show that state capacity has had a large role in managing the pandemic. It has also been widely acknowledged that apart from the robust healthcare system, other key factors that influenced the success and failure of a state in containing the pandemic were the type and nature of political regime, share of elderly and comorbid population, and the promptness in strictly enforcing containment strategies and policy measures (Serikbayeva et al. 2021). In this context, Kerala, a state in southern India offers an interesting case study. The health sector in Kerala has served as a role model for the rest of India, not only in terms of its robust health infrastructure but also in effectively dealing with exigencies it had to counter. Kerala, a state with a population of over 35 million,¹ had initial success in containing the COVID-19 pandemic. This initial success in flattening the infection curve was attributed to the state's unique model of development—referred to as the Kerala model—characterized by public action in health and education as well as a high rate of social mobilization under the umbrella of vibrant civil society movements and organizations.

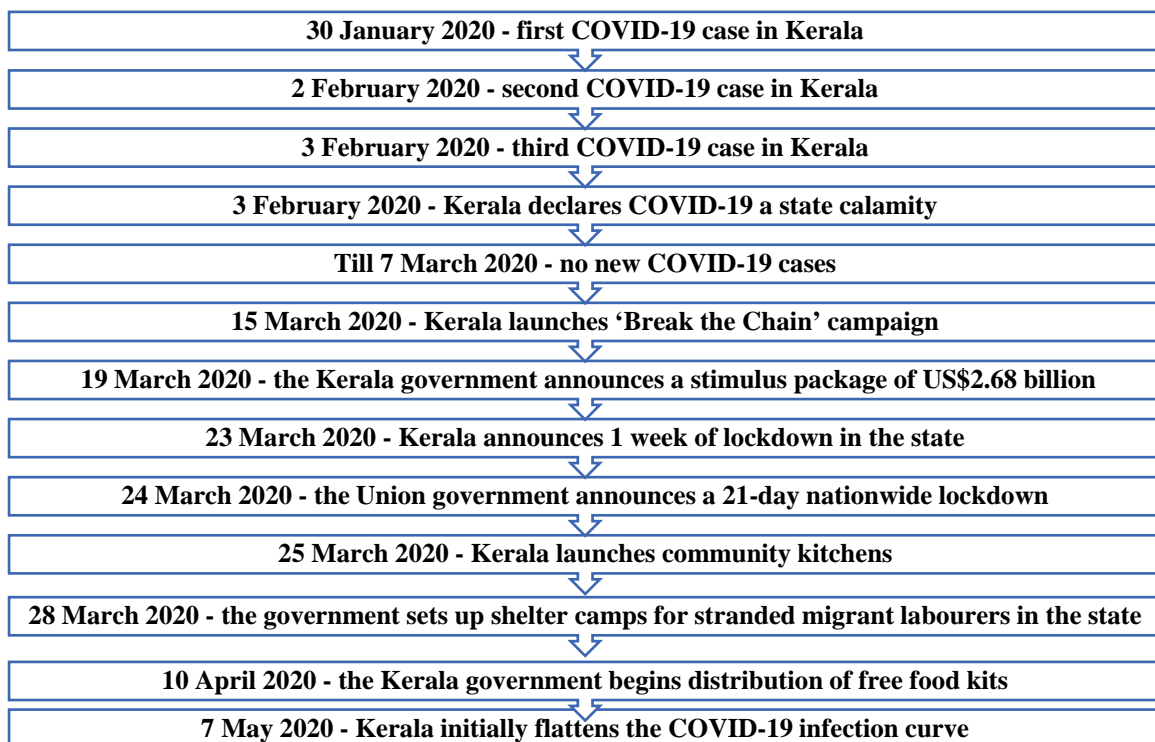
Since the 1970s, Kerala has been a paradox in terms of its model of development. The state has been celebrated as a 'unique development model' by economists and scholars across the world for its notable achievements in human development and poverty reduction, despite its relatively low growth in gross domestic product (Franke and Chasin 1994). The state's early investment in health and education despite low income has defied conventional development economics. The robust healthcare system, decentralized institutions rooted in a participatory mode of governance, and the capacity of the state to work in synergy with civil society with a 'high degree of consensus and public trust' (Chathukulam and Tharamangalam 2021; Heller 2000) are the very hallmarks of the Kerala model of development. There is no doubt that these factors that define the legacy of the Kerala model of development equipped the state in effectively handling the initial phases of the first wave of the COVID-19 pandemic. In addition, the lessons learnt from containing the 2018 Nipah outbreak and managing the two devastating floods in 2018 and 2019 also helped the state in mitigating the pandemic swiftly. The state capacity in terms of health infrastructure and a high degree of public trust in welfare measures taken by the state and its apparatuses were the reasons behind Kerala's early success. Although Kerala has a strong health system, the state has its fair share of challenges in the form of an ageing population and prevalence of various comorbidities. Despite its better equipped health system, Kerala could not control the deaths resulting from COVID-19 and to mask this failure the state government even attempted to fudge the data to avoid scrutiny on its robust capacity. There has been confusion about whether it is state capacity or the type of political regime in power and its efficacy to mobilize state capacity to its fullest which has been responsible for the failure or success in managing the COVID-19 pandemic. We have attempted to assess management of the COVID-19 pandemic through the lens of efficient state capacity and how it helped the ruling party, the Left Democratic Front (LDF), to maximize state capacity through clientelist practices.

¹ According to the 2011 Census of India, the population of Kerala is 3,34,06,061, or 2.76 per cent of India's population (see Government of India 2011). As per the figures of the Unique Identification Authority of India (2020), the projected population for Kerala was 3,56,99,443 by mid-2020.

2 COVID-19 in Kerala

It was on 30 January 2020 that the World Health Organization (WHO) declared COVID-19 a public health emergency of international concern and the very same day Kerala reported its first case of the novel coronavirus. The first COVID-19 patient was a 20-year-old medical student at Wuhan University, Hubei, China, who returned to her home in Thrissur district in Kerala following semester holidays (Perappadan 2020). This was also India's first COVID-19 case (see Figure 1). The initial response focused on surveillance and screening of all incoming passengers from China and those who had come in close contact with them were quickly traced and isolated. The state was quick to adopt the 'test, trace and isolate' strategy of WHO and its 'vaunted contact tracing' and 'patient movement maps' (Rukmini 2021) were successful in containing the spread of COVID-19 in the state to a great extent.

Figure 1: Timeline of the major events during the first wave of the COVID-19 pandemic in Kerala



Source: authors' construction based on Anilkumar (2020), Ghosh and Philip (2020), Hebbar (2020), HT Correspondent (2020), Ilakanth and Kadambad (2020), Jacob (2020a, 2020b), Masih (2020), Paul (2020), and Perappadan (2020).

On 2 February 2020 the second COVID-19 case was reported in Kerala, and on 3 February 2020 one more case was confirmed; these two patients were also medical students who had returned from Wuhan. Following this, the Government of Kerala declared the COVID-19 outbreak as a state calamity (Ghosh and Philip 2020). After the first three COVID-19 cases, Kerala did not report any new infections. However, on 8 March 2020, five members from a family tested positive for coronavirus in the state. It all began after a three-member family, who returned to Kerala from Italy on 29 February 2020, allegedly dodged their travel history and evaded the surveillance screening. The medical department came to know about the family after their relatives were hospitalized with COVID-19. Within two days, a detailed route map tracing the places the family visited was prepared. The route map was made public on 10 March 2020 and those who came in contact with the infected were asked to alert officials about the same. The idea of creating a route map to trace the travel history of COVID-19 was scaled up to the remaining districts in the state.

On 15 March 2020, the health department in the state launched a mass handwashing campaign called 'Break the Chain' to make people aware about the importance of keeping personal hygiene to protect themselves from contracting the virus (Jacob 2020a). On 19 March 2020, Chief Minister Pinarayi Vijayan announced a stimulus package of 20,000 crore² Indian rupees (INR) (US\$2.68 billion) to help the state overcome both the pandemic and the economic hardship due to the crisis (HT Correspondent 2020). On 23 March 2020, the chief minister declared a one-week state-wide lockdown (Anilkumar 2020). The state government declared lockdown one day before the nationwide lockdown announcement by Prime Minister Narendra Modi (Hebbar 2020). On 26 March 2020, the state government arranged adequate provision of food and shelter for vulnerable groups including migrant workers. Kerala's humane treatment towards migrant workers and the marginalized during the pandemic has been widely appreciated mainly because it is in sharp contrast to the inhuman treatment meted out to migrant workers in various other states in India. The lockdown in the country was implemented with no proper arrangement for the poor. Following the pandemic-induced lockdown, migrants and daily wage labourers lost jobs and some of them were thrown out from their rented homes. Meanwhile, in Kerala, the state government took proactive steps to protect migrant workers by providing shelter camps and food. On 9 April 2020, around 47 per cent of migrant workers of the total 25 lakh³ migrant workers were reported to be housed in shelter camps in the state and nearly 65 per cent of the shelter camps were functioning in Kerala alone (*The Wire* 2020). To ensure no one remains hungry in the pandemic, the state government also launched community kitchens on 25 March 2020, to provide food to the poor (Jacob 2020b; Paul 2020). On 10 April 2020, the distribution of food kits to all ration card holders began in the state (Ilakanth and Kadambad 2020). Thus, Kerala was lauded across the world not only for its pandemic management and containment strategies but also for making available needed provisions including food and shelter camps for those adversely affected by the pandemic-induced lockdown. This paved the way for the emergence of the Kerala model of COVID-19 pandemic management, which soon enough became a topic of discussion across the globe. By the first week of May 2020, Kerala successfully flattened the COVID-19 infection curve, and national and international media (Masih 2020) and healthcare experts showered praise on the state for effectively mitigating the pandemic. However, the infections started to spike in the state from mid-May 2020 onwards. One of the primary reasons for the sudden spurt of infections was the arrival of non-resident Keralites (NRKs)⁴ to the state. On the easing of lockdown in the country, NRKs returned to Kerala on repatriation flights from overseas and Keralites residing in states across India also returned home during the same time. Majority of Kerala's COVID-19 cases at that time were from returnees to the state from abroad. The state government anticipated the surge in COVID-19 cases with the arrival of people from abroad and other states and it was prepared to handle the sudden influx.

Meanwhile, the state government that won laurels for the Kerala model of COVID-19 pandemic management got embroiled in controversies one after the other. In Kerala, a politically vibrant state, adversarial and competitive politics forms the backbone of politics in the state (Chathukulam and Tharamangalam 2021). Although the political blame game took a backseat in the wake of the COVID-19 pandemic, the consensus between the ruling LDF and the opposition parties was short-lived. As a result, pandemic management got a political hue. At that time, local and state government elections were round the corner, and it was crucial for both the ruling party and the opposition parties to stay in power for their own survival. The state witnessed a political slugfest, and a COVID-19 super-spreader event took place in the state in July 2020, and the Kerala model

² 1 crore equals 10 million.

³ 1 lakh equals 100,000.

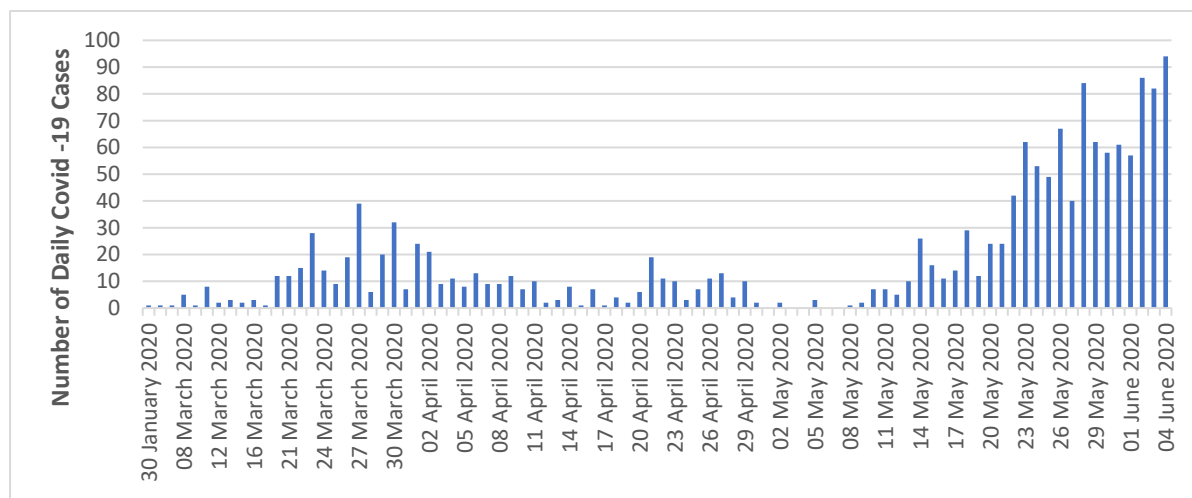
⁴ According to official estimates, there are least 33 lakh non-resident Keralites residing in different countries.

of COVID-19 pandemic management began to falter. The state government also let down its guard during Onam and Eid festivities. While the rest of India got over the first wave of the COVID-19 pandemic in October 2020, the number of COVID-19 cases peaked in the Kerala during the same time. In December 2020, local government elections were held in Kerala and LDF won a trailblazing victory. It was the first set of elections in the state during the pandemic and the electoral verdict boosted the chances of LDF winning the 2021 Kerala Assembly elections. In March 2021, the number of COVID-19 cases started falling in Kerala but continued to surge after the Assembly elections in April 2021. The second wave of the COVID-19 pandemic began in Kerala in May 2021 and LDF was voted back into power; in the subsequent days Kerala went into a state-wide lockdown for the second time. While Kerala went through locking and unlocking phases for more than a year, the number of COVID-19 cases continued to surge till the first week of October 2021.

