

**Title:** Development of logistics and reverse logistics supply chain model considering uncertainty during worldwide COVID-19 outbreak.

**Background and Goals of the proposal:**

The recent coronavirus (COVID-19/SARS-CoV-2) outbreak came from Wuhan area, China and immediately impacted Chinese exports and drastically reduced the supply availability in global SCs. The COVID-19 outbreak represents one of the major disruptions encountered during the last decade which is “breaking many global supply chains”. In the period from January 20th to February 5th, 2020 the number of confirmed cases of coronavirus in China rose from 292 to 28,018 cases with a further increase to 80,880 cases as on March 16. In the last decade of February and early in March 2020, the number of COVID-19 cases has exponentially increased in Asia, Europe and USA resulting in border closures and quarantines. On March 11, 2020, the World Health Organization (WHO) announced the pandemic given more than 118,000 COVID-19 cases confirmed worldwide. In such a turbulent environment, the firms facing the epidemic outbreaks have a series of common questions to ask, i.e., how long can an SC sustain a disruption, how long does it take for an SC to recover after an epidemic outbreak, which SC operating policy (e.g., accepting the temporal shortages; using prepared contingency pandemic plans; reacting situationally by changing the operation policies during the epidemic time) is the most efficient to cope with disruptions at different levels of severity of the epidemic dispersal? This research proposal will try to find out solution of all such questions.

**Objectives:**

1. Cost analysis of supply chain management during the lockdown period due to COVID-19 outbreak.
2. Sustainable logistics model development optimizing different objective involved with SCM.
3. Optimal utilization of resource to provide an efficient and effective distribution process of relief materials during the lock down period due to COVID-19 outbreak.
4. Analysis of efficient strategy/policy related to SCM on and after the lock down period.

**Expected outcomes:**

A lot of research has been conducted and is still going on in various parts of the world on COVID-19 outbreak from different aspects. Through this proposal we are expecting to offer analysis for predicting both short-term and long-term impacts of epidemic outbreaks on the SCs and uncover critical parameters and scenarios of positive and negative SC performance dynamics. This analysis can help to identify the successful and wrong elements of risk mitigation/preparedness and recovery policies in case of epidemic outbreaks.

**Expected Timeline: Work has been started and expected to be completed within 3 years****Remarks: Funding required Rs. 30.0 Lakh.**

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