QUICK ASSESSMENT OF THE IMPACT OF THE COVID-19 PANDEMIC AND LOCKDOWN ON KERALA'S ECONOMY

KERALA STATE PLANNING BOARD
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Introduction

This "Quick Assessment of the Impact of the Covid-19 Pandemic and Lockdown on Kerala's Economy" is a preliminary assessment of losses in the State economy as a result of the pandemic and consequent lockdown across the country.

The general reference period of the Assessment is the lockdown period, that is, March 25, 2020 to May 3, 2020. However, the reference period of individual sections of the report differ, and have been specified at the relevant places.

The report is based on a rapid assessment undertaken in order to address the urgent requirement of understanding the extent of damage caused by the pandemic and the consequent lockdown.

The report was prepared by the State Planning Board on the instructions from the Chief Minister. The Chief Minister instructed the Board to undertake a quick assessment of losses to the State economy, particularly to the sectors most vulnerable to the impact of Covid-19 crisis and the imposition of lockdown.

The report has two sections. The first section of the report deals with the impact of the pandemic and lockdown on Gross Value Added in the State as a whole. The calculations in the report are based on data from the Directorate of Economics and Statistics and suggestions from the Chairperson of the State Statistical Commission. The calculation of direct and indirect losses to the economy based on an input-output model is included in the Appendix of the report.

The second section of the report deals with sector-wise losses. The sectors that we have taken up for detailed examination were suggested by the Chief Minister: agriculture, animal resources, dairying, and fisheries, industries and trade, tourism, transport, information technology, power, labour, including women's employment, and remittances. These reports were prepared by the Members and Chiefs of Divisions of the State Planning Board on the basis of reports from the Departments. The reports of sectors, as and when finalised, were submitted to the Chief Minister.

The economic crisis associated with the Covid-19 pandemic is unprecedented. Previous disasters were mainly natural disasters, when the economy suffered damage to its productive capacity over a specific time, with measurable consequences in the short and medium term. The production of goods and services during the Covid-19 pandemic came to an abrupt and almost total halt. Further, the halt to production during the Covid-19 pandemic is not locality-specific or scale-specific. Its effects are from top to bottom and across all locations. There is uncertainty about the period that it will take to resume production after the crisis is over. There is also uncertainty about how long it will take to achieve previous levels of production. This is because the resumption of production involves national and international supply and distribution chains.

Although the economy is in flux, it is imperative to describe and quantify the impact of the present lockdown on different sectors of the State. Even in normal circumstances quantitative information on the performance of various sectors come with substantial time lag. The effort in this report is to provide some order of magnitude rather than precise figures. Our estimates are based on information available today. However, the situation is dynamic and may change depending on the duration of the pandemic and the measures that governments may adopt to manage it, not just in the State but in the country and across the globe.

We now propose to begin a second round of damage assessment. For this purpose, we conducted, on May 2, 2020, a National Consultation on Methodologies for Measuring State-Level Economic Losses in the Context of the Covid-19 Pandemic. This was attended by experts from a range of institutions across the country and State, departments of the Government, the Kerala State Statistical Commission, and from the Kerala State Disaster Management Agency. Based on these and other discussions, we shall develop new methods of studying the economic impact of the pandemic on the economy of Kerala.

SECTION I
STATE INCOME

SHORTFALL IN STATE GROSS VALUE ADDED AS A RESULT OF COVID-19 PANDEMIC
SOME PRELIMINARY ESTIMATES

Effects on State Income

This section deals only with estimates of shortfalls to gross value added to Kerala's economy from March 2020 and in the first quarter of 2020-21.

For 2018-19, the quick estimates of Gross Value Added in the State's economy put it at 7 lakh crore at current prices. This was expected to grow at around 10 per cent in 2019-20 to 7.73 lakh crore.

During a month of total lockdown with negligible production of goods and services except in a few selected sectors like government, banking, communication, etc, we might lose 80 per cent of the monthly value addition.

For the month of March 2020, assuming about 10 days of total production loss and decreased economic activity from middle of March, we estimate the shortfall in value addition in the State to have been roughly Rs 29,000 crore.

For the first quarter of 2020-21, the entire month of April is affected with near total disruption in economic activity. It is expected that many of these would continue in May and in subsequent months. This will mean a loss of roughly Rs 80,000 crore in Quarter 1, assuming the normal production level in 2020-21 to be about 5 per cent higher than in 2019-20.

Roughly we estimate the Quarter 1 losses in gross value addition to the Kerala Economy to be around Rs 80,000 crore.

Table 1 *Estimate of shortfall in GSVA in Q1 of 2020-21 under different scenarios*, Rs in crore

Scenario	**Q1 of 2020-21 (Rs crore)**			
	April	May	June	Total for Q1
Shortfall in Gross Value Added: April: 80 per cent May: 15 per cent June: 10 per cent	60,000	11,400	7,600	79,000
Shortfall in Gross Value Added: April: 80 per cent May: 20 per cent June: 15 per cent	60,000	15,200	11,400	86,600

Note:
Assumption: The economy in 2020-21 is taken to grow around 5 per cent given the overall economic downturn during the last two years and the Quarter 1 production is assumed to be about 28 per cent of the total annual production.
That public administration part of GSDP remains same or rather improves, crop production, communication, finance, etc., suffering only small negative effects.
Based on the employment structure and the sectoral distribution of income in Kerala, a complete lockdown is assumed to bring in about 80 per cent loss in value addition.

Section II
Sector-wise Assessments

Estimates of Losses in Agriculture
Reference Period: March and April 2020

The total losses in the crop husbandry sector in agriculture, including plantation crops, are estimated at Rs 1570.75 crore. Losses for agricultural labourers due to loss of wages is estimated at about Rs 200.30 crore

The Covid-19 pandemic has affected Kerala's agricultural sector in multiple ways.

First, Kerala's agriculture has a dominant presence of cash crops whose prospects are influenced by the nature of international trade. As the world economy has shut down, global trade has come to almost a halt. The World Trade Organisation (WTO) expects world trade in 2020 to shrink by 13 to 32 per cent. This will have a major adverse impact on the export-oriented spices and plantation crops grown in Kerala.

Secondly, the domestic prices of most agricultural crops, livestock products, and fish fell sharply after the lockdown began. While the impact on production may not have been as severe as expected, the fall of demand and disruption of supply chains have resulted in major income losses for the farmers in the State.

Thirdly, the lockdown and the resultant lack of availability of workers, especially migrant workers, has affected the functioning of a number of processing units in agriculture. The inability of these units to process agricultural products has affected the supply chain and farmers.

Finally, the lockdown has resulted in large income losses for agricultural institutions in the public sector.

The Department of Agriculture Development and Farmer's Welfare made commendable interventions in the market during the lockdown period. These interventions benefited farmers greatly. Nevertheless, the capacity of the State government has been constrained by factors outside our control.

1. Rice

In **rice**, the second crop was almost ready to be harvested in the major paddy growing tracts when the lockdown began. Farmers faced a shortage of agricultural labourers on the farms to undertake harvesting. Even when harvesting was completed, there were bottlenecks in the procurement and trade of paddy. In many places, the shortage of truck drivers in the transport sector and restrictions on road transport delayed procurement. The major rice mills in Ernakulam District were also faced with a severe shortage of migrant workers, which slowed down milling, and thus procurement as well. Harvest was delayed in certain areas. Nevertheless, procurement was completed in most parts of the State at the procurement price i.e., Rs 2,695 per quintal. During the lockdown period (till first week of April 2020), a total quantity of 386,944 tons of paddy was harvested, of which 1,64,951 tons was procured by Supplyco. The procurement is continuing.

It is estimated that there was a loss of about **Rs 15 crore** in the paddy sector, due to loss of grain and delayed transportation of grain. If the State fails to ensure that summer ploughing is undertaken in May 2020, there is likely to be a loss of area sown for the monsoon crop in June 2020. This should be avoided.

2. Vegetables

In the case of vegetables, there were losses for farmers due to lower prices for their produce and inability to market the harvests as before. There were also losses due to reduced exports of vegetables from Kerala. There was a 40 per cent reduction in the export of vegetables from Kerala during the lockdown period.

The estimation of losses in the vegetable sector in Kerala is fraught with a number of difficulties. The total annual production of vegetables in Kerala is estimated at about 12.12 lakh MT. There are three major seasons for vegetable production in Kerala: the Sabarimala season (3 months); the Onam season (2 months) and the Vishu/summer season (2 months). Based on some assumptions, we assume that the production of vegetables in March and April of 2020 is likely to be about 2 lakh MT. We are aware that a large portion of production is set aside for self-consumption. Our estimate covers the marketed surplus and the amount retained for self-consumption by households.

We collected official data on daily prices of vegetables in Kerala between March 20 and April 10. Figure 1 provides the information on prices for selected 10 important vegetables grown in Kerala for similar periods in 2019 and 2020. With some exceptions, prices as on April 10, 2020 were lower than the prices as on April 10, 2019 for most vegetables. Further, between around March 26, 2020 and April 10, 2020, average prices of many vegetables fell. After considering all the price variations, and differences between 2019 and 2020, we estimated that the average prices of vegetables may have declined by about Rs 7 per kg during the lockdown period.

Thus, considering a marketable surplus of 2 lakh MT, and assuming a loss of Rs 7 per kg on an average, we estimate the losses in the vegetable sector in March and April 2020 to be about **Rs 147 crore**. In addition, a loss of about **Rs 11 crore** has been reported by the Swasraya Karshaka Samitis (SKS) under VFPCK.

These losses were despite commendable efforts made by the department, VKPCK, and Horticorp to intervene in the marketing of vegetables (see Box 1). Farmers are largely protected from undue fluctuations in prices when they trade in the VFPCK markets. However, the extent of trade of vegetables that takes place under VFPCK constitutes only a small share of the total production of vegetables in the State. On an annual basis, if the total production of vegetables is 12.12 lakh MT, the quantity that enters the VFPCK's SKS markets is 83,280 MT. That is only about 7 per cent of the total production in the State.

Nevertheless, if we compare the extent of trade that took place in the VFPCK markets in March-April 2019 and March-April 2020, we find that trade in VFPCK markets has increased. In March-April 2019, 1627 MT of vegetables entered the VKPCK markets. In March-April 2020 (till April 15, 2020), 1782 MT of vegetables entered the VFPCK markets. When we consider data till April 30, 2020, this may increase further. This is a positive development, especially because not all VFPCK markets were open during the lockdown.

The quantum of sales in Horticorp markets also increased between March 1, 2020 and April 13, 2020. The quantity sold through the outlets located in all the Districts was 38.6 lakh kg and the total amount of sales was Rs 8.3 crore. For the corresponding period in 2019, these figures were 11.6 lakh kg and Rs 4.1 crore respectively. It is expected that the total value of sales through Horticorp will be around Rs 10 crore and the quantity sold will be 50 lakh kg. Here again, while significant numbers of farmers were benefited, the impact on the State as a whole was limited.

Box 1*Government interventions in vegetable markets*

During the lockdown period, farmers' losses were reduced substantially because of the timely intervention of the department, VFPCK and Horticorp. The Farmers Retail Outlets (FRO) set up locally (one each in every Panchayat, two each in Municipalities and five each in corporations) enabled farmers to sell their products locally to consumers. The online marketing strategy adopted by the government agencies helped in the direct sale of products like mango, pineapple, banana, papaya and vegetables to the city dwellers. Moreover, inter-District movement of surplus produce was also organised. Paddy threshers were arranged by the department (600 numbers) in Palakkad, Kuttanad and Kole areas. This reduced the loss of paddy due to delayed harvesting and summer rain.

From March 23, 2020 till April 15, 2020, Horticorp procured 1200 MT of fruits and vegetables from farmers and outside the State. Online marketing of fruits and vegetables to the consumers was arranged through private online food delivery portals in Thiruvananthapuram, Kottayam, Ernakulam, Thrissur and Kannur Districts. Supply of fruits and vegetables was also arranged to different community kitchens, residents associations, guest worker camps and other agencies throughout the State. Marketing of fruits and vegetables to the consumers also took place through the 100 own-stalls and around 200 franchisee outlets of Horticorp.

3. Fruits and Tuber Crops

1. In **banana and plantains**, the most important problem was a sharp fall in prices. The prices of banana fell from Rs 40-45 per kg to Rs 20-25 per kg during the lockdown. A similar loss is expected in the plantain sector also.

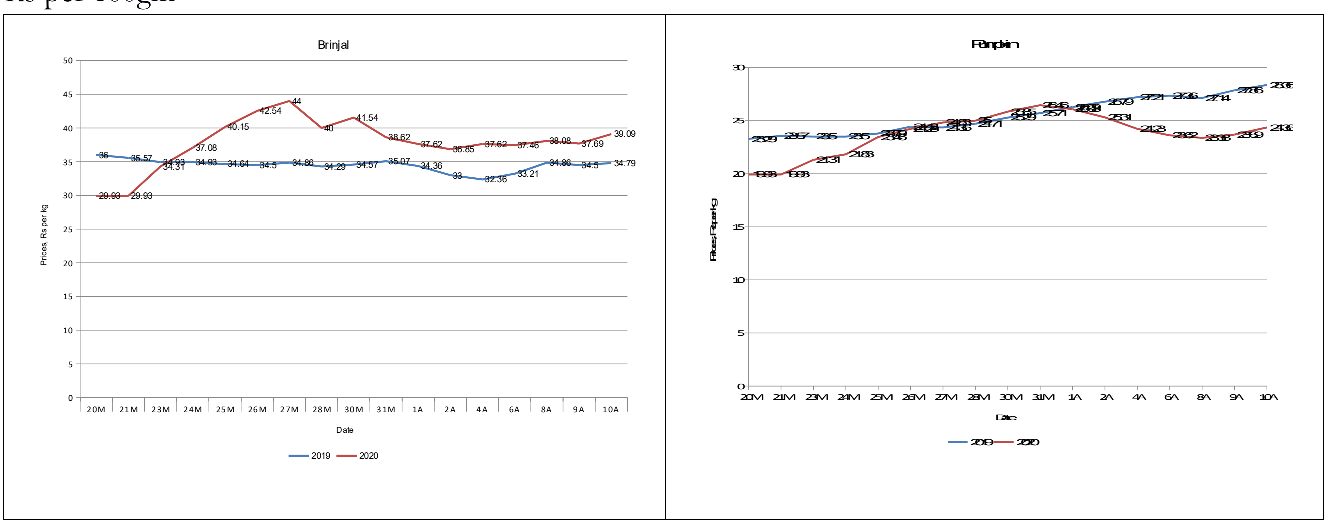
In Kerala, the annual production of banana and plantains together is about 8.1 lakh MT. We estimate that the production of banana and plantains in March and April 2020 would be about 1.3 lakh MT. Assuming a Rs 20 per kg loss of price for the farmers, the total loss is estimated at about **Rs 269 crore** for banana and plantains for the two month period.

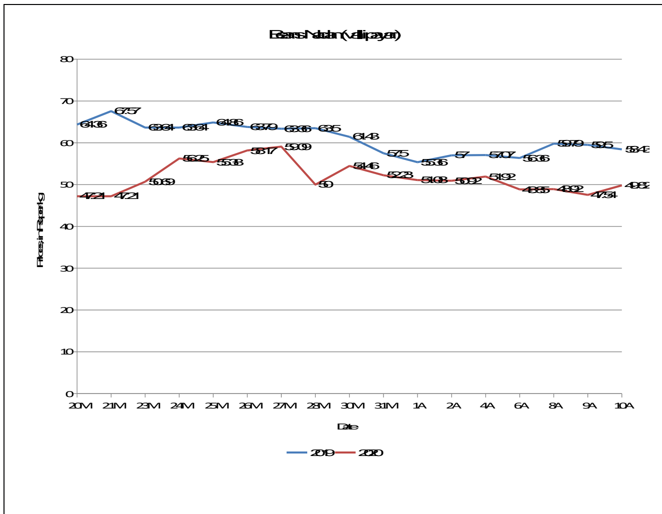
2. In **pineapple**, a major crop in central Kerala, the prices fell from Rs 20-25 per kg to Rs 10-15 per kg during the lockdown. Horticorp and VFPCK made efforts to procure pineapple from the production sites and sell it online. Still, for the 50,000 MT harvest of pineapple in the State, the lossses are estimated at about **Rs 50 crore**.

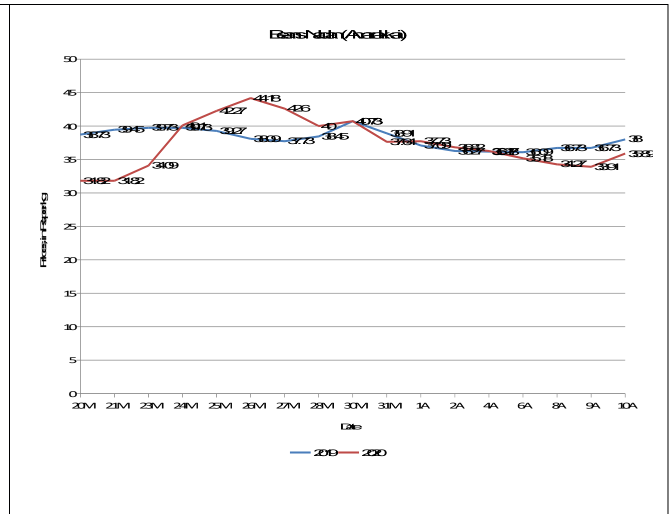
3. In **cashew**, there were losses because the crop could not be harvested during the lockdown, and because of a lack of processing facilities. The losses are estimated at **Rs 10 crore**.

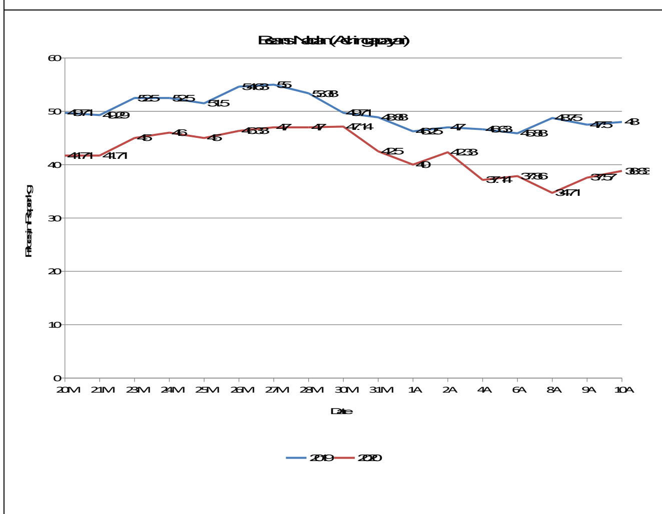
4. We estimate that in the case of **tuber crops**, the losses in the State were **Rs 20 crore**.

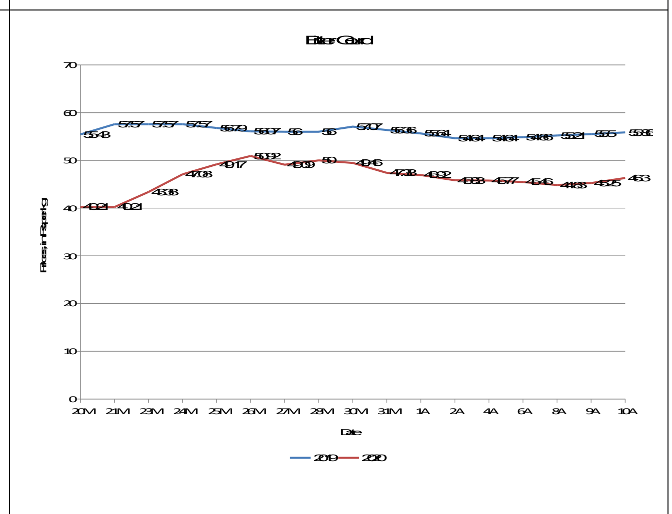
Figure 1 *Trends in prices of major vegetables in Kerala, March 20, 2020 to April 10, 2020*, in Rs per kg and Rs per 100gm







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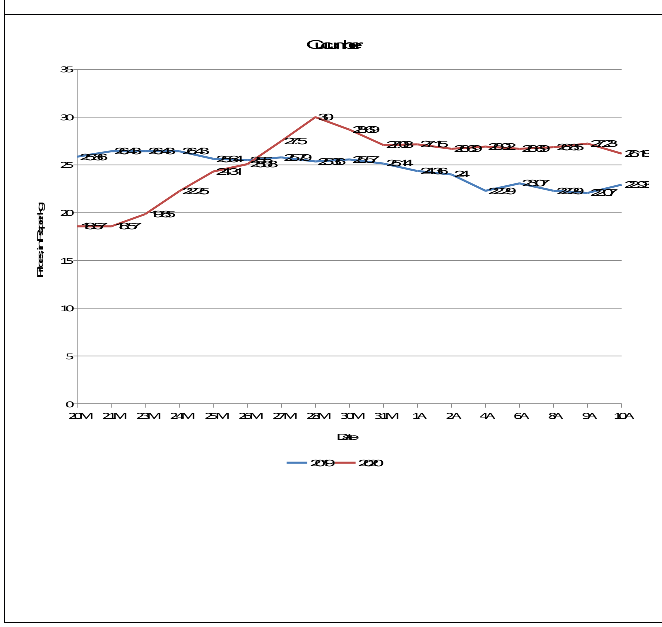
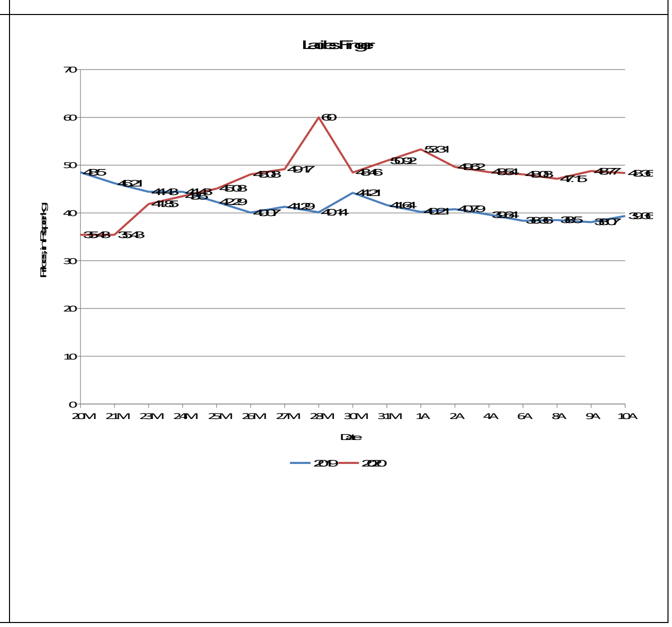
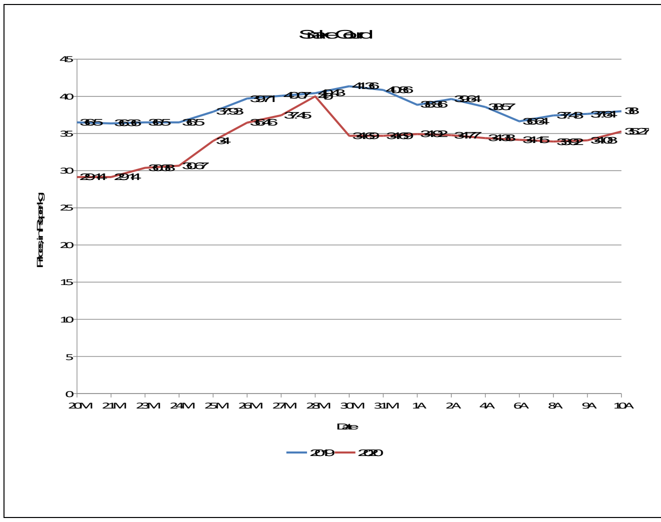
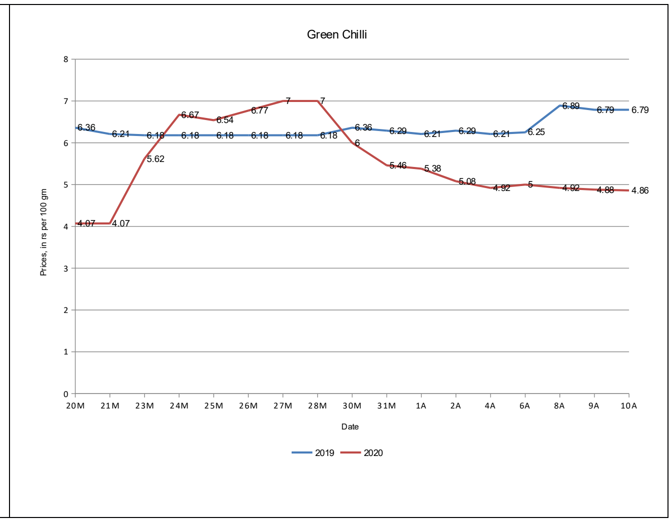

Cucumber


Ladies Finger





Source: Department of Economics and Statistics, Government of Kerala.

4. Crops under Various Commodity Boards

1. **Natural rubber** (NR) sector has been going through a phase of crisis because of the post-2011 decline in prices. All natural rubber markets were closed from the date of lockdown, and hence the market arrivals have been nil. Natural rubber was also not exported outside Kerala from the date of lockdown. However, rubber estates, latex processing industries and gloves manufacturing units were permitted to operate after April 14, 2020. Hence, some trading in NR latex may begin after April 14. Price of commonly traded grade of RSS 4 was around Rs 125 per kg at the time of the announcement of lockdown. Rubber prices are generally expected to decline when trading begins because of high stocks, projected decline in rubber consumption and low international prices. Natural rubber markets will be affected adversely by low international economic growth.

The total production of natural rubber in Kerala in 2018-19 was 5,40,775 tons. Using certain assumptions, we estimate that there is likely to be an unsold stock of 45,064 tons of natural rubber in Kerala. Its value is estimated at **Rs 563 crore**.