2.1 First wave of COVID-19 infections in Kerala (January–October 2020)

In Kerala, the first wave of COVID-19 infections began on 30 January 2020 and in February 2020 two more cases were reported. After the first three COVID-19 cases in Kerala, no fresh cases were reported across India. However, in March 2020, the number of COVID-19 cases started rising in Kerala and in other states in India. Then, in the first week of May 2020, when the rest of India was battling with a surge in the number of COVID-19 cases, Kerala had more or less flattened the COVID-19 infection curve (Figure 2).

Figure 2: Number of COVID-19 positive cases reported in Kerala from 30 January to 4 June 2020



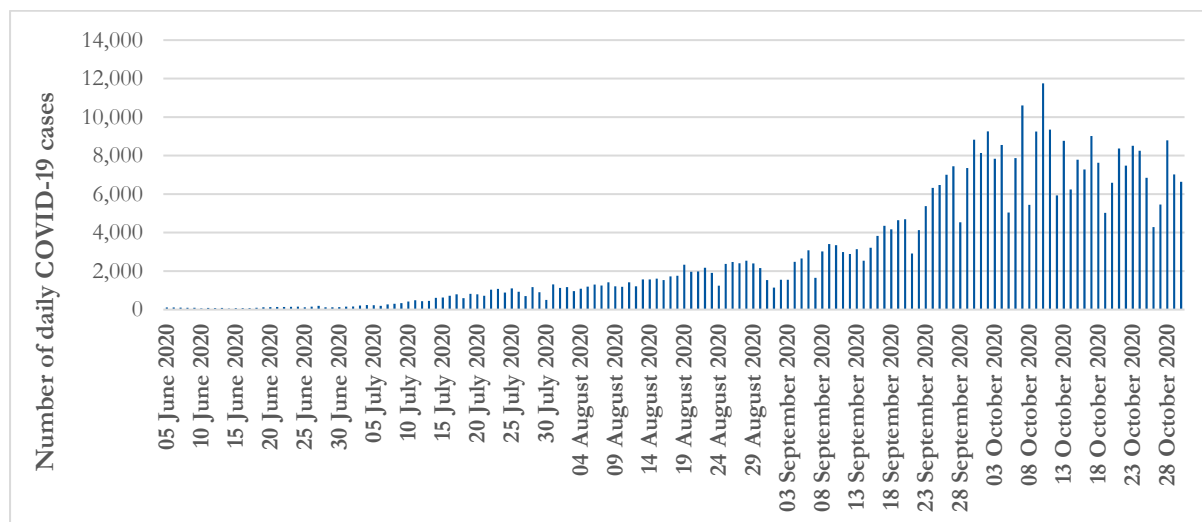
Note: data sourced from the 'COVID-19 Daily Bulletin' of the Directorate of Health Services, from 30 January 2020 to 4 June 2020, for the dates plotted in the graph.

Source: authors' construction based on data from Directorate of Health Services (2020a).

However, with the arrival of NRKs, the COVID-19 infection rate started to shoot up. By 20 May 2020, one in every hundred NRKs were testing positive for COVID-19. Then, in July 2020, a super-spreader event took place in the coastal villages of Poonthura and Pulluvilla in Thiruvananthapuram district (Biswas 2020). On 17 July 2020, the state government admitted that community transmission of COVID-19 had occurred in these coastal villages. On the same day, Kerala reported the highest single-day spike with 791 COVID-19 cases. The rate of community transmission of COVID-19 in community clusters was more than 50 per cent (*Hindustan Times* 2020). In August 2020, after Onam and Eid festivities COVID-19 infections rose. In September

2020, Kerala started reporting daily cases between 2,000 and 8,000.⁵ The first wave of COVID-19 infections peaked in India in September 2020 and started to recede in the country by October 2020. However, in the case of Kerala, the first wave of COVID-19 infections peaked in October 2020, with an active caseload of 97,417 cases, as on 24 October 2020 (Directorate of Health Services 2020a) (Figure 3).

Figure 3: Number of daily COVID-19 cases reported in Kerala from 5 June to 28 October 2020



Note: data sourced from the ‘COVID-19 Daily Bulletin’ of the Directorate of Health Services, from 5 June 2020 to 28 October 2020, for the dates plotted in the graph.

Source: authors’ construction based on data from Directorate of Health Services (2020a).

In November 2020, the number of COVID-19 cases decreased and the local government elections in the state were held in December 2020. COVID-19 protocols were largely flouted and the government turned a blind eye because winning the elections was more important. The polls were followed by Christmas and other festivities and, by the last week of December 2020, the number of COVID-19 cases started to surge in Kerala. On 16 February 2021, Kerala had around 60,761 active cases (Directorate of Health Services 2021a) and the state accounted for 72 per cent of the total active cases in the country (Sabarwal 2021).

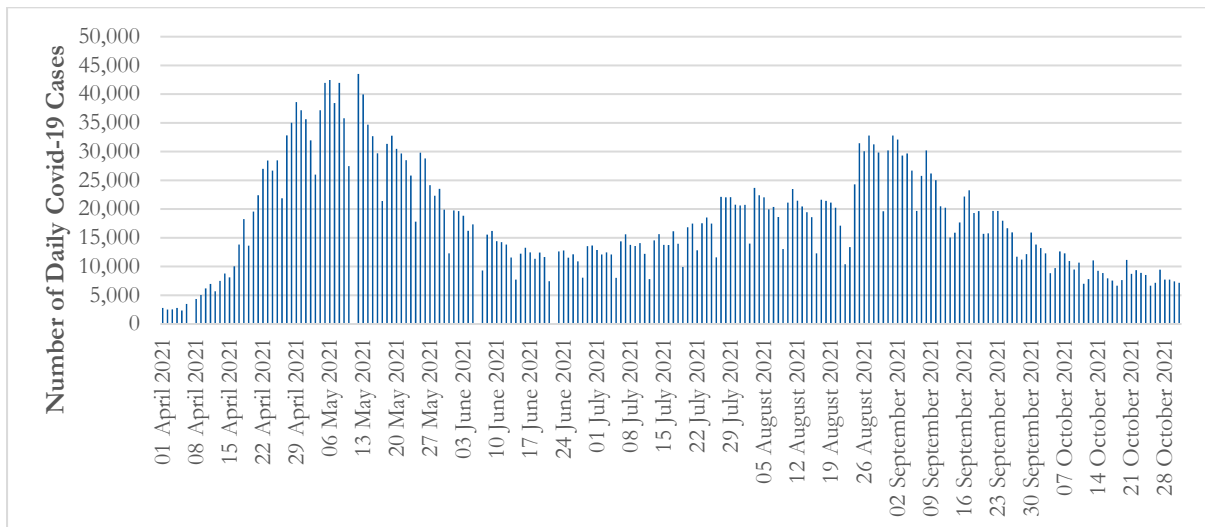
2.2 Second wave of COVID-19 infections in Kerala (April–October 2021)

In March 2021, while a second wave of COVID-19 infections erupted in India, Kerala was gripped in election fever. The government lowered its guard regarding COVID-19 precautions; not even half the population in Kerala was inoculated with a COVID-19 vaccine because of shortage of vaccines and political bickering over their availability. Despite these issues, the people had a false sense of security, especially with the arrival of COVID-19 vaccines in the country. The Kerala Assembly elections were held on 6 April 2021. Although the Election Commission had asked the political parties and electoral candidates to observe COVID-19 protocols during election campaigns and rallies, all COVID-19 norms including social distancing and wearing masks were flouted by politicians and the public alike. While Kerala went to polls in April, the second wave of COVID-19 infections was at its peak in the rest of India. The country came out of the second

⁵ The data for the number of (daily) COVID-19 cases are taken from the ‘COVID-19 Daily Bulletin’ of the Directorate of Health Services (2020a) for the respective dates reported throughout this paper. As on 1 September 2020, there were 1,140 daily COVID-19 cases; by 5 September 2020, the number of daily cases reached 2,655; on 20 September 2020, the daily COVID-19 cases rose to 4,696. Towards the end of September, the daily infections rose to 8,000.

wave by May 2021, whereas in Kerala the second wave of infections started to surge (Figure 4). On 5 May 2021, Kerala reported 41,953 COVID-19 cases (Directorate of Health Services 2021a).

Figure 4: Number of daily COVID-19 cases reported during the second wave of the pandemic in Kerala from 1 April to 28 October 2021



Note: data sourced from the 'COVID-19 Daily Bulletin' of the Directorate of Health Services, from 1 April 2021 to 28 October 2020, for the dates plotted in the graph.

Source: authors' construction based on data available from the Directorate of Health Services (2021a).

On 8 May 2021, the number of COVID-19 cases rose to 41,971 (Directorate of Health Services 2021a). Kerala imposed a state-wide lockdown from 8 to 16 May, and it was further extended to June 2021.

On 31 August 2021, after Onam and Eid festivities in Kerala, there was a surge with 30,203 COVID-19 cases reported (Directorate of Health Services 2021b). While the second wave was receding in other states in India, in Kerala it was surging. One in every five samples tested for COVID-19 in Kerala was positive in September 2021. According to the Directorate of Health Services (2021b), from 21 to 27 September 2021, the average number of active cases in Kerala stood at 1,61,529. The state alone accounted for over 60 per cent of daily new COVID-19 cases in September 2021. Since October 2021, the number of COVID-19 cases in Kerala has decreased.

2.3 Health infrastructure in Kerala before the COVID-19 pandemic

Kerala's early investment in the health sector is one of the important factors that helped the state to deal with the pandemic without overwhelming the hospitals and overburdening the medical community. Although the Kerala model of managing the COVID-19 outbreak failed to bring the pandemic under control, one needs to accept that the health sector in the state did not collapse despite alarming increase in infections. The credit for this goes to state capacity and the Kerala government for developing a robust health sector over the years. Even before the COVID-19 pandemic struck the state, its health infrastructure was in a better position than that of other states (see Tables 1 and 2) and during the pandemic Kerala was able to improve its capacity in terms of additional hospitals, COVID-19 testing laboratories, recruiting more health workforce as well as ensuring uninterrupted supply of medical oxygen, ventilators, and intensive care unit (ICU) beds. Even before the pandemic, it is estimated that Kerala has 1.0 beds available at government hospitals per 1,000 population and 7.4 beds available per 1,000 elderly population (Singh et al. 2020). In the 2020–21 Kerala budget, the state allocated 6.5 per cent of its total expenditure to the health sector (Express News Service 2021b). Kerala has also spent an average of 5.6 per cent of

the budget in the health and family welfare sector over the last 5 years. The gross state domestic product of Kerala for 2021–22 is estimated to be INR 8,76,283 crore (US\$117.38 billion) (Kerala State Planning Board 2021b).

Table 1: Details of government medical institutions in Kerala before the COVID-19 pandemic

S. no.	Type of medical institutions	No. of medical institutions	No. of beds
1	General hospitals	18	6,920
2	District hospitals	18	5,167
3	Specialty hospitals	22	5,557
4	Taluk hospitals	81	8,438
5	Community health centres	232	6,571
6	Primary health centres	680	2,034
7	24x7 Primary health centres	168	3,145
8	Others and specialty hospitals	61	172
	Total	1,280	38,004

Note: data as of August 2018.

