

COMMENTARY ON INDIA'S  
ECONOMY AND SOCIETY SERIES

16

**THE PANDEMIC AND THE PLANTATIONS**  
**Performance of the Plantations**  
**during the Covid19 Pandemic**

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India's Economy and indeed its society has been undergoing a major change since the onset of economic reforms in 1991. Overall growth rate of the economy has increased, the economy is getting increasingly integrated with the rest of the world and public policies are now becoming very specific compared over arching framework policies of the pre-reform period. Over the past few years, a number of important policies have been enunciated, like for instance the policy on moving towards a cashless economy to evolving a common market in the country through the introduction of a Goods and Services Tax. Issues are becoming complex and the empirical basis difficult to decipher. For instance the use of payroll data to understand growth in employment, origin-destination passenger data from railways to understand internal migration, Goods and Services Tax Network data to understand interstate trade. Further, new technologies such as Artificial Intelligence, Robotics and Block Chain are likely to change how manufacturing and services are going to be organised. The series under the "Commentary on India's Economy and Society" is expected to demystify the debates that are currently taking place in the country so that it contributes to an informed conversation on these topics. The topics for discussion are chosen by individual members of the faculty, but they are all on issues that are current but continuing in nature. The pieces are well researched, engages itself sufficiently with the literature on the issue discussed and has been publicly presented in the form of a seminar at the Centre. In this way, the series complements our "Working Paper Series".

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**Performance of the Plantations during the Covid19 Pandemic**

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National Research Programme on Plantation Development (NRPPD)



**CENTRE FOR DEVELOPMENT STUDIES**

(Under the aegis of the Govt. of Kerala & Indian Council of Social Science Research)

Thiruvananthapuram, Kerala, India

July 2020

## **ABSTRACT**

This study explores the impact that Covid19 disease would have on the plantation sector. The study has two parts. In paper one we aim to explore the performance of the plantation sector in terms of production, markets and prices. In paper two we analyse the impact of the pandemic on livelihoods associated with the plantation sector.

This study explores the impact that Covid19 disease and its preventive measures would have on the plantation sector, covering four important crops, Tea, Coffee, Rubber and Cardamom. The incidence of the disease is estimated at the district level across plantation growing states. For now, the plantation regions seem to have a relatively safe passage despite being located in states that had deep impact. This is probably due to the lower inter-regional and intra-regional contacts and interactions enabled by their natural terrain. Nevertheless, the economic impact of covid19 and the lockdown is disastrous for the entire sector. The study traces the channels through which the disease and the lockdown measures would impact the sector. These channels are the disruptions; in seasonal operations, in factor and resource supplies; transport, storage and processing; marketing and sales; and demand conditions. These disruptions get manifested in price, quantity and revenue. These are estimated for the four crops separately. The total unrealised revenue due to the lockdown is estimated to be Rs 3920crores for the lockdown period, March 24<sup>th</sup> to May 31<sup>st</sup> 2020. This does not include the losses that are to be incurred due to the demand decline, supply-chain disruptions and price fall that is to be manifested in future. This massive economic disaster is bound to have a severe impact on the plantation economy, especially the small growers and the labourers. Urgent measures need to be taken up to arrest the losses and revive the sector. Yet there is very little in the 'Atmanirbhar Bharat' package that would help tide over this economic crisis. Immediate measures aimed at demand rejuvenation, arrest of price fall, restarting of plantation operations and restoring of supply chains is called for. The vantage point of the commodity boards must be exploited to reach out to the stakeholders.

## **The Pandemic and the Plantations: Performance of the Plantations during the Covid19 Pandemic**

### **1. Introduction**

The tumultuous effects of the Covid19 pandemic have affected almost all walks of life within a very short span of about five months<sup>1</sup>. The pandemic is still deepening and it is not clear as to what would be the future direction and depth of the outbreak. Medical sciences are still grappling with the possibility of vaccine development, which at present is still not within sight. With limited medical solutions to the problem, lockdown, social distancing, testing and quarantining had been the standard practice. The almost complete shutdown of the Indian economy, through the nationally declared lockdown on March 24<sup>th</sup> 2020 and which continued till date as on May 31<sup>st</sup> 2020, while has arguably slowed down the pace of the virus spread, has choked the entire economy to a grinding halt. The plantation sector is crucial to the livelihood of some of the most marginalized and vulnerable sections of the population (Joseph, 2010). The plantation sector provides livelihood to about 23 million<sup>2</sup> workers and more than 1.5 million growers<sup>3</sup>. The sector gains prominence as the principal source of livelihood for large number of scheduled tribes and castes, women, minority communities and spatially excluded communities. However, the exposure to globalization and severe price fluctuations in the plantation commodities has already made the small and marginal farmers in the sector survive under precarious conditions. Often pushed into losses and debts, precipitated by price fluctuations and uncertainties associated with exports the farmers in the plantation and cash crops sector had fallen frequent victim to suicides (Mohanakumar & Sharma, 2006). The prospects of this sector would impinge on the marginalized communities' ability to withhold against this health hazard and stay afloat without falling back to poverty and vulnerability. The plantation sector crops of tea, rubber, coffee and spices all are reeling under the severe effects of the lockdown, but their tales of woe are not the same. The specificity of each of these crops has defined the way in which covid19 has affected them also. In this paper, we aim to highlight the immediate and long term concerns of the sector following the covid19 pandemic and the lockdown.

Section 2 gives a regional picture of the spread of the pandemic in the plantation regions. This is followed by Section 3 which elaborates the measures adopted by the government to overcome the pandemic. Section 4 analyses the channels through which the pandemic and the recovery measures would impact the plantation sector. Section 5 documents the visible impact of the pandemic on the economic activities in the plantation sector. This is followed by Section 6 which gives an estimation of the immediate revenue losses faced in major plantation crops. Section 7 explores the stimulus package announced by the government of India and an assessment of the same in the context of the plantation sector. Section 8 draws conclusions of the study.

### **2. Pandemic in the Plantation Regions**

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<sup>1</sup>As on 31<sup>st</sup> May 2020.

<sup>2</sup>Written response to Lok Sabha question by the Minister of Commerce and Industry, Piyush Goyal, on 3rd July, 2019.

<sup>3</sup>National Rubber Policy 2019, Department of Commerce Ministry of Commerce & Industry Government of India.

Plantation crops are limited to certain geographical locations within a few states in India. Most of the area under tea, coffee, rubber and cardamom plantations<sup>4</sup> is spread in about 58 districts<sup>5</sup> in the southern states of Karnataka, Tamil Nadu, Kerala and the North eastern states of West Bengal, Assam and Tripura. These plantation districts consist of about 41 percent of all districts in these states. In Kerala, all fourteen districts cultivate plantation crops; in Assam 27 of the 33 districts cultivate plantation crops and in Tripura it is 50 percent of the districts. In other states the regional spread is much lower at 10 to 20 percent of districts having presence of plantation crops.

**Table 1: Regional Spread of Plantation Crops across Districts**

	All Districts	Plantation districts	Plantation to total districts share (%)
<b>Karnataka</b>	30	3	10
<b>Tamil Nadu</b>	34	6	18
<b>Kerala</b>	14	14	100
<b>Assam</b>	33	27	82
<b>West Bengal</b>	23	4	17
<b>Tripura</b>	8	4	50
<b>Total</b>	142	58	41

*Source:* Plantation districts of the four crops are identified from respective Commodity Boards. However, only traditional plantation districts are considered for this section.

Among the prominent states with plantation sector, Tamil Nadu had the highest number of cumulative Covid 19 cases at 18545 positive cases as on 28<sup>th</sup> May, 2020 (Table 2). This was followed by West Bengal (4192 cases) and Karnataka (2418 cases). As stated above, these three states also have relatively lower share of districts under plantation crops. Yet, comparing only the plantation districts in each of these states, Karnataka had only 262 cases, Tamil Nadu only 896 and West Bengal only 27 cases. The states of Kerala (1004 cases), Tripura (185 cases) and Assam (717 cases) with an overwhelmingly large share of their districts under plantation crops have much lesser cases of Covid 19. This observation indicates that the spread of Covid 19 is hindered by some aspect and is generally slower in plantation regions compared to other regions. This observation stands true for active cases, discharged cases and deaths in the region as well. In fact the plantation districts suffered only 20 deaths while the non-plantation districts of these states suffered 483 deaths by May 28<sup>th</sup>.

**Table 2: Covid19- Total Cases as on 28<sup>th</sup> May 2020**

4 In this paper we consider the following crops only, Tea, Coffee, Rubber and Cardamom.

5 All the chosen districts are traditional regions of the plantation crops. The only exception being districts of Tripura, which are non-traditional regions for rubber cultivation. These districts are included as they have a substantially large coverage and Tripura has become one of the biggest producers of Rubber second only to Kerala.

	Positive cases cumulative		Active as on 28th May 2020		Recovered		Death	
	All	plantation region	All	plantation region	All	plantation region	All	plantation region
Karnataka	2418	262	1604	240	765	20	47	2
Tamil Nadu	18545	896	8500	308	9909	582	136	6
Kerala	1004	1004	445	445	552	552	7	7
Assam	784	717	689	652	88	61	4	4
West Bengal	4192	27	2325	16	1578	10	289	1
Tripura	242	185	77	22	165	163	0	0

Source: estimated from [www.covid19india.org](http://www.covid19india.org) accessed on 28th May 2020

The above observation is visible starkly when standardised indicators are used. Except for Karnataka all other states had lower prevalence of the disease in the plantation regions compared to the state average (Table 3). Tamil Nadu had 62.5 cases per million in plantation districts compared to 253.5 cases per million in general and West Bengal had only 2.3 per million compared to 45.4 per million. In Tripura it was 50.4 and 65 per million respectively. In other states, where plantation districts cover a large share of the districts, there is not much difference between the general districts and plantation districts. This stands consistent across active cases per million and deaths per million. It has to be explored as to why the plantation regions have lower incidence of Covid19. One possibility is that since the plantation crops are cultivated in hilly and mountainous terrain the density of population and hence human interactions may be lower in plantation regions than other regions, implying limited intra-regional interaction. It is also possible that inter-regional interaction is limited as often these geographical features lie separated through natural reliefs and remain isolated from the rest of the population, implying limitations in inter-regional interaction. For now, the states with low share of plantation districts seem to have a case of limited inter-regional interaction than intra-regional interactions.

	POSITIVE CASES PER MILLION		ACTIVE CASES PER MILLION		DEATHS PER MILLION	
	All	Plantation region	All	Plantation region	All	Plantation region
Karnataka	39.0	75.5	25.9	69.2	0.8	0.6
Tamil Nadu	253.5	62.5	116.2	21.5	1.9	0.4
Kerala	29.9	29.9	13.3	13.3	0.2	0.2
Assam	24.7	23.0	21.7	20.9	0.1	0.1
West Bengal	45.4	2.3	25.2	1.4	3.1	0.1
Tripura	65.0	50.4	20.7	6.0	0.0	0.0

Note: The population for the plantation districts were projected at the same growth rate as of 2001-2011 as the latest population figure available is for 2011 from the Census of India.

Source: estimated from [www.covid19india.org](http://www.covid19india.org) accessed on 28th May 2020



In terms of currently active cases, the plantation regions of Karnataka and Assam had more than 90 percent of their cumulative cases currently active while West Bengal had nearly 60 percent still active (Table 4). Other regions had less than 50 percent of the cumulative cases being currently active. High share of currently active cases implied that the threat of virus in the state is very high as of now. The presence of such large share of currently active cases across all these states points to the fact that at least in these regions the outbreak is not yet subsided and an expansion of cases may be expected. Among these states the death rate (number of deaths to cumulative positive cases) was the highest in West Bengal, followed by Karnataka. All other regions had considerably low death rates. Comparing the death rates between plantation regions and other regions, the rates of plantation region was either equal to or less than that of other regions. Overall it may be stated, with caveats, that currently the outbreak seems to be slowing down in the plantation regions and the death rates were somewhat lower than that of other regions. We can only speculate at this point that the worst of the pandemic may be over for most plantation regions in the country.