2. The **tea plantation sector** in Kerala was in difficulty before the Covid-19 crisis. Prices were low, production was falling every year and costs of production were rising. With Covid-19 and the lockdown, there was (a) loss in harvests because of the absence of labourers as well as closure of processing factories; (b) loss in marketing because of disruptions in the supply chain; (c) lack of cash to pay wages; (d) accumulation of unsold tea in the warehouses; (e) halt in exports; and (f) rise in debt burden with banks. These were despite some important interventions by the Kerala government (see Box 2).

An additional expense to plantations is the expense to restart plucking. Tea follows a harvesting cycle of around 15 to 18 days in south India. If the tender shoots are not harvested within this period, tea fields will overgrow and become unsuitable for manufacture of quality tea. In order to bring back the tea fields under the regular harvesting cycle, tea bushes have to be pruned.

Estimates of losses in tea plantations are available only for the south Indian tea sector as a whole. Kerala's share in the south Indian tea production is about 26 per cent. We assumed this share as Kerala's share in the loss for the south Indian tea sector. The total losses for the south Indian tea industry and Kerala's tea industry, based on this assumption, is given in Table 1. The total loss for the tea sector in Kerala is estimated at **Rs 141.1 crore**. Anticipated crop losses are relatively high because April-May is usually the peak cropping period in the region.

Box 2 *Kerala Government purchases lift black tea prices at Kochi sale*

Kerala government's move to purchase black tea for supply through the public distribution system has lifted prices at Kochi auctions.

The tea auctions, which resumed after a gap of 20 days, saw prices moving up by Rs 10-15 a kg and sometimes more, thanks to a robust purchase by Supplyco, State-owned Civil Supplies Corporation. Supplyco purchased about 2.5 lakh kg for distribution under PDS as part of the food kits of essential items being distributed in the lockdown period.

Of the quantity of 8.9 lakh kg offered in Sale 13, the sold quantity was 8.19 lakh kg at an average price of Rs 120.90 per kg against Rs 112.64 in the previous sale.

Source: The Hindu Business Line, Kochi, April 9, 2020.

We understand that the tea plantations have not paid wages to workers during the lockdown. Some plantations have paid a small advance wage to workers, but we do not have information to quantify it.

Table 1 *Economic losses in the tea sector, south India and Kerala*, in m.kg and Rs crore

Nature of loss	South India	Projected for Kerala
Crop losses due to lockdown		
Quantity (m.kg)	23.0	6.0
Value (Rs crore)	314.0	81.6
Unsold tea in the domestic market		
Quantity (m.kg)	10.0	2.6
Value (Rs crore)	115.5	30.0

Unsold tea in the export market		
Quantity (m.kg)	3.0	0.8
Value (Rs crore)	52.5	13.7
Restarting expenses in field and factory		
Value* (Rs crore)	60.8	21.8
TOTAL LOSS (Rs crore)	**542.8**	**141.1**

Source: UPASI for col 2; KSPB estimates for col 3.
Note: *: the share of Kerala is assumed to be 36 per cent for restarting expenses.

3. The **coffee sector** too was passing through a difficult phase when the lockdown began, because of high costs of production and low price realisation. Covid-19 came on top of this, and led to disruptions in the regular plantation activities, cancellation/postponement of trade including exports, and restrictions in the movement of coffee across the country. In the estates, the harvest of robusta coffee has been affected by the absence of migrant workers. Picking in certain high elevation Arabica areas is in progress. There have been zero farmgate sales. There have been difficulties in transporting coffee to the curing plants. Despite coffee being on the essential commodities list, transport at the ground level has been hampered by a number of local factors. Curing itself has been slow because lockdown restrictions do not allow more than five workers at a workplace.

Exports of coffee were already declining after 2018-19. Export figures released for 2019-20 were the lowest in the last nine years. Between 2018-19 and 2019-20, coffee exports from India declined by 12 per cent, or about Rs 600 crore less. Prices of coffee had also declined by 4 per cent during the same period, from Rs 1.64 lakh per tonne to Rs 1.58 lakh per ton. No exports are taking place during the lockdown. Transport facilities from the curing plants to the ports are hampered by the shortage of trucks and transport restrictions. Shortage of port workers and containers/liners is also common in ports like Mangalore and Cochin ports.

The total estimated losses are difficult to estimate at this point. As per reports, around 21,000 MT of south Indian coffee, valued at Rs 400 crore, is stuck at coffee curing centres and at various ports. Assuming Kerala's share as about 23 per cent, the losses in Kerala on this account are estimated at **Rs 92 crore**.

4. Spices

Cardamom is one of the severely affected crops due to the lockdown. The regular nature of plant protection operations and the 6-8 rounds of harvesting cycles practiced in the crop means that any prolonged period of disruption in input supply chains, including that of labour supply, would adversely affect the crop. The limitations imposed on labour use and restrictions on movement severely curtailed normal operations in the crop in the major production zone, Idukki. More than 50 per cent of the total small cardamom area and production in the country is concentrated in Idukki District.

Presently, the ongoing crop operations in cardamom include irrigation and other farm operations. At present the crop loss is reported to be marginal. Though harvesting is reported to be mostly over in the cardamom plantations, reports suggest that last-stage harvesting is still pending in some cases. Harvest of cardamom in Kerala is undertaken by migrant workers from Tamil Nadu. As the Kerala-Tamil Nadu border was sealed during the lockdown, these workers were not available for harvesting. Considering that cardamom is a non-perishable crop, the loss due to non-harvesting of small cardamom owing to shortage of manpower may be worked out at a minimum of about 10 kg per ha. Accordingly, the total estimated crop loss during the season may be about 300 MT.

Further, auctions were stopped after mid-March 2020 when there was a sharp drop in prices by about Rs 1,000 per kg. More than 90 per cent of the cardamom production in the State is sold through the e-auction centres. As a result, stock has accumulated and weekly payments are not received by cardamom growers. No trading happens in cardamom now. Data on e-auctions from the Spices Board indicate that if 2,861 MT of cardamom was traded by planters and dealers in March and April of 2019, the corresponding amount for 2020 was 588 MT. The value of trade at the e-auctions fell from Rs 461 crore in March and April of 2019 to Rs 239 crore in March and April of 2020 (this was partly due to a price rise from Rs 1,813 per kg in April 2019 to Rs 2,667 per kg in April 2020, and not a reflection of quantities).

The farmers are holding stocks without an effective means of sale. The global demand for spices has not declined, but global supply chains are affected. Export orders for cardamom to the Gulf region for the Ramadan season beginning from April 21 have been postponed or cancelled. The closure of the upcountry markets like Delhi and Mumbai also led to fall in sales of cardamom.

The crop loss is expected to reach up to 30 per cent of the normal harvest during the months of March and April.

It is estimated that about 200 MT of stock per week is stuck with farmers, amounting to around 800 MT of cardamom for a month, valued at about Rs 180 crore. Losses in Kerala may amount to about **Rs 126 crore**.

The normal harvest period of **black pepper** is from December to February. The harvest season was over by the beginning of March 2020. As a result, Covid-19 did not affect the harvest of pepper in Kerala. Further, the homestead farming system and the predominant family labour-oriented small holder production system in Kerala means that a majority of farmers would be able to undertake minimal summer care and management of pepper vines in April and May 2020.

However, there has been an impact due to fall in prices. Pepper prices declined from about Rs 330 per kg to about Rs 290 per kg. Thus, the total losses in the pepper sector of Kerala are estimated at **Rs 50 crore**.

Summer management in **nutmeg** is important to get a good harvest in June-August. Again, losses may be relatively low because the crop is grown on homesteads. Operations like summer mulching, plant protection application and irrigation may be affected. Nevertheless, the production impact for the current season is expected to be less than 5 per cent. Disrupted operations in summer may weaken trees and increase disease incidence in the upcoming monsoon season. If the restrictions arising from Covid-19 situation ease by June, crop losses can be managed.

5. Institutions

1. For the Plantation Corporation of Kerala, we estimate a total loss of **Rs 6.9 crore**, because of losses in sales of cashew, oil palm and rubber.

2. In addition, we estimate that a loss of **Rs 50 crore** may be expected in sub-sectors of agriculture like nurseries, transportation and input dealers.

3. For the Horticorp, we estimate a total loss of **Rs 1 crore** for the period of lockdown. These are largely because of income losses from their farms.

4. For the Kerala Agro Industries Corporation Ltd (KAICO), the total losses are estimated at **Rs 7 crore** for the period of lockdown.

5. The Kerala Agricultural University (KAU) has suffered a loss of about **Rs 10 crore** because of the lockdown. These losses are on account of reductions in production and sale of seeds, planting material, bio-inputs, farm produce, mushrooms, processed products, entry fee to gardens and other expected losses.

6. The State Farming Corporation of Kerala (SFCK) has estimated its losses at **Rs 0.85 crore** due to the lockdown.

7. The Kerala Agro Machinery Corporation Ltd (KAMCO) has an estimated loss of about **Rs 1 crore** due to the lockdown.

6. Labour Days Lost

1. Using certain assumptions, we estimate that the total loss to agricultural labourers owing to absence of work may be estimated at **Rs 10 crore** in crops like paddy, vegetables and tubers.

2. In rubber, there are about 70,000 rubber tappers and other workers in Group Processing Centres/Latex Collection Centres (in unorganised smallholding sector). They have also lost jobs due to the lockdown. We assume the number of working days lost during the lockdown at 30 days. At an average wage of Rs 525 per day (300 trees per day and Rs 1.75 per tree as wage), the wage loss per person would be around Rs 15,750 per person. About **Rs 110 crore** is the loss to workers here.[1]

3. The total area of cardamom in Kerala is about 40,000 ha. Less workers were employed to complete the operations scheduled during March and April 2020 viz., harvesting, irrigation and spraying. The number of person days lost is estimated at about 20 person days per ha. Thus, we estimate that the person days lost will be about 8,00,000 person days. At a daily wage of Rs 360 per day, the economic loss to workers is estimated as **Rs 28.8 crore**.

4. In tea, the number of plantation workers in Kerala is 43,000. The wage rate is fixed at Rs 399.21 per day. We assume that workers lost employment for 30 days between March and April 2020. Thus, the total loss of wages in the tea plantation sector is estimated at **Rs 51.5 crore**.[2]

7. Future Strategies

The future strategy in agriculture must draw lessons from the pandemic experience.

1. Kerala has to work towards reducing its dependence on other States with regard to food and food crops. With regard to rice cultivation, fallow wetlands must be identified across the State and cultivation must be entrusted to joint liability groups (JLGs). An area of 25,000 ha should be newly brought into paddy cultivation in the next two years.

2. Kerala can attain self-sufficiency in vegetable production. Vegetable production has increased commendably over the last few years and production has doubled. However, we can undertake one more doubling exercise in vegetable production in the State in the next three to four years. Special measures have to be undertaken to ensure this. All available spaces in rural and urban areas should be utilised for this initiative.

3. About 14 specific areas of the State have already been identified to be developed as special agricultural zones (SAZ). However, no progress has been made in taking this policy further. Such a measure does not require more resources; it requires careful planning to converge existing interventions in seed, soil, water, mechanisation, marketing and value addition.

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[1]There is an alternative calculation stated in the Labour section of this report. The difference in calculation is because of the difference in the source of data. In this section, the data source is United Planters Association of Southern India.
[2]There is an alternative calculation stated in the Labour section of this report. The difference in calculation is because of the difference in the assumption of persondays of work.

4. If the Covid-19 crisis has a lesson for Kerala agriculture, it is the need to reform its agricultural marketing system. Kerala needs a legislation that would streamline its agricultural marketing system. Such legislation should not be modeled on the one-size-fits-all Model Acts circulated by the central government, but based on an objective assessment of the necessities of the State. In crops like coconut, vegetables and banana, the State should appoint an expert committee to suggest how best such a reform can be undertaken. More online marketing platforms need to be created.

5. The e-auction platform of the Spices Board can, with modifications, seek to link farmers directly to the traders by removing the need for physical samples at auction centre and providing means for digital image-based samples to traders. This can enable farmers to trade from their homes or through farmer collectives.

6. The Covid-19 crisis may be an opportune moment to focus on a campaign to attract youth into agriculture. As is well-known, attracting youth into agriculture requires agriculture to be not just economically viable, but also intellectually rewarding. This requires more focus on mechanisation of tasks and modernisation of farming techniques. A related need is to encourage the formation of farmer's collectives, including Farmer Producer Organisations (FPOs).

7. Covid-19 crisis has also brought home the challenge of labour shortage in agriculture. We need to create institutional mechanisms that would address this problem. Countries like United Kingdom are discussing the need to create "land armies" or groups of workers who would travel from village to village and undertake agricultural operations during the Covid-19 crisis. Kerala already has *karshika karma senas* that are a form of labour banks. We need to urgently look into how to make these *senas* more popular and successful. Preliminary observations indicate lack of adequate remuneration and quantum of work as the key constraints.

8. The State government should urgently demand that the central government announce a relief package for agriculture. The demand may have the following components. The component of the Pradhan Mantri Garib Kalyan Yojana, where the central government pays the employer contribution to ESI and EPFO, should be extended to the plantation sector as well with no ceiling fixed on the number of workers. Commodity Boards should actively intervene to subsidise the activities of plantations, including replanting.

9. Crop loans and loans for plantation crops require a longer period of moratorium. The interest component of these loans should be waived by the Centre. Crop loan limits should be enhanced by 25 per cent to help farmers tide over the current crisis. All payments of GST in agriculture may be waived for a period of six months.

10. We should also demand that all imports of rubber should be banned for one year or at least till the stock available in the domestic market is exhausted. The bound rate of duty for natural rubber should be enhanced from the current level of 25 per cent. India should also renegotiate its free trade

deals signed in the recent past so that dumping of rubber and rubber products into India may be contained. We should also demand that rubber be classified as an agricultural commodity under the WTO regime.

11. On its part, the Kerala government has already announced a scheme to remove plantation tax and agricultural income tax. This should be implemented without delay. The State Civil Supplies Corporation is buying only 45 per cent of its total purchase as Kerala-origin teas, and the rest is purchased as Tamil Nadu and Karnataka-origin teas. Supplyco may be instructed to buy more quantities of Kerala-origin teas, which will increase the demand for Kerala teas.

12. There is a major role for crop advisory services during such crises. A crop advisory service gives information and advice on issues related to crop health, desired growing conditions, preferred seed varieties, availability of seed and market linkages on individual crops to farmers. Though crop advisories are common in India, a specialized critical crop advisory cell needs to be activated in case of such emergencies.

13. Food safety standards and traceability norms imposed by importing countries is likely to become more stringent. A concerted effort is needed to popularize Good Agricultural Practices (GAP) and to create traceability platforms through policy incentives. We should give special focus to such measures.

14. There are large procedural and infrastructural gaps in the existing system of collection, compilation and reporting of data on area, production, and marketing of vegetables and fruits by the Department, VFPCK, SHM and Horticorp. This has also affected the quantification of losses due to Covid-19. The department should take immediate steps for the establishment of a centralised automated system of reporting and recording data. A portion of the allocated Plan amount for marketing schemes of the department can be utilised for this purpose. The work should be completed before September 2020. The Planning Board is happy to help this process.

Estimates of Losses in Animal Husbandry
Reference Period: March and April 2020

The total losses in the animal husbandry sector are estimated at about Rs 181 crore

The impact on animal husbandry sector in Kerala during the lockdown period has been mixed. Even before the lockdown began, the sector had been the victim of bird flu, which led to the death of thousands of birds across the State. About 2,500 to 3,000 birds died because of the flu, mainly in the Districts of Kozhikode and Malappuram. In addition, about 10,000 birds had to be culled in these two Districts to prevent the spread of the flu. This was a major blow to poultry farmers. The State government intervened and paid a compensation of Rs 200 per bird (for birds more than 2 months old) and Rs 100 per bird (for birds less than 2 months old).

Covid-19 hit the sector at a time when the impact of bird flu was receding. The demand for chicken was already low because of bird flu, particularly because of fear of consumption.

We are not able to estimate all the losses in the livestock sector, as many losses are intangible in nature. A rough assessment of losses in the sector has been made.

Meat and Poultry

1. It is estimated that about 2.6 lakh birds are imported in the State for poultry meat production per day. During the lockdown period of 21 days, only 30 lakh birds were imported. However, demand also fell. There was a drop in the demand for chicken, as marriages, hotels, restaurants and religious and other ceremonies were closed down or cancelled. On the other hand, as adequate fish did not arrive in the market, there was a shift from fish to chicken during the lockdown. However, the overall demand remained depressed.

2. Broiler units in Kerala receive their supplies of chicks from integrators, which are large companies. The integrators were unable to supply the broiler units with chicks for a long period during the lockdown. There was a 45 per cent reduction in the import of broiler chicken during the lockdown period. There was also a sharp fall in the demand for broiler chicken. The price of broiler chicken fell to about Rs 50/kg during the lockdown, which was lower than the production cost of Rs 70/kg. The demand picked up only close to Easter on April 12.

In March 2020,66 lakh birds worth Rs 92.37 crore were imported in the State. During the same period in 2019, the value of import was Rs 103.02 crore. The estimated reduction in the value of imports in March 2020 is estimated at Rs 10.65 crore. Normally, April is a peak season because of Easter. As Covid-19 and bird flu spread in April 2020, the reduction in value of imports is estimated to beRs 52 crore tillApril14, 2020. Thus, the total reduction in the value of imports for 45 days from March1, 2020 till April 14, 2020 is estimated to be Rs 62.65 crore, which may increase by another Rs

45 crore May 3, 2020. This will take the total reduction in imports by value from March 1, 2020 to May 3, 2020 to **Rs 107.65 crore**.

Demand also fell during this period. There was a drop in the demand for chicken, as marriages, hotels, restaurants and religious ceremonies were closed down or cancelled. On the other hand, as adequate fish did not arrive in the market, there was a shift from fish to chicken during the lockdown. However, overall demand remained low.

3. In Kerala, poultry feed is produced in the public sector and the private sector. However, almost all the production of livestock feed in the public sector is consumed by the State farms and hatcheries. In other words, almost all of the demand for poultry feed in the market is met by private sector supplies. These supplies arrive from Tamil Nadu and Karnataka. The arrival of such poultry feed into Kerala was disrupted, because of lower levels of production in Tamil Nadu and Karnataka as well as bottlenecks in transport. Many trucks with feed were allowed to enter Kerala with the stock, but were disallowed to return empty. This led to disruption of supply schedules everywhere. Supply picked up during the second half of the first 21-day lockdown, but remained lower than normal. This led to a shortage of poultry feed in many regions of the State.

4. There are about 280 layer nurseries in Kerala. Government poultry farms provide them with chicks. These nurseries grow the chicks for about 45-60 days and supply them to the beneficiaries under different schemes of the department and local self-governments. The nurseries also sell chicks to public. The price of sale is about Rs 110 per chick. After the lockdown began, these nurseries faced a crisis when feed was not available in adequate quantities and there was no market for the grown-up chicks. In many nurseries, these chicks were completing 60 days and they had to be sold quickly. The absence of adequate buyers meant that there was a fall of incomes in these nurseries. Rearing costs also rose for the farmer. The total loss estimated in layer nurseries for a two-month period is **Rs 75 lakh**.

5. Poultry farms of the animal husbandry department were also affected adversely. Average annual chick production in the departmental farms is about 35 lakh. So, average monthly production comes to about 2.92 lakh chicks and production for two months would be 5.84 lakh chicks. Production of chicks was stopped in departmental farms after the lockdown. If we consider a two-month shutdown period, the approximate loss would be (Rs 18 x 5.84 lakh chicks) = **Rs 1.1 crore**.

6. Many large poultry farms depend critically on migrant labour. The unavailability of migrant labour meant that the functioning of many large poultry farms was adversely affected. But such losses cannot be quantified.

Pork.

7. There was a major fall in the sales figures of pigs in Kerala during the lockdown. However, when sales fell sharply, the government-owned Meat Products India Ltd stepped in and purchased a large number of pigs for processing and sale. This helped the pig farmers considerably during the later part of the lockdown.

Cattle/buffalo.

8. Overall, meat production in Kerala was adversely affected, as about 60 per cent of the animals slaughtered in the State are imported from neighbouring States. Due to the lockdown, the import of cattle/buffalo declined. It is estimated that cattle/buffalo meat production in Kerala fell by 60 per cent from the normal, or by about 15,000 tons, during an assumed 40-day interval including the lockdown period. The loss on this count was estimated to be **Rs 45 crore**. In some slaughter houses, animals had been brought in before the lockdown began, and they could continue normal operations during the lockdown. However, with a quick depletion of stocks, they now face a shortage of animals from other States.

Eggs.

9. Prior to the lockdown, Kerala consumed about 2 crore eggs per day. Half of this consumption was met from local production, and the rest half came from outside the State, largely Tamil Nadu. However, after the lockdown began, both the supply and demand for eggs fell. The import of eggs from outside the State went downby 70 per cent. That is, only 30 lakh eggs were imported per day during the 21-day lockdown period. Local production of eggs did not decline. At the same time, demand for eggs also fell as there were no marriages, hotels, restaurants and religious and other ceremonies. As such, egg prices remained stable at about Rs 7 per egg.

10. Average annual egg production in the departmental farms comes to about 53 lakh. Average monthly production comes to about 4.42 lakh eggs. Currently, a scientific skip-a-day meal programme is being implemented in the departmental poultry farms in order to reduce the production of eggs and minimise the feed cost. It is estimated that this would lead to about 20 per cent reduction in egg production. So, the per month reduction in egg production would be 88,400 eggs. For two months, this would be (88,400 x 2) = 1,76,800 eggs. At an average price of Rs 5 per egg, the losses incurred in sales of egg for two months would be (Rs 5 x 1,76,800) = **Rs 8.8 lakh**.

Kerala Feeds Limited

11. Kerala Feeds Ltd is a public sector undertaking under the Animal Husbandry Department. It manufactures and sells compounded cattle feed and feed supplements. The company has three production units in Kallettumkara (Thrissur), Karunagappally (Kollam) and Thiruvangoor

(Kozhikode). Due to the lockdown, the company was unable to obtain raw materials from outside Kerala as raw material processing plants, especially of DORB or de-oiled rice bran, and storage units of agro-based raw materials were closed in other States. There were also restrictions on goods traffic across the borders. While there was some improvement in the later days of the lockdown, production fell. From March 25, 2020 to April 11, 2020, there was a reduction in the quantum of production and consequent sales to the extent of about 6,110 MT as compared to a normal scenario. This resulted in a loss of production and sales to the company to the tune of around **Rs 14.7 crore**.

Kerala State Livestock Development Board

12. The Kerala State Livestock Development Board (KLDB) is engaged in the production and sale of frozen semen in its three plants at Mattupatti, Dhoni and Kulathupuzha. As a result of the lockdown, there was a decline in production of frozen semen by 125,000 doses at Mattupatti, 83,000 doses in Dhoni and 15,000 doses at Kulathupuzha. The total loss of income to the KLDB on this account is estimated at Rs 89.2 lakh. Production suffered mainly due to shortage of liquid nitrogen, which arrives from Pondicherry. The limited quantities of liquid nitrogen received was used to save the frozen semen doses already in stock.

The KLDB continued supply of frozen semen, liquid nitrogen and other artificial insemination (AI) inputs to all centres in the State during the lockdown period. However, indents for frozen semen were not received from many AI centres due to the absence of technical personnel and because many AI centres were closed. The reduction in the sales of frozen semen is estimated at 88,132 doses, valued at Rs 48.47 lakh. In addition, frozen semen (to be executed before March 31, 2020) worth Rs 5.60 lakh could not be sold to Tamil Nadu.

In all, the KLDB's losses are estimated at **Rs 1.43 crore**.

Kerala State Poultry Development Corporation Ltd

13. Kerala State Poultry Development Corporation Ltd (KSPDC) is another public sector undertaking. It has a Broiler Breeding Farm at Kudappanakunnu (Thiruvananthapuram). Normal chick (one day old) production is 1,00,000 chicks per month. These chicks are placed in contract farms at the rate of Rs 35 per chick. The losses incurred due to the distress sale of a day old broiler chicks for two months is Rs 60 lakh (2,00,000 chicks x Rs 30/chick). Similar losses at the layer farms in Kottiyam and Mala are about Rs 20 lakh. Other losses, such as due to excess mortality and feed transport, amounts to Rs 28 lakh.

Thus, the total losses of the KSPDC were about **Rs 1.08 crore**.

Milk.

14. The crises that developed in the milk production sector were partly due to the success of the State in moving towards self-sufficiency in milk production. In 2016, about 9 lakh litres of milk were imported into the State every day. By 2019, Kerala was able to reduce the dependence on milk imports from outside the State to about 3.5 lakh litres per day. This was because of a rise in domestic production of milk, especially through dairy cooperatives. However, during the period of lockdown, the demand for milk from the public sector (i.e., MILMA and ABCOS) fell by 2.5 lakh litres per day. Similarly, the demand for milk in the private sector fell by about 4 lakh litres per day. Prior to the lockdown, MILMA, ABCOS and private dairies together used to sell about 25 lakh litres of milk per day (there is no information available yet on the 50 lakh litres of milk per day sold individually by the dairy farmers and collection centres in the State).

The data on procurement and sale of milk in the State's cooperative sector during March and April of 2019 and 2020 are provided in Figure 1 for a year-on-year comparison. There was a moderate fall in the procurement of milk between March 2019 and March 2020. The procurement of milk in April 2020 also may fall short of that in April 2019 if the current trend continues. These are indications that milk production may have fallen moderately during the period of the lockdown. Accurate figures are not available yet.

In Figure 2, we have provided data on milk prices in the cooperative sector in March and April of 2019 and 2020. Apart from a normal rise across one year, milk prices have remained stable during the lockdown. From September 2019 onwards, the milk procurement rate from farmers were increased by Rs 3.38/litre and sales rate by Rs 4.00/litre.

The reduction in procurement and sales did affect the profits of MILMA, the cooperative sector and dairy farmers. Table 1 gives the data in this regard. The total losses are estimated at Rs 3.6 crore in March 2020 and Rs 5.6 crore up to April 11, 2020. This totals to **Rs 9.2 crore**.