Source: authors' compilation based on personal communication with public health officials and *Health at a Glance 2018* report (see Health Information Cell 2018).

Table 2: Number of ventilators and intensive care units (ICUs) before the COVID-19 pandemic

Ventilators in government hospitals	170 ^a
ICUs in government hospitals	950 ^b

Note: ^a170 ventilators in government hospitals, as of January 2020. This is just an estimate given by public health experts. The first author had a series of discussions with public health experts regarding the preparedness of the state in handling the pandemic and the estimated data shared by the experts at that time are used here. Although 103 ventilators were available in private hospitals, the Kerala government did not rope in private hospitals for COVID-19 treatment in the first few months of the pandemic. ^bThis figure is estimated by Kapoor et al. (2020) as part of a study by the Centre for Disease Dynamics, Economics & Policy on state-wise estimates of hospital beds and ventilators.

Source: authors' compilation based on discussion with public health experts in Kerala and data from Kapoor et al. (2020).

There is no accurate data on the availability of ventilators and ICU beds in government hospitals in Kerala prior to the COVID-19 pandemic. Some media reports have pegged that there were around 5,000 ventilators available in Kerala, as of March 2020 (Chandna 2020). Meanwhile, public health experts opined that the government hospitals in Kerala had around 170 ventilators. Regarding the availability of ICU beds in government hospitals, it is estimated that around 950 were available in Kerala when the pandemic started (Kapoor et al. 2020).

2.4 Healthcare infrastructure during the COVID-19 outbreak in Kerala

Following the outbreak of COVID-19, the Government of Kerala provided treatment for patients with COVID-19 free of cost. To manage the COVID-19 pandemic, the LDF government identified certain government hospitals and declared them as dedicated COVID-19 hospitals for providing treatment to patients who tested positive for the virus. On 19 March 2020, a total of 22 hospitals including 14 district hospitals and 8 medical colleges in Kerala were declared as COVID-19 hospitals. These hospitals had a total of 28,000 beds out of which 3,600 were allotted for treating COVID-19 patients (ET Bureau 2020). Later, 7 more hospitals were converted into dedicated COVID-19 hospitals and thus a total of 29 government hospitals were COVID-19 hospitals (Directorate of Health Services 2020b).

In response to the surge in COVID-19 cases, the Kerala government opened Covid First Line Treatment Centres (CFLTCs) (PRD Live 2020a). The COVID-19 hospitals were designated for the management of symptomatic COVID-19-positive patients and CFLTCs were designated for the management of asymptomatic COVID-19-positive patients. CFLTCs were set up in two phases in the state. In the first phase, the state government planned to set up 86 CFLTCs with 11,284 beds (PRD Live 2020b). In the second phase, the government planned to set up 253 CFLTCs with 30,598 beds (PRD Live 2020b). As on 19 July 2020, 187 CFLTCs with 20,404 beds became operational in the state (PRD Live 2020c). In addition, 305 doctors, 572 nurses, 62 pharmacists, and 27 laboratory technicians were employed in these CFLTCs (PRD Live 2020d). On 14 September 2020, 194 CFLTCs with 26,425 beds were functioning in the state (PRD Live 2020e). By 28 September 2020, a total of 229 CFLTCs with 35,874 beds were allocated for COVID-19 treatment. As of September 2020, a total of 9,125 beds had been allocated in COVID-19 hospitals and 1,429 beds in other government hospitals.

Although private hospitals were not initially roped in for the treatment of COVID-19 patients, since 20 July 2020, a total of 139 hospitals allocated 4,813 beds for treating COVID-19 patients (Kerala State Planning Board 2021a). During the first wave of the pandemic, the ventilator occupancy and ICU occupancy were relatively less. For instance, in October 2020, that is when the first wave of the pandemic reached its peak, a total 2,141 ICU beds and 2,169 ventilators were available in the state and 104 ventilators and 445 of ICU beds were occupied by COVID-19 patients (Times News Network 2020a). However, in April–May 2021, when the second wave of the pandemic began, there was a shortage of ICU beds and ventilators in the state. There were reports of patients being turned away from hospitals owing to lack of sufficient ventilators and ICU beds (Maya 2021; Unnikrishnan 2021). By December 2021, the government hospitals in Kerala had 3,107 ICU beds and 2,293 ventilators and 267 ICU beds and 77 ventilators were occupied by COVID-19 patients (*The Hindu* 2021b) (Table 3).

Table 3: Number of ventilators and ICU beds in government hospitals in Kerala after the COVID-19 outbreak

Month and year	No. of ventilators	No. of ICU beds
October 2020	2,169	2,141
December 2021	2,293	3,107

Source: authors' compilation based on Times News Network (2020a) and *The Hindu* (2021b).

3 COVID-19 testing capacity in Kerala

When the first three COVID-19 cases were reported in Kerala, the state had to depend on the National Virology Institute in Pune, Maharashtra, for testing. On 4 February 2020, the state got permission from the Indian Council of Medical Research (ICMR) to conduct COVID-19 tests at the National Institute of Virology in Alappuzha, Kerala. By March 2020, Kerala had 12 laboratories for COVID-19 testing (DTE Staff 2020). By May 2020, the state had a total number of 35 laboratories for COVID-19 testing (ICMR 2020a). Although in the initial stages there were more government laboratories for COVID-19 testing, later on private laboratories for COVID-19 testing outnumbered the government ones (see Table 4).

Table 4: COVID-19 testing laboratories in Kerala in 2020

S. no.	Name of the test	May 2020			December 2020		
		No. of government labs	No. of private labs	Total	No. of government labs	No. of private labs	Total
1	RT-PCR	19	8	27	42	95	137
2	TrueNat	4	0	4	13	37	50
3	CB-NAAT	1	3	4	5	10	15
	Total	24	11	35	60	142	202

Note: operational laboratories reporting to ICMR only have been listed in the table.

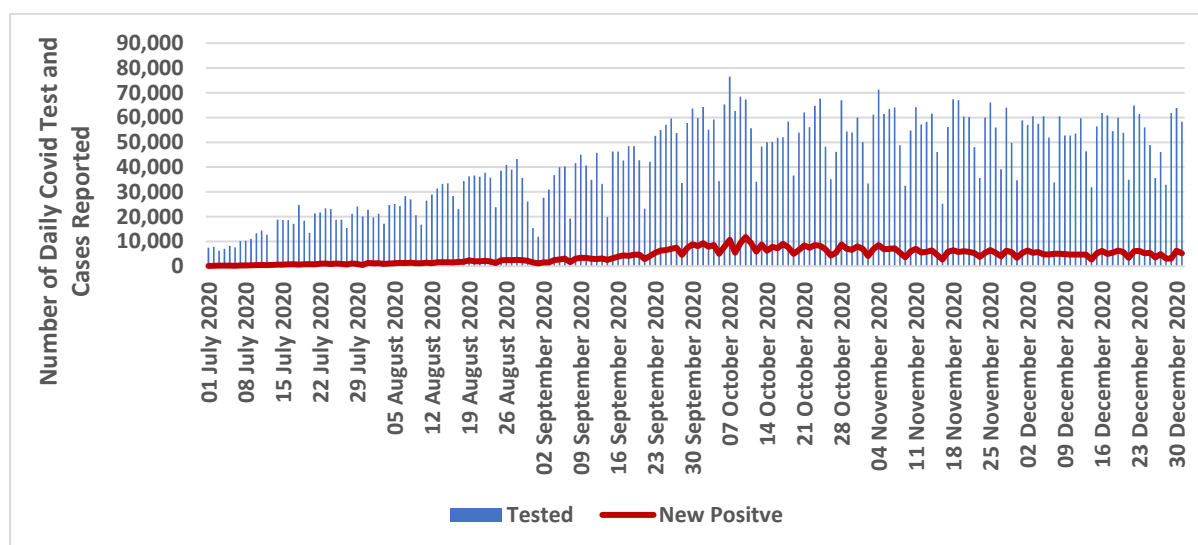
Source: authors' compilation based on data from ICMR (2020a, 2020b).

By December 2020, there were a total of 202 COVID-19 testing laboratories, both government and private sector (ICMR 2020b). It is interesting to note that of these only 60 were government laboratories while 142 were in private sector laboratories (ICMR 2020b). In May 2021, Kerala had 160 RT-PCR laboratories (47 government run and 113 private), 53 TrueNat laboratories (15 government and 38 private), and 15 CB-NAAT laboratories (6 government run and 9 private) (ICMR 2021a). In December 2021, there were 258 COVID -19 testing laboratories (ICMR 2021b). According to ICMR (2021b), there were a total of 187 RT-PCR laboratories (government 50 and private 137), 55 TrueNat (government 15 and private 40), and 16 CB-NAAT (government 7 and private 9).

3.1 Correlation between number of tests and number of COVID-19 cases reported

There is a strong correlation between the number of COVID-19 tests conducted and the number of COVID-19 cases reported in Kerala in 2020 and 2021. Until the second week of July 2020, Kerala was testing fewer than 10,000 samples a day and the number of daily positive cases reported were in the range of 200–300 (Philip 2020). From 11 July 2020 to 30 September 2020, the number of daily COVID-19 tests increased from 14,364 to 63,640 and the number of daily COVID-19 cases too surged from 488 to 8,830 (Government of Kerala 2020). It is evident that as the number of samples tested increased, there was a surge in COVID-19 infections reported in the state (Figure 5). The same trend can be observed from October 2020 to December 2020, as is evident from Figure 5.

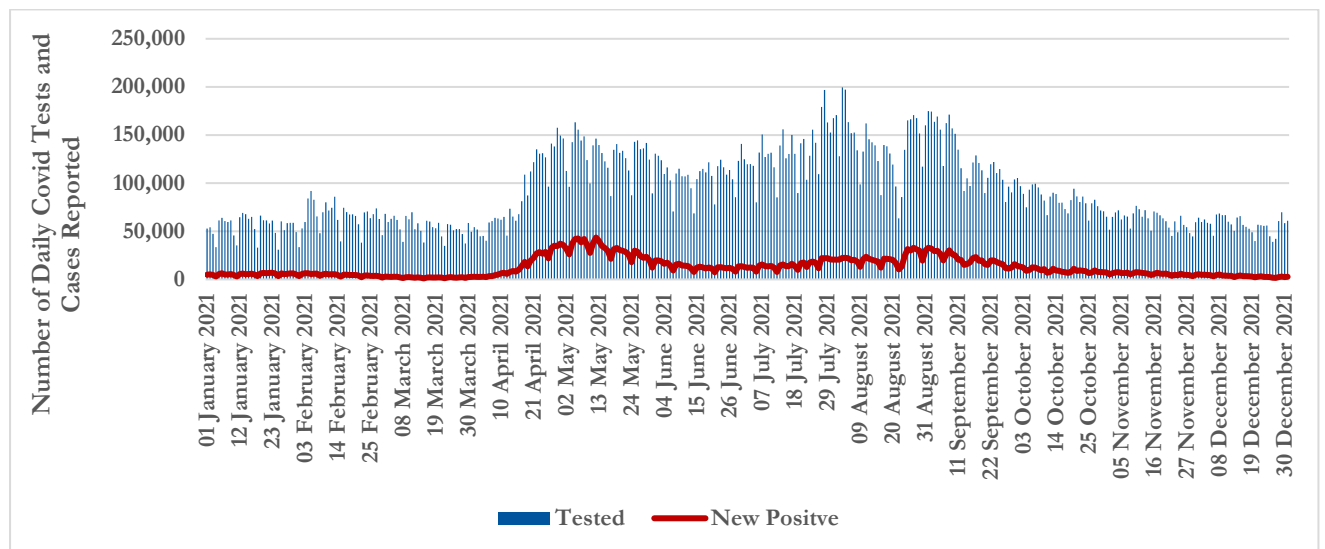
Figure 5: Number of daily COVID-19 tests conducted and cases reported in Kerala from July to December 2020



Source: authors' construction based on data from Government of Kerala (2020).

Although Kerala has the capacity to process 1.5–2.5 lakh samples daily (Express Web Desk 2021), the LDF government has been reluctant to make use of its full potential fearing a surge in caseload. From 1 January to 14 April 2021, between 50,000 and 80,000 COVID-19 tests were conducted daily and between 5,000 and 13,835 COVID-19 cases were reported daily (Government of Kerala 2021a). However, since 18 April 2021, Kerala started to conduct more than 1 lakh tests daily (Government of Kerala 2021a). For instance, from 18 April to 30 April 2021, the number of daily COVID-19 tests in Kerala hovered between 1,08,898 and 1,49,487 and the daily positive cases reported were between 18,257 and 37,199 (Government of Kerala 2021a). Increased testing led to greater detection of cases and thus there was naturally an alarming surge in the number of COVID-19 cases reported (Figure 6).

