

# EcoLogistics

Low carbon freight for sustainable cities



## Multiple Stakeholders Help Indian Cities to Put Supply Chain of Essential Goods Back on Track





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In the past few years, several natural disasters have overwhelmed cities around the world. However, none of them have caused the unprecedented scale of damage that the COVID-19 pandemic is inflicting across the world. Due to its highly contagious nature, densely-populated cities areas are the most vulnerable areas.

Several countries are imposing lockdowns to ensure social distancing, as it is the only known effective response to contain the spread of this virus. However, these lockdowns have exposed cities to unexpected emergencies and management nightmares.



## **India's Early Lockdown Strategy**

The Government of India announced the world's largest lockdown on the 24<sup>th</sup> of March 2020, restricting the movement of more than 1.3 billion people. Since then, the lockdown has been extended three times, with the fourth phase set at end of May 2020. In the third phase of the lockdown, which lasted from the 4<sup>th</sup> to the 17<sup>th</sup> of May, the national government started easing some of the restrictions, including those on the movement of vehicles and economic activities in non-containment zones.

However, enforcing and managing the lockdown in the second-most populous country has been a herculean task. The lockdown, when it was first announced, came into effect within a few hours of announcement, following which there was immediate cessation of movement of transport across the country. All markets were closed, people's mobility was restricted and all business operations were suspended, dealing a massive shock to supply-chain networks. Efficient distribution of essential items is crucial for an effective lockdown. It can be said that "supply chains play a crucial role in combating disaster like never before," essentially due to the scale and nature of today's networked supply chains.

## **Disruption of Supply Chain of Essential Goods**

Urban supply chains are complex due to the involvement of multiple government and private stakeholders, including informal actors. During the first few days of the lockdown, the government decisions were constantly evolving with regard to the operational aspects. Communication was limited, adding to the confusion among the stakeholders in supply

chains, especially in the informal sector. There was limited coordination between various states as they were working with different plans. The transport of essential items by road was impacted due to inter-state restrictions. Though some states put up additional notices, allowing the movement of goods, there have been cases of vehicles transporting essential goods being stopped at borders. Lockdown exemptions were largely confined to healthcare-related personnel, police, media and executive officials of the administration. A majority of the freight vehicles were stranded at various locations across the country.

## **Disaster Management Act Invoked**

In the face of such hurdles, the Government of India formulated guidelines for the supply of essentials under the National Disaster Management Act, 2005, to provide clarity and a uniform framework throughout the country.

The Disaster Management Act (DMA), enacted by Parliament in 2005, has proved to be crucial during past disasters like floods and cyclone. But it had never been applied to the entire country in one go earlier. Also, this is the first time that the Act has been invoked to address a public health crisis. The National Disaster Management Authority (NDMA) was set up for effective implementation of the DMA, issuing advisories and guidelines; the respective state governments formulate state and district-level responses and measures. Deputy commissioners and sub-divisional magistrates at the district level are responsible for ensuring inter-departmental coordination, provision of shelter, food, drinking water and other essential items. The DMA requires a National Plan, State Plans and District Plans to be formulated every year to ensure preparedness for disasters. However, it needs to be noted that urban local bodies have a limited role in the Act and guidelines, apart from the issuing permissions and ensuring the smooth movement of goods.

## **Guidelines for Operational Continuity of Supply Chain**

The NDMA directed all the ministries/ departments of the national government, state governments and Union Territory authorities to take suitable measures to ensure a sustainable supply of essentials during the entire duration of the lockdown. Necessary guidelines were subsequently issued by the NDMA, followed by addendums, to address ground-level implementation snags.

Some of the key points of the guidelines include:

- *“All facilities in the supply chain of essential goods, whether involved in manufacturing, wholesale or retail of such goods through local stores, large brick and mortar stores or e-commerce companies should be allowed to operate, ensuring strict social distancing without any restriction on their timing of opening and closure.*
- *Shops (including Kirana and single shops selling essential goods) and carts, including ration shops (under PDS, dealing with food and groceries (for daily use), hygiene items, fruits and vegetables, dairy and milk booths, poultry, meat, and fish, animal feed and fodder etc., should be allowed to operate, ensuring strict social distancing without any restriction on their timing of opening and closure.*
- *District authorities may encourage and facilitate home delivery to minimize the movement of individuals outside their homes.”*

The guidelines facilitated in providing special identity cards and curfew passes to truck drivers for operational continuity without any hindrance. String coordination between the national government and the state governments and UT authorities facilitated swift movement of groceries, including hygiene products.