Figure 1 *Procurement and sales of milk in Kerala by the cooperative sector, March and April 2019 and 2020*, in litres

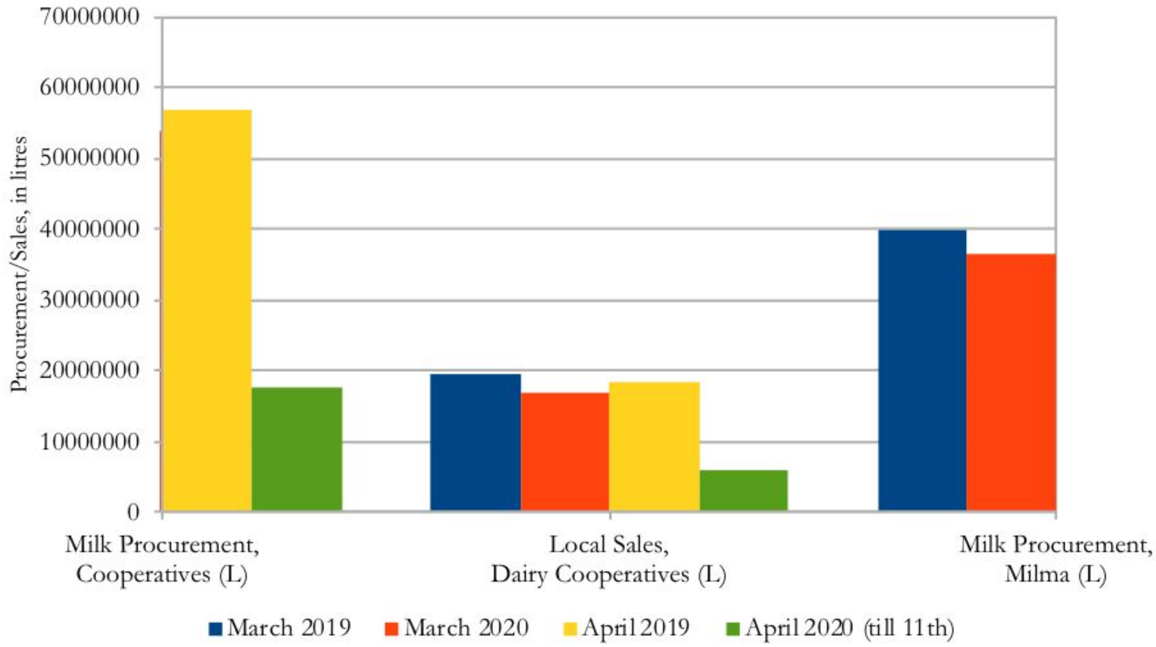
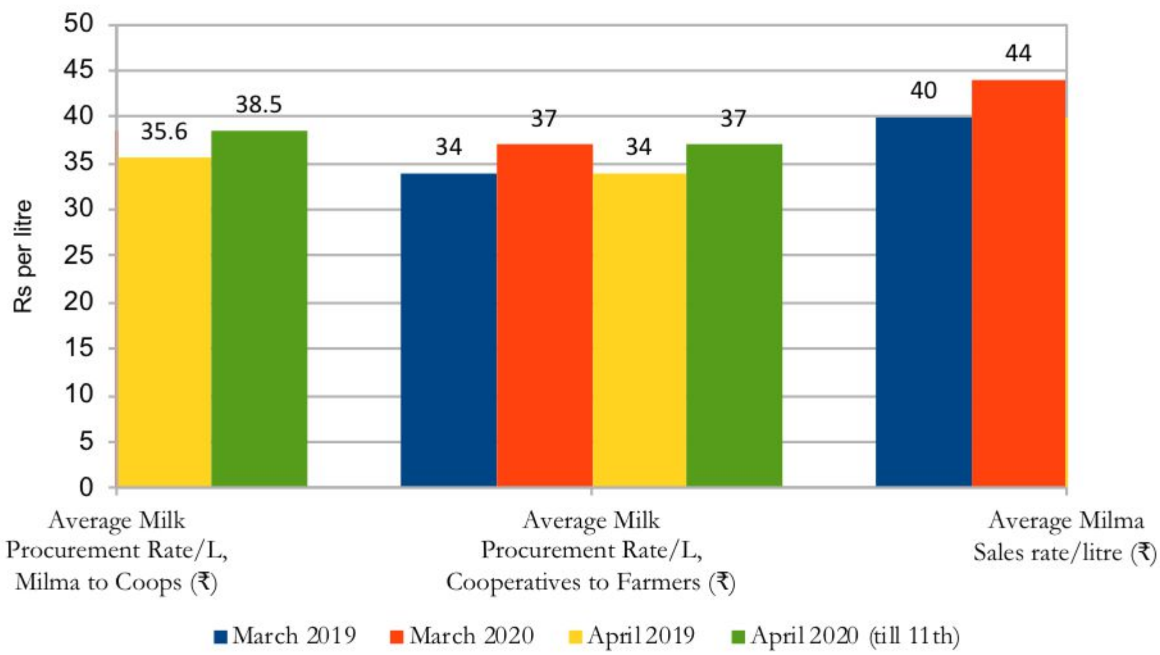


Figure 2 *Milk prices in Kerala's cooperative sector, March and April 2019 and 2020*, in Rs/L



15. The dairy sector also faced a serious shortage of feed and fodder during the lockdown. However, data shows that the sector will be able to manage with the inventories of feed tillApril15, 2020. After April 15, 2020, the supply of feed is likely to tighten. This is because production of feed has been

hampered in India due to the non-availability of raw materials. Further, when Kerala attempted to import feed from Andhra Pradesh, the trucks were not let through the Karnataka border. This has created a sense of uncertainty in the dairy feed sector.

Table 1 *Losses incurred by MILMA, Dairy Cooperatives, Farmers and Milma Feeds during lockdown*, in Rs crore

Sl No.	Type of loss	2020	
		March	**upto April 11, 2020**
1	Loss incurred by MILMA	0.93	0.68
2	Loss incurred by Dairy Cooperatives	0.11	0.15
3	Loss incurred by Farmers	2.52	3.42
4	Loss incurred by MILMA Feeds	0.00	1.35
5	**Total loss**	**3.60**	**5.60**

Future Strategies

16. One major lesson from the Covid-19 pandemic in the animal husbandry sector in Kerala is the need to attain a greater degree of self-sufficiency in commodities like egg and meat. Kerala has to aim to reduce the dependency on outside States on eggs to just about 25 lakh eggs per day. In other words, we need to produce at least an additional 75 lakh eggs per day in the State. In meat, the "Kerala Chicken" scheme needs to be expanded over the next five years. A scheme to encourage growing of male calves should also be thought of in this regard.

17. The pandemic has also reminded Kerala that it is close to attaining self-sufficiency in milk production. In the next two years, the State needs to prepare itself for a situation of surplus milk production. Currently, an additional cost of Rs 10/L is being incurred for converting around 50,000 L of milk/day to milk powder by transporting the surplus milk to Karnataka and Tamil Nadu, especially from the Malabar region. This needs to be avoided (see Box 1). Kerala needs a modern milk powder plant as well as an evaporator plant to convert and store surplus milk as milk powder and condensed milk. However, a feasibility study should precede the establishment of such a plant, since at least 1 lakh litres of milk per day would be necessary for such a plant to be viable.

We also need to aim at developing the production of value-added commodities from milk, such as cheese and yogurt. This implies setting up of advanced product diversification facilities in the existing dairy plants. Further, dairy cooperatives need to be modernised, and we need to equip them with capacities of storing cattle feed. Subsidies for milking machines for farmers need to be increased. Existing schemes of providing cows to dairy farmers needs to be strengthened.

18. Kerala urgently needs a fodder and feed Plan for its livestock sector. About 15,000 acres of land has to be identified to cultivate fodder in the State over the next two years. Here again, domestic

capacities of production need to be expanded. PSEs like Kerala Feeds Ltd and MILMA Feeds have to be encouraged and supported to expand their production footprint in the State.

Box 1*Crisis management of milk procurement and marketing*

As on March 31, 2020, the opening stock of milk was 23.88 lakh litres and daily procurement was 13.21 lakh litres per day. But the sales amounted to only 10.94 lakh per day; there was a 27.53 per cent (2.81 lakh litre per day) decline in sales compared to the previous weeks. This necessitated the conversion of surplus milk into milk powder. Nearly 1.2 to 1.25 lakh litres per day of milk was sent for conversion to Tamil Nadu. However, the Government of Tamil Nadu refused to procure milk from Kerala due to the Covid-19 scare.

After discussions betweeen the Kerala and Tamil Nadu governments, Tamil Nadu agreed tp procure 50,000 litres of milk for conversion per day on an emergency basis. To avoid wastage of the surplus milk, the Government of Kerala decided to distribute milk and milk products through the anganwadies, guest labour camps, community kitchens, Consumerfed and the Civil Supplies Cooperation through Milma Dairy.

This is the context in which the need for a modern milk powder plant in Kerala is discussed.

19. The Government should undertake a study of the existing marketing and supply chains in the milk, meat and egg sectors of the State, and initiate measures to remove bottlenecks from the producer to the consumer. The use of modern IT infrastructure to developmarketing networks of milk, meat and eggs in the State should be encouraged. This includeslinking up of all dairy cooperatives in the State under a single inter-connected software.

20. A review of the bio-security measures in the livestock units of the State has become essential. As we may encounter more zoonotic diseases in the future, we need to introduce modern bio-security architecture in our livestock and dairy units so as to protect them from flu-type epidemics as well as slowing down their spread into human populations. Such a modern bio-security framework should also be used to better market our animal products.

The total losses in the animal husbandry sector is estimated to be Rs 181 crore (Meat-Rs 154.50 crore, Eggs-Rs 18.09 crore and Milk– Rs 9.2 crore)

Estimates of Losses in Fisheries
Reference Period: March and April 2020

The total losses in the fisheries sector are estimated at Rs 1371 crore

The fishworker population of Kerala has historically been associated with lower economic standards of living than the general population. This population, particularly in the marine fisheries sector, is also characterised by indebtedness to informal lenders. Covid-19 adversely affected the livelihoods of male and female marine and inland fishworkers, fish farmers, workers in allied sectors and fish exporting industries.

The fisheries sector was facing multiple problems even before the onset of the Covid-19 pandemic. In two previous years, cyclones and floods brought down the number of days of work. When the lockdown was implemented, all fishing harbours and fish landing centres in the State were closed down. Mechanised fishing boats were not allowed to operate, and fish auctions were prohibited. Traditional fishing craft were, however, permitted to operate. Traditional fishermen were allowed to go out to fish, but were asked to not auction their products, as social distancing measures were difficult to implement. Instead, purchase and sales of marine fish were allowed to be conducted at a price fixed by Government. The Harbour Management Societies were entrusted to fix the prices of different fish. In the fishing harbours and landing centres, a token system was introduced to avoid crowds. A mobile application was also developed for the online marketing of fish. The government issued orders exempting aquaculture activities, fish farms and hatcheries and movement of feed, seed, and aquaculture essentials from lockdown restrictions.

Even though fishing activities in the State are continuing in a restricted manner, it is estimated that a substantial economic loss occurred in March and April 2020. Losses may extend through May 2020 (i.e., for three months).

Marine Fisheries

In the marine sector, there are 1,15,668 fishworker families affected by the lockdown. Only traditional fishermen operating craft with a crew of less than 5 people can go out to fish. As fishing harbours and landing centres are closed, only a limited number of craft have been able to go for fishing. Many small crafts that were already in the sea when the lockdown began also faced losses, as their catch could not be sold. As mentioned above, mechanised vessels were not allowed to go to sea after the lockdown began.

There are another 23,881 worker families in the marine fisheries-allied sectors who are equally affected by the lockdown. These allied workers include those engaged in activities like fish vending, peeling, curing, and harbour-related work.

The retail fish trade, including different transport systems that take fish to retail markets have also stopped. Women are particularly badly affected by the stoppage of the retail fish trade. Activities such as boat repair and mending nets have also come to a stop. The production infrastructure sector, including ice factories, cold storage units, fishing gear, boats, engines, plant and machinery etc, are idling for a long period and may have suffered damage from lack of use.

Inland Fisheries

In the inland fisheries sector, there are 23,848 fisherfolk families and 766 worker families in the fisheries-allied sectors who are affected. These workers have also not been able to fish during the lockdown. There are 27 hatcheries and 25 farms in the government sector and 20 large-scale fish farms in the private sector. Even though activities related to aquaculture, and the provision of seed and feed are exempted from lockdown restrictions, hatcheries and farms are functioning on a restricted scale because of multiple restrictions in allied sectors.

The ornamental fish sector is also affected severely due to a loss of business and fish mortality.

Value Addition and Marketing

All post-harvest activities in fisheries are adversely affected by the reduction in total catch and the shutdown of markets. The fish processing unit operated by the Kerala State Coastal Area Development Corporation at Sakthikulangara, Kollam suffered losses because of the closure of all activities.

Fisherfolk Cooperatives and Micro-Enterprises

There are 649 primary fisherfolk cooperatives functioning under *Matysafed*. The marketing activity of fisherfolk cooperatives has shrunk because the the number of landings has gone down after the lockdown. The fisherwomen, who are employed in micro-enterprises under the Society for Assistance to Fisherwomen, have also been affected. There are 5,000 fisherwomen activity groups functioning in the State. They are involved in activities like value-addition in fisheries and garment-making.

Economic Losses

We adopted the following indirect method to calculate the losses in the fisheries sector. We collected monthly data on marine and inland catch and their value in the months of March and April of 2019. These data were used as the baseline to assess losses in 2020. We assumed that there was a decline in catch by 20 per cent in March 2020 in the marine and inland sectors. For April 2020, we assumed that the marine catch would be only 1 per cent of the baseline, and the inland catch would be only 10 per cent of the baseline. Based on these assumptions, we estimated losses for March and April of

2020. By our method, the losses in the fisheries sector amount to about Rs 1311.3 crore for the two month period (see Table 1).

We attempted one more method of estimating losses. We took the total value of output in the marine fisheries sector in India in 2015-16, the most recent year for which data are available. We assumed that tehs hare of mechanised sector in the value of output is 76 per cent and the share of traditional and motorised sectors is 24 per cent. On this basis, we estimated that the value of output lost in the marine fisheries sector would be Rs 567 crore per month in 2015-16 prices. Correcting for fish price inflation in Kerala, the value of output lost in 2019-20 prices would be about Rs 794 crore per month. For a two month period (assuming a 20 per cent loss in March 2020 and 99 per cent loss in April 2020), the total loss in the value of output in the marine fisheries sector alone would be Rs 944.9 crore. These numbers broadly validate our estimates in Table 1.

Table 1 *Estimates of losses in catch and value in the fisheries sector of Kerala, March and April 2020*, in MT and Rs crore

Projected monthly catch of marine fish (MT)	
March 2020	40,648.7
April 2020	1,016.2
Total for two months	41,664.9
Projected deficit in monthly catch of marine fish (MT)	
March 2020	10,162.2
April 2020	49,794.6
Total for two months	59,956.8
Projected monthly catch of inland fish (MT)	
March 2020	12,801.8
April 2020	320.1
Total for two months	13,121.9
Projected deficit in monthly catch of inland fish (MT)	
March 2020	3200.5
April 2020	15,682.2
Total for two months	18,882.7
Projected monthly value of catch, Marine and Inland (Rs crore)	
March 2020	896.6
April 2020	33.6
Total for two months	930.2

Projected monthly loss in value, Marine and Inland (Rs crore)	
March 2020	224.2
April 2020	1,087.1
Total for two months	**1,311.3**

Losses in Fish Export

Firms in the export processing sector are also staring at large losses. Even before the onset of Covid-19, the availability of raw materials for these firms were on the decline. Exports have dwindled to about 1 per cent of pre-lockdown exports. The major export market for Kerala is the United States, European Union and China. The exports to the United States and European markets have completely stopped, while minor exports to Vietnam, Indonesia, Japan and China continue. While these exports are largely from the inventories, no fresh processing activity is taking place in any factory. Export order commitments from various buyers in different countries are not being met, which has resulted in the cancellation of orders at hand and possibly future orders as well. This was because even though workers were available at the various fish processing plants, work was not allowed by the government guidelines. Exports are also hindered by the inadequate availability of trailers, trucks and their drivers at the ports. At the same time, these firms have continued to pay wages and salaries to staff and employees. It is unclear when the export market for fish will pick up and at what pace. It appears that the sector is staring at a long period of slowdown of global demand.

Kerala has an annual export earning from fisheries of about Rs 6,000 crore. The major share in exports is for marine shrimp, cuttlefish, squid, frozen fish, prawns and some inland fish. Due to Covid-19, the approximate loss in the quantity of seafood exported for a two month period is about 16,000 MT. The total turnover loss is estimated at about Rs 600 crore. The actual cost here is estimated at about Rs 60 crore.

Thus, the total loss in the fisheries sector is estimated at **Rs 1,371.3** crore for a period of two months.

Future Strategies

The central government needs to consider a comprehensive economic package for the fisheries sector. This should comprise elements like waiver of interest for loans availed for fishing and fisheries related activities during the lockdown period, deferred payment of loans, social security transfers to fishermen and partial supports to payment of labourers during the lockdown period.

In the post-Covid-19 period, the fisheries sector needs to focus on a set of urgent revival measures. Even if the ban is lifted after April 2020, the sector will be severely affected by the trawling ban from June 2020 onwards. This implies that the government should focus on the provision of alternative livelihoods to alleviate the distress.

1. A most important need is the modernisation and institutionalisation of supply chains for inland and marine fisheries in the State. Matsyafed is currently limited to serving urban populations; its services are inadequate. A well laid-out Plan to reform the fish supply chain should begin immediately. The potential of the new mobile application developed with the ULTS should be tested for upscaling (see Box 1).

Box 1 *Mobile applications in fish marketing*

In response to a request from the Fisheries Department of Kerala, ULTS has developed two Android mobile applications to assist the sale of fish across 17 harbours in Kerala. The app has a provision to subsequently add digital auctions as well. The app also addresses the social distancing requirement in the context of the Covid-19 pandemic. The *Harbour* app (KL-Fish_Harbour) can be used by Harbour Management Committee personnel to create a digital inventory of the fish brought in by the fishermen along with the variety, category, price and quantity available.

Buyers can use the *Buyer* app (KL-Fish_Buyer) to view the available inventory and place orders. Orders are confirmed through a token that buyers have to produce at the harbour through their mobile devices before purchase. The initial versions of these mobile apps have been tested by harbour personnel and the apps have been submitted for hosting in Google playstore.

2. The department should immediately start working on utilising the Plan allocation under inland aquaculture, which is already substantial. Large waterbodies must be brought under inland acquaculture. We may identify targets for the extent and number of water bodies and encourage fish farming with the help of LSGDs and Kudumbasree.

3. In the wake of Covid-19, the resources accessible to the fisheries sector should be augmented through institutional credit intervention. The penetration of institutional credit in the marine fisheries sector in Kerala is meagre. The dominance of private money lenders is alarmingly high; they lend at usurious rates of interest. This is one reason for poor savings among fisherfolk in Kerala. A new credit policy for the fisheries sector, coordinated by the Fisheries Department, should be formulated.

The government should assess the credit needs of the sector, including inland fisheries. At the State-level, a team for this should be chaired by the Fisheries Director, with officials of State Planning Board, NABARD, SLBC, cooperative banks, RRBs and commercial banks, Matsyafed and ADAK.

At the District-level, teams should be constituted under the chairmanship of the Collector with the Lead District Manager (LDM) and a NABARD representative. This committee should assess the needs and formulate with implementable action points.

4. Most fishermen own small or medium-sized trawlers that are ill-equipped to operate beyond a depth of 100-250 metres. Lack of precise information on where to find the targeted fish also hinders better deep sea fishing. Such knowledge can help cut the costs and efforts involved in deep-sea fishing substantially. The department should take steps to improve the dissemination of information to trawlers.

5. Inadequate supply of quality fish seed, fresh water prawn, and brackish water shrimp and fish and seed material for culture of mussel, oyster, and crab is an important constraint. Captive seed production should be strengthened.

6. There is huge economic potential in non-conventional fishing. Kerala must improve marketing linkages for non-conventional varieties like clams, mussels, and oysters.

7. The Covid-19 crisis may also be used to create new opportunities in new fields. Mariculture is envisaged to be the future of Indian marine fisheries. Despite enormous potential, mariculture has not yet developed into a major contributor of seafood production in India and Kerala. The approaches for the development of mariculture should include evolving viable technologies for (a) seed production and farming of a large number of marine fin and shellfish species, (b) expansion of farm area in coastal saline and suitable inshore and offshore regions, and (c) diversifying production systems such as coastal ponds, rafts and pen farming and inshore and offshore cage farming.

In India, research on seed production has gained momentum; however, we are far behind not only at a global level but also in the Asia-Pacific region. Hence, there is an urgent need to develop and standardize seed production and farming techniques for at least two dozen species of high value marine finfish.

8. Ornamental fish culture is fast emerging as a major activity in fisheries. Kerala, with its highly conducive climatic conditions, has ample scope for the development of ornamental fisheries. This sector assumes special significance due to its huge potential in providing livelihood support to people in rural areas and also as a foreign exchange earner. It is estimated that over 150 ornamental fish trade units are functioning in the State. The State has rich resources of indigenous ornamental fish in various river systems that have the potential to earn income for the State. MPEDA is providing assistance for ornamental fish breeding and export.

9. A majority of the brackish water areas are either left unused or used unscientifically. There is a need to evolve a strategy for optimum utilization of these potential resources. Diversification of farming using species other than shrimp is necessary for sustainable development of brackish water

sector. Farming of fin fish species like sea bass (Lates), milk fish (Chanos) and Pearl Spot (*karimeen*) need to be promoted. Technology for commercial production of seeds for some of these species is now available. Mussel farming (green and brown mussel) has been demonstrated to be a commercially viable activity in brackish water and is being practised in many Districts. This could be propagated as a livelihood support programme for women SHGs. Edible oyster farming is another potential activity suitable for brackish water. Support from CMFRI and ADAK is available for these activities. Crab farming is yet another suitable activity for brackish water.

10. Cultivation of Vannamei (Leptopenaeus vannamei or white leg shrimp) has been gaining momentum in the recent years due to its faster growth and disease resistance. The introduction of vannamei in India occurred under controlled conditions with a clear procedure laid down by the government. Following risk analysis studies, the government decided for large-scale introduction of commercial use of vannamei in 2009. However, vannamei culture has not become popular in Kerala and hence initiatives may be taken for promoting vannamei culture among farmers. The State's share in national exports has been around 14 per cent.

Today, Andhra Pradesh Vannamei shrimp is considered as one of the best and freshest quality shrimp in the world. Kerala seafood factories are now mainly dependent on arrival of smaller size vannamei farmed shrimp from other States for their survival. Andhra Pradesh exporters presently do not have the infrastructure to process these smaller-sized farmed shrimps. The shrimps that arrive in Kochi from the farms in Andhra Pradesh and Tamil Nadu are fresher than any sea catch landed at Kerala harbours. This situation is currently fortunate for Kerala exporters, but as soon as Andhra Pradesh factories develop the required infrastructure for handling the smaller sized farmed shrimps, these sizes will not be available to Kerala exporters for processing. Consequently, it is critical for the Kerala Government to allow year-round shrimp farming in those water bodies where rice has not been cultivated for the last 10 years.

11. Cage culture technology has been developed and demonstrated successfully for species like Asian sea bass (Latescalcarifer) and Etroplus. This method of culture can be promoted among farmers, particularly JLG groups. GIS-based site selection, by taking into account the social logistics, is an immediate requirement for the expansion of cage farming. Policy for leasing suitable sites, bank finance, and governmental support through subsidy assistance is the need of the hour.

12. Insurance premiums generally high in case of fisheries activities, in view of high risk perception. The insurance schemes need to be liberalised and norms have to be made farmer-friendly.

SUMMARY OF INDUSTRY AND TRADE SECTIONS

The main objectives of the study conducted by Kerala State Planning Board have been the following: First, it has tried to make an assessment of the economic losses incurred by enterprises in manufacturing and trade. Second, it has made a review of the important hurdles being faced by industry and commerce in Kerala, which are likely to become critical challenges in the coming days. Third, the study has tried to evolve a set of policies and suggestions to take the State's economy forward.

Structure of Kerala's Economy and Workforce

According to estimates based on Periodic Labour Force Survey (PLFS), the size of Kerala's workforce in January 2018 was 127.0 lakh. This comprised 15.0 lakh workers in manufacturing, 24.0 lakh workers in construction, 18.9 lakh workers in trade and repair, 11.9 lakh workers in transport and storage, and 3.5 lakh workers in hotels and restaurants. All the above-referred sectors are likely to be immediately affected by the ongoing lockdown.

In Kerala, there were 7,649 factories (which, typically, employ 10 workers or more) employing a total of 3.1 lakh workers (in 2017-18). Employment in factories comprised a third of all manufacturing workers (15.0 lakh) in the State. At the same time, the remaining 75 per cent of Kerala's manufacturing workers have been employed in smaller firms in the unorganized sector.

According to National Sample Survey estimates for 2015-16 (which is the latest available relevant data), there were 23.8 lakh unorganized non-agricultural enterprises in Kerala. This included 5.5 lakh manufacturing enterprises, 7.4 lakh trading enterprises, and 10.9 lakh enterprises in other services activities. These numbers provide some idea about the numbers of small enterprisesthat are likely to be affected by the ongoing crisis.

Estimates of Wage Losses and Income Shortfalls

Out of Kerala's total workforce of 127 lakh, 48.1 lakh were self-employed workers and 35.2 lakh were casual workers, while the remaining 43.8 lakh were regular workers. Thus 37.8 per cent of all workers in Kerala were self-employed and 27.7 per cent were casual workers, while the remaining 34.5 per cent of the workforce were regular workers (all figures pertain to 2017-18). Regular workers who earn some form of social security as a proportion of the total workforce of Kerala was 17.4 per cent, while the corresponding proportion for the country as a whole was 12.3 per cent. Out of all women workers in Kerala, 50.4 per cent were regular workers (national average was 22.6 per cent) and 27.5 per cent were workers who received some form of social security (national average was 11.1 per cent) (see Table 1).