Figure 6: Number of daily COVID-19 tests conducted and cases reported in Kerala from January to December 2021



Source: authors' construction based on data from Government of Kerala (2021a).

In May 2021, when the second wave of the COVID-19 pandemic began to peak, the Government of Kerala continued with increased testing; more than 1 lakh tests, ranging from 1,46,474 to 1,48,546, were conducted between 1 May and 5 May 2021 (Government of Kerala 2021a) and the daily caseload too surged from 35,636 to 41,971 during this period (Government of Kerala 2021a). Then from 11 May to 30 May 2021, the number of daily COVID-19 tests first dropped to 1,39,287, then rose to 1,46,320, and then drastically decreased to 1,24,537 (Government of Kerala 2021a); this was reflected in the number of COVID-19 cases detected as the cases dropped from 43,529 (12 May 2021) to 19,894 (30 May 2021). The fluctuations in daily testing varied from 1.20 lakh to 1.50 lakh to 1.90 lakh tests (Government of Kerala 2021a) between June and September 2021. However, as the caseload showed no signs of coming down, and there was mounting criticism from all quarters, the government lowered the number of tests conducted, which dipped to below 10,000 since October 2021 and so did the number of daily COVID-19 cases (Government of Kerala 2021a). The opposition parties in Kerala have accused the LDF government for inconsistency in the number of COVID-19 tests conducted as a deliberate attempt to show a drop in COVID-19 cases in the state.

3.2 Medical oxygen availability in Kerala during the pandemic

While many states in India were facing oxygen shortage during the second wave of the COVID-19 pandemic in India, Kerala did not face an oxygen crisis despite a high caseload of infections because it is an oxygen surplus state. However, a year before the pandemic, the situation was

entirely different as Kerala was depending on Tamil Nadu and Karnataka for the supply of liquid medical oxygen. Following the first COVID-19 case, Kerala augmented its oxygen production capacity by 60 per cent (Dutta 2021). The state had around 23 oxygen plants as on 23 April 2021 (Dutta 2021). In March 2020, when the first wave of the pandemic started to surge in Kerala, the state was producing 129.05 metric tonnes of medical oxygen (Jacob 2021); during the second wave in May 2021, the state was producing 235.32 metric tonnes of oxygen, which rose to 416.63 metric tonnes by December 2021.⁶ It is estimated that the daily oxygen requirement in the state for COVID-19 treatment is around 52 tonnes per day and for non-COVID-19 treatment around 45 tonnes (Kumar 2021).

4 Political hegemony over COVID-19 management in Kerala and how it created a performance legitimacy for the LDF in elections

Since public health is a partisan subject (Moolakkattu 2021), the politicization of the pandemic is a natural outcome and political hegemony stems from it. As Kerala is a politically vibrant state, it is not surprising that pandemic management got a political hue for gaining political mileage and reaping rich dividends. In fact, there have been widespread accusations from the beginning that the LDF government in the state led by Chief Minister Pinarayi Vijayan was promoting the Kerala model of COVID-19 pandemic management as a propaganda to gain political support. The circumstances unfolding in the political arena when the pandemic made inroads into the state prove that there was more truth to these accusations. When the pandemic struck Kerala, local government and Kerala Assembly elections were round the corner and winning both was crucial for the then ruling LDF government and for the opposition parties, including the United Democratic Front (UDF) and the Bharatiya Janata Party (BJP). In the case of LDF, they had earned the goodwill of the people in the state by effectively containing the Nipah outbreak in 2018 and strategically handling the devastating floods in 2018 and 2019. As a result, containing the COVID-19 infections was a matter of serious concern as any mismanagement would be detrimental to not only the lives of people but also the LDF government as it would almost certainly spoil their chances of returning to power. It is natural for people to assess the performance and success of a ruling government in managing and containing a deadly pandemic like COVID-19. Meanwhile, a people-oriented and comprehensive public health care system and the LDF government's Mission Aardram⁷ which improved basic infrastructure and services in government hospitals in Kerala, played a significant role in mitigating the COVID-19 pandemic and prevented the health infrastructure from collapsing even when infections surged.

⁶ Data for the second wave were obtained during authors' discussion with a senior public health expert on 15 December 2021.

⁷ The Left Democratic Front (LDF) launched Mission Aardram in 2017 to focus on the United Nations Sustainable Development Goal 3 'Good Health and Wellbeing'. In the first phase, 170 primary health centres (PHCs) were converted into family health centres (FHCs); in the second phase, 503 PHCs were transformed into FHCs; and in the third phase, 212 PHCs were transformed into FHCs (Times News Network 2020b). Major aims of Mission Aardram are to transform government hospitals and grassroots level health institutions including PHCs into patient-friendly spaces and to deliver optimum level of care to reduce out-of-pocket expenditure on health by upgrading facilities and infrastructure in public health institutions in the state.

Kerala is a densely populated⁸ state with a large elderly population⁹ and high prevalence of comorbidities.¹⁰ The pandemic would have turned into a catastrophe in the state during the first wave of COVID-19 infections without the well-equipped healthcare system in government hospitals under the LDF government's Aardram Mission. The programme helped to prevent COVID-19 cases overburdening hospitals in the state to a large extent. As a result, the credit for this success went to the LDF government, which helped it obtain political patronage as it laid the foundation of the Kerala model of COVID-19 pandemic management. Following the pandemic-induced lockdown, a lot of people including migrant workers were rendered jobless and homeless and the LDF government wasted no time in arranging provisions required for the vulnerable and poor in the state. Keeping in mind the challenges posed by the pandemic and its impact on the forthcoming elections, the LDF government rolled out a slew of clientelist and welfare measures, launching community kitchens for providing food to the poor and needy, distributing free food kits to all ration card holders, setting up shelter camps for migrant workers, and even hiking welfare pensions. Thus, by infusing competitive populism and clientelist measures LDF managed to secure political hegemony over pandemic management in the state.

4.1 Community kitchens

To avoid anyone suffering from hunger and starvation during pandemic, the government led by LDF launched community kitchens on 26 March 2020, with the sole aim of delivering food to the poor and needy. The responsibility of managing the community kitchens was given to local governments and the Kudumbashree¹¹ programme. As per the government data, from March to May 2020, around 86,51,627 people served food through community kitchens run by 1,034 local governments in the state. Around 2.50 lakh to 2.80 lakh food packets were distributed (Express News Service 2020a) daily during the first wave of the pandemic. A large portion of the food prepared was provided free of cost to the economically and socially disadvantaged sections of society, including migrant workers, the homeless, and the destitute.

4.2 Public distribution system, distribution of food kits, and state capacity

Kerala has one of the most effective public distribution systems (PDS) in India. Universal coverage and physical access made possible through a vast network of retail outlets are among the prominent features of PDS in the state. Poverty alleviation and ensuring food security are the primary objectives of PDS and Kerala has made good use of its PDS before the COVID-19 pandemic as well as during pandemic-induced lockdowns. In March 2020, Kerala had 87.28 lakh ration card holders (Kerala State Planning Board 2021a); in September 2020, this rose to 88,80,695 (Express News Service 2020b); by August 2021, it rose to 90.70 lakh (Kerala State Planning Board 2021b). Ration card holders are classified into priority (yellow and pink card) and non-priority card holders

⁸ The 2011 Census puts Kerala's population density at 859 per square kilometre, which is more than twice the all-India population density of 382 per square kilometre (Thomas 2015).

⁹ As per the 2019 Kerala Economic Review, 48 lakh people of Kerala are aged 60 years and above (Kerala State Planning Board 2019). Rajan and Mishra (2020) have created a population projection for the population aged 60 years and above in Indian states and union territories. The first author of this paper interacted with the first author of the cited paper (S.I. Rajan, on 13 August 2020) and learnt that in 2020 Kerala had nearly 16 per cent people aged 60 years and above.

¹⁰ Kerala has an estimated 70 lakh people who suffer from diabetes, cancer, blood pressure, heart ailments, kidney disease, and respiratory tract infections (The Hindu Business Line 2020).

¹¹ Kudumbashree is a poverty eradication and women empowerment programme implemented by the State Poverty Eradication Mission (SPEM), Government of Kerala. It was launched in 1998. It is one of the largest self-help groups for women in India (see Rajagopal 2020).

(blue and white). Yellow card beneficiaries (under the Antyodaya Anna Yojana, AAY, the Government of India scheme providing highly subsidized food for the poorest households) belong to the poorest of the poor and Kerala has around 5.94 lakh card holders in this category (Kerala State Planning Board 2021b). AAY card holders get 30 kg of rice and 5 kg of wheat per month free of cost (Kerala State Planning Board 2021b). Pink card holders are eligible for 4 kg rice and 1 kg wheat per month (Civil Supplies Department 2019) for INR 2 per kg (US\$0.03). Blue card holders get 2 kg rice per month at INR 4 (US\$0.05) and white card holders are eligible for 4 kg rice at INR 10.90 (US\$0.15) and 3 kg wheat flour for INR 17 (US\$0.23), even before the pandemic (Civil Supplies Department 2019).

However, before the pandemic non-priority card holders stayed away from PDS shops over complaints of poor quality, but the pandemic-induced lockdowns reconnected several households with the PDS across Kerala. Free food kit distribution in the wake of the pandemic revived the lost glory of PDS in the state. On 10 April 2020, the LDF-led government began distribution of free food kits to all ration card holders in the state. The food kits consisted of essential grocery items needed by a family for a month. According to government sources, around 98 per cent of ration card holders in the state collected the free food kits through more than 14,189 ration shops from April 2020 to August 2021 (Kerala State Planning Board 2021a, 2021b).

Various surveys have suggested that between 28 April and 6 May 2020 around 98 per cent of yellow and pink ration card holders, 91 per cent of blue card holders, and 85 per cent of white card holders made purchases using their ration cards (Centre for Socio-economic and Environmental Studies 2020), likely because of the distribution of free food kits via ration shops. The free food kit from ration shops gained more attention as a public welfare programme. This is reported to be the first time in the history of Kerala that more than 97 per cent of beneficiaries availed their food kits distributed through ration shops during lockdown (Kerala State Planning Board 2021a). The PDS network has been crucial during the COVID-19 pandemic enabling Kerala, which is a food deficit state, to ensure the smooth distribution of normal ration allotment and free food kits during the pandemic.

From April 2020 to August 2021, a total of 11 crore free food kits were distributed 13 times. An average of INR 350 crore–400 crore (US\$46.84 million–53.54 million) were spent per month for free food kits. Till December 2020, the state exchequer spent a total of INR 2,845.79 crore (US\$380.88 million). A total of INR 5,200 crore (US\$695.96) was spent on distribution of food kits by the government till August 2021. The distribution of food kits continued till September 2021 (Krishnan 2021).

4.3 Hike in welfare pensions

In Kerala, social welfare schemes play an important role in poverty alleviation and overall development of the state. A few years ago, ‘the old age and widow pensions were in the range of the INR 650 (US\$8.70) per month; after the LDF came into power in 2016, it rose to INR 1,000 (US\$13.38) and they also ensured timely disbursement’ (Government of Kerala 2005). During the COVID-19 pandemic, the welfare pension was raised to INR 1,600 (US\$21.41); on 2 June 2021, it rose to INR 2,500 (US\$32.70) (*The Hindu* 2021a). As per official data, the number of beneficiaries of different welfare schemes in the state was 34 lakh during the former UDF government; under the LDF regime this increased to 59.95 lakh (Chathukulam and Joseph 2021). Various pro-people initiatives, including distribution of free food kits and hike in welfare pension, during the pandemic helped the LDF to obtain political patronage and goodwill of the people, which later bore fruit in the 2020 local government and 2021 Kerala Assembly elections and led them to victory. This suggests that with the help of populist and clientelist measures the LDF government succeeded in securing political patronage and in whitewashing the criticism it

received when COVID-19 cases started to surge. In the larger scheme of things, what mattered more to the people was food and welfare pensions.

5 Impact of adversarial and competitive politics on pandemic management

One of the main reasons for the unravelling of the Kerala model of COVID-19 pandemic management was the adversarial and competitive politics in the state. Effective management of the COVID-19 pandemic was a sort of litmus test for the then ruling LDF to return to power and initially they succeeded in developing the Kerala model of COVID-19 pandemic management. But a slew of controversies shifted the attention of the government from the pandemic to a politically motivated war of words between the ruling front and the opposition parties in the state.