State	Share of currently active to cumulative positive cases		Proportion of deaths to cumulative positive	
	All	plantation region	All	plantation region
<b>Karnataka</b>	66.3	91.6	1.9	0.8
<b>Tamil Nadu</b>	45.8	34.4	0.7	0.7
<b>Kerala</b>	44.3	44.3	0.7	0.7
<b>Assam</b>	87.9	90.9	0.5	0.6
<b>West Bengal</b>	55.5	59.3	6.9	3.7
<b>Tripura</b>	31.8	11.9	0.0	0.0

Source: estimated from [www.covid19india.org](http://www.covid19india.org) accessed on 28th May 2020

### 3. The Lockdown in the Plantations Sector

The lockdown was imposed on the country as a whole from 24<sup>th</sup> March 2020. However, individual states had started acting on the outbreak in their own capacity, some of them earlier than the national measures<sup>6</sup>. Kerala started extensive testing, contact tracing, isolating and quarantining starting from the first case on 30<sup>th</sup> January 2020. All mass gathering were banned and schools up to class 7 was closed on March 8<sup>th</sup>. When the conditions were getting worse Kerala declared a lockdown of all economic activities on 23<sup>rd</sup> March, a day prior to the national lockdown. Tamil Nadu also declared lockdown from 23<sup>rd</sup> March. Karnataka and all other plantation states imposed the lockdown following the national declaration. The first phase of lockdown for 21 days from March 24<sup>th</sup> imposed movement restrictions on people, and most shops & establishments and manufacturing remained shut. However, shops for essential food, grocery, cold storing and

<sup>6</sup>See Box 1 in Appendix for lockdown provisions and its relaxations relevant to plantation sector according to states and their date of implementation.

warehousing remained open. On 27<sup>th</sup> March an addendum to the Ministry of Home Affairs order allowed operations of sale and movement of food and grocery, seeds and pesticides. On 29<sup>th</sup> March another addendum released all agricultural operations including farming, procurement, mandis, sale of fertilizers and pesticides, manufacture of fertilizers and pesticides; and movement of agricultural machineries from the lockdown. On 3<sup>rd</sup> of April the Tea sector including industry and plantation was given conditional exemption from lockdown allowing to work under 50 percent worker capacity<sup>7</sup>. The lockdown was extended on 15<sup>th</sup> April till May 3<sup>rd</sup>. However, during this phase all plantation sector including Tea, Coffee, Rubber and Spices were given conditional exemptions allowing to operate at 50 percent workforce. The exemption was given to activities such as farming, processing, packaging, sale and marketing of the plantation crops.

All migrant workers in their respective states and districts were barred from moving to their origin from 29<sup>th</sup> March till 3<sup>rd</sup> May. MGNREGA work was also under lockdown from March 24<sup>th</sup> till May 3<sup>rd</sup>. The third phase of the lockdown went on from May 3<sup>rd</sup> to May 17<sup>th</sup>. Interstate movement of people, especially migrant workers were allowed from May 3<sup>rd</sup> and MGNREGS also was exempted from lockdown from May 3<sup>rd</sup>. The fourth phase of the lockdown is underway starting from May 18<sup>th</sup> with much lesser restrictions as of now.

The plantation sector thus remained under complete lockdown during March 24<sup>th</sup> to April 3<sup>rd</sup> for a period of about 9 days. The tea sector was allowed to work at 50 percent capacity thereafter. The remaining plantation sector remained shut till April 15<sup>th</sup>, a period of 21 days. This was followed by 50 percent capacity work till date. This shutting down of the sector for 21 days and operating at half its worker capacity throws open a whole set of issues relevant to the survival of the sector. The channels through which the pandemic and the lockdown would affect the plantation sector is discussed below.

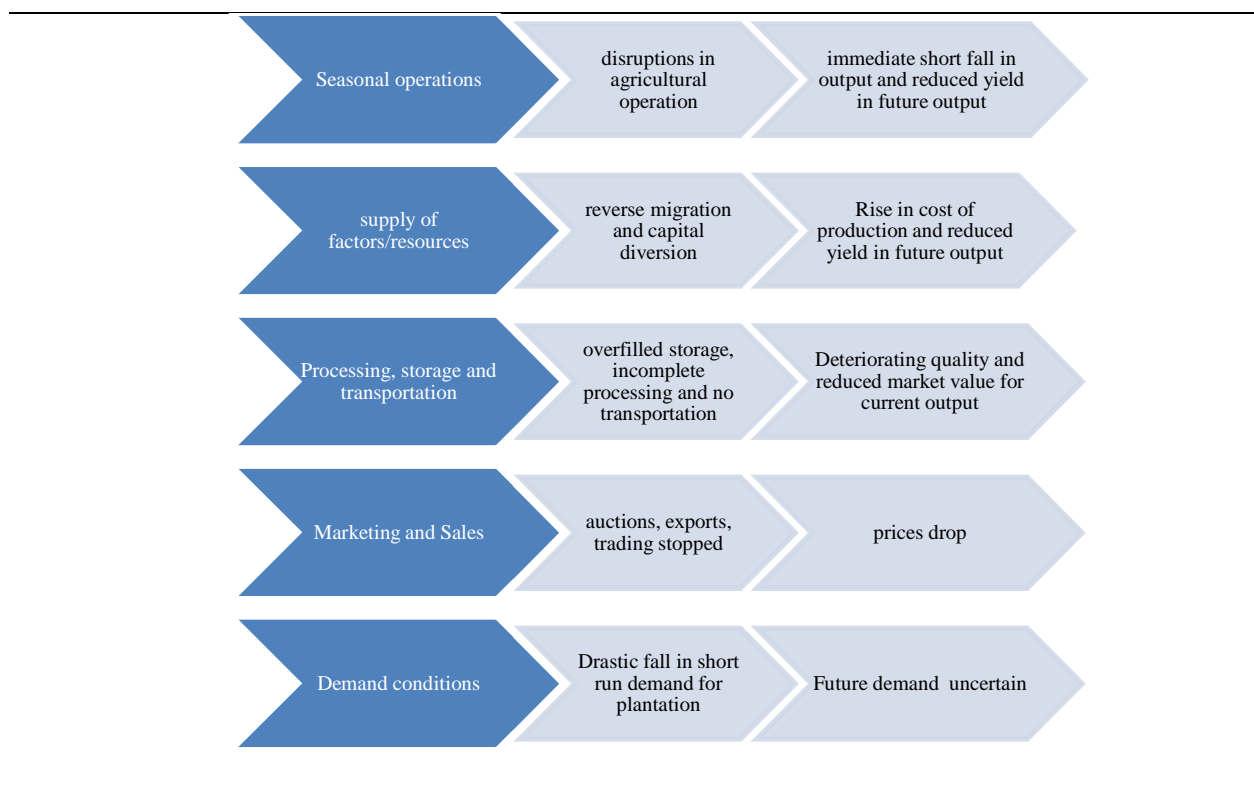
#### **4. Channels of Transmission of Pandemic Effect on the Plantation Sector**

The pandemic would affect the plantation sector on account of mortality or morbidity associated with the pandemic, voluntary prevention measures and the prevention measures imposed by the State. Covid19 and the preventive measures would impose economic shocks on the plantation sector mainly through five channels. The five channels are disruptions or delay; in agricultural seasonal activities; in timely supplies of factors, resources and input; in processing, storage and transportation; in marketing and sales; and in demand conditions. Depending on the channels some of the effects will get manifested immediately, while some of the effects will be delayed. Some of the effects will be transitory, while a few will be for the long term, if not permanent. Each of the channels are discussed below. The summary of the transmission process and expected outcomes is given below in the chart.

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<sup>7</sup>[https://www.mha.gov.in/sites/default/files/PR\\_4thAddendumDated\\_03042020totheLockdownmeasures.pdf](https://www.mha.gov.in/sites/default/files/PR_4thAddendumDated_03042020totheLockdownmeasures.pdf)

**Chart 1: Channels of Transmission of Pandemic Effect on Plantations and Expected Outcomes**



*Agricultural Seasons:* Delay in season specific agricultural operations may destroy or reduce the crop output. Lockdown would force the agricultural activities to be disrupted. The covid 19 lockdown starting from March end through the months of April and May coincided with tea leaf plucking season for Assam and Bengal. About 50 percent of the country's tea is grown in Assam. For the tea cultivators the lockdown is particularly harsh, as unplucked tea leaves would reduce the yield for tea leaves in future, and the quality of tea would also deteriorate. Once plucked the tea leaves have to be processed within 48 hours. Severely affected is the Darjeeling tea, the first flush which fetches maximum price in the export market falls in the period of mid-March to mid-April. The entire season is lost in the lockdown. The capped workforce in Assam and West Bengal would imply a major part of the available tea leaves are wasted. In South India tea leaf plucking occurs throughout the year. Though not as severe as in Assam and Bengal the lockdown would affect tea plucking and tea processing in south Indian states as well. In case of Rubber, this is the time to do rain guarding before the monsoon showers. With the reduced workforce of only 50 percent rain guarding also may remain unfinished<sup>8</sup>. For Rubber the low level of tapping would also reduce

<sup>8</sup>[https://www.business-standard.com/article/economy-policy/covid-19-norms-relaxed-plantations-see-hope-for-tea-and-rubber-processing-120041501748\\_1.html](https://www.business-standard.com/article/economy-policy/covid-19-norms-relaxed-plantations-see-hope-for-tea-and-rubber-processing-120041501748_1.html) accessed on 20/5/2020

earnings for the small growers. For the coffee plantations, pre-monsoon manuring were to be done during April-May which got delayed due to poor labour supply and lockdown rules. Manuring for coffee would get unduly delayed now and insufficient manuring would lead to poor yield in the coming cherry picking season for coffee. Though the cherry plucking is over for this year, the preparations required for next crop cycle such as processing, nursery activities, transport and irrigation is to be done during this season. In Karnataka, the largest coffee cultivating state, coffee cultivating regions depends on labour from neighbouring villages. However, due to lack to labour mobility these activities are completely stalled<sup>9</sup>. For cardamom these months of March, April and May are periods for spraying pesticides and weedicides as well as harvesting time. Cardamom is particularly prone to insect and pest attacks. Without sufficient treatment the yield would decline.

The lost season starting from March till date, thus represents very important parts of the crop cycle. The lockdown phase would witness a visible decline in output. The output fall but may not be immediately restored following lifting of the lockdown, rather the pre-covid19 outputs may be achieved only gradually over the months. With the crop cycle being disrupted, it may be expected that the hardships of the plantation growers are bound to extend much longer than the lockdown period.

*Supply of Factors and Resources:* The fundamental activity of growing and harvesting in the plantation sector has a wide variety of resource and operational requirements that gets affected by the channels mentioned above. Three primary activities take place at this stage, planting or replanting; yield enhancing and protection activities; and harvesting depending on the crop. To undertake these activities the grower utilises the factors of production such as land, labour, capital, credit; inputs and resources such as seeds or sapling, fertilizers and pesticides; and irrigation. Further, all these activities are to be coordinated and are to be undertaken in sync with the seasons of the year, strictly following crop cycles.

The pandemic would destabilize the growing and harvesting operations mostly through the state imposed lockdown from March 24th 2020. With regard to factors of production, labour supply is the most affected. However the effect would be very different across regions. The northern regions of Bengal and Assam had been experiencing labour outmigration for the last many years due to the low wage prevailing in these region, including the tea plantation sector. With the pandemic, many of these workers were returning to the place of origin, thus increasing labour supply in tea plantation. Yet, the abundance of labour did not imply that now they could be absorbed. Since the labour usage in the estates and small gardens were fixed through the social distancing and regulations on number of workers, the workers remained more or less same while the increased

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<sup>9</sup> <https://economictimes.indiatimes.com/news/economy/agriculture/plantations-swoon-under-coronavirus-attack-suffer-heavy-losses/articleshow/75003415.cms> accessed on 21/5/2020

labour supply would imply wage stagnation. However, the plantations in South India that included Tea, coffee, rubber and cardamom suffered as there was large outmigration of the North Indian workers from these regions. Tea plantations of Kerala are mostly Tamil migrant labourers from neighbouring districts. Labour in the Karnataka coffee plantations are usually sourced from villages and districts nearby as well as neighbouring state of Kerala. With the covid19 lockdown the labour availability reduced drastically making it difficult to continue with essential activities in the coffee sector<sup>10</sup>.