On each day during the period of the lockdown, the total loss of wages or earnings by the self-employed and casual workers in Kerala amount to **roughly Rs 350 crores** (we assume here that the size of the workforce in 2020 remains the same as it had been in 2018). In all, for the period between March and June 2020, this could translate into total loss of wages and earnings in the State in the range of Rs 14,000 to Rs15,000 crore.

There appears to be three possible waysin which the ongoing crisis has affected enterprises in Kerala. First, the countrywide lockdown, which started on March 25, 2020, has led to direct losses of production or businesses. Second, there have been losses arising due to disruptions to the transport and distribution network and to the overall supply chain. Third, there have also been losses due to the weakening of demand within Kerala and elsewhere.

Direct losses on account of the lockdown have been relatively less in the manufacture of chemicals, pharmaceuticals and refined petroleum products in Kerala, which accounted for 37.3 per cent of the total value added by the State's factory sector in 2017-18.

Gross Value Added by the manufacturing sector in Kerala during a ten-day period is roughly about Rs 2,200 crore. We estimate that the shortfall in manufacturing GVA in Kerala during the period from March to June 2020 will be approximately Rs 8,000 crore (see Table 2).

Gross Value Added by trade as well as hotels and restaurants in Kerala during a ten-day period is roughly about Rs 5000 cores. We estimate that the shortfalls in GVA from trade and hotels and restaurants in Kerala during the period from March to June 2020 will be approximately Rs 17,000 crore (see Table 2).

Hurdles: Immediate and Long-Term

Manufacturing and trading enterprises in Kerala worry about the possibility of a stagnation of demand in both the domestic and export markets over the coming weeks and months. In fact, they say that demand conditions in the country have already been weak for most of 2019, even before the outbreak of the coronavirus disease.

Notwithstanding the loss of incomes during the lockdown period, firms will still have to incur expenditures on a number of items, including loan repayments, GST payments, rent, and electricity charges. The payment of wages or other relief to their employees during the lockdown is a heavy burden, particularly for labour-intensive industries such as footwear or plywood manufacturing.

Way Forward: Appeals from Firms

Enterprises in Kerala expect to receive high degree of assistance from the banking system and the government to tide over the current crisis. Many entrepreneurs demand that there should be substantial or even a complete waiver of interest payments during the moratorium period. At the same time, they also demand that the moratorium period should be extended to a year (from the current three months). Entrepreneurs fear that the current proposals by the Reserve Bank of India, which involve only a rescheduling of EMI payments for three months, and not any waiver on interest rates, may actually increase their overall financial burden.

Another demand from small enterprises is that the banks should provide them with at least 50 per cent higher (than what is normally allotted for them) levels of working capital with no additional collateral. Speedier repayments of GST dues to the enterprises by the government will be a great relief to these enterprises. Entrepreneurs have appealed to the State Government and the local bodies to give concessions for them on certain payments, including fixed charges imposed by KSEB, during the crisis period (the State government has now agreed to waive KSEB's fixed charges).

Way Forward: New Opportunities in Food Processing and Health

Kerala has received praise from different parts of the world for its successful management of the crisis so far, for its strong social institutions and efficient governance mechanisms. This is indeed an opportune moment to achieve a revival of agricultural and industrial production and of entrepreneurial spirit in the State. The goodwill that Kerala has earned for its achievements in the health and social sectors should form the springboard for the State's successful entry into a range of innovative industries, including food processing, biotechnology, pharmaceutical research and medical equipment manufacturing.

The State government may launch a campaign to accelerate the building of storage and processing capabilities for Kerala's agricultural products, including jack fruit, pineapple, nutmeg and banana. The government may encourage young and professionally qualified entrepreneurs into new opportunities in food and agro-processing, facilitating innovative ideas in production and marketing.

There are huge possibilities in Kerala in manufacturing and research in the areas of health, biotechnology, pharmaceuticals and medical equipment. An immediate opportunity for the State is in the manufacture of a range of personal protective equipment (PPE), demand for which has increased after the outbreak of the coronavirus disease.

Commerce Mission for Make in Kerala

The Commerce Mission, which has been set up by the Department of Industry and Commerce, can play an important role in addressing the important challenges faced by MSMEs in Kerala with respect to marketing and accessing new technologies. The Commerce Mission may engage professionals to devise promotional strategies, including through online platforms, for made-in-Kerala products. It may evolve quality standards for products from MSMEs and install quality-testing facilities in selected locations across the State (jointly with Universities or research institutions).

The Commerce Mission may join hands with research institutions and Universities in Kerala to create a mechanism to offer technological and professional assistance to entrepreneurs on a continuous basis.

Some of the existing schemes of the Department of Industries and Commerce may be made use of to speed up Kerala's economic recovery in the post-lockdown phase. These include Entrepreneur Support Scheme(ESS) and scheme for revival and rehabilitation of MSME Units with stressed assets.

Table 1 *Estimates of workforce in Kerala as on 1 January 2018, distribution by activity status,* numbers in lakhs

Category	All	Males	Females
Self employed, own account workers	45.0	37.5	7.4
Self employed, helpers	3.1	0.7	2.3
Self employed, total	**48.1**	**38.2**	**9.7**
Casual workers	**35.2**	**28.4**	**6.8**
Regular workers	**43.8**	**27.0**	**16.8**
Regular workers who earn social security	22.1	12.9	9.2
All workers	127.1	93.7	33.4

Source: Estimates based on PLFS and Census of India as reported in Thomas (2020).

Table 2 *Expected shortfall in Gross Value Added in Kerala, March–June 2020,* in Rs crores

Financial Year	Months	Manufacturing	Trade and hotels and restaurants
2019-2020	March 2020	1,500	4,000
2020-2021	April 2020	4,500	10,000
	May2020	2,000	3,000
	June 2020	500	0
	All months	8,500	17,000

MAIN REPORT

The lockdown imposed to fight the coronavirus disease (Covid-19) has created major disruptions in economic activity in Kerala as much as in the rest of the country and elsewhere in the world. In this context, Kerala State Planning Board has conducted a study to assess the economic damages on account of the lockdown, mainly in the areas of manufacturing as well as in trade and commerce. The main objectives of the study have been the following:

First, it has tried to assess the economic losses incurred by enterprises in different sectors of manufacturing, trade and commerce. Second, it has made a review of the important hurdles faced by industry and commerce in Kerala, which are likely to become major challenges for enterprises in getting back on their feet in the coming weeks and months. Third, the study has tried to understand the expectations of enterprises in Kerala with respect to the policy initiatives from the State and Central Governments to tackle the crisis in the economy.

The study is based on an extensive analysis of the relevant publicly available statistical and economic information. It is also based on discussions with a selected number of entrepreneurs and persons associated with industry and commerce in Kerala. Planning Board prepared a questionnaire and sought written responses on it from industry associations and selected enterprises.[3] This was supplemented by telephonic interviews with a few of these associations and enterprises. The State Planning Board also conducted a webinar with industry and trade associations in co-ordination with the Confederation of Indian Industry.

The Size and Nature of Kerala' s Workforce: Some Estimates

This section attempts to make a rough estimate of the number of workers and enterprises affected by the livelihood crisis triggered due to the coronavirus pandemic in India. These estimates have been based on data from official statistical sources, including Periodic Labour Force Survey (PLFS) for 2017-18, Census of India, selected rounds of National Sample Surveys, Annual Survey of Industries, and statistical information available with the Department of Economics and Statistics (DES), Government of Kerala.

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[3]Given below is a list of major industry and trade associations from which we received detailed responses on our questionnaire (The list is not exhaustive. The names of individual industrial units or businesses, which responded to our questionnaire, have not been included here). These responses have been received over the period from April 10 to April 25, 2020. The list includes Confederation of Indian Industry (CII) -- Kerala , Federation of Indian Chambers of Commerce and Industries (FICCI), Kerala Small Scale Industries Association, Kerala VyapariVyavasayiEkopanaSamithy, Kerala Small-scale Industrialists Federation, KINFRA Industries Forum, Ottapalam, Kerala State Small Industries Association, Kozhikode District Unit, Rubber Cluster, Changanassery, Plastic Cluster, Aluva, Plywood Cluster, Perumbavoor, Rice Millers Cluster, Kalady, Ernakulam, Kerala Furniture Cluster, Ernakulam, Wood Cluster, Perinthalmanna, Malappuram, Footwear industries, Kozhikode, Kerala Hotels and Restaurants Association, and Kerala Automobile Dealers Association.

Based on estimates from the Periodic Labour Force Survey carried out during 2017-18 and the Census of India, the size of Kerala's workforce as on January 1, 2018 was 127 lakh (see Thomas 2020 for details on the methodology). This comprised 93.7 lakh male workers and 33.4 lakh female workers.

The above-referred estimates were derived from the projected population of Kerala (in 2018) and workforce participation rates in the State. According to Census of India, Kerala's population was 334.06 lakh in 2011, which was 2.8 per cent of India's population (of 121.06 crore) in that year. Our projections of the population of Kerala and India as on January 1, 2018 are 345.2 lakh and 135.7 crore respectively.

According to Periodic Labour Force Survey carried out during 2017-18, workers as a proportion of population or workforce participation rates were 50.5 per cent and 16.4 per cent respectively for men and women in Kerala. These rates were marginally less than the corresponding national averages (see Table 1). The low rate of female participation in the labour force in India as reported by the official statistical agencies has been an issue of much concern. Scholars who studied this issue attribute the low rate to a range of social, economic and methodological factors (they include the absence of suitable employment opportunities for women and the difficulty in measuring female work). With respect to labour force participation of females, Kerala has fared better than the rest of India: in 2017-18, the corresponding rates were 21.3 per cent and 17.5 per cent for Kerala and India respectively. However, at the same time, unemployment rate among women was much higher in Kerala (at 23.2 per cent) than in the country as a whole (see Table 1).

Workers Who are Likely to be Affected More by the Lockdown

In 2018, out of the total workforce in Kerala of 127 lakh, 21.3 lakh workers (or 16.7 per cent of the total) were engaged in agriculture and allied activities (see Table 2). The manufacturing and construction sectors employed 15 lakh and 24 lakh workers respectively in the State. The largest source of employment in Kerala is the services sector, which employed 65.6 lakh workers (or 51.6 per cent of the total workforce) (see Tables 2 and 3).

Of all women workers in Kerala numbering 33.4 lakh, 19.7 lakh were engaged in the services sector. The number of women workers engaged in the education and health sectors combined was 8.1 lakh in Kerala (see Table 2).

The sectors that are likely to be immediately affected by the lockdown are: manufacturing, construction, trade, transport, and hotels and restaurants. These sectors, together, account for 73.3 lakh workers or 57.7 per cent of the total workforce of the State (as per estimates for 2018). Assuming that the sector-wise distribution of the workforce in Kerala today remains roughly the same as it had been in 2018, we can say that 57.7 per cent of all workers and 36.8 per cent of female workers in Kerala are affected by the ongoing lockdown and the subsequent disruptions.

Table 1 *Labour force participation rates (LFPR), workforce participation rates (WPR) and unemployment rates in Kerala and India, 2017-18*, in %

	Kerala	India
Males		
LFPR	53.9	55.5
WPR	50.5	52.1
Unemployment rate	6.2	6.2
Females		
LFPR	21.3	17.5
WPR	16.4	16.5
Unemployment rate	23.2	5.7

Source: Periodic Labour Force Survey (PLFS), NSO (2019)

Table 2 *Estimates of workforce in Kerala as on January 1, 2018, distribution by sectors*, numbers in lakh

Sectors	All workers	Female workers
Agriculture, forestry and fishing	21.3	5.2
Mining and quarrying	0.3	0.0
Manufacturing	15.0	4.7
Electricity, gas, steam and air conditioning supply	0.5	0.1
Water supply; sewerage, waste management	0.4	0.1
Construction	24.0	3.6
Wholesale and retail trade; repair of motor vehicles and motorcycles	18.9	2.9
Transportation and storage	11.9	0.5
Hotels (for accommodation) and restaurants (food service activities)	3.5	0.6
Information and communication	2.2	0.5
Financial and insurance activities	4.2	2.3
Real estate activities	0.3	0.0
Professional, scientific and technical activities	2.0	0.7
Administrative and support service activities	2.4	0.7
Public administration	2.8	0.9
Education	6.4	4.7
Human health and social work activities	4.7	3.4
Arts, entertainment and recreation	0.9	0.1
Other service activities	3.5	0.9
Activities of households as employers	2.0	1.7
All workers	127.0	33.4

Source: Estimates based on PLFS and Census of India as reported in Thomas (2020).

Table 3 *Sector-wise distribution of Gross Domestic Product and employment: Kerala and India, 2017-18*, in per cent

	GSDP/GDP		Employment	
	Kerala	India	Kerala	India
Agriculture, forestry and fishing	9.5	14.9	16.7	41.8
Mining and quarrying	0.7	3.0	0.2	0.4
Manufacturing	12.8	18.0	11.8	12.8
Electricity, gas, water supply and other utility services	1.1	2.2	0.7	0.6
Construction	13.8	8.0	18.9	11.6
Trade and repair services	16.0	11.6	14.9	10.6
Hotels and restaurants	1.5	1.1	2.7	2.0
Transport and storage	5.9	4.9	9.4	5.1
Financial services	4.7	6.0	3.3	1.1
Information and Communication, Real estate, ownership of dwelling and professional services	18.2	17.5	3.5	2.3
Public administration and defence	3.6	5.6	2.2	1.7
Other services	12.2	7.2	15.6	9.9
All sectors	100.0	100.0	100.0	100.0

Source: Estimates based on PLFS, National Accounts Statistics and DES, Government of Kerala as reported in Thomas (2020)

Which Workers are More Vulnerable during the Crisis?

In 2018, out of the total estimated workforce of 127 lakh (according to PLFS data) in Kerala, 48.1 lakh (or 37.8 per cent of the total) were self-employed and 43.8 lakh were regular workers (or 34.5 per cent of the total). The remaining 35.2 lakh workers in Kerala (or 27.7 per cent of the total) were casual workers (see Table 4).

The sectors in Kerala that employ mostly regular workers are the following: education (employing 6.4 lakh workers in 2018), health and social work (4.7 lakh), professional, scientific and technical activities (2 lakh workers), administrative and support service activities (2.4 lakh workers), public administration (2.8 lakh), financial and insurance activities (4.2 lakh workers) and information and communication (2.2 lakh workers). Segments of the workforce engaged in manufacturing are also regular workers. It is notable that the proportion of regular workers to the total workforce is considerably higher in Kerala than in the rest of the country. In 2018, this proportion was 34.5 per cent for Kerala and 24.3 per cent for the country as a whole (see Table 4).

Out of the 43.8 lakh regular workers in Kerala, 22.1 lakh workers earn some form of social security. In 2018, regular workers who earn social security as a proportion of the total workforce of Kerala was 17.4 per cent, while the corresponding proportion for the country as a whole was 12.3 per cent (see Tables 4 and 5).

Women workers in Kerala, on average, appear to be less vulnerable compared to women workers elsewhere in the country. Out of all 33.4 lakh women workers in Kerala in 2018, 16.8 lakh (or 50.4 per cent of all women workers) were regular workers and 9.2 lakh (or 27.5 per cent) were workers who received some form of social security. In comparison, the national averages of the proportion of regular workers to total female workforce was 22.6 per cent and of regular workers who received social security to total female workforce was 11.1 per cent (see Tables 4 and 5).

Table 4 *Estimates of workforce in Kerala as on January 1, 2018, distribution by activity status*, numbers in lakh

Category	All	Males	Females
Self employed, own account workers	45.0	37.5	7.4
Self employed, helpers	3.1	0.7	2.3
Self employed, total	**48.1**	**38.2**	**9.7**
Casual workers	**35.2**	**28.4**	**6.8**
Regular workers	**43.8**	**27.0**	**16.8**
Regular workers who earn social security	22.1	12.9	9.2
All workers	127.1	93.7	33.4

Source: Estimates based on PLFS and Census of India as reported in Thomas (2020).

Table 5 *Distribution of workers by activity status: Kerala and India, 2017-18*, in per cent

	Kerala			India		
	All	Males	Females	All	Males	Females
Self employed, own account workers	35.4	40.1	22.2	38.2	43.5	20.4
Self employed, helpers	2.4	0.8	7.0	13.2	7.9	30.7
Self employed, total	37.8	40.9	29.2	51.4	51.6	50.9
Casual workers	27.7	30.3	20.4	24.3	23.7	26.4
Regular workers	34.5	28.9	50.4	24.3	24.8	22.6
Regular workers who earn Social security	17.4	13.8	27.5	12.3	12.7	11.1
All workers	100.0	100.0	100.0	100.0	100.0	100.0

Source: Estimates based on PLFS and Census of India as reported in Thomas (2020).

Estimates on the Size of Enterprises and Workers in Industry and Trade

As already noted, according to our estimates based on Periodic Labour Force Survey, the size of manufacturing workforce of Kerala as in January 2018 was 15 lakh, which was 11.8 per cent of the State's total workforce in that year. The above-referred figure on manufacturing employment comprises workers in both the organized as well as unorganized sectors. Organized manufacturing sector is almost identical with the factory sector, which comprises factories that employ more than 10 workers (and operate with the aid of electric power).

According to data from Annual Survey of Industries, in 2017-18, Kerala's factory sector employed 3.1 lakh workers in 7649 factories (see Table 6 at the end this section). Thus employment in factories amounted to a third of all manufacturing workers (15 lakh) in the State. At the same time, the remaining 75 per cent of Kerala's manufacturing workers were employed in small firms in the unorganized sector (which, typically, employ less than 10 workers).

On the numbers of firms and workers in the unorganized sector (in manufacturing as well as services), we have data on unincorporated non-agricultural enterprises (excluding construction) in India from the 73rd round of the National Sample Survey (NSS) (for more details on the methodology, see Thomas 2020). According to this data, there were 23.8 lakh unincorporated non-agricultural enterprises (excluding construction) in Kerala in 2015-16 employing a total of 44.9 lakh workers.

Out of all unincorporated non-agricultural enterprises in Kerala (numbering 23.8 lakh), there were 5.5 lakh manufacturing enterprises, 7.4 lakh trading enterprises, and 10.9 lakh enterprises in other services activities (in 2015-16). The manufacturing enterprises employed 10.1 lakh workers, while trading and other service enterprises employed 14.3 lakh and 20.3 lakh workers respectively. These employment figures (relating to employment in unorganized or unincorporated enterprises in 2015-16) may be compared to our estimates for employment in 2018 (which is employment in organized as well as unorganized enterprises): 15.0 lakh in manufacturing and 18.9 lakh in trade and repair.

Unincorporated non-agricultural enterprises in Kerala comprised 17.9 lakh own-account enterprises (OAEs) with a total workforce of 21.2 lakh and 5.9 lakh establishments with a total workforce of 23.7 lakh. OAEs are enterprises that run without any hired worker employed on a regular basis while establishments employ at least one hired worker on a regular basis. In 2015-16, Kerala's share in India with respect to unincorporated non-agricultural enterprises was 3.8 per cent. If we consider only the establishments, Kerala's share in India was 5.9 per cent.

In 2015-16, annual gross value added (GVA) per worker in unincorporated OAEs and establishments in Kerala were Rs1.16 lakh and Rs 7.60 lakh respectively. The corresponding national averages were Rs 0.95 lakh and Rs 6.4 lakh respectively. Average annual emoluments received hired worker was Rs 1.26 lakh in Kerala compared to the national average of Rs 0.87 lakh (Thomas 2020).

Table 7 *Unincorporated non-agricultural enterprises (excluding construction) and workers, Kerala and India, 2015-16*, in lakh numbers

	In lakh numbers				Kerala's share in India, in %	
	Kerala		India			
	Enterprises	Workers	Enterprises	Workers	Enterprises	Workers
OAEs	17.9	21.2	533.6	690.8	3.3	3.1
Establishments	5.9	23.7	100.3	421.9	5.9	5.6
Total	23.8	44.9	633.9	1112.7	3.8	4.0
Enterprises by sector						
Manufacturing	5.5	10.1	196.6	360.4	2.8	2.8
Trading	7.4	14.5	230.4	387.4	3.2	3.7
Other Services	10.9	20.3	206.9	364.8	5.3	5.6
Total	23.8	44.9	633.9	1112.7	3.8	4.0

Source: 73rd round of the National Sample Survey (NSS) on unincorporated non-agricultural enterprises (excluding construction), July 2015-June 2016, as reported in Thomas (2020)

According to data from the Directorate of Industries and Commerce, Government of Kerala, 65,662 new MSME units started operations in Kerala during the five years from 2015-16 to 2019-20. While 15,138 of these enterprises were in the services sector, more than 33,000 new enterprises were started in the manufacturing sector (between 2015-16 to 2019-20). Of these, the major investment had been into agro and food processing industries (11,286 new enterprises), followed by textiles and garments (8308 new enterprises) and light engineering industries (7764 new enterprises).

Table 8 *Year-wise details of new MSME units started in Kerala under each subsector*

Name of subsector	2015-16	2016-17	2017-18	2018-19	2019-20*	Total
Agro and Food-based	2,388	2,395	2,553	2,712	1,238	11,286
Textiles and Garments	1,910	1,695	1,947	1,858	898	8,308
General /mechanical/light Engineering	2,003	1,606	2,001	1,533	621	7,764
Service Activities	3,134	3,057	3,679	3,259	2,009	15,138
Wood Products	891	775	871	644	280	3,461
Cement Products	385	344	469	329	141	1,668
Printing and Allied	366	322	392	348	162	1,590
Paper Products	190	158	163	192	80	783
Information Technology	349	263	316	294	116	1,338
Others	4,243	3,098	3,077	2,657	1,251	14,326
Total	**15,859**	**13,713**	**15,468**	**13,826**	**6,796**	**65,662**

*Data only up to 30/09/19.
Source: Directorate of Industries and Commerce, Government of Kerala

An Assessment of Economic Losses due to the Lockdown

This study has attempted to understand the economic losses incurred by enterprises in different sectors of manufacturing, trade and commerce on account of the coronavirus outbreak and the subsequent lockdown in the country. We find that enterprises in Kerala have suffered losses mainly due to three factors:

1. First, direct losses of production or business on account of the countrywide lockdown, which started on March 25, 2020.
2. Second, losses arising due to disruptions to the transport and distribution network and to the overall supply chain.
3. Third, losses due to the weakening of demand within Kerala and elsewhere.

Direct Losses of Production or Businesses because ofthe lockdown

Within the manufacturing sector, the major contribution to value addition in Kerala comes from a few industries: refined petroleum products, chemicals and pharmaceuticals. These three industries, together, accounted for 37.3 per cent of the total value added by Kerala's factory sector in 2017-18 (see Table 6).

Direct losses on account of the lockdown have been relatively less in the manufacture of chemicals, pharmaceuticals and refined petroleum products in Kerala. BPCL Kochi Refinery, which is the premier public-sector producer of refined petroleum products in the State, has not suffered serious production losses so far. The major producers of chemicals and related products in Kerala are a few State public sector units, namely KMML, TTP, TCC, and Malabar Cements. These units lost around three weeks of production starting from March 25, but have resumed production operations now (in the third week of April 2020). KSDP, which is another major State public sector unit, has been continuing with its manufacture of essential drugs and pharmaceuticals. In fact, KSDP has started a new line of production of sanitizers to address the shortage for this product in the wake of the ongoing health crisis.

Manufacture of food products and beverages form the largest industry in Kerala with respect to employment, accounting for approximately one-lakh factory workers or 32.8 per cent of all factory workers in the State in 2017-18 (see Table 6). Within the food industry, cashew processing is the largest source of employment in the State. The production activities in the cashew processing industry in Kerala have been at very low levels since March 2020, mainly on account of problems relating to availability of raw cashew nut (RCN). At the same time, many segments of the food industry in Kerala (as elsewhere in the country) (such as the production of bread, rice products, milk products, and so on) have continued to operate despite the lockdown (because of the exception given to these industries from the lockdown).

Most other sectors of industry in Kerala have been shut down due to the lockdown. They include rubber and plastic producing units (which employed 24,300 workers in 2017-18 in the factory sector alone), textile units (employing 23,700 factory workers), garment units (with 9,800 factory workers), and units manufacturing non-metallic mineral products (in Kerala, mainly hollow bricks and other construction-related material), which employed 19,200 factory workers. The lockdown has affected operations in footwear manufacturing clusters (mainly in Kozhikode), plywood and other wood-related manufacturing units (mainly in Perumbavoor), and furniture-manufacturing units across the State.

The lockdown has been a big blow to trading establishments (except shops selling essential goods) and hotels and restaurants across the State. As already noted, trade and repair had employed 18.9 lakh workers and hotels and restaurants provided employment to 3.5 lakh workers in Kerala as per our estimates for 2018.

Losses Arising due to Disruptions in the Supply Chain

Several industries and trading establishments in Kerala have suffered losses on account of disruptions in transport and distribution network. For instance, in the cashew industry, some of the manufacturers report that the raw cashew nut they imported from African countries have already reached the ports (in India). However, they are facing problems with respect to the release of RCN from the ports.

An important concern expressed by Kerala Vyapari Vyavasayi Ekopana Samithi, an association of traders and manufactures in Kerala, was about the possible deterioration to stocks held by enterprises during the lockdown period. Damages to stocks are likely to be high for certain products, mainly cement, food products and clothing.

Losses on Account of Weakening Demand

The outbreak of the coronavirus disease across the world and the lockdown imposed in India to fight the pandemic have substantially weakened export and domestic demand. Many persons associated with industry and trade in Kerala fear that it may take several weeks for the demand to pick up, even after the crisis is over. Many traders and entrepreneurs say that the months from March to June are typically a period of high consumer demand in Kerala. This is because of festivals occurring during this period and higher demand (such as for footwear) relating to reopening of schools and with the start of the monsoons. Trading and manufacturing enterprises fear that they may lose out completely on this demand because of the lockdown and the subsequent disruptions.