Key barriers	National Govt response	State Government Response
<input type="checkbox"/> Companies unable to move goods from warehouses <input type="checkbox"/> Hurdles in last mile delivery <input type="checkbox"/> Stores unable to replenish supplies <input type="checkbox"/> Production halted	<input type="checkbox"/> Union Home ministry sets up control room <input type="checkbox"/> States asked to allow exempted activities to function unhindered <input type="checkbox"/> Standard protocols and framework for supply of essential under Disaster Management Act <input type="checkbox"/> States asked to set up helpline <input type="checkbox"/> DPIT, pharma dept, hold talks with E commerce companies and retail shop owners <input type="checkbox"/> E-commerce to focus on supply of essentials <input type="checkbox"/> States to be given 3 months of PDS supply	<input type="checkbox"/> Many states finalise the procedures <input type="checkbox"/> Systems being put in place to deliver essentials at door steps

## Private Sector Takes Active Role

There were visibly knee-jerk and haphazard responses on the ground initially towards maintaining a regular supply of essential goods, despite multiple guidelines from the national government. This uncoordinated response was majorly due to the absence of localised city-level urban logistics strategies and plans.

In the above context, the operational efficiency of the private sector provided a much-required boost to the essential

supply chain dominated by an unplanned informal sector. Private

companies established special teams at their head offices and at the regional level as a single-point interface to ensure control and monitoring. This ensured real-time monitoring of preventive actions at all operational locations, continuous liaison with local authorities and information management related to change in rules. The private sector also took an active role in developing safety protocols for current processes such as loading, unloading and work within warehouses or for drivers who are on the move.



Figure 1: The nationwide lockdown has led to paralysis of road freight

Image source: <https://www.indiatoday.in/msn-itt/story/coronavirus-lockdown-truck-drivers-from-other-states-stranded-in-lucknow-1661121-2020-03-30>



E-commerce companies partnered with several general stores to deliver essential products, when the government restricted their operations to providing essential goods.

## Logistics Challenges for private Sector

Based on the experience during the first phase of the lockdown, the national government relaxed certain guidelines during the second phase to help restart select commercial activities such as the transport of non-essential goods. Yet, a mere 15 to 20 per cent of the over 90 lakh stationary trucks could be back on the road.



A large number of the truck drivers and their crew members had returned to their home

*2: Shortage of labourers have impacted warehousing operations*

*Image source: <https://qz.com/india/1844301/how-bigbasket-is-running-during-indias-coronavirus-lockdown/>*

states, while those staying back were operating through frequent checks and complicated border procedures. With all food joints and resting facilities staying shut along their routes, the drivers were demotivated to take up long journeys.

A shortage of labourers for loading and unloading goods at factories and warehouses was another neglected issue, which was further aggravated by the limited distinction made between people who are vital to supply chains and those who are not. Lockdown exemptions were largely confined to healthcare-related personnel, police, media and executive officials of the administration, which created further hurdles in the movement of people and labourers in the supply chain. Because of the labour shortage, the private sector has not been able to open warehouses, consolidation is not taking place and parcel movement is not happening. This has led to limited movement of fresh supplies.

## The Indian Railways Connects the Dots

Following a disruption in the road freight-dependent supply chain, the Indian Railways transported record food grains to different parts of the country. It transported over 5.2 million tonnes of food grains from the 25<sup>th</sup> of March to the 25<sup>th</sup> of April 2020, to ensure reliable supply under the Public Distribution System (PDS). The amount of food grains transported was more than double the quantity moved year-on-year in 2019. Currently, the railways is making all efforts to ensure uninterrupted supply of other essential goods in coordination with agencies such as Food Corporation of India (FCI). To assist the private sector, the railways are also operating more than 500 parcel trains, transporting essential goods such as fruits, vegetables, milk and dairy products. It has notified routes with a fixed timetable to run parcel trains, with en-route stoppages at all feasible locations so that the maximum number of possible towns can be covered.