Rubber tappers in Kerala and Tamil Nadu are increasingly sourced from North India. Workers in cardamom plantations are also migrants from Tamil Nadu and eastern India. For the migrant worker, imposition of lockdown is a grave threat to his livelihood. Migrant plantation workers who hold very limited physical and social capital would run out of resources very fast as daily wages may be their only source of income. With the imposition of lockdown a majority of these workers, having lost jobs due to lockdown may return to their places of origin. Their absence or lack of participation in operations would create imbalances in factor supplies which may not be resolvable in the short run and the only available option may be to cut down operations.

Another issue is regarding agricultural credit repayment and debt. Typical small farmers are dependent on rotating or working capital which gets recouped during the following harvest. Formal or informal credits are availed based on the crop yield expectations. The abrupt lockdown has not only reduced the earnings of these farmers, it has pushed many of them into debt and penury. At least for one crop cycle, in most cases a year, the yield would remain low or would decline. Generally important agricultural operations such as manuring, pest removal etc. depends on short term credit as farmers would be waiting for the sale of their previous harvest. Similarly, credit flow during the current season may reduce as the repayment of previous debts may get delayed<sup>11</sup>. Also available capital may be diverted to savings rather than investment due to the heightened sense of uncertainties associated with the pandemic ridden future. Since deposit rates have fallen considerably, there is evidence which shows that the demand for safe physical assets such as gold has increased since covid19.<sup>1213</sup>

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<sup>10</sup><https://www.thehindu.com/news/national/karnataka/covid-19-brings-bitter-times-for-pepper-coffee-planters-in-kodagu/article31230606.ece> accessed on 21/05/2020

<sup>11</sup><https://www.thehindu.com/business/virus-attack-takes-the-aroma-out-of-coffee/article31644374.ece> accessed on 31-05-2020

<sup>12</sup><https://economictimes.indiatimes.com/markets/commodities/news/gold-rate-today-in-india-latest-news/articleshow/74311017.cms?from=mdr> accessed on 29-05-2020

<sup>13</sup> Similarly, fertilizers and pesticides supply may be affected due to the lockdown and transportation disruptions. But these were declared as essential services by the government hence, there were hardly any movement restrictions on these inputs. In fact during the covid19 lockdown, surprisingly the intake of fertilizers had increased. <https://pib.gov.in/PressReleasePage.aspx?PRID=1618967> accessed on 30-05-2020.

*Processing, Storage and Transportation:* The ability of the plantation crop products to retain value for long periods compared to agricultural commodities are what makes such crops as attractive productive investments. However such retention of value can occur only if the crop outputs are processed and stored. Timely drying, curing and other such activities for all plantation crops, extends the life of the crop output and also locks in the value of the crop for longer. Usually such facilities for curing, drying and storage for the small growers are done either in common facilities through the group formations or such facilities are hired from providers. In Rubber for instance, nearly 90 percent of the growers are small growers (Viswanathan, 2008) and smoke houses and storage facilities are usually organized around the Rubber Producer Societies. There are also private smoke houses and storage facilities available with dealers and rubber producer companies. However, such facilities are not functional during the lockdown period. Even in the large estates where such facilities are available in-house, their ability to continue operations during the lockdown may be limited by the specifications of social distancing and 50 percent work capacity. The in-house factories and bought leaf factories of tea, where processing takes place also have similar experiences. Since tea auction was stopped in all auction centres the stock of tea leaves were kept in the factories, without being able to send for auction. Even after auctions had started the factories were unable to send the tea to auction centres as trucks remained inaccessible<sup>14</sup>. In case of coffee the curing centres were holding large quantities of coffee beans due to lockdown rules and reluctance of exporters to take merchandise despite government nod. In case of cardamom almost the entire produce is stocked up with farmers and traders since the auction stopped.

*Marketing and Sales:* Sales and marketing of the plantation products had been severely affected, just as most other products during the lockdown. With the lockdown auctions in Tea and Cardamom had stopped for most part of the lockdown period. Till mid of April all auctions had been deferred except for tea auction in Kochi, of which the only taker was the government of Kerala for supplies through PDS. Around six million kilograms of tea was ready for sale as of April 15<sup>th</sup> but the auction centres remained blocked in the respective state governments.<sup>15</sup> Moreover, the stopping of trade in these commodities also meant stocks piled up on the one hand, while the prices of the commodities remained unknown during the lockdown. It was only weeks into the lockdown that the auction centres for tea opened up, while the cardamom auction centres remained closed till May end. Coffee is an export driven commodity with about 80 % of it being exported from India. With the pandemic exports came to a standstill, no transportation or trading ports were functional. The domestic trade and consumption also disrupted. Unlike tea, coffee was not marked as an essential good or an agricultural commodity. This implied that the lockdown measures were strictly

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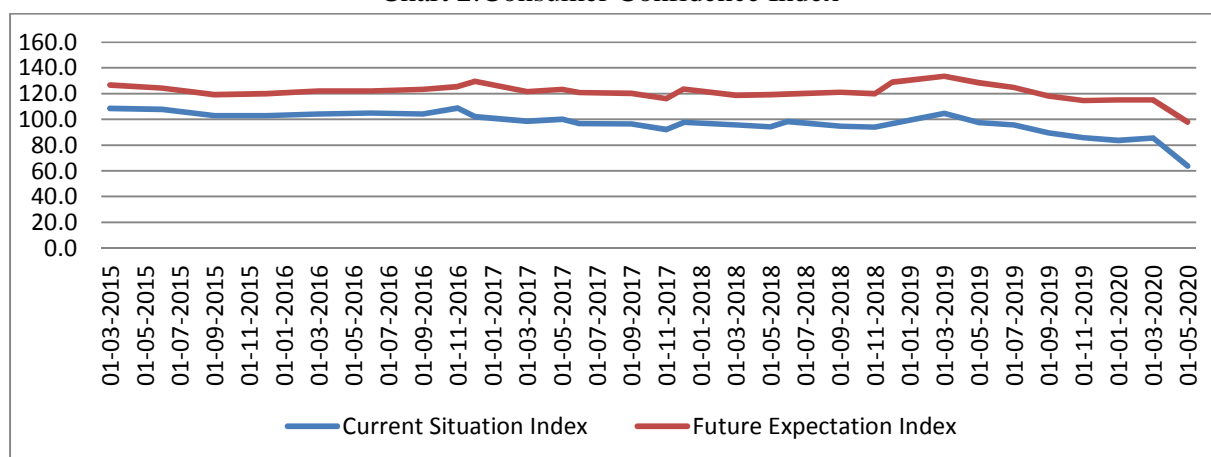
<sup>14</sup><https://timesofindia.indiatimes.com/city/dehradun/over-9000-kg-tea-leaves-dumped-in-storage-as-it-couldnt-be-sent-for-auction/articleshow/75664529.cms> accessed on 31-05-2020

<sup>15</sup>[https://www.business-standard.com/article/economy-policy/covid-19-norms-relaxed-plantations-see-hope-for-tea-and-rubber-processing-120041501748\\_1.html](https://www.business-standard.com/article/economy-policy/covid-19-norms-relaxed-plantations-see-hope-for-tea-and-rubber-processing-120041501748_1.html) accessed on 20/5/2020

implemented on the coffee sector. The United Planters' Association of Southern India claims that 21,000 tonnes of coffee worth Rs 400 crore have accumulated at curing centres and various ports<sup>16</sup>. Rubber, handled mostly by low volume dealers remained out of market due to lockdown restrictions.

*Demand Conditions for Plantation Products:* The demand conditions in the economy during the covid19 pandemic are driven by a number of factors. During the course of the lockdown, though the demand for goods and services is uncertain, the lack of markets due to lockdown would cause excess supply and low demand during the lockdown period. Further, uncertainty regarding the future due to the lockdown, and the risks associated with the increasing probability of contracting the virus would make people to withhold their spending. Consumption demand in general may decline and savings may increase. As can be seen from Chart 2 Reserve Bank of India's consumer confidence index (CCI), based on consumer perceptions had drastically fallen since the lockdown phase in March 2020. The CCI index is indicative of the perceptions of consumers regarding spending. It is for the first time since 2015 that the CCI had fallen 80. However, the fall in CCI had started prior to the lockdown itself. In fact from the beginning of 2019 the CCI had been declining gradually.

Chart 2: Consumer Confidence Index



Source: RBI, <https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=19455> accessed on 13-06-2020.

Such low general consumer confidence signifies uncertainty regarding the short term future. Hence, instead of spending there is a sudden spike in gold prices in the recent past, indicating the tendency to save in physical form for the uncertain future. Initially the spending on essential commodities may not see a sizeable fall, while those with greater income elasticity of demand would see a fall in demand. However, this fall in demand for some commodities would eventually imply that people working in these sectors may experience fall in income, shutting of shops and losing their jobs. In

<sup>16</sup>[https://www.business-standard.com/article/markets/plantations-stare-at-huge-losses-with-few-hands-to-harvest-standing-crops-120040900910\\_1.html](https://www.business-standard.com/article/markets/plantations-stare-at-huge-losses-with-few-hands-to-harvest-standing-crops-120040900910_1.html) accessed on 20/5/2020



the next round even the demand for essential commodities would see a decline in demand. The pandemic with its global presence would affect the demand conditions globally in a similar manner. This would mean that not only the domestic demand is affected but also the export demand as well.

In the plantation sector the lockdown and the social distancing rules in terms of shutting down eateries, restaurants, wayside petty shops, retail stores and other commercial establishments all meant that the final consumer demand for both tea and coffee in the domestic market declined drastically<sup>17</sup>. Rubber lost demand mainly due to fall in automobile demand. About 70 percent of the natural rubber is absorbed by the automobile industry. With the lockdown, the sale of vehicles had stopped fully. However, the woes of the rubber growers had started somewhat earlier than the covid19 outbreak in India. Some of the demand for Rubber comes from export demand in China. With the onset of the virus in China the demand for rubber had started declining<sup>18</sup>. Estimated stock of unsold rubber was about Rs. 700 Crores during the two month lockdown from March end to May end as per the Indian Rubber Dealer's Federation<sup>19</sup>. The retailers who had bought Rubber and has stocked for future sales also ended up with large stocks. With the pandemic, growers were ready to panic sell rubber, but dealers were reluctant to take it<sup>20</sup>. Also, though rubber tapping was allowed to resume by mid-April in Kerala, since there were hardly any retailers tapping could not be continued. Coffee being an export oriented commodity, the spread of the virus in the European economies led to drastic fall in demand for coffee, which prompted a fall in coffee prices<sup>21</sup>. Cardamom also mostly exported to the gulf region saw a fall in export demand due to the lockdown. Presently the main cardamombuyers, especially in Mumbai, are not taking new orders. Demand within the country also fell due to the stoppage of auctioning and lack of demand from restaurants and bakeries across the country.