Several manufacturing units in Kerala are dependent on demand from the export market, mainly from the US and European countries. A good example is a large garment manufacturer based in Ernakulam District, which employ over 10,000 workers. A number of small and medium rubber-based units in Kerala (mainly in Kottayam District) export their products to the US market. Two of the major traditional industries in Kerala – coir and cashew – rely largely on the export market. The ongoing health and economic crisis in the US and many European countries is a huge dampener on this demand.

A Quantitative Assessment of the Impacts on Income and Wages: Manufacturing and Trade

The Gross Value Added (GVA) by manufacturing in the State's economy at current prices in 2019-20 was expected to be around Rs 80,000 crore (For 2018-19 the quick estimates put it at 75,000 crore). This roughly translates to manufacturing Gross Value Added of Rs 2,200 cores in every 10 days (or Rs 6,600 crore every month).

During the month of March 2020, most manufacturing enterprises in the State lost around 10 days of production. However, manufacture of refined petroleum products, which account for 20 per cent of the total value added by the State's manufacturing sector, continued to operate. Processing of food and beverages, which account for 14 per cent of the total value added by the State's manufacturing sector, has been operating at around 50 per cent of its capacity despite the lockdown. Most of the other manufacturing units have been closed due to the lockdown and the subsequent disruptions. It can be assumed that 70 per cent of the manufacturing production in the State was being lost due to the lockdown and the disruptions, which started from the third week of March 2020. Some of the major factories in the State producing chemicals have started operations from the middle of April. The lockdown has gradually begun to be lifted in parts of the State from April 20, 2020 onwards.

Given the above context, the shortfalls in manufacturing GVA in Kerala are expected to be Rs 1,500 crore during the month of March 2020 (during 2019-20) and Rs 4,500 crore in April 2020. The shortfalls in GVA may come down to Rs 2,000 crore in May 2020 and Rs 500 crore in June 2020.

Gross Value Added by trade as well as hotels and restaurants in Kerala's economy at current prices in 2019-20 was expected to be round Rs 1,80,000 crore. This translates to roughly GVA worth Rs 5,000 cores in every 10 days (or Rs 15,000 crore in a month). During the lockdown period, trading establishments catering to only essential services have been allowed to operate. Operations of hotels and restaurants have also been in standstill (except certain selected services such as food takeaway). It may be assumed that 80 per cent of the GVA from trade, hotels and restaurants is being lost during the lockdown period (10 days during March and 20 days during April 2020). During the last 10 days in April 2020, the income shortfall may come down to 40 per cent, which may come down further to 20 per cent during May 2020.

Table 9 *Expected shortfall in Gross Value Added in Kerala, March-June 2020*, in Rupees crore

Financial Year	Months	Manufacturing	Trade and hotels and restaurants
2019-2020	March 2020	1,500	4,000
2020-2021	April 2020	4,500	10,000
	May 2020	2,000	3,000
	June 2020	500	0
	All months	8,500	17,000

Wage Losses

Out of Kerala's total workforce of 127 lakh, 48.1 lakh are self-employed workers and 35.2 lakh are casual workers, while the remaining 43.8 lakh are regular workers. We assume here that the size of the workforce in 2020 remains the same as it had been in 2018 and that wage/income losses during the lockdown are mainly among the self-employed and casual workers. We also assume that a worker (in self-employed or casual category) earns between Rs 400 and Rs 450 per day in Kerala (daily wage rates of casual workers in Kerala range from Rs 800 to Rs 1000 for (male) workers in certain sectors to Rs 300 in some sectors). In such a situation, the loss of wages or earnings to workers in Kerala during the lockdown period amount to roughly Rs 350 crore every day. This translates to total wage or earnings loss in the State of Rs 3,500 crore during the ten days in March 2020 and Rs 7,000 crore during the first twenty days in April 2020. The total wage or earnings loss in the State may come down to Rs 1,500 crore during the last ten days of April 2020, Rs 1,500 crore during the month of May 2020, and Rs 500 crore during the month of June 2020 In all, the total losses in the State in wages and earnings (from March 2020) may be in the range of Rs 14,000 to Rs 15,000 crore.

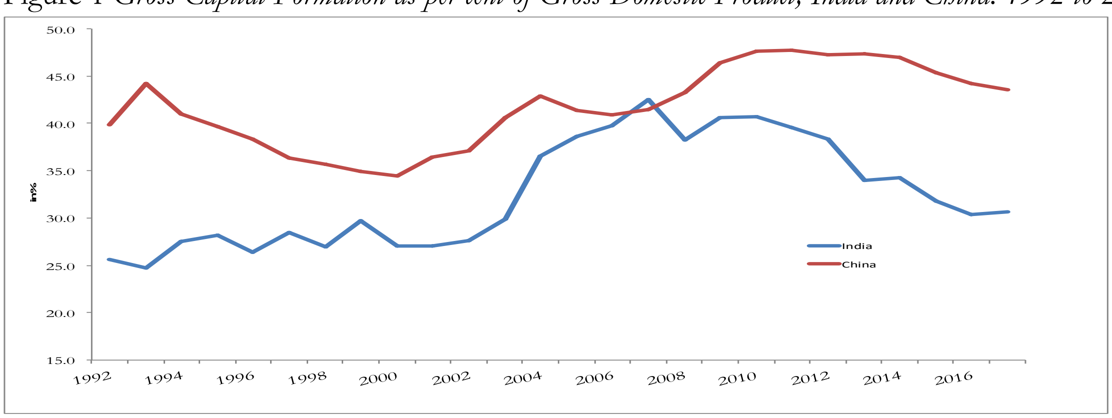
Hurdles to Growth: Immediate and Long-Term

Slowing Demand in Domestic and Export Markets

An important cause of worry for manufacturing and trading enterprises in Kerala has been the possibility of slow growth of demand in both the domestic and export markets over the coming weeks and months. Many of them point out that demand conditions have already been very weak for most of 2019, even before the outbreak of the coronavirus disease.

There are a number of factors behind the slow growth of domestic demand in India in recent years. The most important of these is the stagnation in investment. As per the data compiled by the World Bank, investment rates achieved by India and China had reached similar levels – around 40 per cent by 2007. However, while the Chinese investment rate continued to escalate, India's investment rates began to decline drastically from 2011 onwards. By 2011, gross capital formation (GCF) as a proportion of GDP rose to 47.7 per cent for China, as the state in China responded to the global financial crisis (of 2008-09) with massive investments in infrastructure and new technologies. At the same time, according to national income estimates with 2011-12 as the base year, GCF as a proportion of GDP in India declined from 39.0 per cent in 2012-13 to 33.3 per cent only by 2016-17 (Thomas 2019; See Figure 1).

Figure 1 *Gross Capital Formation as per cent of Gross Domestic Product, India and China: 1992 to 2017*



Source: World Development Indicators, World Bank as reported in Thomas (2019).

The demonetization of high-value currency notes in India in November 2016 has been another important factor behind the ongoing stagnation in domestic demand. Demonetization has dealt a heavy blow to informal sector enterprises in particular, with significant negative impacts on manufacturing, trade and real estate sectors across the country. In the Kerala context, slowing down of remittances from migrant workers in the Gulf countries has brought an additional dimension to the problem.

Rising Working Capital Needs

During the lockdown period, most manufacturing and trading enterprises do not earn any income. Nevertheless, they will still have to incur expenditures on a number of items. These include repayments on the loans they have taken as well as payment of rent, GST, electricity charges, and other fixed (or maintenance) expenses. Therefore, the ongoing lockdown has created unprecedentedly difficult conditions for enterprises, especially the small ones engaged in manufacturing, trading, and the hotel and restaurant business.

The challenges faced by enterprises with respect to working capital needs are severe now as the ongoing economic crisis is widespread, affecting most industries and most regions of the world. Small firms in Kerala and elsewhere in the country supplying parts or ancillaries to the bigger firms face delays lasting between 45 and 90 days for payments from the latter. In some instances, payments may be delayed upto six months. This had been the situation during normal times. With the ongoing crisis in the economy, small firms fear that they may have to wait longer than usual to receive their payments.

Issues Related to Labour

Payment of Wages to Workers During the Lockdown Period

An important item of expenditure for enterprises during the current lockdown is the money they need for the payment of wages and/or other relief to their employees. This is a particularly heavy burden for labour-intensive industries such as footwear or plywood manufacturing. These are also industries, which rely heavily on guest (migrant) workers from other Indian States. The owner of a major footwear manufacturing unit in Kerala, employing approximately 8,000 workers, says that he will require approximately Rupees 15 crore per month only to pay salaries to his workers. The requirement for such large amounts of working capital creates difficulties for enterprises during a period in which they receive little incomes.

As part of the relief package announced by the Central government in March 2020, the government will pay both employee's and employer's contributions to the provident fund for three months for certain types of establishments. These are establishments which employ less than 100 workers and in which 90 per cent of the staff earn Rs 15,000 or less (monthly). However, many firms in Kerala point out that they will not be able to avail of this benefit because of the above-referred conditions (especially the salary limit of Rs 15,000). They appeal that the relief may be made available to all firms.

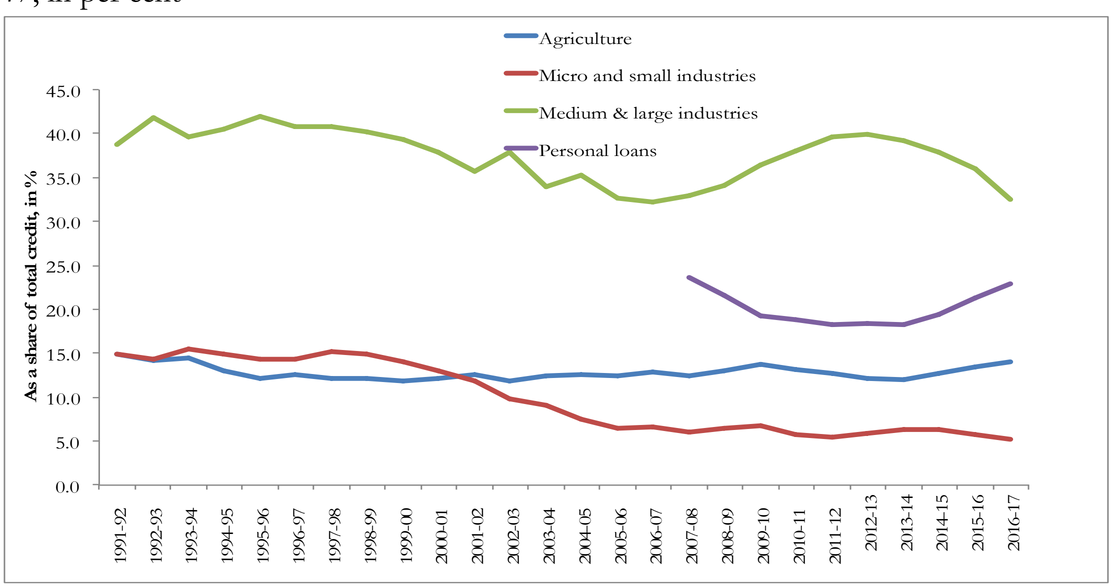
Another demand of firms has been about firm-level negotiations for wage increases. They appeal that these negotiations may be held only after the crisis-related disruptions are over. Wage agreements, which are bound for renewal immediately, may be extended for one more year, according to the firms.

At the same time, firms are also anxious about ensuring adequate supply of labour in the post-lockdown phase. This is particularly so in labour-intensive sectors (such as footwear and plywood).

Issues With the Banking System

Credit has been costly and not easily accessible from formal sources for small firms in Kerala and elsewhere in India. At the national level, the financing of industrial development has been affected with the demise of development banking in the country from the 2000s onwards. At the same time, as commercial banks increased their lending to large-scale industries from the mid-2000s onwards, it led to the ballooning of their non-performing assets (NPAs). The most affected were tiny and small firms. As a proportion of non-food gross bank credit, advances to small-scale industries (SSIs) fell from 15.1 per cent in 1990-91 to 6.5 per cent in 2005-06, 5.7 per cent in 2010-11, and only 4.9 per cent in 2017-18 (Thomas, 2019; See Figure 2).

Figure 2 *Shares of industry and agriculture in outstanding non-food gross bank credit in India, 1991-92 to 2016-17*, in per cent



Source: Calculations based on Reserve Bank of India, as reported in Thomas (2019).

The financing of working capital requirements poses a heavy burden for the entrepreneurs of small firms. Typically, working capital requirements are bigger during periods of recession due to the slowdown in orders and worsening in the non-payment of dues. On the other hand, banks are particularly reluctant to provide loans to firms during periods of recession (because of fears of loan defaults). As a result, entrepreneurs have to take loans at high interest rates to maintain their operations.

The norms adopted by banks with respect to categorizing a loan as non-performing asset (NPA) have been a major source of anxiety for small enterprises. If a borrower fails to make loan repayments for three consecutive months (that is, for 90 days), banks categorize her loan as NPA. Subsequently, banks begin to charge higher (penal) interest rate on this loan and even initiate loan recovery measures. Such an approach by banks on loan defaults can turn out to be counterproductive for small firms, especially during a period of general economic recession. Given the current crisis, banks should consider the longstanding demand from small enterprises to adopt a more sympathetic attitude to them with respect to loan defaults.

Feedback on the Announcement of Moratorium

Given the nationwide lockdown, the Reserve Bank of India has allowed banks and other financial institutions to provide a moratorium of three months on the payment of equated monthly installments (EMIs) to all borrowers of term loans. The moratorium does not imply any waiver on the repayment of the principal amount or interest charges. It only means that the payments of EMIs can be rescheduled to a later date (The moratorium is for term loan installments, which are due for payment between 1 March and 31 May. Term loans will include all kinds of retail loans such as vehicle loan, home loan, and personal loan, agricultural term loans as well as crop loans).

At the same time, however, borrowers will have to pay simple interest on each of the monthly installments (EMIs) for the period for which they defer the payments. This amounts to an increase in their overall interest burden. Representatives of small enterprises feel that relief measures for them should include not just a moratorium on EMI payments but also some reduction in interest rates.

Problems of GST

The demonetization of high-value currency notes in November 2016 and the hasty introduction of goods and services tax (GST) in 2017 have aggravated the problems faced by tiny and small manufacturing firms in India. With these changes, many micro and small firms are, at least on paper, part of the formal sector. They have now received bank accounts and have to pay GST, but they still find it tough to access working capital loans. At the same time, GST payments have now become a new source of worry for the entrepreneurs.

Small enterprises in Kerala and elsewhere have to deal with the delays in the payment of GST dues by the government. Consider the case of a small manufacturer who supplied a machinery-part worth, say, Rs 10 lakh, to another enterprise. She would have to pay GST amounting to Rs 1.8 lakh (GST at the rate of 18 per cent) immediately, within a few days of the supply. The amount paid as GST would be reimbursed to her, but only later. At the same time, this entrepreneur would have to wait up to six months to receive the payment (Rs 10 lakh) from her buyer. The result is that she (the small manufacturer) would often have to take loans at high interest rates only to make the required GST payments.

1. The Way Forward: A Summary of Suggestions from Entrepreneurs

Assistance from the Banking System

Manufacturing and trading enterprises in Kerala expect a high level of assistance from the banking system to tide over the current crisis. A demand from wide sections of enterprises has been that the banks should substantially reduce the interest rates they have to pay on their outstanding loans. In fact, many enterprises demand that there should be substantial or even a complete waiver of interest rate during the moratorium period. At the same time, they also demand that the moratorium period should be extended, possibly for a year (from the current three months).

As already noted, the current proposal by the Reserve Bank of India for a moratorium, which actually involves only a rescheduling of EMI payments for three months and not any waiver on interest rates – is not sufficient, according to enterprises in Kerala. They also point out that the simple interest, which will have to be paid for the rescheduled EMI payments (as part of the current RBI proposal), will in fact, increase their overall financial burden.

Another important demand from entrepreneurs in Kerala has been that banks should provide them higher amounts of working capital – at least 50 per cent more than the level of working capital they are normally entitled to – with no demand for additional collateral.

GST: Expedite Payments Due to Enterprises and Give Concessions

Enterprises in Kerala have demanded significant support for them from the GST system. To begin with, they expect to see a much speedier process in the repayment of GST dues for them from the government. Speedier GST repayments will provide substantial relief for these firms in respect of their working capital position.

Entrepreneurs in Kerala expect to receive some concessions too from the GST system. An association of traders has appealed that the government may repay GST levied on current stock, which got damaged during the lockdown period. Some manufacturers have suggested that they may be allowed to reschedule their GST payments, which are due during the period of the crisis, to a later date. At the same time, there should not be any interest charges for rescheduling the payments.

Relief from Payments

Enterprises have appealed to the State Government and the local bodies to give concessions or relief on certain payments. These include payments for the renewal of a number of licenses (some of which are issued by the local bodies). An important demand from many enterprises has been that they should be exempted from the payment of fixed charges due to Kerala State Electricity Board until the end of the current crisis. Government of Kerala has now announced that the payment of fixed charges on electricity may be deferred by six months.

Both manufacturing and trading enterprises appeal that there should be some waiver in the monthly rents they have to pay during the period of the crisis. Trading establishments, in particular, point out that rental expenses are quite high in Kerala (relative to the rest of India). According to a major dealer of automobile vehicles in Kerala, rental expenses are one of the largest items of expenditure for them along with interest charges and employee salaries. While governmental institutions (such as KSIDC and KINFRA) have been working out details on giving rental concessions (on industrial spaces rented out by them), private owners of commercial buildings may also be encouraged to provide some concessions on rent.

Other Issues and Suggestions

Many firms have been thinking about issues that may arise in the immediate post-lockdown phase. One of their main concerns relate to maintaining social distance at the workplace and arranging transport facilities for workers who used to commute daily for work.

Some of the enterprises engaged in automobile (repair) services point out that they will be able to operate only with a critical number of workers on the shop floor. Also their operations will have to be carried out more or less on a continuous basis. In other words, during the post-lockdown phase, if the regulations were to permit their operations only on a few days of the week with a very limited workforce, they will face serious challenges.

Some manufacturing firms (such as footwear manufacturing) have been considering options to maintain social distance at the factory when the factories reopen after the lockdown. Installing plastic curtains between workstations is a possibility. However, there are worries that this may reduce machine speed and involve additional expenses.

There have been suggestions from book publishers and booksellers, who occupy an important space in both the commercial and cultural sphere of the State. To give a new life to the book publishing industry, the State may consider conducting book fairs or exhibitions across major cities (possibly on the lines of the book fair conducted by the cooperative sector in Kochi). Bookshops may be set up in District and taluk headquarters (possibly in civil stations and mini civil stations) run by Kudumbasree units. Schools may be encouraged to buy books from school funds set aside for this purpose. There should be a special drive to promote Malayalam books, including in the digital format.

2. The Way Forward: Charting New Opportunities for Kerala

Kerala's relative success in management of the crisis so far has attracted attention from all over the world. In particular, the State has received praise for its effective health services, efficient governance mechanisms, and for its strong social institutions. A widely shared sentiment, especially among those associated with industry in Kerala, is that this is indeed an opportune moment to achieve a revival of agricultural and industrial production and of entrepreneurial spirit in the State. Kerala's highly acclaimed achievements in health and social sectors should form the springboard for the State's successful entry into a range of new and innovative industries.

At the global level, given the crisis on account of the Coronavirus disease, there are now expectations that investors will like to spread their investments into new geographies (in order to reduce risks associated with the concentration of investments in a country like China). Given such a situation, foreign companies in countries such as Japan or South Korea may consider India, and Kerala in particular, as a favoured location for investments, especially into high technology areas. In fact, in recent years, Kerala has emerged as an important location for startups and high technology enterprises.

Drive for Technological Upgrading and Value Addition

It is often remarked that moments of crises sometimes open up new and exciting possibilities too. Many entrepreneurs we talked to appeared to share such a sentiment. They emphasized the need to rethink their businesses, upgrade technologies, enhance value addition, and embrace innovative practices.

For instance, some of the units who are part of the plywood-manufacturing cluster in Perumbavoor suggest that they may be supported with funds for technological upgrading through the government's cluster development programmes. Similar suggestions have come from many food-processing units as well.

Opportunities in Food and Agro-Processing

The ongoing crisis has highlighted the critical need for and opportunities in Kerala in the area of food and agro-processing. As the Approach Paper to the Thirteenth Five-Year Plan noted, the growth of agro-based industries in Kerala will provide a boost to the production of a rich variety of agricultural products in the State, including rice, coconut, rubber, pepper, cardamom, banana, and pineapple. At the same time, these industries will cater to the large market for food and agro-based products within the State and outside.

With the disruptions to transport and supply chain networks caused by the coronavirus disease, there is now greater appreciation of the importance of self-reliance in food production and processing even at the regional level. At the same time, Kerala's capabilities in food and agro processing are far from adequate. For instance, in recent days, the absence of processing facilities has created serious difficulties and losses for producers of milk and pineapple within the State. Farmers insist that the building of facilities for even primary processing of fruits and vegetables will go a long way towards improving their incomes. Pineapple farmers say that there is an urgent need to create processing facilities within the State to make pineapple pulp (from pineapple fruit).

The State government may launch a campaign to accelerate the building of storage and processing capabilities for Kerala's agricultural products, including jack fruit, pineapple, nutmeg and banana. The government may encourage young and professionally qualified entrepreneurs into this field, facilitating innovative ideas in production and marketing of food products.

Opportunities in Health, Pharmaceutical Research and Medical Equipment Manufacturing

Kerala's successful handling of the coronavirus disease has brought to focus its achievements in the social sectors, especially health. It appears that Kerala now has a reasonably strong chance to emerge as a destination for manufacturing and research in the areas of health, biotechnology, pharmaceuticals and medical equipment. An immediate opportunity for Kerala is in the manufacture of a range of personal protective equipment (PPE), demand for which have increased after the outbreak of the coronavirus disease.

The above-referred industries will gain from the relatively large infrastructure and human resources – including doctors and other health professionals – in Kerala in the area of health. The State should build on the existing institutions in this field. These include the Life Sciences Park in Thiruvananthapuram (which offers world-class infrastructure facilities for biotechnology and life sciences based industries) and Kerala State Drugs and Pharmaceuticals Limited.

3. The Way Forward:
Policy Initiatives by the State Government

To speed up Kerala's economic recovery in the post-lockdown phase, some of the existing schemes of the Department of Industries and Commerce may be made use of. Appropriate amounts of financial resources have been allocated to these schemes during the Kerala State Budget for 2020-21.

Schemes of the Department of Industries and Commerce

Entrepreneur Support Scheme: This scheme provides capital grants for new and well as existing units for technology upgrading and diversification

MSME Cluster development programme: The scheme provides assistance to MSMEs for sourcing of raw material, common brand creation, and marketing. It also assists in obtaining mutual credit guarantee for sourcing loans, and in the setting up of training centres and quality testing labs.

Revival and rehabilitation of MSME Units with stressed assets or defunct units: This is a scheme to provide working capital assistance to defunct units or MSME units with stressed assets.

Scheme to provide margin money grant to micro (or nano) units.

Schemes to facilitate entrepreneurial development, including Entrepreneurs Development Programmes and scheme for Skilled Entrepreneurs Development Centres.

Commerce Mission: An Institution to Assist Industrial Units with Marketing and New Technologies

Two of the major challenges faced by industries in Kerala, especially MSMEs in food and agro-processing, are with respect to (i) marketing and (ii) accessing new technologies and innovations on a continuous basis. These challenges are particularly severe when it comes to relatively new products (such as virgin coconut oil or *neera)*.

It is difficult for the relatively small-sized individual units in Kerala to build their own retail distribution networks. They do not have the capabilities or the financial muscle to compete with the big firms that dominate the market. Given such a context, the Commerce Mission, which has been set up by the Department of Industry and Commerce, can play an important role:

Marketing Assistance

The Commerce Mission may engage professionals to devise promotional strategies for new products (such as virgin coconut oil or neera). The promotional campaigns will help create awareness among the general public about these products (such as its health benefits). Some of these promotional campaigns may be done along with the Department of Tourism.

The government may consider distributing products from industrial units in Kerala through the showrooms of institutions that receive governmental assistance (such as, for instance, Hantex, Hanveev, Khadi Board and Surabhi).

The Commerce Mission may evolve certain quality standards and install quality-testing facilities in selected locations across the State (jointly with Universities or research institutions). Only products that meet certain quality standards may be promoted/marketed as noted above (through governmental agencies).

The Commerce Mission may consider building an online marketing platform, which, among other things, may promote the sale of Kerala-made products (including food products, handicrafts or garments).

Technological Assistance

The Commerce Mission may join hands with research institutions (such as Central Plantation Crops Research Institute, Central Food Technology Research Institute, Indian Institute of Spices Research) and Universities in Kerala to create a mechanism to offer technological and professional assistance to MSMEs on a continuous basis.

The Commerce Mission may engage scientists or professors from the above-referred institutions on a deputation basis to provide training programmes to firms and entrepreneurs.

The field-level officers of the Department of Industry and Commerce may work with entrepreneurs and firms (both existing and prospective) to enhance the effectiveness of these initiatives.

There is a proposal to transform Kerala Institute of Entrepreneurship Development (KIED) as a centre of excellence. New and existing entrepreneurs may be provided assistance – value addition, transfer of technology, commercialization of R&D inputs --with the setting up of high technology enterprises.