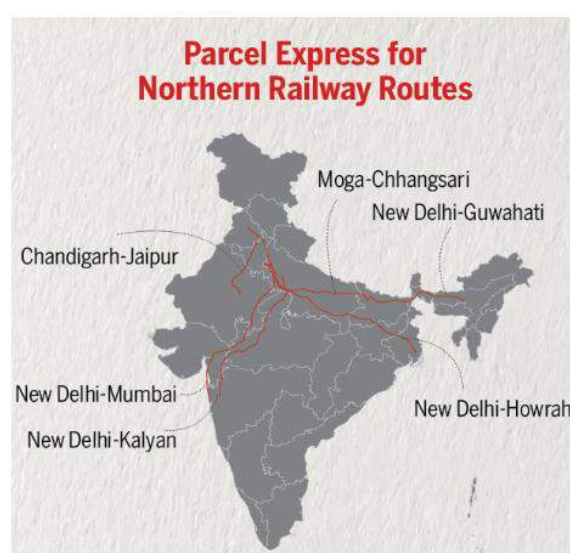
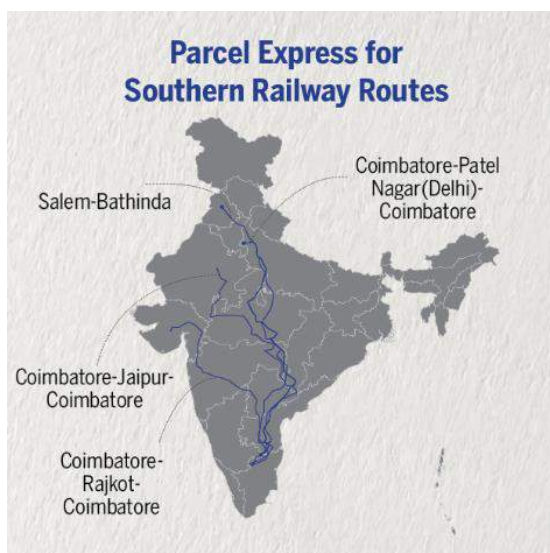


Image source: <https://timesofindia.indiatimes.com/india/can-rail-ease-supply-chain-woes/articleshow/74924424.cms>

## Essentials for Vulnerable People: Role of Public Distribution System

The government's public distribution system (PDS) had a crucial role in the supply of groceries to poor people; over 75 per cent and over 50 per cent of the rural and urban populations, respectively, are covered by it. The PDS system used the capacity of the railways and central and state government agencies such as the Food Corporation of India, Central Warehousing Corporation, State Warehousing Corporations and the extensive network of fair price shops for this purpose.

To avoid supply issues, the government of India is providing the state governments with three months of stock under the PDS system.

The sophisticated PDS mechanism, evolved over decades of experience, was able to withstand supply chain disruptions and was able to absorb the stress from the private supply chains too.