## 5. Price Movement during the Pandemic

The drastic fall in demand, both in the domestic and export markets spelled doom for the plantation crops in general. Prices of almost all commodities crashed, except for Tea, following covid19. Surprisingly, Tea, especially in North India saw an upswing in prices. As can be seen from the chart below, the price of Tea in North India has a cyclical movement, with a sharp fall in prices during January to March of every year, and then a sharp rise in prices in April which sustains for some

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<sup>17</sup> [https://www.business-standard.com/article/economy-policy/covid-19-norms-relaxed-plantations-see-hope-for-tea-and-rubber-processing-120041501748\\_1.html](https://www.business-standard.com/article/economy-policy/covid-19-norms-relaxed-plantations-see-hope-for-tea-and-rubber-processing-120041501748_1.html) accessed on 20/5/2020

<sup>18</sup> <https://m.economictimes.com/markets/commodities/news/despite-muted-demand-rubber-prices-remain-steady/articleshow/74452231.cms> accessed on 20/5/2020

<sup>19</sup> <https://www.newindianexpress.com/cities/kochi/2020/apr/20/covid-19-lockdown-hits-kerala-rubber-production-2132515.html> accessed on 20/5/2020

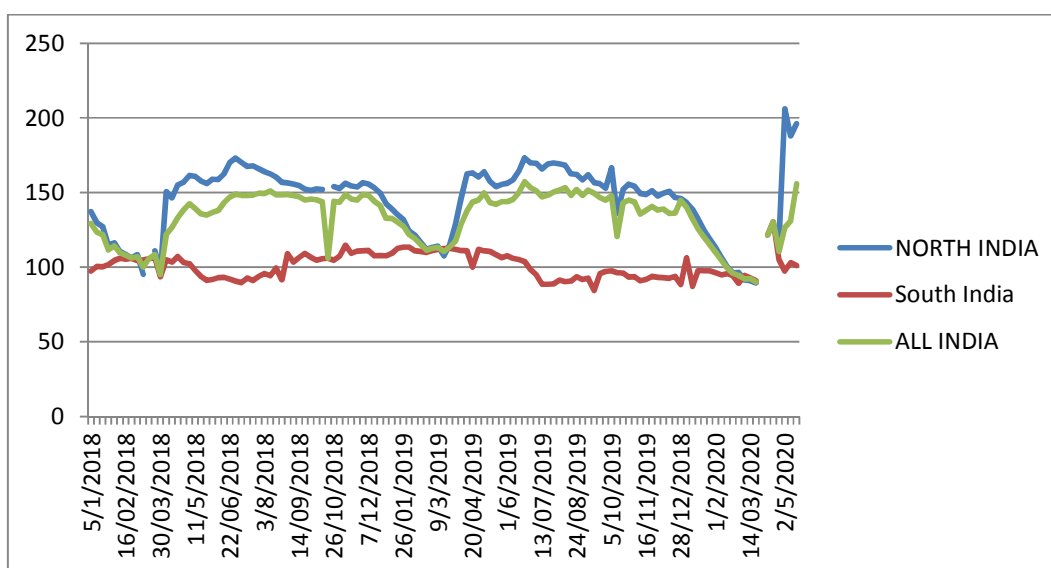
<sup>20</sup> <https://www.newindianexpress.com/cities/kochi/2020/apr/20/covid-19-lockdown-hits-kerala-rubber-production-2132515.html> accessed on 20/5/2020

<sup>21</sup> <https://english.mathrubhumi.com/money/money-news/covid-19-coffee-farmers-in-crisis-as-indian-coffee-loses-european-market-1.4677962> accessed on 21/5/2020



months till September after which it tapers off (Chart 3). The rise in price in April is mainly due to the premium on the first flush tea of the season. Thereafter, through the plucking cycles the price also falls. The first flush, high in demand in the export market fetches higher price as well. However, the rise in price for the first flush this year is higher than last two years. Probably, the supply constraints posed by the lockdown led to higher demand for the commodity leading to price rise. This is more so in the export market. The brief period when there was no auction for Tea would have led to the rise in price. However, this did not have any major effect on tea prices in S. India which is mostly sold in the domestic market.

**Chart 3: Weekly Price for Tea (Rs per Kg)<sup>22</sup>**



Source: Tea Board.

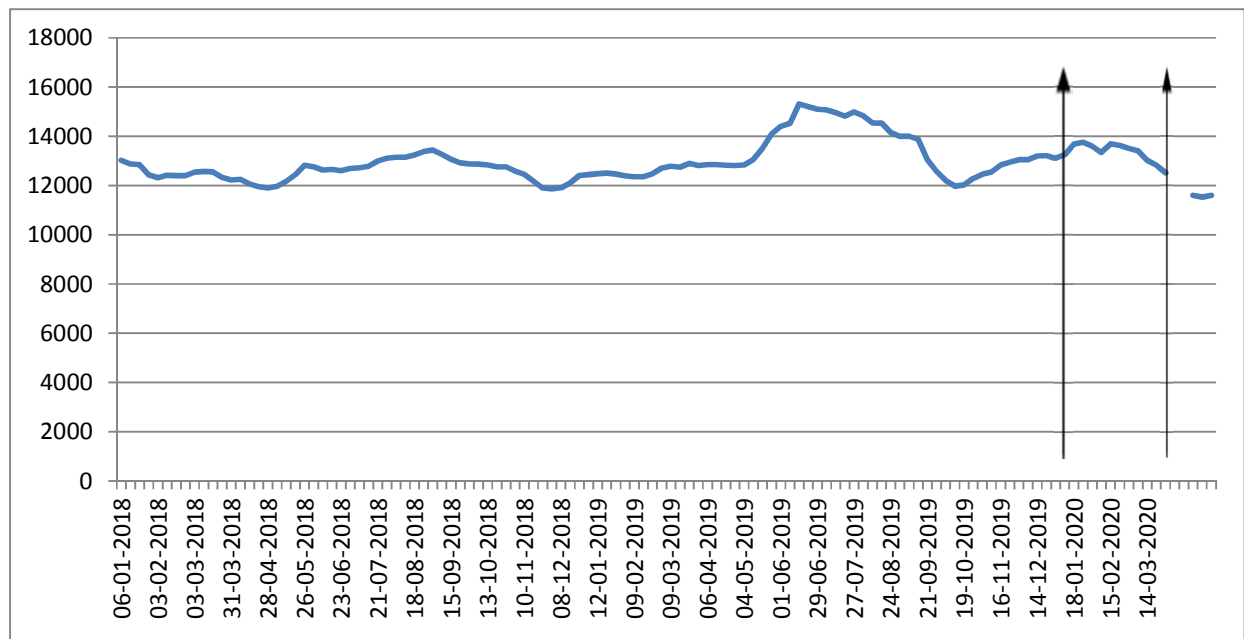
However, for Rubber prices the effect of the crisis was a price crash (Chart 4). The prices of rubber, already in a downswing in the long run due to various factors, including substitution of artificial rubber, imported rubber, substitution of non-rubber inputs would now face a further depression of prices. The Kottayam market price of RSS IV<sup>23</sup>, variety of rubber shows that price of this variety has hit a new low, lowest in the last two years. The prices shown here are nominal prices. If they are converted to real prices, then the fall would be much more drastic. As can be seen in the graph below, the prices of Rubber is usually upswing in the months of March to August/September during

<sup>22</sup> For data relevant to this figure please see the Appendix Table.

<sup>23</sup> RSS IV is taken a reference here, RSS V and other varieties also experienced similar price movements. When the markets opened up in mid-May 2020 the prices had crashed to about Rs 115 for RSS 4 and Rs 110 for RSS 5. The corresponding price in May 2019 ranged at Rs 135 and Rs 132 respectively.

the years 2018 and 2019 and thereafter there is a gradual fall. This year, 2020, the fall has come in much earlier. Now even if there is some unspent demand that gets visible in the later months of the year, there may not be a rise in price as much as in the early part of the year. Even though it can be argued that since Rubber is a durable commodity with long shelf lives<sup>24</sup> its value in the market would decline. Moreover, the stored rubber would lead to excess supply in the market over a period leading to a low price market for a longer period. Thus the price crash has implications for the current lot of rubber that is being sold in the market as well as the rubber that is to be sold in future as well.

**Chart 4:RSS 1V Prices Kottayam Market Rupees per 100 Kg**



Source: <http://www.rubberboard.org.in/indianPrices>

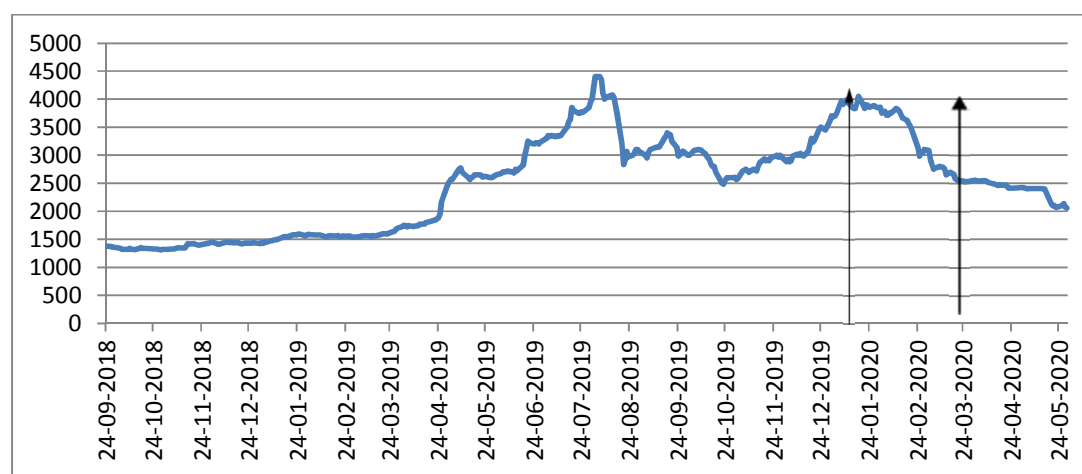
Rubber prices which had been lying low in 2019 had shown a rise in early February 2020 with prices climbing up to Rs 135 per kilogram for RSS 4 variety. However, soon the prices fell drastically. The fall in prices in Rubber started from mid-February itself as the direct exports of rubber and automobiles had declined during the period. International markets being affected by the pandemic, demand fell flat and the prices went down. Soon the trading of rubber stopped by mid-March due to the lockdown in India.

The price of cardamom also saw a drastic fall in the period after the lockdown (Chart 5). In fact cardamom trading through the auction centres had stopped following the lockdown on March 24<sup>th</sup>.

<sup>24</sup> This is arguable. Though Rubber sheets usually don't have an expiry date attached to it, as the number of days kept in storage increases the quality of rubber declines due to fungus attack. The fall in quality of rubber would imply that there would be lesser buyers and lower price for the commodity. So even if the commodity does not expire, its value in the market continue to diminish the longer it remains in shelf.

The prices of cardamom therefore remained largely unknown. However, the price shown here is the spot prices of the Indian commodity exchange<sup>25</sup>. The polled prices of the cardamom prices show that the prices since March 24<sup>th</sup> had fallen till May end. Thus the lockdown had an extended price fall in the commodity. However, it may be noted that the price fall had not started in March. It had started much earlier; by last week of December 2019 the price of cardamom had started falling sharply. This fall only further accentuated in March. The fall since December 2019, suggests the fall in price is due to the falling export demand across the world. The shrinking demand for cardamom worldwide had led to a price crash since the beginning of covid 19.

**Chart 5: Spot Price for Cardamom (vandanmedu) Rs per Kg**

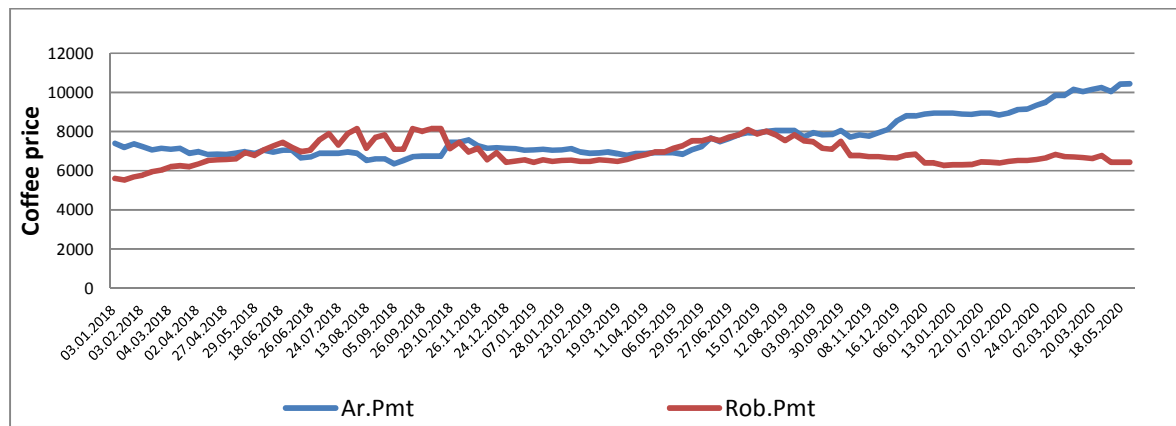


Source: <https://www.icexindia.com/market-data/historical-spot-market-price>

However, the movement of prices in coffee has not made any substantial changes in direction that can be attributed to the covid19 (Chart 6). The prices of Arabica Parchment which is mostly exported had been rising, after a long period of stagnation throughout 2018 and most of 2019. Towards the end of 2019, the prices of Arabica parchment started rising and had climbed above Rs 11000 per 50 kg bags. This was the period that corresponded to the emergence of covid19 globally. It is surprising that the price of export driven coffee should rise rather than fall during the global pandemic. However, the price rise in coffee is not unique to India. Such price rise was experienced in Brazil and Columbia, major coffee exporting countries. International Coffee Organisation has warned that the price rise globally is due to hoarding of coffee by users and prices would fall later due to the usage of these stocks<sup>26</sup>.