Table 6 *Numbers of factories and employees and net value added in Kerala's factory sector: distribution by two-digit industries, 2017-18*

	Distribution in %				
Sectors	Factories	Employees	Net value added	Employees, in 1000 numbers	Number of factories
Food products and beverages (10, 11)	21.9	32.8	15.3	101.6	1672
Rubber and plastics products (22)	8.2	7.8	9.8	24.3	626
Textiles (13)	5.4	7.6	3.1	23.7	415
Other non-metallic mineral products (23)	12.8	6.2	4.9	19.2	976
Tobacco products (12)	7.1	4.4	0.5	13.7	543
Chemicals (20)	1.8	3.9	13.3	12.1	139

Leather and related products (15)	2.8	3.2	1.7	9.8	211
Wearing apparel (14)	0.7	3.1	1.5	9.5	57
Wood, wood products and furniture (16, 31)	13.0	4.3	1.6	13.1	996
Pharmaceuticals (21)	2.2	2.7	2.9	8.5	166
Coke and refined petroleum products (19)	0.4	2.5	19.1	7.9	27
Electrical equipment (27)	1.5	2.3	2.2	7.1	117
Printing and reproduction of recorded media (18)	1.9	1.9	3.9	6.0	147
Other transport equipment (30)	0.3	1.9	4.4	5.8	24
Computer, electronic and optical products (26)	0.6	1.7	2.8	5.2	47
Other manufacturing (32)	1.0	1.4	4.5	4.4	76
Basic metals (24)	1.6	1.4	0.5	4.4	120
Fabricated metal products (25)	2.4	1.4	0.8	4.3	186
Paper and paper products (17)	1.9	1.1	0.5	3.3	142
Machinery and equipment n.e.c. (28)	1.1	1.0	0.9	3.2	85
Motor vehicles, trailers and semi-trailers (29)	0.2	0.3	0.1	1.0	16
All industries	100	100	100	310.3	7649

Source: Based on Annual Survey of Industries, 2017-18, as reported in Thomas (2020)

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Estimates of Losses in the Tourism Sector
Reference Period: March and September 2020

The total losses in the tourism sector are estimated at Rs 20,000 crore

The last three years have been extremely stressful to the tourism industry in Kerala. In 2018, the sector was adversely affected by the Nipah virus scare and the massive flood. As the sector was recovering, floods occurred again in 2019. After both these shocks, the government and the tourism industry have been working together to rebrand the State's tourism sector. This 360 degrees marketing campaign included offering attractive packages and an intensive use of online and offline media.

These measures were very successful. Tourist arrivals increased significantly in 2019. There was a 17.2 per cent increase in total tourist arrivals compared to 2018. This growth rate of tourist arrivals was the highest after 1995. The growth rate of the inflow of foreign and domestic tourist arrivals, respectively, were 8.5 per cent and 17.8 per cent. The total foreign exchange earnings from tourism crossed Rs 10,000 crore for the first time in 2019, reaching Rs 10,271 crore. The total earnings generated from the tourism sector in 2019 registered a 24.1 per cent rise and reached Rs 45,011 crore.

The State was expecting a continuation of such growth trends in 2020 also. In fact, tourist arrivals grew at a fast pace till January 2020. There were increased bookings and occupancy rates even towards the end of the international season and the domestic summer season.

In the last week of January 2020, the outbreak of Covid-19 in China began to affect the travel and tourism industry globally. By the end of February 2020, the virus had hit the major source markets of Kerala in Western Europe (Italy, Spain, United Kingdom, France and Germany) and there was a significant drop in the number of tourists visiting the State. Even the other international markets like North America and Middle East were facing the virus outbreak. On March 11, 2020, the World Health Organisation (WHO) declared the outbreak as a pandemic, which resulted in travel bans across the world.

In stages, the Government of India decided to suspend all existing visas (except official/diplomatic) till May 3, 2020. New visas are not being issued. Health regulations like medical check-ups and isolation for observation and quarantine, if needed, have prompted international tourists to cut short their holidays and return. Domestic travel and tourism has also been severely affected with restrictions and checks on travel and limited connectivity.

The impact of the pandemic was such that the tourism industry has been one of the most affected sectors. As a tourism sector representative put it, the tourism sector was the first hit and the worst hit in the economy. With 80 per cent of the sector made up of small and medium-sized enterprises, millions of livelihoods in the world have been left vulnerable. The stakeholders in the industry (tour operators, hotels and resorts) saw massive cancellations and no shows. At present, since Covid-19 has spread to more than 150 countries across the world and is not yet contained, it is difficult for the tourism sector to estimate the period which it will take for a comeback. If the restrictions and health advisories go on for the next 3 months, which seems most likely, the tourism sector expects the negative impact to last for about 6 months. Assuming the annual income from the sector at Rs 45,000 crore, we estimate that there will be a loss of about **Rs 20,000 crore** in 2020-21. Slowdown in demand in also expected to continue till September 2021 in different ways.

The impact is felt widely across all business areas from small time transport operators to big hotels and resorts. Almost all businesses are affected and the sector is facing business closures and livelihood losses. Travel agencies and tour operators are left with zero bookings and huge cancellations. They are struggling to pay salaries of their staff. One tour operator is supposed to be engaging with at least 100 vendors at any point of time. Hotel/resort rooms are empty without bookings and their outlets are without customers. Hoteliers are in difficulty to maintain their property and core staff, with no income. Homestays also do not have any visitors or bookings. All houseboats are docked. Transport operations have come to a halt. Restaurants and eateries are closed. For all these establishments, there are bills on utilities, like power and water to be paid for March and April 2020. In many cases, the concerned licenses are expected to be renewed during the period of lockdown and there is concern regarding whether extensions will be received in time.

Milk, vegetable and meat suppliers to the hotels/resorts, houseboats and restaurants are left in the lurch without any orders. Shops at tourist centres are idling without the tourist visitors. Responsible Tourism (RT) units are without any economic activity. Major investments made by tourism entrepreneurs and the repayments to the bank are in crisis.

We expect that tourism industry may see lay-offs, rationalisation of staff, unpaid leaves and loss of livelihood activities in the State. There are about 15 lakh workers employed in Kerala's tourism sector. A section of these workers have been fortunate to have been paid their salaries and wages in March 2020. However, we do not expect all wages to be paid to all workers in April 2020.

Event management groups have a major footprint in the tourism sector. They are engaged in attracting business from abroad and within India in the field of Meetings, Incentives, Conferences, and Exhibition (MICE) and destinations weddings. There are about 1500 event management companies in Kerala with GST registration. About 45,000 people are directly working in this industry and 1,00,000 people are indirectly engaged. This sector is informal in much of it character. This sub-sector has an annual turnover of Rs 3,600 crore. The Event Management Association expects a loss of Rs 300 crore due to cancelled bookings and other losses.

The houseboat industry in Kerala largely comprises of small and medium operators. Many boat owners are also employed on the same boat as driver/cook/helper. Houseboats require considerable annual maintenance costs. But business has come to a halt now. According to houseboat owners, many of them have either pledged their property or the boat to raise finances. The pandemic has left them with no option but to pledge another property for new working capital requirements.

Future Strategies

The key to addressing the issues in the tourism industry, according to many experienced insiders, is to survive in the short-run (one year) and revive in the medium-run (three years). By survival, we refer to the protection of existing firms and jobs to the extent possible. By revival, we refer to steps that would ensure that the earnings and arrivals in 2020-21 return to a substantial proportion of what they were till January 2020. We need to set specific goals to achieve this and carefully monitor them. In both the short and medium-run, we need an aggressive marketing strategy based on the strengths and achievements of Kerala during the campaign against Covid-19.

Before aggressive marketing efforts are undertaken, we must retrofit Kerala as a safe and healthy tourist destination. The focus should be on domestic tourism since the schedules for international flights, and visa requirement are totally uncertain. Trade fairs and road shows in India can be thought of after inter-State movement is normalised. The present period should be used to provide intensive training to the frontline hospitality service providers. New capital-intensive investments can be deferred and the emphasis should be on the maintenance of the existing infrastructure and to expedite projects nearing completion.

The department can consider a scheme to provide immediate working capital requirements for MSMEs in the tourism sector.

The amounts already allocated for the infrastructure can be used to focus on the major destinations by adding tourist specific Covid-19-safe sanitation infrastructure and operational measures.

Survival in the Short-Run

In the short-run, Kerala should aim to bring together a consortium of banks and other financial institutions to ensure the availability of liquidity in the sector. This consortium may be created with the Kerala Bank and the State Level Banker's Committee (SLBC) at the centre. Loans up to Rs 25 lakh may be made available to the sector on soft terms, with the rider that interest rate subsidies will be available if repayments are made on time. This will not just allow the tourism sector to hold on to their business in the short-run but also to retain workers, whom they have trained with some investment.

The State government should actively ask the central government to set up a fund that would ensure that the tourism industry can retain their work force without lay offs. There may be conditionalities that require that the firms should not be laying off workers if they have to be beneficiaries of the fund. This fund can also be used to provide sustenance allowance to self-employed in the sector. The centre should also waive all the interest payments for six months for small and medium enterprises in the tourism sector. The centre should be asked to defer the filing of GST returns for February and March two months. Furthermore, the payment of GST may be deferred by three months. The centre has already announced that it would pay the employer's contribution to the ESI/EPF for those firms that pay 90 per cent of their staff a monthly salary of Rs 15,000 per month. However, this excludes almost all of the tourism sector in Kerala. The centre should be asked to include the tourism sector as a whole into this category without limits set on monthly salaries; the conditionality may be the compulsory retention of all existing employees in the payroll.

The State government can use the worker's welfare funds in the sectors related to tourism to provide assistance. The Taxi Drivers Welfare Fund could be thought of to provide at least three months of salary for registered taxi drivers. The government may also provide some waiver to firms in this sector with regard to pending power and water bills.

Many bar licenses are due for renewal on March 31, 2020. These licenses may be extended for three months without any additional payment. Bar license renewal fees is Rs 30 lakh for 1 year, while the Beer and Wine license is Rs 5 lakh for 1 year.

Property Tax payable to local bodies during the first half of the financial year 2020-21 may be deferred by 6 months. A road tax waiver for six months may be made available for transport operators approved by Government of Kerala. Electricity bills payable to KSEB may be deferred by three months, and some waiver may be allowed taking into account the fact that hotels were are either closed down or operating at low occupancy. Lease rentals payable to the government and the Pollution Control Board could be deferred by six months.

Revival in the Medium-Term

The medium-term strategy should be to revive the sector after the period of travel restrictions and health advisories. We should focus specifically on the domestic tourism sector here. The government should initiate special schemes to assist the tour operators, hotels, resorts and homestays in market development. We may allow discounts in the participation fees for tour operators and hoteliers in national and international Trade fairs and B2B meets. We should extend the scope of the existing RT units and bring more areas and communities under RT packages coverage.

Long-Term Strategy

The long-term strategy need not deviate from the core goals specified by the 13th Five-Year Plan. The objective was to double the arrival of foreign tourists, increase the arrival of domestic tourists by 50 per cent, and create some 4,00,000 jobs in the sector by 2021-22. Recurrent natural calamities have constrained the State's efforts in this regard, but the objectives need not be altered. Increase in marketing Budget was part of this aim laid out by the Kerala State Planning Board in 2016. It should focus on positioning Kerala in the bucket list of global holiday destinations, and reinstating its position as a high value destination in this part of the world.

ESTIMATE OF LOSSES IN TRANSPORT

As part of assessment of economic losses in different sectors because of Covid-19, the State Planning Board initiated a quick assessment of the losses in the transport sector in Kerala. The main focus was to find out the loss to business and connected employment and wage losses in the sector and the overall impact of pandemic on the transport sector. The assessment is based on secondary data, the inputs and the feedback obtained from the questionnaire circulated among the various agencies and associations related to this sector.

Kerala has the distinction of having a multimodal transport system spanning over the entire length and breadth of the State. The transport sector has however been one of the worst affected sectors during crisis periods, most recently the floods. The present pandemic has also affected the sector adversely as all modes of transport (except emergency services) came to a standstill.

Lockdown Scenario

All modes of transport have been affected during the lockdown period. In the lockdown period, the priority of transport organisations has been to maintain a core transport system operational to ensure movement of freight and essential workers.

The following are the issues affecting road transport sector in the lockdown period.

1. KSRTC and private operators have lost their entire income but there was no substantial decline in expenditure.
2. Most of the Auto/Taxi operators/drivers lost their income.
3. Most of the drivers who operate on daily basis have lost their job and there by their source of income.
4. The loan to be repaid will increase because of the interest of moratorium period.
5. Road taxes to be paid even though the vehicles are not operating.
6. The vehicle parts are getting damaged due to idle condition.
7. The associated businesses are fully closed but they have to meet the expenses such assalary, rent, and local body taxes.
8. The cost of renting a truck to transport goods has jumped sharply as the few operators who are on the roads face difficulties in operating amid a nationwide lockdown.
9. Tourism is complemented by transportation and the same is totally collapsed.

Assessment of Loss in the Sector

The standard data and procedure followed by National Transportation Planning and Research Centre(NATPAC) in preparing fare revision proposals for the Government in transport sector is used in our estimates and projections.

The rough estimation of the net income loss per day is estimated to be Rs 241crore based on the partial usage of the certain types of passenger and goods transport during the lock down period as part of relaxation. Here, around 24.2 lakh people will be affected directly and indirectly because ofthe lockdown in transport sector.

Table 1 provides the expected net loss in income in passenger and goods transport. Table 2 provides the details of calculation of the expected net income loss per day. The loss to transport for lockdown period of 40 days comes to Rs 9,600 crore.

Table 1*Estimated net income loss per day at road transport sector, in Rs*

Type of Transport	Type of Vehicles	No. of Valid Registered vehicles	Expected Net Income Loss Per Day (Amount In Rupees)
Passenger Transport	Autorickshaws	6,71,906	58,72,45,844
	Taxis	1,37,181	40,47,52,541
	Stage Carriages (STU's and Private)	22,500	11,99,92,500
	Contract Carriages	77,133	41,47,82,708
Goods Transport	Three wheeler and tempos	4,77,027	62,49,05,370
	Four wheeler trucks/lorries	1,55,705	20,04,70,188
	Trailers	14,296	5,75,41,400
	Tillers	2,813	63,29,250
TOTALINCOME LOSS			**2,41,60,19,800**

Source: NATPAC

Table 2 *Estimated net income per day andnet loss per day during lockdown scenario in road transport sector*

Type of Transport	Type of Vehicles	No. of Valid Registered Vehicles	Average Net Income received per day per vehicle (Amount in Rupees)	Lock down Scenario utilization	Estimated Net Income per day (During lockdown scenario) (Amount in Rupees)	Estimated Net Income Per Day (Amount in Rupees)	Estimated loss in income per day (Normal Situation– Lockdown) (Amount in Rupees)
Passenger Transport	Autorickshaws	6,71,906	400	0.065	17,469,556	60,47,15,400	5,87,245,844
	Taxis	1,37,181	1,350	0.07	1,29,63,605	41,77,16,145	40,47,52,541
	Stage Carriages	22,500	2,700	0.01	6,07,500	12,06,00,000	11,99,92,500
	Contract Carriages	77,133	4,500	0.005	17,35,493	41,65,18,200	41,47,82,708
Goods Transport	Three wheeler and tempos	4,77,027	2,800	0.175	23,37,43,230	27,24,83,750	62,49,05,370

	Four wheeler trucks/lorries	1,55,705	2,500	0.185	7,20,13,563	85,86,48,600	20,04,70,188
	Trailers	14,296	4,000	0.05	28,59,200	6,04,00,600	5,75,41,400
	Tillers	2,813	-	0	-	63,29,250	6,329,250
Expected Total Income					**34,13,92,146**	**2,75,74,11,945**	**2,41,60,19,800**

Source: NATPAC

Kerala State Road Transport Corporation (KSRTC)

In the normal scenario KSRTC operates 4,500 buses daily covering 16.5 lakh km on an average generating a collection of Rs 6.25 crore which aggregates to Rs 190 crore average earnings per month, including non-operative income. The average monthly expenses works out to Rs 291 crore covering wages (Rs 85 crore), pension (Rs 62 crore), fuel and consumables (Rs 85 crore), and loan repayments (Rs 27 crore).During the lockdown scenario all the fleets are idle.Only about 50 buses operate for emergency purposes. Hence, the monthly collection is zero. But the expenditure works out to Rs 150 crore covering wages, pension, power and water charges etc. excluding fuel and loan repayment burden. This has been included in the estimated net loss in income per day in the Table 1.

Post-Lockdown Scenario

In the post-lockdown scenario, the transport sector will face following issues.

1. Passenger and Goods service sector is highly capital intensive. Reduced demand for these services is expected to impede the services in the short to medium term because of cash flow constraints.

2. There will be reduced demand for logistics because of reduced production across sectors.

3. Ports are also expected to experience reduced traffic volumes decreasing the overall utilization level and earnings in short to medium term.

4. The fall in passenger transport demand is pushed by social distancing restrictions; Covid-19 may have a long term effect on people's travel behavior. Even after the situation normalises, the perception of risk associated with crowded areas could lead to shift in preferences towards personal travel modes. That is, people may avoid using public transport modes to avoid crowds. People may also avoid shared mobility modes like autorickshaws. The drivers employed in app-based taxi services are economically suffering in the short term due to the Covid-19 lockdown. However, it cannot be said if these modes may face long term economic effects in terms of reduced travel demand.

5. Adoption of changing demands by the transport players. For instance, Indian Railways have simultaneously cancelled passenger trains and ramped up parcel services and other freight services for essential commodities.

Considering this lockdown as a large travel demand experiment, government has much to gain from optimising transportation of employees in the future, in terms of productivity and costs. However, as the transportation sector employs millions, in the long run, it is necessary to understand the pandemic's impact on consumer preference and the subsequent transportation demand for passengers and goods.

Motor Vehicles Department

The loss in revenue to the Government in the form of vehicle taxes, registration, fees, and fines amounts to Rs 276.20 crore in March and April 2020 as compared to revenue in corresponding period in 2019.

State Water Transport Department

The operations of State Water Transport Department got affected from March 11, 2020 onwards. The shortfall in earnings from March 11 to March 24, 2020, prior to lockdown, itself was Rs 0.34 crore. The losses during the lockdown period from March 25, 2020 to May 3, 2020, is estimated to be Rs 1.23 crore. The total loss from March 11, 2020 to May 3, 2020 works out to Rs 1.57 crore.

Kannur International Airport

The estimated loss of earnings because of partial withdrawal of flights in March 2020 was Rs 5.33 crore. In April 2020, the estimated loss in earnings was Rs 12.78 crore. It is presumed that flight operations will commence only by September 2020. The loss in earnings from March to September, 2020 is thus estimated to be Rs 82 crore. As few airlines will commence operations, the loss in earnings for the period from October 1, 2020 and March 31, 2021 is estimated to be Rs 58 crore. The total loss in the sector in 2020-21 is estimated to be Rs 140 crore.

Kochi Metro

On an average, the daily earnings of Kochi Metro is Rs 23 lakh. The lockdown period of 40 days has resulted in a loss of Rs 9.20 crore. The earnings had come down prior to lockdown. The average earnings three days prior to lockdown was only Rs 5 crore.

Policy Interventions

These are suggestions from the Department.

The Government should initiate transport planning for the post-lockdown period as operating public transport with full capacity might be risky; on the other hand, increased usage of private transport might lead to other transport issues such as traffic congestion, pollution.

Also, a shift should be made by the government by promoting clean public transport, walking and cycling as resilient and contactless transport modes.

Considering all the above, the following key policy recommendations are identified to overcome the issues in transport sector-

1.*Tax, insurance and compliances related.* Short Term Measures include, tax benefits, exemption in fuel cess, relaxations in insurance and relaxation in timelines and documentation for compliance. Medium term measure includes digitalization of compliance related processes

2. *Easing financial stress in the sector.* Short Term Measures include (i) relaxing terms on existing loans through measures like interest deferment, increased moratorium period etc. and (ii) working capital/loan repayment support in the form of interest free during the lock down period for atleast 3 months.

3. Improve the quality of public transport covering stage carriages and Intermediate Public Transport (IPT) modes

(i) Short Term Measures include the following.

1. Social distancing measures through vehicle occupancy.
2. Cleaning of all stage carriages, IPT modes, and major bus terminals.
3. Provision of additional space/reduction of crowding
4. Reduced contact points through technology interventions and digitalization

(ii) Medium Term Measures include bus vehicle tracking system, providing passenger information system (PIS) and encouragement of app based Intermediate Public Transport services.

(iii) Long Term Measures include development of trunk and feeder system and parking guidance system

4. Optimization of goods transport by providing relaxation for operating during day time at least for one year.

5. Promotion of non-motorized transport system.

6. Reducing the incidence of private vehicle.

The impact of Covid-19 on the IT sector and the response measures by the sector to the pandemic has been very significant. This brief report details some aspects of this impact. The situation is fluid and evolving, with many uncertainties. While the impact can be spelt out in the short-term, during which serious loss of orders and earnings for the IT industry are likely, the longer-term impact is more difficult to spell out.

This note is based on reports and detailed interviews with the representatives of GTech (a representative industry body), the Regional Manager of NASSCOM and the CEO of Technopark. Their contribution and willingness to provide information and analysis for this report is gratefully acknowledged. A short questionnaire was also circulated to various companies. The responses to these, though quite limited in number, are useful in understanding the situation of the many small companies in the industry, who are likely to be the most severely affected.

Economic Impact

1. *Demand Collapse*

The fall in demand from the main markets is the key issue for the IT industry. While a general recession was already a possibility, Covid-19 response measures and lockdowns across the world have made this threat real and immediate.

The IT sector in Kerala is heavily export-oriented and hence likely to suffer serious loss of income from its markets in Europe, United States, and the Gulf region. Outright terminations of contracts are still few, but the majority of contracts are on hold for the next three months.Force majeure clause has been very widely invoked. In several instances of contracts with Chinese companies, there are not even responses to email and telephone queries.

The companies most immediately affected are those associated with airlines, hotels, tourism, and entertainment and event management sectors.

GTech in association with NASSCOM and CII has provided the following estimate of the income loss across four quarters.

Table 1 *Covid-19 business impact assessment for Kerala IT/ITES Sector**

Variable	2019-20	2020-21		
	Q4	Q1	Q2	Q3
Number of people working in the IT sector (billable)	1,25,000	1,25,000	1,18,666	1,09,083
Projected resource utilisation (%)	80	70	70	70
Hourly rate in $	12	12	12	12
Earnings per quarter for SME in $ (Millions)	270	236	224	206
Earnings per quarter for large in $ (Millions)	330	289	274	252
Project business slump for SME (%)	0	40	60	60
Project business slump for large (%)	0	20	35	35
Decline in earnings for SME in US$ (Millions)	0	94	134	124
Decline in earnings for large in US $ (Millions)	0	58	96	88
Total decline in earnings in US $ (Millions)	0	152	230	212
Projected job losses from decline in earnings in MSMEs	0	3,917	5,583	5,167
Projected job losses in larger companies	0	2,417	4,000	3,667
Projected employment loss for support staff	0	380	575	530
Total projected employment loss		6,714	10,158	9,364
Projected cumulative employment loss	**0**	**6,714**	**16,872**	**26,236**

* Assuming 500 hours per quarter per employee and 45 per cent of earnings from SMEs in the IT sector.
Source: Assessment by IT industry

The total decline in earnings is estimated to be $594 million or Rs 4,500 crore in the first three quarters of 2020-21.

Apart from the cumulative job loss of around 26,236 projected as seen in Table 1, GTech also projects a further loss of 80,000 indirect job losses in services, transportation, hotels, cleaning and security.

Some relief in the employment situation is provided by the public declaration from TCS that they will not retrench any employee and will absorb all those recently recruited. This ensures that almost

12 per cent of Kerala's IT workforce remains secure. However, similar announcements have not been made by any other IT major, except Cap Gemini and one other MNC.

2. *Impact on Small-Scale Sector*

A large part of the IT ecosystem in Kerala consists of firms that have turnover of less than Rs 5 crore per annum. These have been severely affected by the collapse of demand. They have managed to pay March salaries, but many are likely to default payment of April salaries. In a number of instances, they have already taken wage cuts at the senior levels in March salaries. In Kozhikode, more than 100 companies have lost their Gulf area contracts. Industry representatives noted that these companies were often functioning from contract to contract, and without regular inflow of contracts would be unable to meet salary payments and other expenditure.

In the questionnaire to IT industry firms that was circulated by the State Planning Board, only the small-scale sector responded. For the 51 respondents, the median number of employees was 8. Of the 38 that reported their turnover, the average value was approximately 12.6 lakh and the median value Rs 6.5 lakh averaged over October to December, 2019. Of those that reported turnover in January 2020, there was a sharp fall even in that month, for causes that are unclear. Since the lockdown period, only 13 out of 51 reported being able to pay salaries in full and on time.

In the survey, 66 per cent of these companies reported shortage of working capital as their most pressing need. This need was mostly due on account of payment of wages, with rental and other requirements following. The average requirement of working capital reported was only Rs 6.5 lakh, though individual requirements ranged from Rs 20,000 to Rs 80 lakh. However, in discussion with industry representatives, the average figure cited was from Rs 15 to 20 lakh.

Overall, the most serious concern in the IT sector currently is the virtual disappearance of the MSME segment, which will have serious negative consequences for a growing sector of Kerala's economy. In this respect the quantitative estimates may be more conservative with respect to job losses, and this may turn to be more severe in reality.

3. *Mitigatory Measures*

Keeping the firms afloat and in business as much as possible is the key at the current stage while they ride out the crisis over a period of one year. The bigger players will undoubtedly manage this far better but it is vital to keep as much of the large number of smaller players going as possible. NASSCOM is already taking measures to provide links to new contracts for small companies and redirecting queries from abroad or large domestic firms to smaller companies in need of orders.

The CEO of Technopark reported an important initiative, namely the hiring of two consultants (JLL and CBER), to provide advice on the shifts in the global business arena and the new opportunities which may be considered for the immediate future. Technopark is also ready to provide retraining in new areas of work and expertise as desired by the MSME segment of the IT sector. With this effort, it is possible that firms may survive or improve their prospects by utilising new business opportunities that are opening up.

Technopark is also involved in an excellent initiative to create a job-exchange platform where out of work IT workers may seek opportunities in other firms which still require human resources. This is in collaboration with industry.

Coping with Lockdown

Small companies were able to cope with the shift to work-from-home better than large companies. For larger companies, the shift involved providing equipment such as desktops and laptops to their employees to work from home and the logistics of this were not easy for large (TCS, for instance, has approximately 12,000 employees in Kochi and 4,000 employees in Trivandrum), especially in procurement and delivery to the desired locations. However, these issues have been managed and the industry is satisfied that they have ensured the safety of the employees. Only skeletal staff is present in their main offices, primarily for server maintenance.