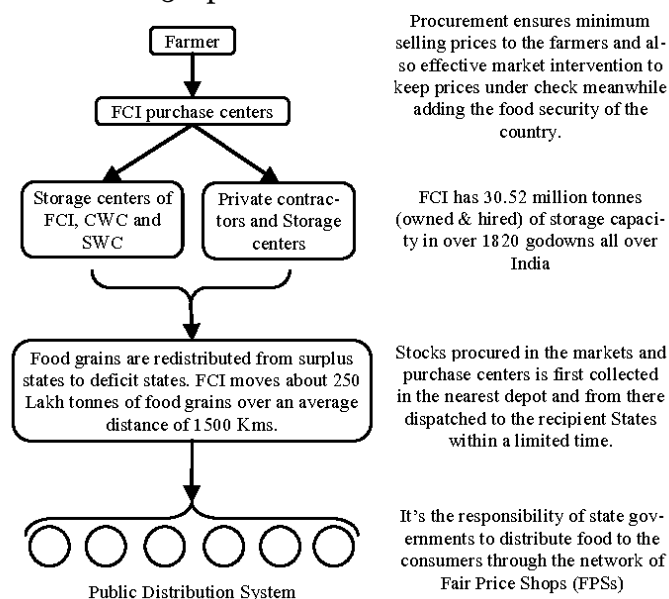


Figure 3: public distribution system in India

Image source: <https://www.semanticscholar.org/paper/Optimizing-Supply-Chain-Management-Using-Search-and-Ojha/72850bf02a326b40477ea9fc76b3d6eb962a08a5/figure/1>

## Community Kitchens: Lifelines for Stranded Migrants

However, a majority of the migrants could not be covered by the PDS, as its beneficiaries need to be registered and eligible for benefits in their home state. Therefore, various government agencies along with several NGOs partnered to set up community kitchens in cities in India. These kitchens played a major role in providing food to several million stranded migrants during the lockdown. The community kitchen established by a religious organisation, the International Society for Krishna Consciousness or ISCKON, provided meals to over 500,000 stranded workers in Delhi alone.



Figure 4: ISKCON temple in Dwarka feeds lakhs of poor in Delhi

Source of image: [https://iskcondwarka.org/corona-relief/index.html?gclid=EAIaIQobChMI8py\\_6u\\_p6QIVhH0rCh2BPgv\\_EAAYASAAEgLW\\_PD\\_BwE#](https://iskcondwarka.org/corona-relief/index.html?gclid=EAIaIQobChMI8py_6u_p6QIVhH0rCh2BPgv_EAAYASAAEgLW_PD_BwE#)

## Traditional Brick and Mortar (Kirana Stores) Turn Saviours

Well-established online supermarket companies like Big Basket and Grofers initially struggled to keep up with the sudden increased demand for essentials. To begin with, transporters were not allowed to ship essentials. It was followed by a massive shortage of manpower. In such a crisis, the neighbourhood kirana (local grocery stores) emerged as saviours. When large distributors were unable to supply goods to these local shops, the kirana store owners used their personal vehicles to go to the distributors and pick up supplies from warehouses daily. There are close to one million wholesalers or distributors spread across the country, who work with around 10 million kirana stores. Despite various difficulties, more than 25 lakh kirana store remained operational and ensured the supply of essentials. Taking note of the situation, the Department for Promotion of Industry, and Internal Trade (DPIIT), Government of India, is working with private companies to develop a digital framework that will help to connect the local kirana shops with customers.

Considering the extensive network of kirana stores, entities ranging from e-commerce companies and mobile wallet apps to social commerce platforms and real estate-rental portals, all started shifting their focus to groceries and partnered with the local stores. Moreover, app-based taxi service Uber has teamed up with online supermarket Big Basket to start a new last-mile delivery service to give people easier access to essential goods. Similarly, e-commerce firms like Amazon and Flipkart, and food ordering and delivery platforms like Swiggy and Zomato, B2B groceries platform Ninja cart, and real estate platform No Broker, besides social commerce firm Meesho are all partnering with local stores for delivery of groceries.

## Local Governments Ensure Last-Mile Delivery

Urban local bodies are also playing a crucial role to ensure reliable last-mile delivery of essential goods. Various cities have launched mobile grocery and vegetable vans. Orders are placed online or in collaboration with platforms such as Zomato and Swiggy. The orders for



an entire locality are delivered to its gatekeeper or the nearest collection point through vans. Cities such as Ahmedabad, Bhopal, Bhubaneswar and Chennai, besides Indore, Kochi, Ludhiana and Nagpur, as well as Pune, Shimla, Surat and Tirupur, as also Tirupati (to just name a few) are facilitating such essential deliveries. The Uttar Pradesh government has deployed more than 40,000 motorised vans and manual carts for doorstep delivery of fruits and vegetables in various cities.