<sup>25</sup> Spot prices in the Indian commodity exchange ([www.icexindia.com](http://www.icexindia.com)) are arrived by the various members of the value chain of a commodity polling a price twice a day. For details please visit the ICEX website.

<sup>26</sup><https://dailycoffeenews.com/2020/05/20/ico-warns-of-increased-coffee-price-volatility-as-coronavirus-unfolds/>

**Chart 6:Raw Coffee Price (Karnataka, new crop) Rs per 50 Kg**

Source: Coffee Board.

## 6. Estimated Unrealised Revenue for Plantation Commodities

Given the adverse conditions due to the pandemic and lockdown it is fairly clear the plantation sector would be under severe economic stress. The fall in demand expressed as falling prices on the one hand, and the disruption in production and supply is a double edged crisis. In a nutshell, it would imply that farmers are unable to produce or sell to their capacity, implying lower output. It would also imply lower prices for whatever output they are producing, thus reducing their revenue per unit of output.

Here we attempt to estimate the size of this crisis in terms of revenue lost in the sector. The total economic impact of Covid19 and the lockdown on the plantation economy should be estimated keeping in mind the following aspects; the losses in revenue during the time of the lockdown; the losses in revenue due to the disruptions caused in the interlinking sectors of the economy whose effect may not be visible during the lockdown, but would become visible post-lockdown. Most such disruptions are repairable and would be restored in the long run. The third set of losses would be the permanent damages caused in the economy whose effect would become visible after lockdown, but may never be repaired. Though theoretically such a conceptualization is possible as above, empirically estimating these are not straightforward. In this section we restrict to estimating the overall revenue not realised during the covid 19 period, starting from March 24<sup>th</sup> to May 31<sup>st</sup>, i.e.; the losses purely due to stoppage of economic activities. The cascading effects on the interlinking sectors after lockdown, both in terms of backward and forward linkages are not considered here, neither are the permanent losses.

What we estimate is the unrealized revenue, not losses. Unrealised revenue is the potential revenue minus the actual realized revenue. Loss/gain is the actual revenue minus cost of production. It is a clear possibility that a major part of the unrealized revenue is losses themselves. But we don't claim that as we are not measuring losses here. To estimate unrealized revenue, we need to calculate

potential revenue, which is the equivalent to price and quantity of a commodity if there was no lockdown. As can be easily seen since markets don't exist during the period, both price and quantity also don't exist. However, this does not imply that production does not take place. The output that is produced during the lockdown would get stored and would reach the market post-lockdown, or during lockdown in a staggered manner. The unrealized revenue that is estimated is the revenue that the seller will not realize if and when the products are sold in the market. So in effect, it is the revenue fall suffered due to lockdown, though the revenue fall may not be realized during the lockdown, but in the subsequent period after lockdown.

To estimate potential revenue, we estimate both prices and quantity that would have been the case if suppose there was no pandemic. Such a counterfactual would give some ready rough magnitude of the crisis at hand. We use simple methods of arriving at prices and quantity. Broadly we use growth rates of prices during the same period in the last year, and average of quantity produced during this period during the last two years. Please see Box 2 in Appendix for details of estimation. For each commodity the specific measures used and results are described below.

i. Rubber

*Projecting Prices:* For the two most widely sold varieties of rubber (RSS IV and RSS V) we take the average price during the period February 1<sup>st</sup> to March 24<sup>th</sup>, as the pre-lockdown (PI) period. Then we take the average price for lockdown period (PII) as March 24 to May 13. And the same for post lockdown period<sup>27</sup> as 13-15 May (PIII), for which data is available. the growth rate of price for the three periods in the year 2019 is calculated. We use the same growth rates for the periods PI-PII and PII-PIII in 2020 to arrive at the expected average price for the periods PII and PIII if there was no lockdown. Then we calculate the change in the actual price to expected price as the fall in price due to the covid19 pandemic. Using the method above we estimated that the price fall was to the tune of about Rs 2500 per quintal for RSS4 and about Rs 2800 per quintal for RSS5 (See Table 5).

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<sup>27</sup> This is not of course post-lockdown period. We use it in the sense that the markets for this commodity has become active and there is a market price that is quoted.

**Table 5:Pre-lockdown Expectations (Projection) of Prices in Natural Rubber during Lockdown Period (In Rupees per 100 kilograms)**

Year	variety	Average price			Growth rate of average price		Expected average price without lockdown		Price fall
		PI	PII	PIII	PI - PII	PII-PIII	PII	PIII	PIII
		Feb 1 – Mar 24	Mar 24- May 13	13 -15 May			Mar 24- May 13	13 -15 May	13 -15 May
2019	Rss4	12610.7	12861.5	13383.3	2.0	4.1			
2019	Rss5	12115.9	12600.0	13100.0	4.0	4.0			
2020	Rss4	13325.0	lockdown	11600.0			13590.0	14141.4	-2541.4
2020	Rss5	12798.9	lockdown	11000.0			13310.3	13838.5	-2838.5

*Projecting Quantity* :For the period November 2019 to March 2021the production data is a simple projection. The projection for each month during this period is a simple average of the same month in the previous two years. As can be seen during the period 2020-21 with no covid19 epidemic the expected output would have been about 6.6 lakh tonnes (Table 6). If we assume that the volume of output is equivalent to the sum total of productivity per person in the sector, then we can state that output would be zero when none are working and it would be half when 50 percent of the workers are allowed to work. Of course this assumption cannot be fully true. It is possible that 50 percent of the workforce may generate not necessarily half the output. Given these assumptions, the net decline in output during the lockdown phase (March 21<sup>st</sup> to May 31<sup>st</sup>, 2020) would be about 57500 tonnes(Table 7).

**Table 6: Actual and Estimated Rubber Production (in tonnes)**

	2017-18	2018-19p	2019-20p	2020-21
April	48000	40000	32000	36000
May	50000	42000	41000	41500
June	45000	44000	50000	47000
July	58000	46000	60000	53000
August	58000	40000	57000	48500
September	61000	65000	68000	66500
October	62000	67000	65000	66000
November	64000	65000	64500	64750
December	78000	81000	79500	80250
January	73000	78000	75500	76750
February	52000	50000	51000	50500
March	45000	33000	39000	36000
Total	694000	651000	672500	661750

**Table 7: Expected Output in Rubber with and without the Lockdown**

	Lockdown period	Expected output with lockdown ( tonnes)	Expected output without lockdown (tonnes)
1 <sup>st</sup> phase first week	march 24-31@ 0 output	0	9750
1 <sup>st</sup> phase week 2 & 3	April 1 to 15@ 0 output	0	36000
2 <sup>nd</sup> phase week	April 15 to April 30@ ½ output	9000	
3 <sup>rd</sup> & 4 <sup>th</sup> phase	May@ ½ output	20750	
Total with lockdown		29750	87250
short fall in production		57500	

*Unrealised Revenue:* The sales volume that is unmet would be to the tune of 56125 tonnes during the lockdown period. The market price for RSS4 was @ 116 Rs, the price of rubber per kilogram. The market price for RSS4 would have been about Rs 140 per kilogram, as per the estimates made above, if there was no covid19. So the price of total output loss due to covid19 during March 24th to May 31st would be about Rs. 861.8crores (Table 8).

**Table 8: Price, Quantity and Revenue and Unrealised Revenue during Lockdown Period**

Lockdown period	Actual output (tonnes)	Expected output without lockdown (Kg)	actual prices (Rs/ Kg)	expected prices without lockdown (Rs/ Kg)	Actual revenue (Rscore)	Expected revenue without lockdown (Rscore)	total unrealised revenue (Rscore)
1 <sup>st</sup> phase 1 <sup>st</sup> week	0	9750	0	135.9	0	132.5	132.5
1 <sup>st</sup> phase week 2 & 3	0	18000	0	135.9	0	244.6	244.6
2 <sup>nd</sup> phase week	9000	18000	116	135.9	104.4	244.6	140.2
3 <sup>rd</sup> & 4 <sup>th</sup> phase	20750	41500	116	141	240.7	585.2	344.5
Total with lockdown	29750	87250			345.1	1206.9	861.8

ii. Tea

To estimate the losses in tea we do the following. To estimate the revenue losses we project the expected revenue if there was no lockdown and then we subtract the actual revenue earned during the lockdown period. To project revenue for the period we need to have projections for both quantity and price. So as the first step we project quantity and price during the lockdown period.

The estimations are done separately for North India and South India as prices and quantities vary vastly between the two regions.

*Projecting the Expected Quantity during the Lockdown Period:* Firstly, we need to estimate what would have been the quantum of tea sold during the lockdown period if there was no lockdown. To arrive at this figure we first project the output as if there was no lockdown and production continued. The projection for each month during this period is taken as a simple average of the same month in the previous two years for the same region. Based on the projection we can see that the projected quantity of tea produced and sold would have been about 74.4 million kilograms in March 2020 if there was no lockdown. In April 2020 it would have been about 86.2 mkg and in May 2020 it would have been 128.6 mkg (Table 9).

**Table 9: Actual and Projected (for 2020 March onwards) Quantity of Tea Sold (in million kilograms)**

	2018			2019			2020		
	North	South	All	North	South	All	North	South	All India
January				0	14.22	14.22	0	16.01	16.01
February				4.64	10.16	14.8	1.24	13.29	14.53
March				59.49	15.1	74.59	59.49	15.10	74.59
April	65.46	22.52	87.98	70.37	14.05	84.42	67.92	18.29	86.20
May	96.38	26.14	122.52	112.8	21.99	134.79	104.59	24.07	128.66
June	125.97	23.16	149.13	125.86	25	150.86	125.92	24.08	150.00
July	145.9	16.61	162.51	154.34	21.73	176.07	150.12	19.17	169.29
August	177.77	12.3	190.07	157.12	14.77	171.89			
September	155.36	19.43	174.79	167.81	16.91	184.72			
October	155.76	27.05	182.81	151.68	25.23	176.91			
November	155.76	19.59	175.35	117.64	21.75	139.39			
December	35.79	19.73	55.52	48.91	18.13	67.04			

*Note:* From March 2020 to July 2020 the given figures are projected. All others are actual.

*Source:* Tea Board Statistics for actual. The projections are estimated.

Tea sales and processing were released from lockdown very early on, by April 3<sup>rd</sup> after declaring this as an essential commodity. However, all activities relating to tea could be done only at 50 percent capacity as stipulated by the national government. Further, the district magistrates were given power to determine whether a tea garden/processing centre could be allowed to function on the basis of the presence of covid19 in the region. In order to project the quantities we do not take this district level variations into consideration. We take the national level order as the bench mark. We need to make projections for the period March to May 2020 for which lockdown was imposed.

We take the lockdown period as the following phases. First phase is the pre-locked period (PI). The second phase in the period March 24<sup>th</sup> to April 2<sup>nd</sup> 2020(PII). During this period all economic activities relating to tea was closed. The third phase is from April 3<sup>rd</sup> to April 14<sup>th</sup>, 2020 (PIII). This was the end of the lockdown version 1 at the national level. The fourth is the lockdown version 2 at the national level, April 15<sup>th</sup> to April 30, 2020 (PIV). The last phase consists of the period of the



version 3 and 4 of the lockdown starting from May 3<sup>rd</sup> to May 31<sup>st</sup> (PV). The government had ordered complete lockdown in tea sector during PII. Thereafter from PIII onwards the sector was allowed to work at 50 percent worker capacity.