First came the Sprinklr controversy in which the LDF government was accused of entrusting Sprinklr, a tech firm based in the United States, to collect health data of 1.75 lakh people who were placed in quarantine without obtaining their consent (Varma 2020). There were protests across the state by defying COVID-19 protocols. Following sharp criticism from all quarters, the LDF government cancelled the controversial deal. Nevertheless, the controversy was a moral and political setback for the LDF as it paved the way for erosion of the consensus-based democratic approach in the state.

The LDF government, which was already in damage control mode, faced a second setback when the gold smuggling scandal¹² surfaced in July 2020. The alleged links of the smuggling suspects to the Chief Minister's Office and the investigation by central agencies including the National Investigation Agency, Customs Department, and Enforcement Directorate caused a political storm. The opposition parties conducted protests by flouting COVID-19 protocols and the media got busy discussing the explosive revelations. The highly popular press conferences of the chief minister turned into a war of words between the government, opposition parties, and the media and everyone conveniently forgot that they are in the midst of a pandemic. Corruption allegations against the state government's flagship housing scheme Livelihood, Inclusion and Financial Empowerment (LIFE Mission) was also a huge blow to the government.

Thus, competitive and adversarial politics caused disruption and gained advantage over the fight against COVID-19 (Chathukulam and Tharamangalam 2021). The Kerala model of COVID-19 pandemic management appeared to falter amid these controversies. Then in October 2020, there was a huge surge in infections, but the political parties were busy chalking out strategies for local government elections in December 2020. The UDF and BJP did their best to put the LDF government under pressure by highlighting all the scams and scandals and pinned their hopes on a smooth victory. The LDF on the other hand focused on welfare initiatives including food kits and welfare pensions. These welfare measures helped the LDF to override the impact of scam allegations and the damage it had to endure because of the investigation by central agencies. The poll results showed that the narrative of scandals built against the LDF government did not matter to the citizens; what mattered was the trust and 'goodwill from welfare schemes' (Chathukulam and Joseph 2021), especially food kits and pension. A large section of Keralites felt that politics was prioritized over public health.

¹² Customs officials seized a consignment of gold worth INR 15 crore (US\$2.05 million) at Trivandrum International Airport on 5 July 2020.

5.1 Politics over the COVID-19 vaccine

On 16 January 2021, the world’s biggest vaccination drive began in India. However, poor planning, piecemeal procuring, and unregulated pricing eventually led to a shortage of vaccines; this led to a fight between the Union and state governments at a time when co-operative federalism was needed to fight the pandemic. While Kerala was battling with the second wave of COVID-19 infections it also had to engage in a fierce battle with the Union government over pricing and shortage of vaccines, which also contributed to the unravelling of the Kerala model of COVID-19 pandemic management. As on 2 January 2022, around 98 per cent of the eligible population have been vaccinated with a single dose and around 80 per cent vaccinated with a second dose (Directorate of Health Services 2022) (Table 5).

Table 5: Vaccination summary for Kerala

Priority group	First dose of COVID-19 vaccine		Second dose of COVID-19 vaccine		Vaccination start date
	Number vaccinated	Percentage vaccinated	Number vaccinated	Percentage vaccinated	
Healthcare worker	5,55,657	100	5,05,594	91	January 2021
Frontline worker	5,71,724	100	5,32,960	93	January 2021
60–45 years	1,28,30,507	97	1,11,73,279	85	March 2021
18–44 years	1,22,39,427	91	90,78,117	67	May 2021
Total (>18 years)	2,61,97,315	98	2,12,89,950	80	May 2021
15–17 years	38,429	2	0	0	January 2022

Note: data as on 2 January 2022.

Source: authors’ compilation based on data from Government of Kerala (2021b).

5.2 Why does Kerala still have so many cases of COVID-19?

The ICMR conducted three rounds of population-based sero-epidemiological studies in May 2020, August 2020, and December 2020 (see Department of Health & Family Welfare 2020a, 2020b, 2021a, 2021b).¹³ A serological survey tests a sample population in a place or region to assess whether those tested have antibodies against a particular infection (in this case, COVID-19). The presence of antibodies indicates that those tested may have been exposed to the virus even though they had no symptoms for the same. A high seroprevalence in a state suggests rapidly spread infection among the population, whereas a low seroprevalence indicates limited spread, mainly because that state was able to contain the virus through effective control measures. The first ICMR serological survey carried out in May 2020 showed that 0.33 per cent of Kerala’s population had been exposed to the SARS-CoV-2 virus (Department of Health & Family Welfare 2020a) as against the national average of 0.73 per cent (see Table 6). The second ICMR serological survey held in August 2020 showed that the seroprevalence in the state was eight times lower than the national average of 6.6 per cent (Department of Health & Family Welfare 2020a) The state’s seroprevalence increased 2.4 times over 3 months. In the ICMR serological survey of December 2020, the seroprevalence in the state was 11.6 per cent as against the national average of 21 per cent (Department of Health & Family Welfare 2020b).

¹³ Note that the source link for the first round of the ICMR survey is not available. However, data for May 2020 (Round 1) are available in the Round 2 report (see Department of Health & Family Welfare 2020a).

Table 6: Serological survey in Kerala and India in 2020 and 2021 (in %)

	May 2020	August 2020	December 2020	May 2021	July 2021
Kerala	0.33	0.8	11.6	42.7	44.4
National average	0.73	6.6	21	67.6	68

Source: authors' compilation based on data from Department of Health & Family Welfare (2020a, 2020b, 2021a, 2021b).

However, given Kerala's vulnerability in terms of high population density, inflow of people from abroad and from various parts of India, high percentage of elderly population, and high prevalence of lifestyle disease, the state maintained a low infection transmission rate, as per the ICMR surveys. The low seroprevalence in Kerala shows the effectiveness of the government's robust containment measures including quarantine, contact tracing, and rapid detection of cases since the beginning of the pandemic (Barnagarwala 2021). The serological survey results indicate that a large population in the state remained unexposed to the SARS-CoV-2 virus in the first wave. Thus, people in Kerala remained vulnerable to the virus that continued spreading as the state failed to achieve the herd immunity threshold culminating in the second wave of infections. The ICMR surveys conducted in May and July 2021 estimated the seroprevalence of Kerala at 42.7 (Department of Health & Family Welfare 2021a) and 44.4 per cent (Department of Health & Family Welfare 2021b), respectively, the figures being the lowest among the states in India. It revealed that more than 50 per cent of the state's population remain vulnerable to COVID-19 and herd immunity against the virus is still a long way off in Kerala.

Delta variant

In September 2021, Kerala saw a surge in breakthrough COVID-19 infections due to the Delta variant of the SARS-CoV-2 virus, despite a large share of its population getting inoculated. A joint study conducted by the Institute of Genomic and Integrative Biology and the Department of Health & Family Welfare, Kerala, found that the Delta variant was detected in 90 per cent of the samples tested in Kerala (HT Correspondent 2021). This genomic analysis found that the Delta variant was responsible for 155 cases of breakthrough infections; 147 individuals who received Covishield vaccine and eight people who received Covaxin were among them (Joseph 2021).

5.3 Fudging of COVID-19 death data

Many including those in the medical fraternity were sceptical about the government's data as there were several reports (e.g., Bedi 2020; Maya 2020) that the government was undercounting COVID-19 deaths.¹⁴ Even frontline health workers at the grassroots level had no trust in the COVID-19 data released by the government. Those in the medical fraternity often felt pressurized by the government to support the state's narrative of a Kerala model of COVID-19 pandemic management. On the other hand, it is argued that although some deliberate attempts were made to hide deaths, it is more or less a technical issue and the entire blame for discrepancies in data cannot be placed on the government.¹⁵ As per ICMR and WHO norms, death from COVID-19 is accounted for if the patient had any comorbidities, but the Kerala government treated such an

¹⁴ The authors of this paper interacted with a group of medical professionals and public health experts during the first and second waves of the pandemic. Dr S.S. Lal, an US-based public health expert who is also Director, Infectious Diseases (TB Portfolio) at FHI 360 (an American International Health Organization) and a native of Kerala, was one among them. Dr Lal, a native of Kerala, has been openly discussing the issue of fudging of COVID-19 deaths in Kerala throughout the first and second wave of the pandemic.

¹⁵ The first author of this paper interacted with Dr A. Athlaf, Convenor, Indian Medical Association, Kerala chapter, on 10 October 2021. Dr Athlaf supported this argument.

occurrence as a non-COVID-19 death. Although this may seem to be a technicality, evidence suggests that this may have been deliberately misused by the government. In July 2021, a list compiled by Information Kerala Mission showed that the state had lost 23,486 people to COVID-19 from January 2020 (Express News Service 2021a). Earlier a state level death audit committee, a separate body to study every death due to a suspected communicable disease in Kerala, was entrusted with the task of ascertaining COVID-19 deaths. However, there were complaints regarding the accuracy of the data and after the controversy about data fudging, the LDF-led government decided to decentralize the system of declaring deaths due to COVID-19. At present, district level death audit committees ascertain COVID-19 deaths on the basis of WHO norms.

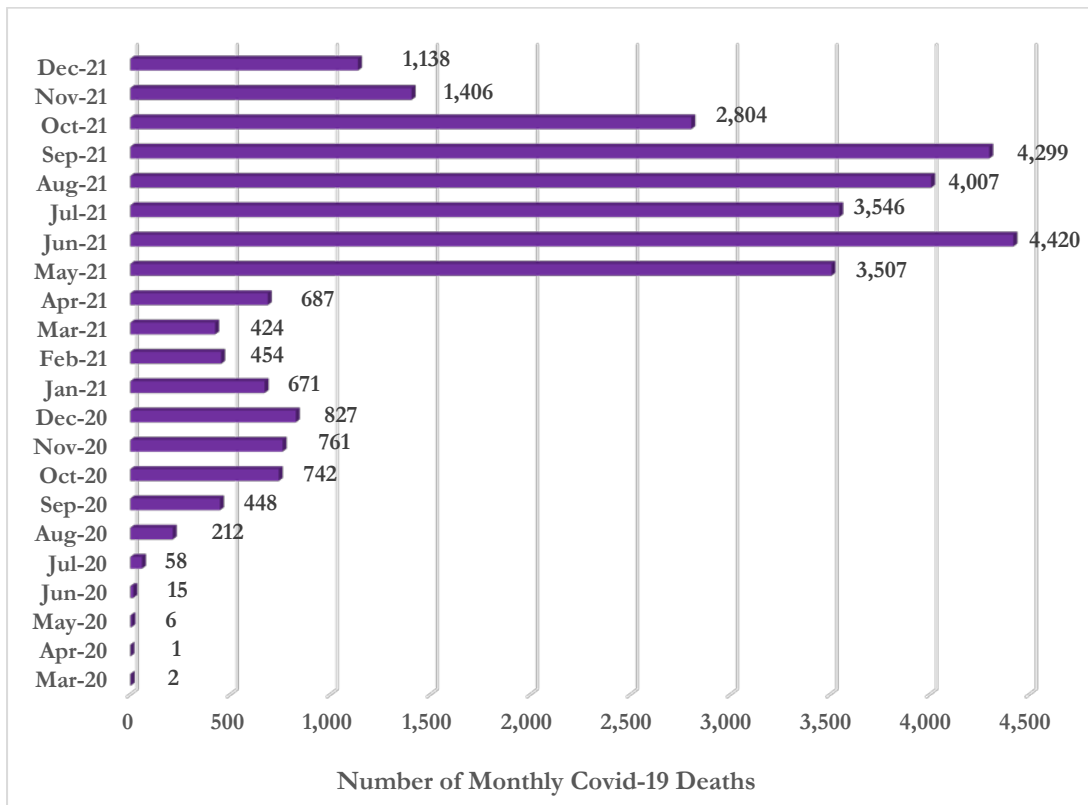
5.4 Kerala forced to revise its death toll

It is true that governments have an increasing tendency to fudge negative statistics and the politics around COVID-19 mortality makes it even more complicated. It is ultimately COVID-19 deaths that determine the extent to which a government has been capable of bringing the pandemic under control. In Kerala, since the outbreak of the pandemic, the government's whole focus was to show low numbers of COVID-19 deaths because low mortality is directly equated with state capacity and efficient governance. For more than a year, Kerala managed to keep its number of COVID-19 deaths remarkably low. For example, as of 2020, Kerala had a cumulative death toll of 3,072 (Directorate of Health Services 2020a). However, in October 2021, the Supreme Court of India ordered compensation to the families of those who died due to COVID-19. After the Court directive the government in Kerala was forced to review COVID-19 deaths in the state. In addition, the Union and state governments announced special relief packages for children orphaned by COVID-19. The situation was such that if a state deliberately reduced its death toll, many deserving families including children would be deprived of government assistance and this would result in more problems. The large number of compensation claims forced the government to revise the number of deaths due to COVID-19 (see Appendix). As on 30 December 2021, the cumulative death toll is 47,794 (Directorate of Health Services 2021a) (see Figure 7). As on 21 January 2022, Kerala reported a total of 20,178 reconciled deaths (Express News Service 2022).