### 7,000 mobile grocery units of civic body in Chennai from today

Srikkanth D | TNN | Updated: Apr 9, 2020, 06:37 IST



A mini truck leaving Rajambodu Wholesale Market to sell vegetables. (File photo)

CHENNAI: To meet the grocery needs of city residents hit by the lockdown, Chennai Corporation will roll out 7,000 mobile grocery units across the city from Thursday. Commissioner G Prakash, who made the announcement on Wednesday after meeting representatives of traders' association at the Ripon Buildings, said 5,000 tricycles and 2,000 autorickshaws and vans would be used for the

Local governments across India have ensured doorstep delivery to the people.<sup>1</sup>

क्र.	वस्तु	मात्रा	चुनिए	कुल
1.	आम्र	5 कि.ग्रा.	<input checked="" type="checkbox"/>	5 कि.ग्रा.
2.	आम्र	1 कि.ग्रा.	<input checked="" type="checkbox"/>	1 कि.ग्रा.
3.	आम्र	500 ग्रा.	<input checked="" type="checkbox"/>	500 ग्रा.
4.	आम्र	500 ग्रा.	<input checked="" type="checkbox"/>	500 ग्रा.
5.	आम्र	1 कि.ग्रा.	<input checked="" type="checkbox"/>	1 कि.ग्रा.
6.	आम्र	500 ग्रा.	<input checked="" type="checkbox"/>	500 ग्रा.
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13.	आम्र	1 कि.ग्रा.	<input checked="" type="checkbox"/>	1 कि.ग्रा.
14.	आम्र	500 ग्रा.	<input checked="" type="checkbox"/>	500 ग्रा.
15.	आम्र	1 कि.ग्रा.	<input checked="" type="checkbox"/>	1 कि.ग्रा.
16.	आम्र	500 ग्रा.	<input checked="" type="checkbox"/>	500 ग्रा.

A filled order form for groceries. The Indore Municipal Corporation has collected about 300,000 such forms since March 29, 2020.<sup>2</sup>

Cities such as Indore and Bhopal are partnering with NGOs to effectively utilise the urban waste management system for goods delivery. A volunteer from an NGO travels with the waste collection team to hand out and collect grocery order forms. The forms are then sent to specified grocery stores, who deliver the items to the homes. To be chosen for this service, a grocery store must have delivery staff as well as delivery vehicles. The Indore Municipal Corporation has arranged private vehicles, such as auto-rickshaws that are lying unused, for shops that do not have delivery vehicles. Shops that fail to deliver orders on time lose their licence to work during the lockdown and have their curfew passes revoked.

## Needed: City Action Plans for Logistics

The involvement of multiple government agencies and the dominance of private stakeholders makes urban freight complex, limiting the role envisaged for urban local bodies (ULBs). However, the current lockdown has demonstrated the importance of ULBs in ensuring a smooth supply of essential goods during emergencies. Moreover, urban freight planning is absent at the city level. Supply chain analysis can help with strategic and tactical preparedness and operational collaboration during a crisis. City-level planning for supply chains will strengthen it against the negative impact of such occurrences and ensure that they are ready for action, thereby reducing the overall implications of broken supply chains.

Therefore, cities need to formulate an action plan for supply chain management, considering the emergency. The action plan should focus on resilience guidelines that can provide recommendations and best practices on analysing local supply chains and working with the private sector, using a scientific approach. The action plan can foster greater awareness and collaboration among key players and promote actions to strengthen supply chain resilience.

<sup>1</sup> Image source: <https://timesofindia.indiatimes.com/city/chennai/7000-mobile-grocery-units-of-civic-body-in-chennai-from-today/articleshow/75056706.cms>

<sup>2</sup> Image source: <https://www.indiaspend.com/under-strict-lockdown-indore-is-deploying-its-swachh-bharat-machinery-to-deliver-groceries/>



It will make cities aware of supply chain vulnerabilities and their potential impacts on the people.

### **The EcoLogistics Effect -Multistakeholder Approach**

ICLEI South Asia is implementing the EcoLogistics project in Kochi, Panaji and Shimla in partnership with the respective municipal corporations. The project aims to prioritise strategies that will focus on promoting the transportation of goods with minimised impacts on air quality and health, and reduce fatalities & injuries, traffic congestion and GHG emissions. A first-of-its-kind and a global initiative, the project is assisting cities to draw up an urban freight baseline and low-carbon action plan for urban freight, support implementation of demonstration projects in cities, and highlight national policy recommendations for the sector. The project is supported by Germany's Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) through its International Climate Initiative (IKI) programme.