Assuming that the output would be directly proportional to the share of workers, we can state that 50 percent workers would generate 50 percent output. On this basis the estimates are done. The following illustration would show how the numbers are estimated (Table 10). For phase PII there was a complete lockdown so the actual output would be zero in North India. But if there was no lockdown then the output would have been 17.96 mkg. The number 17.96 is derived from the table 9 above corresponding to the output during 7 days for the month of March and 2 days for the month of April. The daily average output for each month is estimated to calculate the 7 days output for March and 2 days output for April. In PIII phase, output production at 50 percent capacity is allowed. So we estimate the 50 percent capacity for 13 days in April 2020 in PIII, which 13.58 mkg and without the lockdown, i.e., full capacity it would be 27.16 mkg. This is estimated for all the phases across North India and South India separately and summed to arrive at the national figures.

In summary the estimated shortfall in production during the lockdown (from March 24 to May 31 2020) would be about 125.75 million kilograms at the national level. Of the total fall in production an overwhelming majority of 100.83 mkg would be from North India and 24.93 mkg from South India (Table 10).

**Table 10: Expected output in Tea with and without Lockdown (in million Kgs)**

Phase	Lockdown period	North India		South India		All India	
		with lockdown	without lockdown	with lockdown	without lockdown	with lockdown	without lockdown
PII	March 24- April 2 @ 0 output	0	17.96	0	4.63	0	22.59
PIII	April 3 to 15@ ½ output	13.58	27.16	3.66	7.32	17.24	34.48
PIV	April 15 to April 30@ ½ output	16.98	33.96	4.57	9.14	21.55	43.10
PV	May@ ½ output	52.295	104.6	12.035	24.1	64.33	128.7
Total with lockdown		82.855	183.68	20.265	45.19	103.12	228.87
short fall in production		100.83		24.93		125.75	

*Projecting the Price and Revenue during Lockdown Period:* For estimating the prices during the lockdown we take the average price of tea in North India and South India separately. Weekly prices are available for the entire period during 2019. We calculate the average price in 2019 for each of the phases (PI to PV) for each region. Then we calculate the growth rate between phases. The growth rates of prices are used directly on the prices in the PI actual in 2020 to project the prices for all phases during the lockdown. This price would be the expected average price without lockdown. The actual prices during the lockdown are the average for the actual prices in 2020 during each

phase. In some phases prices are not available as there is complete lockdown. These phases are mentioned as LD. The table below shows the price projections for each phase. The projections for 2020 are mentioned as “Expected” prices during each phase. For PI phase the prices are actual, so the cell for expected is mentioned as NR- not relevant.

Revenue is price multiplied by quantity. Based on the actual and projected quantity and price, the actual revenue and expected revenue is estimated. The estimated figures are given below in the table 11. The total revenue expected during the lockdown period if there was no lockdown would have been Rs 27968 million (Rs 2796.8 Crore). The total revenue actually generated during the lockdown period was Rs 12902 million (Rs. 1290.2 crore).

**Table 11: Price, Quantity and Revenue of Tea during the lockdown period 2020**

	Period	North India			South India			All India		
		2019	2020		2019	2020		2019	2020	
		Actual	Actual	Expected	Actual	Actual	Expected	Actual	Actual	Expected
Average price in Rs per kilogram	PI	115.5	98.1	NR	111.6	93.6		115.5	98.1	NR
	PII	130.5	LD	110.8	111.8	LD	93.8	121.1	LD	102.8
	PIII	157.2	LD	133.5	107.4	125.9	90.0	136.6	125.9	116.0
	PIV	161.7	121.2	137.2	106.0	117.5	88.9	144.3	120.4	122.5
	PV	163.8	206.0	139.1	110.9	97.4	93.0	149.8	126.5	127.2
Quantity in million kilograms	PII		0.0	18.0		0.0	4.6		0.0	22.6
	PIII		13.6	27.2		3.7	7.3		17.2	34.5
	PIV		17.0	34.0		4.6	9.1		21.6	43.1
	PV		52.3	104.6		12.0	24.1		64.3	128.7
	Total		82.9	183.7		20.3	45.2		103.1	228.9
Revenue in million Rupees	PII		0	1990.0		0	434.1		0	2321.7
	PIII		0	3625.3		460.9	659.1		2170.9	3999.6
	PIV		2058.3	4660.9		536.8	812.4		2594.6	5280.2
	PV		10774.3	14546.9		1172.7	2240.6		8136.5	16366.8
	Total		12832.7	24823.1		2170.4	4146.2		12902.0	27968.2

Note: PI- Feb 1 – Mar 23; PII-Mar 24- April 2; PIII-April 3-April 14; PIV-April 15- April 30; PV-May 1 till May 30

*Estimated Revenue Unrealised Due To Lockdown:* The total revenue unrealised for the tea sector during the lockdown period was to the tune of Rs 13966 million (1396.6 crore rupees)(Table 12). The loss was mainly concentrated in the North India accounting for a loss of Rs 1199 crores, while the loss in South India was about Rs 197.5 crores. Much of the loss has occurred due to the revenue loss in phase V in North India, which in turn is due to the fall in quantity of production, even though the prices are favourable, higher than the price in other phases. In terms of volume, month

of May onwards the quantity sold keeps usually increasing in North India. It is this fall in expected output that would cause the revenue to fall dramatically, even though prices may be increasing.

**Table 12: Price Change and Revenue Loss in Tea Sector**

		North India	South India	All India
Growth rate of average price in 2019(%)	PI – PII	13.0	0.2	4.8
	PII-PIII	20.5	-4.0	12.9
	PIII-PIV	2.8	-1.3	5.6
	PIV-PV	1.3	4.6	3.8
Price Change (expected-actual) in rupee	PII	110.8	93.8	102.8
	PIII	133.5	-35.9	-9.9
	PIV	16.0	-28.6	2.1
	PV	-67.0	-4.5	0.7
Revenue Loss in million rupees	PII	-1990.0	-434.1	-2424.0
	PIII	-3625.3	-198.2	-3823.5
	PIV	-2602.6	-275.6	-2878.2
	PV	-3772.6	-1067.9	-4840.5
	Total	-11990.4	-1975.8	-13966.3

## ii. Cardamom

Cardamom primarily consists of two varieties, the small and the large. The small cardamom has strong aroma, is green in colour and the entire pod including the skin and the seed can be used in food. The large cardamom is generally black in colour, with camphor like aroma and only the seed is used for food aroma. Generally the small cardamom is more sought and has higher price than the large cardamom. The small cardamom is grown in the southern state of Kerala, the most followed by Karnataka and Tamil Nadu. The large cardamom is grown in the north eastern states of Sikkim, parts of Uttarakhand and some north eastern states.

To estimate the revenue loss in cardamom sale we need to estimate the output, prices and revenue for the lockdown period. We also need to project the output, prices and revenue during the same period assuming there was no lockdown. The difference between the two expected revenue and actual revenue would give us the revenue loss during the period. We estimate the abovesaid price output, price and revenue for the small and large cardamom separately and then add them upto arrive at the revenue loss.

In case of both small and large cardamom a major part of the commodity is traded through the auction centres in various parts of the country. The auction centres had remained by and large closed during the entire lockdown period starting from March 24<sup>th</sup>. 2020.

*Projecting the Expected Quantity during the Lockdown Period:* The Spices Board of India gives the estimated monthly average domestic quantity of cardamom production. The estimated figures are available only for 2017-18 and 2018-19 (Table 13). These figures are also provisional and advanced estimates. Since we do not have any other reliable figures we depend on these numbers. The Spices Board gives the annual estimates of both large and small cardamom up to 2018-19. To calculate the 2019-20 figures the sum total of all quantities auctioned in the small cardamom is calculated month wise and totalled for the yearly estimate. We take the monthly distribution of the cardamom auction for 2019-20 and distribute the total estimated figures by the Spices Board to calculate the month wise output for the years 2017-18 to 2019-20. Thereafter, we take the average output of the months of April, May and June for the last two years (2018-19 and 2019-20) and take this as the average outputs for the same months in the year 2020-21. For the case of the large cardamom we are further constrained by the fact that the daily auction details does not provide the quantity auctioned. So here we assume that the monthly distribution is the same as that of the small cardamom (which may be overstating, but till we get an alternative dataset we stick to this method). The estimated as well as projected production of cardamom is given in table below. It may be noted that the output estimated for the entire period is under the assumption of no lockdown. It is the output estimated under normal production activities.

**Table 13: Monthly average Production of Cardamom in India in Tonnes**

	2017-18 (P)		2018-19 (adv.Est)		2019-20		2020-2021	
	Small	Large	Small	Large	Small	Large	Small	Large
Apr	1552.8	444.1	973.0	651.9	1171.5	548.0	1072.3	599.9
May	1620.9	463.6	1015.7	680.5	1222.9	572.0	1119.3	626.2
Jun	901.5	257.8	564.9	378.5	680.2	318.1	622.5	348.3
Jul	870.4	248.9	545.4	365.4	656.7	307.2		
Aug	1280.5	366.2	802.4	537.6	966.2	451.9		
Sep	1957.5	559.9	1226.6	821.8	1476.9	690.8		
Oct	1987.6	568.5	1245.5	834.4	1499.6	701.4		
Nov	2757.2	788.6	1727.7	1157.5	2080.3	973.0		
Dec	3081.7	881.4	1931.1	1293.7	2325.1	1087.5		
Jan	2334.4	667.6	1462.8	980.0	1761.3	823.8		
Feb	1538.1	439.9	963.8	645.7	1160.4	542.8		
Mar	767.5	219.5	481.0	322.2	579.1	270.9		
Total	20650.03	5906.01	12939.97	8668.99	15580.2	7287.5		

Source: State Agri/Hort. Departments/DASD Kozhikode Cardamom: Estimate by Spices Board for 2017-18 and 2018-19. For 2019-20 and 2020-21 are projections based on past performance.

Now we let us move to the effect of covid19 lockdown on the production and sales of cardamom. Cardamom, unlike other plantation commodities, still continues to be not traded. The trading in

cardamom has to take place through the auction platforms in various parts of the country. However since auctions have not resumed since they were shut on March 24<sup>th</sup>. Our enquiry with a few traders found that they do conduct small amount of trade within the region at small scale but large movement of cardamom was completely restricted till date. This implies that even though the production activities in the farms could continue at half capacity since they could not be marketed they are stored. The premium for small cardamom is its size and green colour, both of which will reduce over time in storage. So, even if they are not sold now, it does not imply that it is a simple postponement of the trading activity. This involves loss of value as well.

Now let us first estimate the expected output in cardamom during lockdown and project output for the same period assuming no lockdown. It would be safe to assume that if the lockdown rules stipulates to work at 50 percent work force capacity, then the output would also be remaining at 50 percent. This is especially so in the agriculture and plantations where most operations are labour intensive. Based on this assumption the outputs during the lockdown period are given below. From the Table 14 below it can be seen that the fall in output during this period would be to the tune of 1226 tonnes of small cardamom and 674 tonnes of large cardamom (Table 14).

**Table 14: Expected output in Cardamom with and without Lockdown (in tonnes)**

	Lockdown period	Expected output with lockdown ( tonnes)		Expected output without lockdown (tonnes)	
		Small	Large	Small	Large
First phase first week	March 24-31 @ 0 output	0.0	0.0	130.8	61.2
First phase week 2 & 3	April 1 to 15 @ ½ output	268.1	150.0	536.2	300.0
Second phase week	April 15 to April 30 @ ½ output	268.1	150.0	536.2	300.0
Third phase, fourth phase	May @ ½ output	559.7	313.1	1119.3	626.2
Total with lockdown		1095.8	613.1	2322.4	1287.3
Short fall in production		1226.6	674.2		

The average prices for cardamom during the same period of lockdowns are mentioned below. The average prices are the average of the auction prices during the phases of lockdown. The prices for the period are obtained from the table 15 below.

**Table 15: Monthly Average Domestic Prices of Cardamom in India**

	2017-18		2018-19		2019-20	
	Small	Large	Small	Large	Small	Large
Aug	1063.71	794.75	1132.01	666.5	3251.55	593.75
Sep	1143.91	735.62	1270.83	641.87	3039.78	557.08
Oct	931.07	687.5	1196.68	643.12	2652.14	547.5
Nov	837.16	711.87	1300.2	627.5	2803.44	560.84
Dec	908.31	724	1316.67	644.06	3124.58	530
Jan	967.74	789.37	1431.81	635	3801.57	571.75
Feb	985.98	758.12	1397.53	565	3312.77	547.91
Mar	952.07	777.35	1471.18	578.12		677.74
Apr	915.27	721.87	1812.92	600		
May	927.37	723.12	2442.96	664.37		
Jun	914.41	615.5	2873.44	612.5		
Jul	1021.63	695	3435.92	592.81		

Source: Spices Board.