5.5 COVID-19 and mortality among the elderly population

While the COVID-19 pandemic has posed an unprecedented public health crisis for all age groups, the elderly population, especially those aged above 60 years with multiple comorbidities, are at higher risk. Kerala, which has the highest proportion of elderly population, reported around 27.36 per cent deaths (aggregate death data for 2020 and 2021) due to COVID-19 in the 61–70 years age group and 26.64 per cent deaths in the 71–80 years age group (see Figure 8).

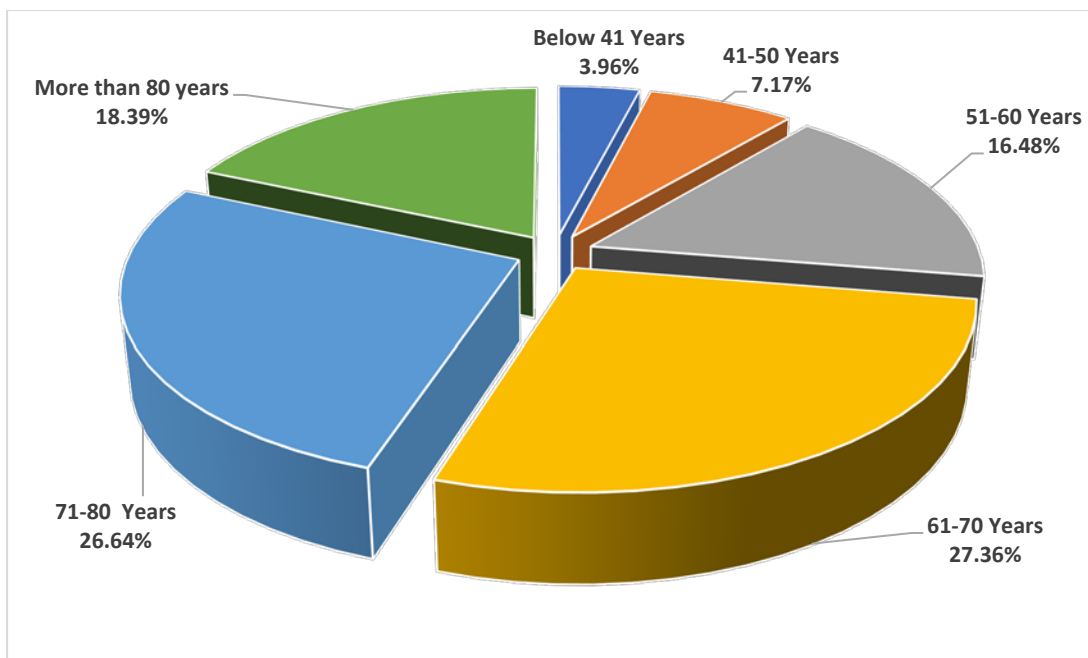
Figure 7: Number of monthly COVID-19 death statistics in Kerala, 2020–2021



Note: the total deaths reported in each month in 2020 and 2021 were calculated from the daily death cases reported in the COVID-19 dashboard (Government of Kerala 2021c) and collected in an Excel sheet to create this graph. This graph does not include the revised number of COVID-19 cases.

Source: authors' construction based on data from Government of Kerala (2021c).

Figure 8: Aggregate COVID-19 deaths in Kerala, 2020 and 2021



Note: this graph does not include the percentage of revised COVID-19 deaths.

Source: authors' construction based on data for March 2020–December 2021 from Government of Kerala (2021c).

5.6 Local democracy in quarantine

During the first wave in Kerala, local governments in the state were at the forefront in fighting the pandemic. Kerala has a rich legacy in decentralization and local governments are part of the state capacity in Kerala. Due to LDF's role in the 1996 People's Plan Campaign,¹⁶ the party has political hegemony over grassroots institutions in the state. In the first wave, the state had built various institutional mechanisms at the local level, including Jana Jagratha Samithis at the ward level, to prevent the spread of COVID-19. Panchayat and ward level committees were entrusted with the task of conducting awareness programmes with the support of sectoral magistrates, police, health inspectors, and accredited social health activists, collecting the test positivity rate in each ward and updating it on the COVID-19 Jagratha portal,¹⁷ and monitoring and managing quarantine centres.

Many argue that the Kerala model of COVID-19 pandemic management started to unravel after the trailblazing victory of the LDF in the 2020 local government elections. This was attributed to more than 70 per cent of those elected being new and with little experience in local governments and in handling the pandemic. The LDF's strategy to field fresh candidates in the local elections instead of tired, senior members likely won them the elections, but weak institutional memory and a lack of training for the newly elected members and functionaries in all three tiers of local governments had an adverse impact on pandemic management in the state. It was like local democracy and its functionaries were in quarantine¹⁸ after the elections.

6 Conclusion

Kerala's biggest advantage in containing the COVID-19 pandemic has been its robust healthcare system and participatory mode of governance. However, the pandemic has shown that even a participatory social democratic state with advanced health systems faces challenges pandemic management. Prioritizing politics over pandemic management and competitive and adversarial politics having a disruptive tenor are the major reasons for the faltering of the Kerala model of COVID-19 pandemic management (Chathukulam and Tharamangalam 2021). The political hegemony over the pandemic led to erosion of a consensus-based democratic approach, which was highly needed in the time of a crisis. When the pandemic struck Kerala, local government elections and Kerala Assembly elections were round the corner and for the ruling LDF and the opposition parties including UDF and BJP the public health crisis turned out to be a golden opportunity to revive political fortunes in the state. It was a do or die situation for political parties in Kerala and despite the opposition parties trying their best to bring down LDF by pointing out pitfalls in their pandemic management strategies and muzzling them with controversies, the incumbent LDF continued mobilizing political support as a result of its initial success in flattening the infection curve. While there was exponential rise in COVID-19 cases and the Kerala model of COVID-19 pandemic management began to waver, the clientelist and welfare measures of the state government stood in favour of LDF. The trailblazing victory of LDF in the 2020 local government elections and the historic victory of LDF in the 2021 Kerala Assembly elections ascertain that these clientelist measures gave a sort of performance legitimacy to the ruling party.

¹⁶ The People's Plan Campaign (PPC) is the brainchild of the Communist Party of India (Marxist), a major ally of the LDF. PPC ushered in a paradigm shift in the realm of democratic decentralization in Kerala. It was designed as a socio-political movement aimed at strengthening local democracy, devolution of funds and functionaries to the local governments, as well as decentralized planning in Kerala (see Chathukulam 2021).

¹⁷ See the District Administration of Kozhikode (2020) for more information on the portal.

¹⁸ Gz. MeeNilancko Theiventhran has made a similar observation in the Sri Lankan context (see Theiventhran 2022).

However, it is also interesting to note that the victory in local government elections, under the banner of populist welfare measures, could not prevent the community transmission of COVID-19 in the state (Törnquist 2021). The politicization of and political hegemony over the pandemic led to the dominance of political expediency over scientifically driven policy suggestions, which also had an adverse impact on COVID-19 mitigation strategies in the state. It is true that by incorporating the test, trace, and isolate strategy in a stringent manner Kerala initially succeeded in flattening the curve, but it gave way to premature celebrations. This instilled a false sense of security in the minds of people and the government and eventually Kerala became a victim of its own success.

References

- Anilkumar, S.B. (2020). 'Kerala To Go Under Lockdown till March 31'. *The Times of India*, 23 March. Available at: <https://timesofindia.indiatimes.com/city/thiruvananthapuram/kerala-to-go-under-lockdown-till-march-31/articleshow/74778886.cms> (accessed April 2022).
- Barnagarwala, T. (2021). 'Rising Covid-19 Graph Shows Kerala Is a Victim of Its Own Success'. *Scroll.in*, 2 September. Available at: <https://scroll.in/article/1004361/rising-covid-19-graph-shows-kerala-is-a-victim-of-its-own-success> (accessed September 2021).
- Bedi, A. (2020). 'Kerala Not Reporting 'Nearly Half' of Its Covid Deaths, Expert Panel Says Process Ambiguous'. *The Print*, 21 August. Available at: <https://theprint.in/health/kerala-not-reporting-nearly-half-of-its-covid-deaths-expert-panel-says-process-ambiguous/486368/> (accessed 23 September 2021).
- Biswas, S. (2020). 'India Coronavirus: How Kerala's Covid "Success Story" Came Undone'. *BBC News*, 21 July. Available at: <https://www.bbc.co.uk/news/world-asia-india-53431672> (accessed March 2022).
- Centre for Socio-economic and Environmental Studies (2020). *Consumption Behaviour of Malayali During Lockdown*. Kochi, Kerala: CSES. Available at: <https://csesindia.org/consumption-behaviour-of-malayalis-during-lockdown/> (accessed May 2022).
- Chandna, H. (2020). 'India Has 40,000 Ventilators but Could Need Many, Many More in "Worst-Case Scenario"'. *The Wire*, 27 March. Available at: <https://theprint.in/health/india-has-40000-ventilators-but-could-need-many-many-more-in-worst-case-scenario/388874/> (accessed April 2022).
- Chathukulam, J. (2021). '25 Years of People's Plan Campaign in Kerala'. *Mainstream Weekly*, 59(35). Available at: <http://mainstreamweekly.net/article11410.html> (accessed May 2022).
- Chathukulam, J., and M. Joseph (2021). 'Is Left Front Victory a Long-Term Consequence of People's Plan Campaign in Kerala?'. Working Paper 22. Kottayam: Centre for Rural Management. Available at: <https://crmindia.org/wp-content/uploads/2021/08/Working-Paper-22.pdf> (accessed May 2022).
- Chathukulam, J., and J. Tharamangalam (2021). 'The Kerala Model in the Time of COVID-19: Rethinking State, Society and Synergy'. *World Development*, 137: 105207. <https://doi.org/10.1016/j.worlddev.2020.105207>
- Civil Supplies Department (2019). PDS in Kerala at a Glance. Commission to FPS Dealers, Secretaries Conference, Gujarat, 14–15 October, Civil Supplies Department, Government of Kerala. Available at: <https://civilsupplieskerala.gov.in/images/Commission%20to%20FPS%20dealers.pdf> (accessed May 2022).
- Department of Health & Family Welfare (2020a). Technical Paper COVID-19: ICMR Sero Surveillance, 2nd Round, Kerala (May 2020–August 2020). Available at: <https://arogyakeralam.gov.in/wp-content/uploads/2020/03/Technical-Paper-COVID-19-ICMR-Sero-Surveillance-Study.docx.pdf> (accessed April 2022).