The lockdown impacted the supply chains in Kochi, Panaji and Shimla also, as in other Indian cities. However, their local governments were better prepared for collaborating with the private sector to deal with the crisis, because of their experience with the EcoLogistics project.

Kochi and Panaji have already constituted multi-stakeholder committees under the project, and in Shimla, the process is ongoing. These committees include representatives from government agencies such as traffic police, road transport office and the departments of town planning and transport, along with private organisations such as trade and transporters' associations, chambers of commerce, and local market representatives. These committees have been useful in coordinating with stakeholders involved in the supply of essential goods.

### **Kochi: delivering essential items to beneficiaries**

Even though the supply-chain system in Kochi city in the state of Kerala was severely affected, the city ensured that the movement of essential goods remain uninterrupted. The transport of vegetables, fruits and other essential supplies were resumed on the 30th of March 2020, with the provision that only sanitised lorries and other carriers could enter the markets. The Kochi Municipal Corporation, in partnership with Kudumbashree (State

Poverty Eradication Mission of Government of Kerala), set up five community kitchen centres to distribute food to those stranded in the city. The local ward councillors and health inspectors were entrusted with the task of identifying the beneficiaries and delivering food packets to them. They mainly comprised migrant workers, destitute people, the elderly and those who are under home quarantine.

The Hotel and Restaurants operating under the Kerala Hotel and Restaurants Association contributed to the delivery to community kitchens and also homes by accepting bookings made via phones and apps. To promote doorstep delivery, Supplyco (a part of the Kerala civil supplies department) collaborated with delivery platform Zomato for online delivery of fast-moving consumer goods. Further, the Vegetable and Fruit Promotion Council Keralam (VFPCCK), Krishi Bhavan (representing the state department of agriculture), and a city-based NGO collaborated for doorstep delivery of fresh vegetables in the city.

### **Panaji: maintaining goods movement**

The state of Goa and the local government in its capital city, Panaji, focused on coordinated efforts and partnered with various NGOs and organizations to ensure smooth supply of essential items. The government promoted free doorstep delivery, and gave authorisation letters to retailers, departmental stores and distributors for the said purpose. Local volunteers assisted the private sector in this endeavour. The movement of goods vehicles was maintained through travel permits. A food helpline was set up for stranded migrants.

Dynamic demand-supply assessment helped the Government to maintain the necessary stock of essential goods, along with use of public transport buses for the purpose. The local government deployed its staff to manage the storage and packaging of the delivery items. Packets of essential items were prepared as per demand. A comprehensive system of communication with the public was maintained, with regard to information like home delivery phone number and delivery timings. The directorate of transport and the labour commissioner took special measures to address the shortage of labour and transporters.

### **Shimla: preparing in advance**

Anticipating a lockdown, Shimla, the capital city of the state of Himachal Pradesh, had stock-piled essential goods in advance. The continuous collaboration between the Shimla Beopar Mandal (trade association) and the city administration has ensured flexibility in freight operations, with regard to issues such as timings and priority passes. Government agencies such as the Food Corporation of India and Himachal Pradesh State Civil Supply Corporation Ltd ensured that vulnerable social groups received regular supplies.

With goods vehicles getting stranded at inter-state borders, private cars were used for last-mile delivery of essential goods. The city also ensured effective communication to address the supply chain issues. Local area committees were formed by the respective councillors and ward-wise lists of retail and medical shops that accepted orders for home delivery of goods were made public. In Shimla, porters transport goods from the city centre to other parts of the city. Therefore, the local administration ensured that these porters could work during a set window of time.

The pace of operations of supply-chain networks is slowly picking up across the country. Meanwhile, the EcoLogistics project team is in the process of finalising city-level action plans that will include preparedness to ensure the supply of essential goods during crisis situations.



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