The growth rate of cardamom prices in year 2019 corresponding to the period before and after lockdown in 2020 is taken to estimate the price changes in 2020 for the lockdown period, assuming no lockdown. The price change is assumed to be the same as that seen in the previous year, 2019. So the growth rate in 2019 is used to extrapolate the prices in 2020. Based on these estimates the average price for small cardamom during the lockdown period would have been Rs. 3289.7 had there been no lockdown. For large cardamom the price would have been about Rs.658.5 for the same period. Since there was no auction during the period, price fall during the same period would be the same as above mentioned (Table 16).

**Table 16: Projected Average Price of Cardamom during Lockdown (Rs per Kilogram)**

Year	variety	Average price		Growth rate of average price between before and after lockdown	Expected average price during Mar 24- May 31 assuming no lockdown	Price fall
		Before lockdown Feb 1 – Mar 23	During lockdown Mar 24- May 21			
2019	Cardamom( Small)	1430.75	1990	39.09		
	Cardamom( Large)	570.92	619.95	8.59		
2020	Cardamom (Small)	2365.2	lockdown		3289.70	3289.70
	Cardamom (Large)	606.46	lockdown		658.54	658.54

What is the total revenue unrealised during the period? The total revenue would be to the tune of Rs 848,8crores, of which Rs 764 crores due to the small cardamom and the remaining Rs 84.8 crore due to large cardamom. The revenue unrealised are also given below in table 17.

**Table 17: Revenue Losses in Cardamom Plantations due to Covid 19 Lockdown till May 31st 2020 (Rs. Crores)**

	Small	Large	All
total expected revenue or total revenue loss without auction	764.0	84.8	848.8
total expected revenue during lockdown due to production fall assuming auction continued	360.5	40.4	400.9
total revenue loss during lockdown if auction had continued	403.5	44.4	447.9

#### iv. Coffee

To estimate the loss of value of coffee since most of coffee is exported (about 85 -90 percent) we need to estimate the production loss due to lockdown and then the revenue loss has to be measured both for the domestic and international markets. We first estimate the production loss in coffee.

Coffee is harvested once in a year, usually November to January for the Arabica and December to April for Robusta. This implies that most of the coffee harvesting was already completed for both varieties for the year 2019-2020. The post-harvest season is mainly for manuring and cleaning which is done after the monsoon rains during June to September. Given these facts, we can safely assume that coffee production was not affected by the lockdown during the period March 24 to May 31<sup>st</sup>. However, only production is not affected. Sale of coffee is affected severely due to complete stoppage of exports during the phase, restricted markets for coffee in the domestic markets and fall in price due to lack of demand in the export markets. This would imply that the coffee prices would fall drastically. It is possible that the coffee growers with ability to withhold may not sell in the current market and may wait for prices to increase in future. However, global demand for coffee may be reduced in the near future as there would be sharp fall in per capita incomes across countries following covid19. This fall in demand would show up as inertia for prices to revert to pre-covid19 lockdown phase in the near future.

**Table 18: Quantity of Coffee Produced (in MTs)**

Type	Arabica	Robusta	Total
2017-18	95,000	221,000	316,000
2018-19	95,000	2,24,500	3,19,500
2019-2020	90,400	208,900	299,300

For the year 2019-2020 the entire production is by and large over and the total quantity is 299, 300 tonnes (Table 18). From table (Table 19) below it can be seen that the total exports during April 1 to June 1<sup>st</sup>2020 was lower by Rs. 133.41crores than the same period in 2019. The lockdown was imposed on March 24<sup>th</sup> 2020. This shortfall may be largely due to the lockdown restrictions in India due to covid19. However the decline in exports had started showing from January itself. Compared to January 2019 to June 1st 2019 the shortfall in exports for the same period during 2020 was by Rs 466.31crores. This implies that the decline in coffee exports may be more due to weak demand conditions in the international market rather than lockdown effect within India. But the weak demand conditions stem from the covid19 responses in these major importing countries such as Germany and Italy<sup>28</sup>. This can be seen from table below which shows that the overall exports during January to June 2020 was lesser by 34657.41 tonnes compared to the same period in 2019. The total exports in 2019-20 was 196507.572tonnes (Table 20). The total production during the same period was 299300 tonnes. So the quantity available for domestic sales would be production minus exports which is 102792.5 tonnes. We don't have data on monthly domestic sales of coffee. So revenue from domestic sales can only be at best estimated with some strong assumptions. We assume that the growers would release the coffee to the markets more or less equally throughout the year. In case the April and May along with a week of March would account for 19103.45 tonnes of coffee unsold.

**Table 19: Export update for Coffee: From 1st January 2020 to 1st June 2020 (in metric tonnes)**

	1st January 2020 TO 1 June 2020	1st January 2019 TO 1 June 2019	1st April 2020 TO 1 June 2020	1st April 2019 TO 1 June 2019
Permits issued in tonnes	144008.698	178666.108	56172.165	69928.060
Value in Rs. Crores	2411.65	2878.02	961.10	1094.56

**Table 20: Export Permits for Coffee issued from 1<sup>st</sup> January to June 1 (tonnes)**

		Ar.pmt	Ar.chy	Rob.pmt	Rob.chy	R.seeds	R & g	Instant	Total
Export	2020	18071.3	6366	13542.1	64813.8	26.31	66.88	5188.27	108075
	2019	24683.8	6342.09	19152.6	82833.5	23.6	75.21	8997.55	142108
re - exports	2020	5	0	0	0	0	0	35929	35934
	2019	0	0	0	0	0	0.32	36557.5	36557.8
Export+ re -export	2020	18076.3	6366	13542.1	64813.8	26.31	66.88	41117.2	144009
	2019	24683.8	6342.09	19152.6	82833.5	23.6	75.53	45555	178666

Note : All figures in column 1 , 2 and 3 are based on export permits.

<sup>28</sup><https://economictimes.indiatimes.com/industry/cons-products/food/coffee-exporters-seek-govt-help-amid-covid-19-crisis/articleshow/74805023.cms?from=mdr> accessed on 27/5/2020.



To estimate price for coffee for the lockdown months, we project the prices at the same monthly growth rate for the previous year 2018-19. Then we use the growth rates for the actual prices given for the January 2020 and estimate prices for the following months till May 2020. This is done for the dominant varieties of coffee and the averages of these varieties are taken to be the indicative price. We are not able to arrive at a better measure due to the lack of production data on a monthly basis by variety. The projected prices are given below in the Table 21.

**Table 21: Estimated Average wholesale Domestic Price of Coffee in 2020 per Kilogram**

	Arabica Plantation	Arabica Cherry	Robusta Cherry	average price
January – 2020	229	170	160	187
February	230.9	171.6	160.6	186
March	226.7	168	159.4	186
April	231.1	169.6	160.6	186
May	231.1	162.8	160	185

To estimate revenue loss through domestic sales we simply multiply average price with quantity unsold through these months. In the case the April and May along with a week of March would account for 19103.45 tonnes of coffee unsold. Taking the price to be 186 Rs per kilogram the revenue loss from unsold domestic coffee is pegged at Rs 355.32 crores. So the total loss in the coffee sector would be Rs 457.17 crores from export sector and Rs 355.32 crores, summing upto Rs 812.49 crores.

To sum up, the total revenue loss in the four sectors during March 24<sup>th</sup> to May 31<sup>st</sup> would be to the tune of Rs. 3920 crore (Table 22).

**Table 22: Total unrealized Revenue in Plantation Sector**

Plantation Sector	Revenue unrealised (in crore Rupees)
Rubber	861.8
Tea	1396.6
Cardamom	848.8
Coffee	812.49
Total	3919.69

Agencies that have estimated the losses in these sectors put their figures as follows. UPASI, a lead association of planters in India estimated that in South India, the crop loss of tea sector was 23 million Kilogram worth Rs 314 crore. The unsold tea for domestic market and export as a result of

the suspension of auctions will come to Rs 168 crore<sup>29</sup>. As per the North Eastern Tea Association (NETA) an estimated loss of 80 million kgs of Tea in Assam and its worth at Rs 152.26 per Kilogram would be the loss. The total loss would be of Rs 1218 crores<sup>30</sup>. All Assam Small Tea Growers' Association (AASTGA) claimed that the small tea growers of Assam lost a loss of Rs 500 crores due to crop loss and skiffing activity<sup>31</sup>. In cardamom sector 700 tonnes worth Rs 180 crore have piled up in the absence of domestic and export trade with the suspension of auctions, as per UPASI.

## 7. The Policy Interventions and Need for New Directions

The current economic shock caused by the lockdown is a peculiar one, quite unlike other shocks. This shock affected both the demand and supply side simultaneously. Production and sales had to be drastically reduced, from supply side. Reduced incomes, unemployment, wage loss and inaccessible consumer markets reduced consumption dramatically. The government of India had implemented the "Atmanirbhar Bharat" stimulus package aimed at reviving the economy from the pandemic. The package in general is focused on the supply side, especially agriculture and Micro, Small and Medium Scale enterprises (MSMEs). The package aims to revive the economy by providing credit subsidies and working capital support. The announcement made for the second tranche of the package was the relevant one for the plantations sector. Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funds<sup>32</sup> for afforestation and plantation works worth Rs 6000 crore was announced in the package. The government has announced an emergency working capital funding for farmers through NABARD for Rs 30000 crores. A third scheme announced is the concessional credit to 2.5 crore farmers through Kisan Credit Cards for Rs 2 lakh crore. The CAMPA funds does not address any of the sector's woes. Its expressed objective is to provide employment to the tribal populations along with afforestation. The working capital fund and KCC concessional credit Growers in the plantation sector would be helpful in reopening the plantations and resuming operations to a few in the plantation sector, especially, small growers.

However, looking at the package, it is evident that it does not address the core concerns of the sector and even the current package seems to be lacking at least on three counts. Firstly, the package does not address issues that are specific to the plantations. Secondly, the package, even when is available

<sup>29</sup> <https://economictimes.indiatimes.com/news/economy/agriculture/loss-in-south-indian-tea-and-spices-plantations-due-to-lockdown-over-rs-1200-crore-upasi/articleshow/75163984.cms> accessed on 21/5/2020

<sup>30</sup> <https://economictimes.indiatimes.com/news/economy/agriculture/covid-19-assam-tea-planters-stare-at-rs-1218-crore-loss/articleshow/75160738.cms> accessed on 21/5/2020

<sup>31</sup> <https://economictimes.indiatimes.com/news/economy/agriculture/small-tea-growers-in-assam-estimate-a-loss-of-rs-500-crore-due-to-the-pandemic/articleshow/75276507.cms> accessed on 21/5/2020

<sup>32</sup> The CAMPA funds are amounts collected from the builders and other real estate players who would want to convert forest land to non-forest usage, under the Forest (Conservation) Act 1980. The funds so collected is pooled and then distributed to states for spending on afforestation programmes.

to some segments of the plantation sector, it is inadequate. Thirdly, the package does not address the most important problem facing the plantations, namely the drastic drop in demand for plantation goods.

The lockdown measures had particularly affected the demand for plantation commodities such as tea, coffee and cardamom with the shutting of restaurants and wayside shops, as well as exports. The demand for Rubber nosedived with the stoppage of most forms of vehicle movements. Given these aspects the immediate concern of all the plantations are to market the existing stock of commodities. Though storage is possible, undue delay erodes the value of these commodities. This sudden drop in demand occurs in the context of the history of falling prices and excess supply. The private sector demand conditions are bound to remain subdued, even if the official lockdown is withdrawn. Restaurant, hotels and transportation industries would have very low demand as long as the covid19 threat remains due to voluntary precautionary behaviour of consumers. This being the case globally, export demand also would remain subdued. Revival of both demand, both in the domestic and export market should be of utmost priority. However, this in the short run may be a tall order. In the immediate post-covid conditions, the government should resort to interventions aimed at arresting the fall in price and at the same time ensuring the production of commodities. An immediate short term measure to limit price fall is to introduce a Minimum Support Price for all plantation commodities. However, without procurement, MSPs usually end up as failure. Hence, procurement of these commodities for all PDS, central and state governments at this declared MSP could stabilize the price and sustain their demand. In the long run however, such pricing policy may lead to gradual erosion of productivity of the crop. In the long run the objective should be to enhance value of the commodities, both by moving up the value chains, lock in the quality of these products, as well as increasing the sales volume.