- Department of Health & Family Welfare (2020b). Technical Paper COVID-19: ICMR Sero Surveillance, Round 3, Kerala (December 2020). Available at: <https://health.kerala.gov.in/pdf/Technical-paper-COVID-19-Sero-Surveillance-Round-3-ICMR.pdf> (accessed April 2022).
- Department of Health & Family Welfare (2021a). Technical Paper COVID-19: ICMR Sero Surveillance, Round 4, Kerala. (May 2021). Available at: https://health.kerala.gov.in/pdf/Technical_paper_COVID_19_Sero_Surveillance_Round_4_ICMR.pdf (accessed April 2022).
- Department of Health & Family Welfare (2021b). Technical Paper COVID-19: ICMR Sero Surveillance, Round 5, Kerala (July 2021). Available at: https://health.kerala.gov.in/pdf/Technical_paper_COVID_19_Sero_Surveillance_Round_5_ICMR.pdf (accessed April 2022).
- Directorate of Health Services (2020a). COVID-19 Daily Bulletin, 31 January–28 October, 31 December. Thiruvananthapuram, Kerala: Directorate of Health Services, Government of Kerala. Available at: <https://dhs.kerala.gov.in/%e0%b4%a1%e0%b5%86%e0%b4%af%e0%b4%bf%e0%b4%b2%e0%b4%bf-%e0%b4%ac%e0%b5%81%e0%b4%b3%e0%b5%8d%e0%b4%b3%e0%b4%b1%e0%b5%8d%e0%b4%b1%e0%b4%bf%e0%b4%a8%e0%b5%8d%e2%80%8d/> (accessed April 2022).
- Directorate of Health Services (2020b). Covid Hospital List. Thiruvananthapuram, Kerala: Directorate of Health Services, Government of Kerala. Available at: <https://dhs.kerala.gov.in/wp-content/uploads/2020/07/covid-hospital-List.pdf> (accessed April 2022).
- Directorate of Health Services (2021a). COVID-19 Daily Bulletin, 1 April – 31 December. Thiruvananthapuram, Kerala: Directorate of Health Services, Government of Kerala. Available at: <https://dhs.kerala.gov.in/wp-content/uploads/2021/04/Bulletin-HFWD-English-April-01.pdf> (accessed April 2022).
- Directorate of Health Services (2021b). COVID-19 Status: Analytical Note, 28 September. Thiruvananthapuram, Kerala: Directorate of Health Services, Government of Kerala. Available at: <https://dhs.kerala.gov.in/wp-content/uploads/2021/09/Bulletin-HFWD-English-September-28.pdf> (accessed April 2022).
- Directorate of Health Services (2022). COVID-19 Daily Bulletin, 1 January–17 January. Thiruvananthapuram, Kerala: Directorate of Health Services, Government of Kerala. Available at: <https://dhs.kerala.gov.in/wp-content/uploads/2022/01/Bulletin-HFWD-English-January-1.pdf> (accessed May 2022).
- District Administration of Kozhikode (2020). COVID-19 Jagratha Portal. Available at: <https://covid19jagratha.kerala.nic.in> (accessed March 2022).
- DTE Staff (2020). ‘The 183 Labs in India that Can Test COVID-19 Cases’. *Down to Earth*, 31 March. Available at: <https://www.downtoearth.org.in/news/health/the-183-labs-in-india-that-can-test-covid-19-cases-70120> (accessed May 2022).
- Dutta, K.P. (2021). ‘Why Kerala Is Not Facing Oxygen Crisis in Covid-19 Second Wave’. *India Today*, 27 April. Available at: <https://www.indiatoday.in/coronavirus-outbreak/story/kerala-oxygen-crisis-covid-19-second-wave-1795603-2021-04-27> (accessed May 2022).
- ET Bureau (2020). ‘Kerala gears up to tackle COVID-19’. *The Economic Times*, 19 March. Available at: https://economictimes.indiatimes.com/news/politics-and-nation/kerala-gears-up-to-tackle-covid-19/articleshow/74700079.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst (accessed March 2020).
- Express News Service (2020a). ‘Community Kitchens Up Daily Dose to 2.8 Lakh Packets’. *The New Indian Express*, 11 April. Available at: <https://www.newindianexpress.com/states/kerala/2020/apr/11/community-kitchens-updaily-dose-to-28l-packets-2128502.html> (accessed 11 April 2020).
- Express News Service (2020b). ‘Free Onam Kits to 88L Ration Card-Holders from Thursday’. *The New Indian Express*, 12 August. Available at:

- <https://www.newindianexpress.com/states/kerala/2020/aug/12/free-onam-kits-to-88l-ration-card-holders-from-thursday-2182191.html> (accessed April 2021).
- Express News Service (2021a). 'Kerala Govt on Backfoot as RTI Reply Shows 7316 Covid Deaths Excluded from Official List'. *The New Indian Express*, 27 July. Available at: <https://www.newindianexpress.com/states/kerala/2021/jul/27/kerala-govt-on-backfoot-as-rti-reply-shows-7316-covid-deaths-excluded-from-official-list-2336174.html> (accessed April 2021).
- Express News Service (2021b). 'Allocation for Key Sectors in Kerala Less Compared to Other States: Think Tank'. *The New Indian Express*, 19 June. Available at: <https://www.newindianexpress.com/cities/thiruvananthapuram/2021/jun/19/allocation-for-key-sectors-in-kerala-less-compared-to-other-states-think-tank-2318340.html#:~:text=Kerala%20has%20allocated%206.5%20pc,police%20and%20roads%20and%20bridges> (accessed April 2021).
- Express News Service (2022). 'Row Over "Reconciled Deaths": Centre Seeks Clarification from Kerala on Covid Mortality Data'. *The New Indian Express*, 21 January. Available at: <https://www.newindianexpress.com/states/kerala/2022/jan/21/row-over-reconciled-deaths-centre-seeks-clarification-from-kerala-on-covid-mortalitydata-2409684.html> (accessed January 2022)
- Express Web Desk (2021). '1 Lakh Tests Per Day, 25,000 Cops on Monitoring Duty: Kerala Tightens Covid-19 Restrictions'. *The Indian Express*, 29 January. Available at: <https://indianexpress.com/article/india/kerala/1-lakh-tests-per-day-25000-cops-on-monitoring-duty-kerala-tightens-covid-19-restrictions-7166443/> (accessed April 2022).
- Franke, R.W., and B.H. Chasin (1994). *Kerala: Radical Reform as Development in an Indian State*. Oakland, CA: Institute for Food and Development Policy.
- Ghosh, A., and S. Philip (2020). 'Coronavirus: Third Case in Five Days, Kerala Declares State Calamity, Centre Forms GoM'. *The Indian Express*, 4 February. Available at: <https://indianexpress.com/article/india/kerala/coronavirus-third-case-in-five-days-kerala-declares-state-calamity-centre-forms-gom-6249700/> (accessed August 2021).
- Government of Kerala (2005). *Kerala Human Development Report (HDR) 2005*. United Nations Development Programme. Available at: <http://hdr.undp.org/en/content/kerala-hdr-2005> (accessed May 2022).
- Government of India (2011). Census of India: Provisional Population Totals of 2011, Kerala. India: Office of the Registrar General & Census Commissioner. Available at: https://censusindia.gov.in/2011-prov-results/prov_data_products_kerala_.html (accessed 5 April 2022).
- Government of Kerala (2020). 'Daily Case Reports from 26 June 2020'. GoK Dashboard: Official Kerala COVID-19 Statistics. Available at: <https://dashboard.kerala.gov.in/covid/testing-view-public.php> (accessed May 2022).
- Government of Kerala (2021a). 'Daily Case Reports from 1 January 2021'. GoK Dashboard: Official Kerala COVID-19 dashboard Statistics. Available at: <https://dashboard.kerala.gov.in/covid/testing-view-public.php> (accessed May 2022).
- Government of Kerala (2021b). 'Vaccination'. GoK Dashboard: Official Kerala COVID-19 Statistics. Available at: <https://dashboard.kerala.gov.in/covid/vaccination.php> (accessed January 2022).
- Government of Kerala (2021c). 'Details of COVID-19 Deaths in Kerala'. GoK Dashboard: Official Kerala COVID-19 Statistics. Available at: <https://dashboard.kerala.gov.in/covid/deaths.php> (accessed April 2022).
- Health Information Cell (2018). *Health at a Glance 2018* (Report). Thiruvananthapuram, Kerala: Directorate of Health Services, Government of Kerala. Available at: https://dhs.kerala.gov.in/wp-content/uploads/2020/03/health_25022019.pdf (accessed October 2020).
- Hebbar, N. (2020). 'PM Modi Announces 21-Day Lockdown as COVID-19 Toll Touches 12'. *The Hindu*, 25 March. Available at: <https://www.thehindu.com/news/national/pm-announces-21-day-lockdown-as-covid-19-toll-touches-10/article61958513.ece> (accessed April 2020).

- Heller, P. (2000). 'Degrees of Democracy: Some Comparative Lessons from India'. *World Politics*, 52(4): 484–519. <http://www.jstor.org/stable/25054127>.
- Hindu, The* (2021a). 'Welfare Pensions to be Hiked to ₹2,500'. *The Hindu*, 2 June. Available at: <https://www.thehindu.com/news/national/kerala/welfare-pensions-to-be-hiked-to-2500/article34710275.ece> (accessed April 2022)
- Hindu, The* (2021b). 'State All Set to Tackle Omicron'. *The Hindu*, 8 December. Available at: <https://www.thehindu.com/news/national/kerala/state-all-set-to-tackle-omicron/article37902753.ece> (accessed April 2022).
- Hindu Business Line, The* (2020). 'Covid-19: Underlying Ailments Behind Most Deaths in Kerala'. *The Hindu Business Line*, 11 June. Available at: <https://www.thehindubusinessline.com/news/covid-19-underlying-ailments-behind-most-deaths-in-kerala/article31801111.ece> (accessed June 2020).
- Hindustan Times* (2020, July 18). 'Community Transmission at Over 50% in Covid-19 Clusters, Says Kerala Health Minister', *Hindustan Times*, 18 July. Available at: <https://www.hindustantimes.com/india-news/community-transmission-at-over-50-in-covid-19-clusters-says-kerala-health-minister/story-UOVbameVbOjlrA9GMX08M.html> (accessed March 2022).
- HT Correspondent (2020). 'Kerala Government Announces Rs 20,000 Crore Package to Tackle Coronavirus Outbreak'. *Hindustan Times*, 20 March. Available at: <https://www.hindustantimes.com/india-news/kerala-government-announces-rs-20-000-crore-package-to-tackle-coronavirus-outbreak/story-KzGvehTH4HXjhnkTBLU49M.html> (accessed April 2022).
- HT Correspondent (2021). 'Delta Variant Detected in 90% of Samples in Kerala, Reveals Genome Study'. *Hindustan Times*, 3 August. Available at: <https://www.hindustantimes.com/india-news/delta-variant-detected-in-90-of-samples-in-kerala-reveals-genome-study-101627931371264.html> (accessed April 2022).
- ICMR (2020a). Total Operational (Initiated Independent Testing) Laboratories Reporting to the Indian Council of Medical Research (ICMR), Department of Health Research, Ministry of Health and Family Welfare, Government of India, 31 May. Available at: https://www.icmr.gov.in/pdf/covid/labs/archive/COVID_Testing_Labs_31052020.pdf (accessed May 2022).
- ICMR (2020b). Total Operational (Initiated Independent Testing) Laboratories Reporting to the Indian Council of Medical Research (ICMR), Department of Health Research, Ministry of Health and Family Welfare, Government of India, 31 December. Available at: https://www.icmr.gov.in/pdf/covid/labs/archive/COVID_Testing_Labs_30122020.pdf (accessed May 2022).
- ICMR (2021a). Total Operational (Initiated Independent Testing) Laboratories Reporting to the Indian Council of Medical Research (ICMR), Department of Health Research, Ministry of Health and Family Welfare, Government of India, 31 May. Available at: https://www.icmr.gov.in/pdf/covid/labs/archive/COVID_Testing_Labs_31052021.pdf (accessed May 2022).
- ICMR (2021b). Total Operational (Initiated Independent Testing) Laboratories Reporting to the Indian Council of Medical Research (ICMR), Department of Health Research, Ministry of Health and Family Welfare, Government of India, 31 December. Available at: https://www.icmr.gov.in/pdf/covid/labs/archive/COVID_Testing_Labs_30122021.pdf (accessed May 2022).
- Ilakanth, U., and M. Kadambad (2020). 'Kerala Govt to Supply Food Kits to 87 Lakh Families, Here's a List of Items Included'. *ONMANORAMA*, 29 March. Available at: <https://www.onmanorama.com/news/kerala/2020/03/29/kerala-government-food-kitcoronavirus-lockdown-list-of-items.html> (accessed August 2021).
- Jacob, J. (2020a). 'Break the Chain: Kerala Launches Mass Handwashing Campaign Against Covid-19 Pandemic'. *India Today*, 15 March. Available at: <https://www.indiatoday.in/india/story/break-the->

