Developing a Monitoring and Evaluation (M&E) framework for evaluating the sustainability of road freight transport system initiatives

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Abstract

Background: The Covid-19 pandemic re-highlighted the importance of transport systems in the global economy. Sustainable transportation of goods and people has gained greater focus with the closing of national borders as many economies went into a partial shutdown. However, the transport of essential supply chains never came to a halt, despite the closing of borders and many industries. It is evident that modern society relies on efficient and effective freight transport to receive goods and services, and therefore, it is important for freight transport to think and develop sustainably in line with the global call for sustainability across all industries. This research focuses on the impact of road freight transport and the impact it has on sustainability.

Purpose: The advancement of megatrends such as globalisation, population growth, digitalization and demographic changes have contributed to growth of freight volumes globally. The growth patterns have had negative impacts as a result of relying on road freight transportation over other transport modes. This has emphasized the need for monitoring and evaluation of the impact of these major transport and logistics systems, and industrial activities to the environment, economy and social impact on people and livelihoods.

Research Approach: A preliminary literature review suggests that, socially, road freight transport tends to account for road congestion, accidents and long working hours for drivers. Environmentally, air pollution and global warming contribute to climate change. Economically, with the increased traffic, congested roads cost society money in the form of lost time and more frequent maintenance required on the roads. The literature reviewed on Monitoring and Evaluation (M&E) frameworks reveals that there are different approaches to M&E frameworks. The populist focus is on performance or results based approaches in the form of logical frameworks, which incorporate indicators to measure performance. Although M&E frameworks are used across many disciplines such as human development, health research, education and environmental management, there are limited resources that use the framework to assess transport systems and even fewer or none that look specifically at road freight transport.

From this backdrop of literature, there is a need to develop, through modification of existing suitable M&E frameworks, a framework that can assess the sustainability of road freight transport systems (RFTS). This study aims to develop a suitable M&E framework to assess the impact of RFTS based on the three pillars of sustainability. This research determines how sustainability is defined in the road freight transport sector. It identifies what frameworks are currently available to measure the

sustainability of RFTS both globally and in South Africa, and whether the current available frameworks assess sustainability holistically for RFTS. The study is utilising a mixed method approach guided by a three stage process. Stage 1 is a systematic literature review of the key topics/research questions. Stage 2 includes the development of an inventory bank to create a list of Key Performance Indicators (KPIs) to be used in the M&E framework and stage 3 will utilise a decision making method to integrate the findings of stage 1 & 2 into the final M&E framework taking into consideration importance and relevance. The study expects to review a number of M&E frameworks that focus on sustainability, but do not specifically assess sustainability holistically for RFTS.

Research Findings and Impact: This article is part of an ongoing study. The findings so far show that there is a need for an M&E framework that focuses on the sustainability of RFTS. This will make an original contribution in terms of developing a framework that addresses sustainability challenges in RFTS.

Practical Impact: The M&E framework will allow organisations to benchmark and have indicators to track their current sustainability status, system changes, progress and decline of sustainability in their RFTS. The aim is to develop an M&E framework that can be used by industry to monitor the sustainability of their current RFTS investments and also when making decisions on new investments. This framework will assist decision makers to analyse and compare new RFTS technologies (i.e. vehicles, information systems, automation, etc.) to determine which would be the most sustainable solution for their larger freight transport system. The study has implications for research, policy and practice.

Keywords: *Frameworks; freight transport; monitoring and evaluation; road transport; sustainability.*