In general the specificities of the plantation sector need to be addressed separately, rather than extending the support provided to the agriculture or industrial sector. On the supply side, the key issues that need redressal are labour and capital availability for continued production and smoothening out supply chain and marketing bottlenecks. The commodity boards had been implementing various measures to mitigate some of these problems. The Tea board extended a moratorium of six months on interest and instalments for the loans taken through the Special Purpose Tea Fund (SPTF) scheme for replanting/planting and rejuvenation. The tea board also conducted special e-auctions for special plucking done on 21<sup>st</sup> May. The Spice Board had intervened to enhance exports by relaxing quality checks to countries not requiring quality standards certificates. Similarly Rubber Board has, through its producer companies arranged to buy Rubber sheets from the farmers at a base price, thus providing liquidity for the farmers. The commodity would be sold as the markets open and the full market price would be reimbursed later. However as it can be seen from the measures adopted the commodity boards there is very little financial support that the Boards are able to provide, other than institutional adjustments. For this to occur the Government of India must take the Boards into confidence and address the specific problems of the sector through the specific Boards. The Commodity Boards have a vantage position

in reaching out to all the stakeholders in their respective plantation sector. Separate financial packages must be reached out to the plantation sector through the Boards.

Moreover, the immediate financial support must cover at least the losses incurred during the lockdown and also costs incurred to restart operations in the sector. Initial investments are higher and gestation periods are longer in plantation crops generally. Hence the support must be larger and for longer periods for the crop.

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Appendix
**Box 1: Lockdown Rules across different States in India relevant to the Plantation Sector**

State	Lockdown rules	Date of implementation
Assam	Tea estates and small gardens are shut	24th March 2020
	Specific operation relating to irrigation and weedicides are allowed under restricted condition	27th march 2020
	Tea gardens are allowed to function under restrictive conditions	1st April 2020
	The central government issued a notice directing that 50% of the tea garden workforce can remain at work in the gardens, provided proper measures for sanitisation are taken and social distancing is maintained.	3rd April 2020
	Tea estates in Assam and West Bengal after closure of production for three weeks during lockdown, resumed operations with a partial work force.	12th April, 2020
	All tea gardens and tea manufacturing units to operate with full capacity subject to maintenance of social distancing, hygiene and other guidelines of the Health Department	May 8th 2020
West Bengal	Tea estates and small gardens are shut	24th March 2020
	The central government issued a notice directing that 50% of the tea garden workforce can remain at work in the gardens, provided proper measures for sanitisation are taken and social distancing is maintained.	3rd April 2020
	15% workforce can be used for skiffing and plucking the first flush leaves	9 April 2020
	Employing 25% of the labour force for all activities of the garden, albeit with necessary precautions. It was decided that the workforce will be employed rotationally.	11 April 2020
	E-Auction of tea resumed. This was shut from March 17.	April 22
	allowed tea planters in the state to deploy 50 per cent workforce at a time to carry out operations in the gardens during the ongoing lockdown	May 11, 2020
Tripura	Tea, coffee and Rubber plantations are shut following lockdown	24th March 2020
	Tea, coffee and Rubber plantations to start functioning at 50 percent capacity	April 20, 2020
Karnataka	Lockdown of all plantation related activities	24th March 2020
	Tea, coffee and rubber plantation have been allowed to work with 50 per cent workforce, and a similar exemption have been given to processing, packaging, sale and marketing of these produce.	April 23, 2020

Tamil Nadu	Lockdown of all plantation related activities	24th March 2020
	Six days after the State-wide lockdown, the government on Sunday relaxed curfew for carrying out agriculture-related works and transportation of essential goods.	March 29th 2020
	Agricultural and allied activities, plantations, marine and inland fishing, animal husbandry, poultry, milk and milk processing, are exempted from the lockdown.	May 4th 2020
Kerala	Lockdown of all plantation related activities	24th March 2020
	The Kerala government relaxed the conditions from Friday to allow harvesting, processing irrigation, pesticide application and transportation in a limited way with one employee in half an acre for tea and one acre in cardamom.	4th April 2020
	Kerala government has exempted tea, cardamom, oil palm, cashew, coffee from the purview of the current lockdown.	April 05, 2020
	Agricultural activities All agricultural and allied activities are permitted. All shops supplying agricultural produce is also permitted to operate. Farming operations, including procurement, transportation and sales. Plantation sector, and this includes cardamom plantations that were left out by the Centre.	April 20th 2020

### Box 2: Projection Method for Unrealized Revenue during the Lockdown

$Revenue = quantity * price$

$Unrealised Revenue = (quantity_e * price_e) - (quantity_r * price_r)$

Where;

$quantity_e = \text{daily average quantity of a particular month for last two years}$   
 $* \text{number of working days in each lockdown phase in current year}$

$price_e = \text{growth rate of price for corresponding period in the previous year}$   
 $+ \text{price level at the beginning of lockdown}$

$price_r = \text{actual price for the corresponding period}$

$quantity_r = \text{daily average quantity of a particular month for last two years}$   
 $* \text{number of days in each lockdown phase in current year}$

**Table A1: Covid 19- Total Cases as on 16<sup>th</sup> May 2020**

	Positive cases cumulative		Active as on 16th May 2020		Discharged		Death	
	All	Plantation region	All	Plantation region	All	Plantation region	All	Plantation region
Karnataka	1092	21	559	19	496	2	36	0
Tamil Nadu	10108	588	7438	178	2599	404	71	6
Kerala	588	588	87	89	497	495	4	4
Assam	92	90	48	49	41	39	2	2
West Bengal	2461	16	1407	6	829	9	225	1
Tripura	156	154	114	113	42	41	0	0

**Table A2: Average Tea Price during the Pandemic 2020**

Week Ending/Date	N.India	S.India	All
4-Jan	141.11	107.54	133.7
11-Jan	138.85	109.36	132.53
18-Jan	135.26	112.59	130.16
25-Jan	131.85	113.33	127.41
1-Feb	124.36	113.42	121.96
8-Feb	121.32	110.98	118.98
15-Feb	116.87	110.42	115.25
22-Feb	111.91	109.89	111.34
29-Feb	113.22	111.14	112.57
7-Mar	114.15	111.92	113.16
14-Mar	107.51	112.66	110.48
21-Mar	114.95	112.5	113.45
4-Apr	146.1	111.14	128.69
11-Apr	162.58	111	137.47
18-Apr	163.05	100.03	143.78
25-Apr	160.31	112	144.86
2-May	163.83	110.89	149.81

Source: Tea Board of India, 2020.

**Table A3: Tea Price Variations across Markets during the Pandemic 2020**

	Coefficient of Variation					
	All India		North India		South India	
	Y2020	Y2019	Y2020	Y2019	Y2020	Y2019
4-Jan	21.3	17.9	6.6	7.2	6.3	13.1
11-Jan	21.4	17.2	6.0	7.8	17.0	13.0
18-Jan	21.7	16.0	5.6	7.8	21.4	13.4
25-Jan	20.1	14.7	6.7	6.3	20.7	13.8
1-Feb	19.8	13.1	9.5	3.4	21.2	14.8
8-Feb	18.1	12.4	8.3	3.5	20.9	14.1
15-Feb	16.7	12.0	8.0	4.6	20.3	13.9
22-Feb	16.8	11.6	9.9	2.8	20.2	13.8
29-Feb	18.9	10.9	7.5	6.0	22.5	12.8
7-Mar	17.3	10.0	6.9	3.6	22.2	11.9
14-Mar	20.2	10.4	0.0	0.0	22.6	11.6
21-Mar	20.0	10.3	11.6	1.6	23.1	12.2
4-Apr	Lockdown	21.9	Lockdown	13.6	Lockdown	12.2
11-Apr		22.9		3.1		12.9
18-Apr		25.6		5.0		9.2
25-Apr	16.1	24.5	7.5	11.2	16.2	13.3
2-May	39.3	26.6	2.7	16.2	19.9	13.7

Source: <http://www.teaboard.gov.in/WEEKLYPRICES/2020>**Table A4: Monthly Average Tea Price during the last two years**

	N.India		S. India		All India	
	2019-20	2018-19	2019-20	2018-19	2019-20	2018-19
April	162.33	153.46	111.05	104.69	144.65	131.82
May	155.14	158.75	107.36	94.81	142.15	136.64
June	166.98	166.46	103.18	92.14	151.83	144.48
July	168.67	169.09	91.26	93.66	151.15	150.46
August	162.83	158.02	90	96.34	148.71	146.8
September	157.94	153.4	93.37	106.51	150.16	146.38
October	152.2	153.3	95.39	106.57	138.86	142.83
November	149.19	155.04	92.35	109.33	138.19	145.58
December	147.13	150.97	94.78	108.12	137.91	144.37
January*		135.17		110.99		129.77
February*		116.4		110.6		114.87
March*		115.08		112.27		113.5



**Table A5: Rubber Price in India**

	2019	2019	2020	2020
	RSS4	RSS5	RSS4	RSS 5
1-Feb			13500	12900
2-Feb	12350	11650		
3-Feb			13300	12700
11-Feb	12350	11700		13000
12-Feb	12350	11650	13700	13200
13-Feb	12350	11600	13800	13250
21-Feb	12500	11900	13600	13100
22-Feb	12500	12000	13600	13100
23-Feb	12550	12050		13050
1-Mar	12800	12300		12850
2-Mar	12800	12300	13450	12800
			13450	
11-Mar	12700	12200	13000	12500
12-Mar	12700	12250	13000	12500
13-Mar	12700	12300	13000	12500
14-Mar	12750	12400	13000	12500
15-Mar	12800	12450		
16-Mar	12800	12450	13000	12550
			12900	12500
18-Mar	12850	12500	12850	12450
19-Mar	12900	12550	12800	12400
20-Mar	12900	12600	12700	12300
21-Mar	12900	12600	12650	12250
22-Mar	12900	12600		12000
23-Mar	12900	12600	12500	
			lockdown	
13-May	13300	13000	11600	11000
14-May	13400	13100	11600	11000
15-May	13450	13200		

Source: <http://www.rubberboard.org.in/indianPrices>

**Table A6: Wholesale Prices of Coffee Seeds in Important Coffee Consuming Centres**

Wholesale Prices of Coffee Seeds in Important Coffee Consuming Centres (₹/kg of clean coffee seeds)							
Year and Month	Bengaluru			Chennai		Hyderabad	
	PL	AC	RC	PL	RC	PL	RC
Jan-18	221	189	141	282	178	303	173
February	215	189	139	280	180	288	173
March	206	166	135	282	180	290	178
April	200	161	135	275	181	295	175
May	204	178	146	235	150	220	160
June	208	175	148	233	158	235	165
July	204	170	150	228	178	225	160
August	208	172	155	233	173	235	165
September	207	192	159	201	167	200	155
October	209	193	162	218	173	210	160
November	222	192	171	215	173	225	165
December	233	198	174	220	170	230	170
<b>Average 2018</b>	<b>211</b>	<b>181</b>	<b>151</b>	<b>242</b>	<b>172</b>	<b>246</b>	<b>167</b>
Jan-19	208	192	172	218	173	225	170
February	212	195	173	220	177	225	170
March	203	188	171	205	173	215	170
April	212	191	173	215	178	220	175
May	212	178	172	208	173	215	170
June	215	180	173	215	173	220	175
July	217	171	175	220	175	225	180
August	227	169	160	223	178	230	180
September	248	172	164	228	183	235	185
October	232	170	159	248	163	275	180
November	223	168	157	253	160	300	175
December	228	169	159	260	165	330	180
<b>Average 2019</b>	<b>220</b>	<b>179</b>	<b>167</b>	<b>226</b>	<b>173</b>	<b>243</b>	<b>176</b>
January – 2020	229	170	160	260	166	325	175

Note: PL = Arabica Plantation "A", AC = Arabica Cherry "AB", RC = Robusta Cherry "AB"



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