- chain-kerala-launches-masshandwashing-campaign-against-covid-19-pandemic-1655819-2020-03-15 (accessed August 2021).
- Jacob, J. (2020b). ‘Coronavirus Lockdown in Kerala: Community Kitchens Deliver Food to Needy at Home’. *India Today*, 26 March. Available at: <https://www.indiatoday.in/coronavirus-outbreak/story/coronavirus-lockdown-in-keralacommunity-kitchens-deliver-food-to-needy-at-home-1660058-2020-03-26> (accessed 18 August 2021).
- Jacob, J. (2021). ‘How Kerala Ramped Up Oxygen Capacity and Supply’. *India Today*, 28 April. Available at: <https://www.indiatoday.in/india-today-insight/story/how-kerala-ramped-up-oxygen-capacity-and-supply-1795614-2021-04-27> (accessed May 2022).
- Joseph, R. (2021). ‘Delta Variant Behind the Surge in Kerala’s Breakthrough COVID-19 Infections?’. *ONMANORAMA*, 7 September. Available at: <https://www.onmanorama.com/news/kerala/2021/09/07/kerala-breakthrough-covid-cases-surge-likely-reasons.html> (accessed April 2022).
- Kapoor, G., A. Sriram, J. Joshi, A. Nandi, and R. Laxminarayan (2020). ‘COVID-19 in India: State-Wise Estimates of Current Hospital Beds, Intensive Care Unit (ICU) Beds and Ventilators’. Silver Spring, MD: Centre for Disease Dynamics, Economics & Policy. Available at: https://cddep.org/wp-content/uploads/2020/04/State-wise-estimates-of-current-beds-and-ventilators_20Apr2020.pdf (accessed April 2022).
- Kerala State Planning Board (2019). *Kerala Economic Review 2019*. Thiruvananthapuram: Government of Kerala. Available at: https://spb.kerala.gov.in/sites/default/files/2020-09/ER_2019_Vol1_E.pdf (accessed April 2022).
- Kerala State Planning Board (2021a). *Kerala Development Report: Initiatives, Achievements, and Challenges*. Thiruvananthapuram: Kerala State Planning Board, Government of Kerala. Available at: <https://spb.kerala.gov.in/sites/default/files/inline-files/Kerala-Development-Report-2021.pdf> (accessed April 2022).
- Kerala State Planning Board (2021b). *Kerala Economic Review 2021*, Volume 1. Thiruvananthapuram: Government of Kerala. Available at: https://spb.kerala.gov.in/sites/default/files/2022-03/ECNO_%20ENG_21_%20Vol_1.pdf (accessed April 2022).
- Krishnan, K.R. (2021). ‘Govt Stops Distribution of Free Food Kits’. *Mathrubhumi English*, 22 September. Available at: <https://english.mathrubhumi.com/news/kerala/departement-of-finance-has-informs-food-and-civil-supplies-departement-that-distribution-of-kits-1.6024957> (accessed May 2022).
- Kumar, S. (2021). ‘How Kerala Became an Oxygen-Surplus State in One Year’. *The Hindu Business Line*, 30 April. Available at: <https://www.thehindubusinessline.com/news/national/how-kerala-became-an-oxygen-surplus-state-in-one-year/article34452802.ece> (accessed May 2021).
- Masih, N. (2020). ‘Aggressive Testing, Contact Tracing, Cooked Meals: How the Indian State of Kerala Flattened Its Coronavirus Curve’. *Washington Post*, 13 April. Available at: https://www.washingtonpost.com/world/aggressive-testing-contact-tracing-cooked-meals-how-the-indian-state-of-kerala-flattened-its-coronavirus-curve/2020/04/10/3352e470-783e-11ea-a311-adb1344719a9_story.html?utm_campaign=wp_main&utm_source=twitter&utm_medium=social (accessed March 2022).
- Maya, C. (2020). ‘COVID-19 Death Audit Report of Kerala Raises Eyebrows’. *The Hindu*, 30 August. Available at: <https://www.thehindu.com/news/national/kerala/covid-19-death-audit-report-of-kerala-raises-eyebrows/article32478959.ece> (accessed May 2022).
- Maya, C. (2021). ‘Coronavirus: ICU Beds Filling Up in Kerala’. *The Hindu*, 5 May. Available at: <https://www.thehindu.com/news/national/kerala/coronavirus-icu-beds-filling-up-in-kerala/article34490296.ece> (accessed April 2022).
- Moolakkattu, J.S. (2021). ‘Misplaced Triumphalism and Politicization of COVID-19 in Kerala’. *Peace Review: A Journal of Social Justice*, 33(1): 39–47. <https://doi.org/10.1080/10402659.2021.1956129>

- Paul, C. (2020). “Nobody Should Go Hungry”: Kerala to Start Community Kitchens in Every Panchayat’. *The Week*, 25 March. Available at: <https://www.theweek.in/news/india/2020/03/25/covid-19-lockdown-kerala-to-start-community-kitchens-in-every-panchayat.html> (accessed April 2022).
- Perappadan, B.S. (2020). ‘India’s First Covid Infection Confirmed in Kerala’. *The Hindu*, 30 January. Available at: <https://www.thehindu.com/news/national/indias-firstcoronavirus-infection-confirmed-in-kerala/article30691004.ece> (accessed August 2020).
- Philip, S. (2020). ‘Explained: Flattened Curve to New Spurt, How the Kerala Covid-19 Story Has Changed.’ *The Indian Express*, 6 September. Available at: <https://indianexpress.com/article/explained/flattened-curve-to-new-spurt-how-keralas-covid-story-changed-6579384/> (accessed May 2022).
- PRD Live (2020a). ‘Covid First-Line Treatment Centres in All the Panchayats’. Information and Public Relations Department, Government of Kerala, 16 July. Available at: <https://prdlive.kerala.gov.in/news/87601> (accessed April 2022).
- PRD Live (2020b). ‘Covid First-Line Treatment Centres Getting Ready Across the State: Kerala CM’. Information and Public Relations Department, Government of Kerala, 18 July. Available at: <https://prdlive.kerala.gov.in/news/87896> (accessed April 2022).
- PRD Live (2020c). ‘742 Covid First Line Treatment Centres to be Operational in Kerala: CM’. Information and Public Relations Department, Government of Kerala, 21 July. Available at: <https://prdlive.kerala.gov.in/news/88201> (accessed April 2022).
- PRD Live (2020d). ‘Good Progress in Setting Up Covid First-Line Treatment Centres’. Information and Public Relations Department, Government of Kerala, 24 July. Available at: <https://prdlive.kerala.gov.in/news/88689> (accessed April 2022).
- PRD Live (2020e). ‘CFLTCs Being Speeded Up to Handle an Increase in Patients’. Information and Public Relations Department, Government of Kerala, 14 September. Available at: <https://prdlive.kerala.gov.in/news/94787> (accessed April 2022).
- Rajagopal, N. (2020). ‘Social Impact of Women SHGs: A Study of NHGs of “Kudumbashree” in Kerala’. *Management and Labour Studies*, 45(3), 317–36. <https://doi.org/10.1177/0258042X20922116>
- Rajan, I.S., and U. Mishra (2020). *Senior Citizens of India, Emerging Challenges and Concerns*. Singapore: Springer Nature.
- Rukmini, S. (2021). ‘What Kerala’s COVID-19 “Failure” Can Tell Us About India’s “Success”’. *IndiaSpend*, 9 February. Available at: <https://www.indiaspend.com/covid-19/what-keralas-covid-19-failure-can-tell-us-about-indias-success-724141> (accessed April 2022).
- Sabarwal, H. (2021). ‘Amid Fall in India’s Covid-19 Cases, 3 States See a Surge’. *Hindustan Times*, 16 February. Available at: <https://www.hindustantimes.com/india-news/amid-fall-in-india-s-covid-19-cases-3-states-see-a-surge-101613488102031.html> (accessed April 2022).
- Serikbayeva, B.B., K. Abdulla, and Y. Oskenbayev (2021). ‘State Capacity in Responding to COVID-19’. *International Journal of Public Administration*, 44(11–12): 920–30. <https://doi.org/10.1080/01900692.2020.1850778>
- Singh, P., S. Ravi, and S. Chakraborty (2020). ‘Is India’s Health Infrastructure Equipped to Handle an Epidemic?’. Brookings Institution India Centre, 24 March. Available at: <https://www.brookings.edu/blog/up-front/2020/03/24/is-indias-health-infrastructure-equipped-to-handle-an-epidemic/> (accessed April 2022).
- Thomas, T. P. (2015). *Education and Social Mobility: The Kerala Experience*. Notion Press: Chennai, India.
- Times News Network (2020a). ‘Covid-19 in Kerala: Facilities All Set for Surge, Shows Data’. *The Times of India*, 19 October. Available at: http://timesofindia.indiatimes.com/articleshow/78740768.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst (accessed April 2022).
- Theiventhran, M.G. (2022). ‘Quarantining Local Democracy: Pandemic Politics in Post-War Sri Lanka’. In J.S. Moolakkattu and J. Chathukulam (eds), *Challenges to the Local Governance in the Pandemic Era*:

Perspectives from South Asia and Beyond. Newcastle-Upon-Tyne, UK: Cambridge Scholars Publishing, pp. 227–47.

Times News Network (2020b). ‘212 More PHCs to Become Family Health Centres in Kerala’. *The Times of India*, 26 October. Available at: <https://timesofindia.indiatimes.com/city/thiruvananthapuram/212-more-phcs-to-become-family-health-centres/articleshow/78862253.cms> (accessed April 2022).

Törnquist, O. (2021). *In Search of New Social Democracy*. London: Zed-Bloomsbury Publishing.

Unique Identification Authority of India (2020). Total Projected Population for 2020 and State/UT wise Aadhaar Saturation (Overall)—All Age Groups. Available at: <https://uidai.gov.in/images/state-wise-aadhaar-saturation.pdf> (accessed April 2022).

Unnikrishnan, S. (2021). ‘Second Covid Wave Accelerates, ICU Bed Shortage Looms’. *The New Indian Express*, 22 April. Available at: <https://www.newindianexpress.com/states/kerala/2021/apr/22/second-covid-wave-accelerates-icu-bed-shortage-looms-2293048.html> (accessed April 2022).

Varma, V. (2020). ‘Explained: What Is the Sprinklr Row Kerala Govt’s Covid-19 Response Is Embroiled In?’. *The Indian Express*, 21 April. Available at: <https://indianexpress.com/article/explained/what-is-the-sprinklr-row-kerala-govts-covid-19-response-6371205/> (accessed April 2022).

Wire, The (2020). ‘Kerala Govt Running 65% of Shelter Camps for Migrants after Lockdown’. *The Wire*, 9 April. Available at: <https://thewire.in/law/kerala-centre-supreme-court-lockdown-migrant-labourers-shelter> (accessed March 2022).

Appendix: Details of pending deaths released by the Government of Kerala since 22 October 2021

22-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	172	292
23-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	142	257
24-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	81	211
25-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	9	219
26-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	51	341
27-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	199	330
28-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	110	542
29-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October
	109	276
30-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	39	257
31-10-2021	No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
	7	146
01-11-2021		

No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
58	232
02-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
55	87
03-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
239	72
04-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
60	21
05-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
111	157
06-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
231	186
07-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
27	153
08-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
182	0
09-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
337	0
10-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
211	0
11-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
372	0
12-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)

412	0
13-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
151	0
14-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
19	0
15-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
70	0
16-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
171	0
17-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
327	0
18-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
321	0
19-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
155	0
20-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
216	0
21-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
156	0
22-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
105	0
23-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
313	0
24-11-2021	

No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
273	0
25-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
328	0
26-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
355	0
27-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
526	0
28-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
140	0
29-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
58	0
30-11-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
158	0
01-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
307	0
02-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
254	0
03-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
225	0
04-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
263	0
05-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)

138	0
06-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
138	0
07-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
106	0
08-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
77	0
09-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
173	0
10-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
309	0
11-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
195	0
12-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
109	0
13-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
165	0
14-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
146	0
15-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
157	0
16-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
284	0
17-12-2021	

No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
221	0
18-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
175	0
19-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
85	0
20-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
405	0
21-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
200	0
22-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
347	0
23-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
269	0
24-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
311	0
25-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
104	0
26-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
252	0
27-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October ©
213	0
28-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)

206	0
29-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
199	0
30-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
149	0
31-12-2021	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
342	0
01-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
219	0
02-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
66	0
03-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
41	0
04-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
423	0
05-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
229	0
06-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
204	0
07-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
154	0
08-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
209	0
09-01-2022	

No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
14	0
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
147	0
10-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
147	0
11-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
277	0
12-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
176	0
13-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
96	0
14-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
179	0
15-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
89	0
16-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
150	0
17-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
54	0
18-01-2022	
No. of deaths declared as per appeal G.O.(Rt) No.2110/20 21/H&FWD (B)	No. of pending deaths declaration of the cases up to 18 June 2021 (offline period of death reporting) As per G.O.(Rt) No.2219/2021/H& FWD Dated 14 October (C)
83	0

Source: authors' compilation based on data from Directorate of Health Services (2021a, 2022).