The few hardware-related or hardware-oriented companies in the IT sector are, in contrast to the rest, seriously affected by the lockdown as the facilities and equipment at their offices are essential. Two majors, Tata Elexi and Quest Global, for instance, are affected by this. Their performance and productivity are seriously affected.

For software-oriented companies, productivity under lockdown has declined but not severely. In the judgment of IT industry representatives, current overall productivity in the industry is at 70 per cent utilization of available human resources as against 80 per cent utilization under normal conditions.

In the financial services sector, lockdown has raised client-related issues. Financial service clients are concerned about the transition to work-from-home for reasons of data security. At least one major contract to a large financial service firm has been terminated because of the client's unwillingness to accept work-from-home. Companies servicing financial sector clients were the last to move to work-from-home, whereas others moved as early as the first week of March.

Continuation of the lockdown for an extended period would raise new issues, especially in the provision of spare parts for equipment and maintenance. But with the new easing of restrictions in some Districts, this issue may be resolved.

Post-Lockdown or Lockdown Exit Issues

The IT industry is concerned with the timing and pace of the easing of lockdown and the possibility of fresh imposition of lockdown. The industry body NASSCOM has a detailed document on this issue. Specifically, the industry is unwilling to go through the relocation effort from home to office and back again in case of re-imposition. They are also seriously concerned with the health risk in prematurely going back to large, air-conditioned office spaces.

The industry is critical of the current abrupt easing of restrictions allowing the IT industry to get back 50 per cent of their employees to work at their offices. At most, in Kerala, and across the country, they are likely to start with 10 per cent of their staff, with this number increasing progressively. However, hardware-related companies are likely to make greater use of this easing as they require centralized facilities. Many software-oriented companies are likely to use the current easing for maintenance, moving equipment, etc, rather than a wholesale return to centralized office functioning.

Policy Recommendations

1. Lockdown implementation must proceed with some notice (4 days is the industry's request, though the actual number may depend on exigencies) and lockdown withdrawal so that industry has time to Plan and adjust accordingly.

2. The transport and movement of equipment may be coordinated more closely between industry and authorities. A single window may be established to speed up the issue of passes for companies based on their accreditation with the industry association.

3. Rent waiver at GoK software parks for the smaller companies (those renting less than 10,000 sqft) and deferment rental for the larger ones (>10,000 sqft) for a period of 3 months initially. Depending on assessment this may have to be extended. Such a waiver is needed urgently.

4. Waiver of electricity charges on a similar basis may be provided.

5. Provision of bill discounting by banks, encouraging banks to provide loan repayment moratoriums including waiver of interest charges for the delay (the current moratorium allows interest charges for the delay period), and flexibility in lending as new business opportunities emerge are all critical.

6. State GST waivers may also be examined as a possibility.

7. Working capital loans for small firms. Government may consider meeting the costs of interest subvention for three to six months on such loans. The possibility of providing for this from re-allocating Plan funds may be examined.

8. The State Government must actively engage the Central government in the provision of substantial assistance and support to the IT sector, without which not much relief can be provided as the scope of State level assistance will be meagre.

9. The sector must be actively encouraged in the execution of government and public sector contracts.

10. The sector must be actively encouraged and facilitated in developing new opportunities in new sectors that may open up even during the current global crisis, but especially after it recedes over time.

IMPACT OF COVID-19 AND RESPONSE MEASURES ON POWER SECTOR

The power sector has been declared an essential service under the lockdown. Since the Kerala State Electricity Board (KSEB) and other institutions of the energy and power sector are also in the public sector in Kerala, there has been no loss of employment and wages in this sector. The primary impact on the power sector is due to the sharp fall in energy demand because of the lockdown. The secondary impact is the slowdown in execution of various projects in the power sector and implications thereof.

The data and information in this report is based on the note received from the Deputy Chief Engineer (Commercial and Planning), KSEB. Based on the inputs provided by KSEB and our assessment, we have made certain recommendations for the power sector.

Impact on KSEB Electricity Demand and Income

The following table provides the salient details of the fall in electricity demand.

Table 1*Comparison of energy demand, consumption in million units*, in kwh

Month	**Year**		**% increase/decrease**
	2019	**2020**	
February	2,050.0641	2,190.4363	6.84
March	2,484.7681	2,377.6513	-4.31
April 1-14	1,183.37	942.896	-20.32

Year-on-year comparison of March and April electricity consumption in 2019 and 2020 shows the sharp fall clearly. Further losses may be expected in the remainder of April, and possibly in May. Currently the decline in electricity consumption amounts to 15-20 million units per day. The pickup of demand will clearly depend on the resumption of normal activity across different economic sectors.

Detailed accounting of loss of income across industrial, commercial and domestic consumers will be known after March and April billing as there are no separate feeders for each sector and thus the loss from each sector cannot be directly computed from electricity supply data.

However, since the main loss of income is from industrial, commercial and institutional users, the loss in income may be estimated at approximately at Rs 6 per unit as energy charges. Hence the loss in income in March amount to approximately Rs 64.2 crore and the losses from April 1 to 14 to Rs 144.2 crore.

The drastic reduction in demand will also increase the cost of power under long-term power purchase agreements (PPAs). This is due to the two-part tariff regime, where the fixed part of the tariff remains the same irrespective of lower quantum of purchase and only the variable part will be lowered. The average cost of power was Rs 4.04 per unit in February 2020. After March and April billing, the average cost of power will be known.

The current PPAs have also resulted in KSEB paying for power it is unable to absorb.

Power consumption has fallen by 20per cent because of the pandemic and subsequent lockdown as compared to the anticipated consumption during summer months. The State Load Dispatch Centre is dealing with this fall in demand by surrendering power from central generating stations as per merit order and reducing hydro-generation within the State. By surrendering power, there is reduction in variable charge to be paid to the generating companies, but as per the PPA, the fixed charge has to be paid. So even though there is reduction in power absorption, KSEB is paying variable charge for the energy drawn plus fixed charge in full to the generating companies.

Currently, following Central Government policy, renewable energy sources continue to enjoy "must-run" status. This implies that lower priced thermal power (lower variable charges) cannot be accessed and the higher cost renewable energy has to be absorbed during low demand period. The average cost of power from renewable sources is Rs 3.81 per unit as per the existing contracts for January 2020. The exact impact of this higher cost renewables being given priority will become known only after billing.

Impact on Rooftop Solar Deployment Programme under Urjja Kerala Mission

1. The execution of 50MW Roof Top Solar project under Soura Phase I is likely to be delayed because of the pandemic and the developers are demanding cost escalation for the delay in procurement and erection.

2. The bid due date for the 50 MW Roof Top Solar project (MNRE Subsidy Scheme) has been postponed as requested by potential bidders. This will delay the project. Further, due to industry-wide repercussions, price escalation is anticipated.

3. Projects taken up by external agencies such as National Thermal Power Corporation (NTPC), NHPC, THDCIL, and Solar Energy Corporation of India (SECI) in the State are also affected.

4. Regulatory approvals for bidding for 260 MW of solar projects is also getting unduly delayed

Major Projects Affected by Lockdown and Their Extent

1. All capital, renovation and modernisation works stands suspended in this period. Only urgent works for restoring supply are undertaken.

2. Works on nine 220 kV substations under Transgrid 2.0 and various works under normal Plan scheduled for commissioning this year are adversely affected. Pugalur-Madakkathara HVDC line construction, which was scheduled to be commissioned in June 2020 is also drastically affected.

3. Works of Electric Vehicle charging stations commenced in 6 cities stands suspended on lockdown which will delay the take-off of E-vehicle project.

4. Works of many ongoing hydroelectricity projects like Poringalkuthu, Boothathankettu, Upper Kallar, etc., which were planned to be commissioned before April 2020, have also been affected by the lockdown.

5. The extent of impact varies among projects. Issues such as the de-mobilisation of the workforce, requirement of foreign experts at site, supply chain derailment, etc. have to be assessed separately.

Policy Recommendations

1. Despite the challenges that the KSEB is currently facing, there should be flexibility on the part of Government to provide waivers of electricity charges for a variety of consumers, based on their requests and government's assessment of their vulnerability due to the current crisis. The MSME sector in industry including in the IT sector and the startup sector would be particularly in need of concessions on payment of electricity charges ranging from outright waiver to deferred payment staggered across varying periods of time. Despite the immediate further loss that the KSEB will suffer on this account, its resource mobilisation capabilities and current healthy financial position compared to other public sector DISCOMS, should allow it to provide such waivers.

2. As mentioned, income will be lost because of waivers and deferred payments. Government will have to take a policy decision on how this burden will be shared between the KSEB itself, its customers, and the Government.

3. The Central government needs to be actively engaged to revoke the "must-run" status of renewable energy sources for six months period, to be extended if lockdowns or restrictions on economic activity continue. Some alternatives may also be explored such as renewable energy sources being paid at the average rate being paid for thermal power.

4. Covid-19 pandemic has been declared to be a force majeure event by the Ministry of Finance, Government of India. The Government of Kerala and KSEB may therefore ensure that they notify force majeure with respect to PPAs on a select basis, keeping in mind the State requirement of peak power demand. This will enable further negotiations to surrender power that is being drawn at far higher prices than the current market price, with surrender of power from the highest cost sources being the priority.

5. Apart from point 4 above, Government and KSEB should also invoke the current crisis and the force majeure situation for a comprehensive re-negotiation for a specified period, extendable if required for the duration of the pandemic, for all other costs associated with power allocation from the Central pool that is not surrendered, including fixed charges and transmission charges.

SUMMARY

1. Kerala has a workforce of 10.2 million workers as part of the welfare boards, employee organisations and plantation workers (tea and rubber) as on March 2020. 10.1 million workers are part of the welfare boards and other employee organisations in the State. There are 0.1 million workers engaged in tea and rubber sector in Kerala, as per the data provided by Association of Planters of Kerala.

2. Out of the 10.1 million workers in welfare boards and other employee organisations, the gender-wise break up is available only for 9.3 million workers.5.3 million or 57 per cent of the total workers are male and 4 million or 43 per cent of the total are female. The details of workers in welfare boards and other employee organisations are shown in Table 1.

3. Out of 9.3 million workers, there are 1.3 million (1.2 million male and 0.1 female) unregistered workers spread across different welfare boards.

4. The total loss in employment of 10.1 million workers during the lock down period of 21 days (March 25 to April 14, 2020) is estimated to be 211.16 million.

5. The average wage of workers in welfare boards and other employee organisations in the State is estimated to be around Rs 555.3 per day.

6. Hence, the loss in wage income for the 10.1 million workers in the State is estimated to be Rs 560.8 crore per day (excluding plantation).

7.In plantation sector, estimates of loss in employment in only tea and rubber have been taken as other crops are off season. The loss of employment is estimated to be around 1 lakh (98,000) per day and the total loss of employment in plantation for 21 days is estimated to be 1.82 million.[4]

8. The total wage income loss in plantation sector is estimated to be Rs 80.0 crore during the lockdown period till April 14.

9. Hence the total number of persons days of employment lost (registered, non registered and plantations) is 213 million (211.2 million in welfare boards and organizations plus 1.82 million in plantation) during the lock down period. Hence the grand total wage income loss for 10.2 million workers for a period of 21 days is estimated to be Rs 12,976.9 crore (including plantation).The details of estimates are provided in Table 1 in the Appendix.

[4]There is an alternative calculation in the agriculture section of this report. The difference is because of the difference in source of data and assumption of persondays of work. The source of data in this section is Association of Planters of Kerala.

10. The total employment loss in person days would be 405.5 million and the corresponding loss of wage income to the workers would be Rs 24,719.9 crore, in the context of extension of lockdown till May 3.

11. If the Government decides to distribute Rs 1,000 to all 10.2 million workers in the State (both registered and non-registered in the welfare boards and plantation workers in tea and rubber) as a relief measure, the financial liability of the Government would be Rs 1,015.0 crore.

12. Government has already sanctioned around Rs 1,000 crore as financial aid to the registered workers in the welfare boards

13. There were around 5.0 to 6.0 lakh migrant workers confined in the State during the lockdown.

14.There may be some exclusion of workers in this estimate mainly workers engaged in washing and ironing cloths, those who engaged in catering works, painters, those women helpers in home and private firms, light and sound work and panthal works, street vendors, those engaged in cleaning public toilets, fish vendors and so on. Many of them are also guest workers. The real challenge of the government is to bring them into the social security net as part of distribution of relief measures.

15. The impact of lockdown on women workers (a separate note has been prepared) and those belonging to SC/ST in the lower segments of the economy in terms of wages and nature of work require special attention while announcing economic packages and relief measures.

16. In the case of 1.3 million (1.2 million male and 0.1 female) unregistered workers, the Government could bring them under the respective boards.

Interventions by the Government during Lockdown

In the event of lockdown, the Government has provided financial aid to the registered workers of Welfare Boards. The details as on April 24, 2020 is shown in Table 2 in Appendix.

Way Forward

1. Efforts to be taken by the government to bring all the workers, that is unregistered workers also, under the welfare boards.

2. Distribute yet another tranche of financial aid to all registered workers.

3. Need to arrange loans to small and medium industries and enterprises free of interest or with subsidized interest (like agriculture loans up to 3 lakh with gold as collateral). The owners of micro

enterprises may be considered for a provision of an interest free personal loan from Rs 25,000 to 2 lakh for two years.

4. Bring all the scattered welfare board under three or four head in tandem with the NIC classification of economic activities. In other words, the existing labour welfare boards (16 under labour department and 12 under various other departments of the government) will be consolidated into six or seven boards which would improve the efficiency and governance of the welfare boards.

5. Some sectors (example Hotel and restaurants, construction and foot wear) will face labour shortages. Considering the quarantine measurers required after inter-State mobility, efforts may be taken to retain the migrant workers in the State itself after discussion with respective industry leaders.

6. To manage and monitor the migrant workers, the role of LSGD may be enhanced, particularly for providing better accommodation.

7. Due to shortages in employees in the labour department, it is difficult to collect cess for building construction. Currently 50 per cent of the cess is to be recovered. So it may be helpful if government transfers the responsibility of collection of Building and other construction cess to the LSGD.

8. Extend moratorium over loan repayment from a period of 6 months to one year.

Table 1*Loss in employment and wages of workers of welfare boards and different employee organisations*, person days in lakhs and Rs in lakhs

Sl no.	**Name of Welfare Board**	**All workers (registered and non-registered)**			**Employment loss for 21 days (person days in lakhs)**			**Wage per day**	**Wage loss for 21 days (Rs in lakhs)**		
		Male	**Female**	**Person**	**Male**	**Female**	**Person**		**Male**	**Female**	**Person**
1	2	3	4	5=(3+4)	6=(3*21)	7=(4*21)	8=(6+7)	9	10=(6*9)	11=(7*9)	12=(10+11)
1	Kerala Building and Other Construction Workers Welfare Fund Board (KBOCWWFB)	1163741	836563	2000304	244.4	175.7	420.1	800	195508.5	140542.6	336051.1
2	Kerala Agricultural Workers Welfare Fund Board (KAWWFB)	556499	1033498	1589997	116.9	217	333.9	750	87648.6	162775.9	250424.5
3	Kerala Shops and Commercial Establishments Workers Fund Board (KSCEWFB)	957549	353978	1311527	201.1	74.3	275.4	500	100542.6	37167.7	137710.3
4	Kerala Motor Workers Welfare Fund Board (KMWWFB)	1939642	2412	1942054	407.3	0.5	407.8	700	285127.4	354.6	285481.9
5	Kerala Tailoring Workers Welfare Fund Board (KTWWFB)	26867	850318	877185	5.6	178.6	184.2	300	1692.6	53570	55262.7
6	Kerala Labour Welfare Fund Board (KLWFB)	336607	179911	516518	70.7	37.8	108.5	500	35343.7	18890.7	54234.4
7	Kerala Unorganized Workers Social Security Board	112556	331010	443566	23.6	69.5	93.1	400	9454.7	27804.8	37259.5
8	Kerala Cashew Workers Welfare Fund Board (KCWWFB)	18113	240649	258762	3.8	50.5	54.3	300	1141.1	15160.9	16302
9	Kerala Bamboo. Eetta, Pandanus Leaf Workers Welfare Fund Board	9113	82012	91125	1.9	17.2	19.1	350	669.8	6027.9	6697.7

	(KBEPLWWFB)										
10	Kerala Head Load Workers Welfare Fund Board (KHLWWFB)	74204	70	74274	15.6	0	15.6	500	7791.4	7.4	7798.8
11	Kerala Handloom Workers Welfare Fund Board (KHWWFB)	30882	46764	77646	6.5	9.8	16.3	450	2918.3	4419.2	7337.5
12	Kerala Toddy Workers Welfare Fund Board (KTWWFB)	26870	168	27038	5.6	0	5.7	500	2821.4	17.6	2839
13	Kerala Jewellery Workers Welfare Fund Board (KJWWFB)	34457	10199	44656	7.2	2.1	9.4	900	6512.4	1927.6	8440
14	Kerala Beedi and Cigar Workers Welfare Fund Board (KBCWWFB)	1245	30592	31837	0.3	6.4	6.7	150	39.2	963.6	1002.9
15	Kerala Abkari Workers Welfare Fund Board (KAWWFB)	2607	461	3068	0.5	0.1	0.6	500	273.7	48.4	322.1
16	Others Welfare Fund Boards			721342	0	0	151.5	500	0	0	75740.9
17	Sub total 1 to 16 (Workers in Welfare Fund Boards)	5290952	3998605	10010899	1111.1	839.7	2102.3		737485.5	469678.9	1282905.4
18	Footwear Manufactures Association of Kerala (FOOMA)	18000	2000	20000	3.8	0.4	4.2	500	1890	210	2100
19	Parallel College Teachers Association (PCTA)	3750	11250	15000	0.8	2.4	3.2	750	590.6	1771.9	2362.5
20	Film Employees Federation of Kerala (FEFKA)	8100	1100	9200	1.7	0.2	1.9	1200	2041.2	277.2	2318.4
	Sub total 18 to 20	29850	14350	44200	6.3	3	9.3		4521.8	2259.1	6780.9
	TOTAL	5320802	4012955	10055099	1117.4	842.7	2111.6		742007.4	471938	1289686.3

Table 2 *Details of financial aid sanctioned by the Government for registered workers in the welfare boards #, Rs in crore*

Sl No	Name of Welfare boards	Registered	Non registered	Total workers	Financial aid for registered workers only, Rs in crore
		Person	Person	Person	
1	Kerala Building and Other Construction Workers Welfare Fund Board (KBOCWWFB)	20,00,304		20,00,304	200.0
2	Kerala Agricultural Workers Welfare Fund Board (KAWWFB)	15,89,997		15,89,997	159.0
3	Kerala Shops and Commercial Establishments Workers Fund Board (KSCEWFB)	12,11,527	1,00,000	13,11,527	51.0
4	Kerala Motor Workers Welfare Fund Board (KMWWFB)	9,42,054	10,00,000	19,42,054	258.0
5	Kerala Tailoring Workers Welfare Fund Board (KTWWFB)	8,52,185	25,000	8,77,185	73.0
6	Kerala Labour Welfare Fund Board (KLWFB)	5,13,,518	0	5,16,518	30.4
7	Kerala Unorganized Workers Social Security Board	4,43,566	0	4,43,566	44.3
8	Kerala Cashew Workers Welfare Fund Board (KCWWFB)	2,58,762	0	2,58,762	10.8
9	Kerala Bamboo. Eetta, Pandanus Leaf Workers Welfare Fund Board (KBEPLWWFB)	91,125	0	91,125	9.1
10	Kerala Head Load Workers Welfare Fund Board (KHLWWFB)	38,474	35,800	74,274	86.0
11	Kerala Handloom Workers Welfare Fund Board (KHWWFB)	37,646	40,000	77,646	3.0
12	Kerala Toddy Workers Welfare Fund Board (KTWWFB)	26,344	694	27,038	24.3
13	Kerala Jewellery Workers Welfare Fund Board (KJWWFB)	19,656	25,000	44,656	1.7
14	Kerala Beedi and Cigar Workers Welfare Fund Board (KBCWWFB)	6,837	25,000	31,837	2.1
15	Kerala Abkari Workers Welfare Fund Board (KAWWFB)	3,068	0	3,068	1.4
16	Kerala Small Plantation Workers Welfare Fund Board (KPWWFB)				8.5
17	Others Welfare Fund Boards	7,21,342		7,21,342	14.0
	Sub total 1 to 17 (Workers in Welfare Fund Boards)	87,56,405	12,51,494	1,00,10,899	976.6

Data as on April 24, 2020

Women form a significant part of the informal workforce in the State and are also crucial to homestead economy and home-based work. A substantial section of the women's labour force is concentrated in traditional occupations such as coir, cashew processing, bamboo, handlooms, khadiand plantation. As per the data provided by Labour Department, 4.0 million or 43 per cent of workers, registered and non-registered in the welfare fund boards under the department, are female.

Covid-19 has affected employment among men and women across sectors such as manufacturing, construction, trade, hotels, restaurants and household services including domestic workers, a large proportion of which is informal. A large proportion of women workers is employed in the lower segment of the "informal employment" pyramid– as temporary or part-time workers, contract workers, unregistered or undeclared workers and industrial outworkers (also called home based workers) that is, employment without secure contracts, worker benefits, or social protection and hence underestimated in the PLFS.

The data in this note are from unions, associations, and welfare boards. The areas of employment covered include MNREGS, micro-enterprises and Joint Liability Groups under Kudumbashree, domestic workers, sales girls, petty service/trade, fancy store, teashops, footwear shops, DTP/Photostat units, fish vendors, beauty parlours, agents of schemes, and women workers in cashew, coir, handlooms, and khadi.

Issues

1. Majority of women were working at a low wage even before the pandemic as low as Rs 200 to Rs 291 in MGNREGS, to Rs 300 in home-based work and Rs 400-500 in fish vending, domestic work, sales girls and somewhat higher in beauty parlours. Most of them do not have any social protection.

2. Service sector provides employment to almost 60 per cent of the women workers (PLFS 2017-18) of which 9 per cent are in household services including domestic work, a very visible workforce, especially in urban areas.

3. Most of women who are part of informal employment have debts as part of SHG-micro finance loans and once the lockdown is lifted these loans will have to be repaid.

4. Most of the workers in the informal economy do not have regular papers or proper contracts and hence restoring their employment can pose a major issue.

5. Studies show that a large proportion of households survive on the small earnings of the women employees in the family. In many families women are the sole earners and the household expenses

are met with their hard work and the little money they earn. So it is important to restore the work in a better way through some organizational or technology change to enhance their livelihoods.

6.Since many women workers are not members of any Welfare Board, the income support offered by the Government cannot be availed by them.

Way Forward

1. MNREGS works may resume adhering to protocols on social distancing.

2. We may explore the possibility of creating women specific employment, especially in the context of new demands thrown up by the pandemic, health and non-health related. Interest free loans can be provided to them through Kudumbashree NHGs to improve livelihoods.

3. Employers in MSMEs should consciously recruit a certain proportion of women workers for which they could be incentivized.

4. Departments which have allocated specific percentage of funds for women should actively use the resources to generate employment for them.

5. Some built up space in industrial parks could be kept specifically for women.

6. Most of the women workers are members of Kudumbashree Neighborhood Group (NHG).They may be provided the opportunity to withdraw from their thrift amount kept with the banks. Instruction from the government is required for this.

7. To support the micro-enterprises under Kudumbashree,

   (i) Government may encourage private businesses to source in products and services such as food delivered in office, and uniforms stitched for employees from Kudumbashree units.

   (ii) For enterprises in which working capital has been locked up, with non-perishable stocks, a loan at four interest, plus a component for working capital support can be provided. The tenure of the loanmay be four years, with a year of moratorium on repayment.

   (iii) For enterprises that have met with losses because of perishable stocks, working capital loan at four interest rate with a subsidy component based on the size of the business and working capital cycle may be considered.

8. All employers of domestic workers who lost employment in the wake of the lockdown should be asked to pay these workers the lost wages.

9. Informal workers not covered by Karunya Arogya Suraksha Padhati should be brought under its purview to provide social protection to these workers.

10. Income Support Scheme can be considered to regenerate the self-employment activities of the women workers.

11. Though there is no Welfare Fund Board for *Desiya Sambadya Padhadhi Agents*, the agents (9778 out of a total of 10618 are women)are members of a welfare fund scheme. They deposit Rs 200 as welfare with the Directorate of National Savings (under Finance Department). An amount of Rs 10,000 as advance may be given from the welfare fund. The amount may be repaid by agents (from the monthly commission) back to government as installments within one year.

12. For assisting women having beauty parlours, the following measures may be taken

1. Financial assistance may be given to all workers on the basis of certificate issued by the Unorganised Workers Welfare Board (in charge of beauticians' association)

2. Low interest loan of up to 2 lakh may be given to owners of beauty parlours for the revival of activity after lock-down. The members of Kudumbashree NHG may take loan through Kudumbashree.

Appendix

Details of Loss in Income of Women Working in Different Areas

We have not tried to make a global estimate of wage losses to women workers by adding self employed (9.7 lakh women) and casual workers (6.8 lakh women) and multiplying by an average wage per worker for the number of days of employment lost, since we are of the view that the number of women workers, especially under these two categories, is grossly underestimated in the NSSO data. So except for MGNREGA, Ayyankali Urban Employment Guarantee Scheme, Kudumbashree micro enterprises and Joint Liability Groups for which we have data on total losses, in the other categories of work we have given daily average wage per woman worker in that sector and the loss during 21-25 number of days of lockdown (upto April 14, 2020).

Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)

Women persondays in Kerala out of total persondays generated under MNREGS is close to 90 per cent. As works under the scheme are stalled during the lockdown period, it has significantly affected the incomes of women whose main source of income was from MNREGS. About 50 lakh persondays have been lost. Rs 177 crore is the total loss, including wages and material cost, under this scheme for March and April 2020.

Ayyankali Urban Employment Guarantee Scheme

Due to the lock down, 5,00,000 persondays were lost under the Ayyankali Urban Employment Guarantee Scheme. Out of the 5,00,000 persondays, 4,00,000 persondays of women were lost.

The total wage loss and loss in material cost is estimated to be Rs.13.55 crore and Rs.1.45 crore respectively. Hence the total loss estimated comes to the tune of Rs.15.00 crore.

Kudumbashree Micro Enterprises (MEs)

There are close to 28,000 micro enterprises, engaged in a wide spectrum of activities such as tailoring, general/kirana store, café, teashops, bag making, construction, and IT units; entrepreneurs in small groups number about 64,475 with around 15,000 workers. The average loss per enterprise is Rs 17,881. The total loss of 28,083 enterprises, assuming an average 20 working days in a month, comes to Rs 50 crore.This is the monthly loss in terms of owners' income and wages of the 28,083 enterprises.

Joint Liability Groups (JLGs) under Kudumbashree

Kudumbashree has 68,388 JLG groups comprising 3,38,202 women farmers, cultivating in around 50,000 ha.Around48940 JLGs were cultivating this season and 31,241 JLGs were ready for harvesting. The overall loss is estimated to be Rs3.5 crore on account of inability to (i) harvest on time and (ii) marketing loss which includes harvested crops that are unsold and low sales price for their crops.

Domestic Workers

Service sector provides employment to almost 60 per cent of the women workers (PLFS 2017-18) of which 9 per cent are in household services including domestic work. The actual numbers in domestic work are difficult to estimate. Based on information available from SEWA union, which has 15,000 domestic workers registered with it, per day loss of earnings for the lockdown period was Rs 450-500 per worker. Assuming Rs 475 as the average daily wage, each domestic worker has lost almost Rs 12,000 in a month.

Fish Vendors, Home Based Workers and
Traditional Reed/Bamboo/Screwpine/Water Hyacinth,and Pottery Workers

In Thiruvananthapuram and Kollam, women are the majority of fish vendors. Most of these women earn from Rs 500-1,500 per day depending on the season. Taking the lower limit of Rs 500, each worker would have lost Rs 12,500 in a month. Apart from this there are inland fisherwomen also who by their own collect shell fishes and prawns. With an average wage of Rs 550, the loss in earnings in a month for inland fisher women lost almost Rs 14,000.

Home based workers are involved in both self employed work and supply chain piece works. Average earnings per day of self employed women is about Rs300-400 and for those in the supply chain it is lower, Rs 150-200 for an 8 hour day. Hence for the former the loss in monthly earnings would have been around Rs 9,000 and for the piece work women it would be Rs 5,000.

Workers in traditional works like reed, bamboo, handloom, pottery, screw pine, Water Hyacinth etc. have lost their work. Many of them are self employed and they live by selling their daily produce in the market**.** On average each worker earns about Rs 250-300, yielding a total loss of Rs 7,000 per worker in a month.

UnorganisedPetty Trade/Services (footwear, opticals, DTP/Photostat, Fancy Store, Textiles, Teashops, Cleaning staff, Private Nursery/Day Care etc)

A large number of women are working in unorganized sectors in petty trade/services as sales women, textile workers, footwear, fancy stores, and cleaning workers. More than 18 lakh women work in shops and commercial establishments.

For example, inMittayi Street in Kozhikode, a hub of informal women workers, there are about 3200 workers in that area earning a daily wage of Rs 400-500.So in that cluster itself each worker would have lost about Rs 11,500 in the lockdown period.

Desiya Sambadya Padhadhi Agents

There are 10,618 workers in the State as Desiya Sambadya Padhadhi (National Savings Scheme) agents and of these 9,864 are women. Average monthly income of these workers as commission varies from Rs 4,000 to 50,000.

Shops-Sales girls

There are 4,87,693 shops under the Shops and Establishment Act employing 18,34,917 employees. Over 75 per cent, numbering 13,86,604 are women. Average salary of a shop employee is Rs 8,000.

Beauty Parlours

There are more than 1.5 lakh beauty parlors in the State and about 4.5 lakh persons are working in these parlors, over 90 per cent female. Out of the 4.5 lakh workers, only 36,000 are members of Unorganised Workers Welfare Board. Average earnings vary from Rs 400-Rs 5,000 a day, which would be the daily loss in the lockdown period. Since very few would earn Rs 5,000 a day we estimate an average earning of Rs 500 which means a per worker monthy loss of Rs 12,500.

Khadi Industry

There are 15,000 workers under the Khadi and Village Industries Board of whom 95 per cent are women with an average earning of Rs 350 per day. The units were closed since March 24, 2020. Wages for March were disbursed. The loss in wages for each worker for 14 days in April will be Rs 4,900.

Coir Yarn Production

The total number of workers in coir yarn production is 29,500 (excluding self-employed and private employed) based on the workers registered with coir cooperative societies sector, and private units under Income Support Scheme. 90 per cent of these workers are women and earn Rs 350 with income support and Rs 240 without it. With an average of Rs 350 per day, the loss per worker is almost Rs 7,350 in the lockdown period.

Cashew

There are about 1,07,000 workers in the cashew sector, almost 95 per cent women. On an average they earn Rs 350 per day and have lost earnings to the extent of over Rs 7,350 per worker in the lockdown period.

Handlooms

Weavers registered with the cooperatives number about 16,000 of which 70 per cent are women; average wage per day is Rs 350 but with incentives it can go upto Rs 400-450 per day. Assuming the average wage as Rs 350 per day, each worker has lost Rs 7,350 in the lockdown period.

Impact of Covid-19 on Remittances and NRKs

Globally, the number of international migrants in 2019 was 272 million persons or 3.5 percent of the world's population (World Migration Report, 2020, IOM, UN Migration). Of them, 52 percent were men and 48 per cent women. Of all international migrants, 74 percent were of working age (20-64 years).

India has more emigrants living abroad than any other country. They number 17.5 million, or 6.4 percent of all international migrants. According to World Bank data, India is also the highest recipient of international remittances, out of a total of US$ 706.62 billion, India received $ 82.2 billion (11.6 percent) in 2019.

There are 21.22 lakh emigrants from Kerala living across the world (Kerala Migration Survey, 2018). The countries of the Persian Gulf constitute the leading destination for emigrants from Kerala, absorbing over 89 percent of all emigrants from the State. The remittances received from the emigrants play an important role in the State economy. Remittances increase State income and, consequently, augments consumption, savings and investment, value addition in manufacturing, and industrial development.

Impact of Covid- 19 on Remittances to Kerala

The World Bank, in April 2020, forecasted a decline in remittances to India to the tune of 23 percent in 2020 in contrast to the growth of 5.5 percent in 2019 in view of the current global crisis.

According to the Reserve Bank of India's "Survey on India's Inward Remittances (2018), Kerala receives 19 percent of the country's total remittances. The direct means by which remittances flow to the State are through NRI deposits in commercial banks and money transferred through authorised foreign exchange dealers. In addition, some scholars have also considered, when estimating remittances, the value of commodities received in kind by households in the State from emigrants. In addition, there are also illegal routes by which transfers are made. In this crisis period, illegal transfers will have dwindled.

In this note, we take only the direct flow of remittances through private transfers and NRI deposits into account for our calculations.

The estimated amount of remittances transferred to Kerala in 2018-19 through authorised foreign exchange dealers was Rs. 95,623 crore and transferred to through NRI deposits in banks was Rs. 1,46,912 crore. Thus the simple monthly average of NRI deposits in banks in Kerala was Rs. 12,243 crore and private transfers were Rs. 7,969 crore. (The data pertaining to total private receipts to India and total amount of NRI deposits in India are from RBI. The relative share of Kerala is based on the RBI study and the reports of the Kerala Migration Survey (KMS).)

On the basis of past trends, we have estimated the total volume of remittances of Kerala, including private transfer and NRI deposits, to be Rs. 2.6 lakh crore in 2019-20. The details of remittances to the State from 2015-16 to 2019-20 are in Table 1.

Table 1 *Details of remittances to Kerala (private money transfer plus NRI deposits)*in Rs crore

Year	Remittance to India*	Share of remittance of Kerala#	Share to Kerala (in per cent)#	Monthly average remittance to Kerala	NRI Deposits of India*	Share of NRI Deposits of Kerala#	Total Remittances of Kerala (3+7)
1	2	3	4	5	6	7	8
2015-16	429072	69081	16	5757	720997	116081	185161
2016-17	411120	78113	19	6509	841956	159972	238084
2017-18	445567	78420	18	6535	757751	133364	211784
2018-19	534207	95623	18	7969	820737	146912	242535
2019-20**	528966	96272	18	8023	902152	164192	260463

Source: *Reserve Bank of India, *Handbook of Statistics on Indian Economy, 2019*

Note: # The percentage share of Kerala from 2015-16 to 2017-18 is based on the RBI Survey and the report of the Kerala Migration Survey 2018. The shares of Kerala in 2018-19 and 2019-20 have been estimated based on past trends.

** The estimates in column 2 and 6 for 2019-20 are based on past trends

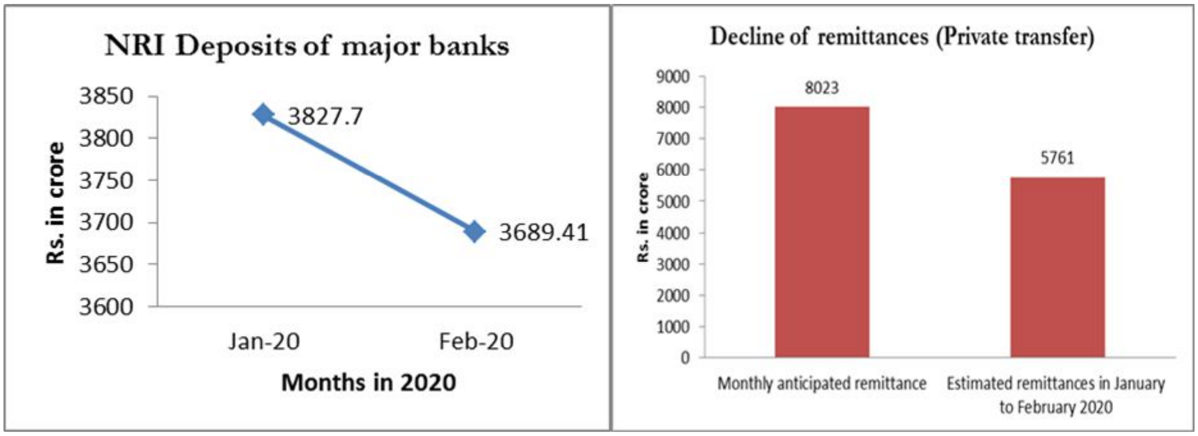
Emigrants from Kerala are highly concentrated in GCC countries, where the economic slowdown is already evident. As part of this, the Governments in those countries have initiated different kinds of labour reforms and emigration policies. As a result, a return flow of migrants from GCC countries to Kerala has been in progress since 2013. The Covid-19 pandemic has again affected all the working population in the Gulf region in different ways. Workers have been affected by the closure of industries, employment layoffs, and delays in the payment of wages, Some have been compelled to take leave without salary. All of these will also have a substantial impact on remittances to the State.

We have estimated the shortfall in remittances for two months, January and February 2020. Data for the month of March were not available. As is evident, the reduction in remittances is likely to be higher than estimated in this note.

The shortfall in remittances because of Covid-19 is estimated by analysing the level of NRI deposits in major commercial banks (as per data provided by State Level Bankers Committee) and the reduction in the private money transfer through authorised foreign exchange dealers (as per data provided by authorised dealers).

It is estimated that the average monthly remittances through private receipts to the State in 2019-20 was Rs. 8023 crore. As per the information gathered from authorised foreign exchange dealers, there will be a reduction of 28.19 per cent of private transfer from January to February, Rs. 2261.68 crore in absolute terms. There is also a reduction of Rs. 138.29 crore in the deposits of major commercial banks from January to February 2020. **The total loss in terms of remittances to the State in January-February 2020 is thus estimated to be Rs.2399.97 crore.**

Figure 1 *Decline in NRI deposits and private transfers in January and February 2020* in Rs crore



Source: 1. State Level Bankers Committee

2. RBI, *Handbook on Statistics of Indian Economy, 2019*

3. Calculation based on interviews with authorised money exchange dealers

According to the Kerala Migration Survey, 6.4 percent of the remittances were received in kind by households. Because of the lockdown, the transfer of commodities in kind is likely to have stopped. Since the economy of Kerala is highly dependent on remittances from abroad and it constitutes a significant share of the State Domestic Product, a decline in the flow of such funds will affect the economy as a whole. It will have, for instance, direct consequences for the construction sector and labour market of the State.

Impact of Covid-19 on NRKs in GCC Countries

Out of our total 22 lakh emigrants nearly 19 lakh are concentrated in GCC countries: Saudi Arabia (39 per cent), UAE (23 per cent), Oman (8.6 per cent), Kuwait (6 per cent), Bahrain (3.8 per cent) and Qatar (8.7 per cent) (Kerala Migration Survey, 2018). The outbreak of corona virus constitutes a threat to Non Resident Keralites in all GCC countries other than Saudi Arabia. Emigrants in other GCC countries are facing challenges that include the loss of employment, inability to maintain social distancing, a lack of proper medical care, and problems in repatriation to India.

Economic Impact

The economic downturn in GCC countries has been exacerbated by the Covid-19 pandemic. Taking the impact of Covid-19 into account, the International Monetary Fund, in their World Economic Outlook, forecasted negative real GDP growth of 3.9 per cent in GCC countries in 2020. The World

Expo 2020, which was scheduled to be opened by the month of October 2020 in Dubai, has been postponed to next year. Many companies have invested huge amounts in that event, and the locking of investment in the event will be a substantial loss for them.

Labour Market

Owing to the economic slowdown, new labour policies have been introduced in different GCC countries. These include laying off 30 percent of employees in companies, advising private companies to decide payment of wages, and introducing policies of reservation of employment for citizens. Industries that have been hard hit include construction, entertainment, tourism, event management, and automobile industries. Restaurants, malls, cinema theatres, and sports events will be completely closed for 6 months. Workers in many companies have been compelled to take no-pay leave for six months. There is uncertainty with regard to the re-opening of companies. In the UAE, workers in the banking sector are getting only 50 per cent of their salaries and there is no guarantee of future payment of salaries.

Policy intervention on return Emigrants

Return migrants will have a wide range of skills and experience in skilled and semi-skilled work and there will be persons with managerial expertise among them as well. They will include a heterogeneous group of multitask labour, experienced workers in the oil industry, teachers, and others. Adequate policy measures must be taken to absorb and re-integrate them in the state labour market.

The potential challenges before the State Government in the context of the return emigrants may be classified under three categories, rehabilitation, re-integration and re-emigration.

In the current uncertainty, measures may include the following,

(i) moratorium on loans from banks.
(ii) health insurance for return migrants.
(iii) re-integration of diverse groups of skills in the labour market of the State
(iv) skilling will be an important task to help people to re-emigrate.

The Government may consider scaling up the allocation to the NORKA department. Existing programmes for the NRKs have to be revamped and reprioritised. In-depth studies of employment opportunities and openings in the international market, country-wise possibilities for emigation for work, and of re-integration and rehabilitation of return migrants are essential.

APPENDIX

ESTIMATING LOSSES FOR KERALA USING AN INPUT-OUTPUT MODEL

Overview of Methodology

1. An Input-Output (IO) Table for Kerala is not available. Hence, the first step is to scale down the IO Table for India to represent the inter industry linkages for Kerala.[5] However, in the immediate absence of output data at the State level, and for other technical reasons, two significant assumptions are made that are explained further on. These assumptions appear reasonable though because of the need to provide urgently rapid estimates of both the direct and indirect losses to Kerala's economy due to Covid-19 and the response measures this has required.

2. The IO table for India for 2017-18 has been constructed by ADB[6]. It is a 34 sector IO. Since data is available for 16 aggregate sectors for the state of Kerala, the 34 sector India IO was first aggregated to 16 sectors.

3. The GVA for India for 16 aggregated sectors is available for year 2017-18 (GNVA). The GSVA for Kerala for the same 16 aggregated sectors is also available for the year 2017-18. To scale down from national to state IO using non-survey methods, a standard methodology[7] is applied. The technical details of the methodology are given in the end of this note. The ratio between the sector-wise output of the state and sector-wise output of at the national level is required for this method. In the absence of sector-wise output data at the State level, **the ratio of state to national GVA is used as a proxy to estimate the ratio of sector-wise state output to national output.** This is the first major assumption in the model. With this assumption state-level output can be estimated.

4. Once the IO table for Kerala for year 2017-18 is thus constructed, the IO coefficients are assumed to hold unchanged subsequently. **Using the estimates for the GSVA available from the DES for the year 2019-2020, the values of final demand for the year for each sector are manually adjusted to get the same values of GSVA in the IO table for 2019-20 with the IO coefficients unchanged.** This is the other major assumption. A similar adjustment is carried out for the year 2020-2021 as well since GSVA estimates are provided for this year as well.

5. Thus self-consistent IO Tables are constructed for the "normal year"2019-2020 without the impact of Covid-19. Similarly, for 2020-21, based on the projections, we set up an IO Table without the impact of Covid-19.

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[5]An alternative methodology to estimate the input-output coefficients based on GST data is in progess.

[6] Economic Research and Regional Cooperation Department (ERCD), Asian Development Bank https://data.adb.org/dataset/india-input-output-economic-indicators (Accessed on 14 April 2020).

7 Miller, R. E., & Blair, P. D. (2009). Input-output analysis: foundations and extensions. Cambridge university press.

6. Remittances have not been accounted for. **This is a major gap and the impact of Covid-19 on remittances and through that on final demand is not accounted for in this analysis. However, in the absence of remittances and their likely decline on account of Covid-19, our estimate of the economic loss on account Covid-19, represents a lower limit. Inclusion of remittances and their impact would increase the estimate of economic loss.**

7. The losses estimated by the Kerala DES in GVSA are taken as the direct losses in output for all sectors, based on our earlier assumption of equating state-level output and GVSA.

8. Using this we estimate the loss in final demand using the standard I-O analysis methodology and recalculate the loss in output, that is now inclusive of both direct and indirect impact of Covid-19.

9. From the post-Covid-19 output, the post-Covid-19 GSVA can be calculated and compared to the projected GSVA for both 2019-20 and 2020-21, to estimate the scale of the loss for both years.

10. The total estimated losses in GSVA and sector wise losses as per both the DES estimates and IO estimates for the years 2019-20 and 2020-21 are given in Tables 1, 2, and 3.

11. We reiterate that this estimate (within the scope of our assumptions) is a lower limit on the possible sum of direct + indirect impact since the remittances have not been accounted for, and they are likely to have an important contribution especially through indirect effects.

Results

Table 1 *Total GVSA loss: comparison of DES estimates and IO model results*

	Total Loss in GVSA for Kerala				
	Normal Year Estimates (Rs in lakh crore)	GVA Post-Covid: Direct Impact Estimates - DES (Rs in lakh crore)	Direct Loss Estimates (DES) (%)	GVA Post Covid: Direct + Indirect Impact Estimates - IO (Rs in lakh crore)	Direct + Indirect Loss Estimates (IO) (%)
2019-20	7.73	7.23	7%	6.93	10%
2020-21	8.56	7.52	12%	6.87	20%

Table 2 *Sector-wise loss estimates in 2019-2020: DES & IO*

	2019-20				
	Estimated GVA - Normal Year (Rs. Lakh Crore)	Estimated GVA Post-Covid Direct Impact: DES (Rs. Lakh Crore)	Direct Loss Estimates (DES) [%]	Estimated GVA Post Covid Direct + Indirect Impact: IO (Rs. Lakh Crore)	Direct +Indirect Loss Estimates (IO) [%]
Agriculture, hunting, forestry, and fishing	0.76	0.74	3%	**0.71**	**8%**
Mining and quarrying	0.03	0.02	15%	**0.02**	**32%**
Manufacturing	0.81	0.76	6%	**0.69**	**15%**
Electricity, gas, and water supply	0.10	0.10	1%	**0.09**	**14%**
Construction	1.01	0.86	15%	**0.86**	**15%**
Trade and Repair	1.39	1.26	9%	**1.18**	**15%**
Hotels and restaurants	0.12	0.11	10%	**0.11**	**14%**
Inland transport	0.33	0.30	10%	**0.27**	**17%**
Water transport	0.00	0.00	9%	**0.00**	**11%**
Air transport	0.01	0.01	9%	**0.01**	**10%**
Other supporting and auxiliary transport activities; activities of travel agencies	0.02	0.02	9%	**0.02**	**17%**
Post and telecommunications	0.10	0.10	2%	**0.10**	**7%**
Financial intermediation	0.30	0.29	4%	**0.26**	**13%**
Real Estate and Accommodation	1.29	1.20	7%	**1.18**	**8%**
Public administration and defence; compulsory social security	0.30	0.30	0%	**0.30**	**0%**
Other Services	1.14	1.14	0%	**1.14**	**1%**
Total	**7.73**	**7.23**	**7%**	**6.93**	**10%**

Table 3 *Sector-wise loss estimates in 2020-2021: DES & IO*

	2020-21				
	Estimated GVA - Normal Year (Rs. Lakh Crore)	Estimated GVA Post-Covid Direct Impact: DES (Rs. Lakh Crore)	Direct Loss Estimates (DES) [%]	Estimated GVA Post Covid Direct + Indirect Impact: IO (Rs. Lakh Crore)	Direct +Indirect Loss Estimates (IO) [%]
Agriculture, hunting, forestry, and fishing	0.78	0.70	10%	**0.61**	**22%**
Mining and quarrying	0.02	0.02	22%	**0.01**	**72%**
Manufacturing	0.87	0.68	22%	**0.56**	**35%**
Electricity, gas, and water supply	0.12	0.11	7%	**0.08**	**31%**
Construction	1.11	0.89	20%	**0.88**	**21%**
Trade and Repair	1.56	1.36	13%	**1.17**	**25%**
Hotels and restaurants	0.14	0.10	25%	**0.09**	**32%**
Inland transport	0.34	0.27	20%	**0.22**	**36%**
Water transport	0.01	0.01	16%	**0.00**	**19%**
Air transport	0.01	0.01	16%	**0.01**	**17%**
Other supporting and auxiliary transport activities; activities of travel agencies	0.02	0.02	17%	**0.02**	**31%**
Post and telecommunications	0.11	0.10	5%	**0.09**	**16%**
Financial intermediation	0.32	0.30	6%	**0.24**	**25%**
Real Estate and Accommodation	1.46	1.34	8%	**1.30**	**11%**
Public administration and defence; compulsory social security	0.33	0.33	0%	**0.33**	**0%**
Other Services	1.35	1.28	5%	**1.26**	**7%**
Total	**8.56**	**7.52**	**12%**	**6.87**	**20%**

1. To scale down from national to state IO using non-survey methods, a standard methodology from Miller and Blair (2009)[8] is used. The state output x_i^r (total regional output for sector i) and national output x_i^n arefirst used to estimate the Location Quotients using Equation (1)

$$LQ_i^r = \left(\frac{x_i^r}{x^r} \Big/ \frac{x_i^n}{x^n} \right) \quad (1)$$

2. The location quotients are then used to calculate the regional technical coefficients matrix $[A_{ij}]$ using Equation (2)

$$a_{ij}^{rr} = \begin{cases} (LQ_i^r) \times a_{ij}^n & if\ LQ_i^r < 1 \\ a_{ij}^n & if\ LQ \geq 1 \end{cases} \quad (2)$$

The notation 'n' denotes values at the national level and 'r' denotes values at the regional level.

3. Once the matrix of technical coefficients for the region (i.e. the square matrix $[A^r_{ij}]$ and vector $[x_i^r]$ are available, the square matrix of inter-industry flows$[Z_{ij}]$, the column vector of final demands [f], and row vector of GSVA are calculated using the standard Leontief method and a regional IO Table for Kerala for the year 2017-18 is constructed.

4. Since the estimates for the GSVA are available from the DES for the year 2019-2020, the values of final demand [f] for the year for each sector are manually adjusted to self-consistently obtain the same values of GSVA in the IO table for 2019-20 as well. The same procedure is applied for the year 2020-2021.

5. The final demand for the "normal year" 2020 [f2020-NY] is then used to calculate the total output vector [X2020-NY] using the standard Leontief equation $\boldsymbol{x} = \boldsymbol{L} \times \boldsymbol{f}$. The final demand, $Z_{2020\text{-}NY}$,is then calculated **assuming the technical coefficients $[A^{rr}_{ij}]$ remain constant between 2017-18 and 2020-21**. I-O Tables for "normal years" (before impact of Covid-19)for years 2019-20 and 2020-21are then calculated.

6. The next step is to estimate the total loss in output due to the lock-down implemented to contain the spread of Covid-19**.** The losses estimated by the Kerala DES are used to calculate the proportionate loss in total annual output.

8 Miller, R. E., & Blair, P. D. (2009). Input-output analysis: foundations and extensions. Cambridge university press.

7. This loss is an output loss (i.e. a Δx), but the standard linear IO analysis using the Leontief matrix requires a change in the final demand [Δf]. Therefore, the change in output is converted to a change in final demand using the methodology discussed by Miller and Blair (2009), i.e. dividing the total output vector [x_{2020}] by the diagonal of the square matrix [L]. This is because the direct impact on final demand of a loss in output is captured by the diagonal elements of the matrix [L].

8. The resultant vector [Δf] is the corresponding loss in final demand. The new final demand vector [$f_{2020\text{-}CV}$][9] is then estimated by subtracting [Δf] from [f_{2020}]. A new row vector [$X_{2020\text{-}CV}$], square matrix [$Z_{2020\text{-}CV}$], and column vector [$GVA_{2020\text{-}CV}$] is calculated and a new $IO_{2020\text{-}CV}$ is constructed to reflect the system of economic transactions post Covid-19 for year 2019-20. The same is done for year 2020-21 as well.

9. Based on these, we may now compute the loss in GVSA due to both direct and indirect impact of Covid-19.

[9] The term 2020-CV is used to denote the estimates of all relevant vectors and matrices post COVID-19, i.e. after taking into account the losses due to the lock-down period.