

9. Role of Transportation in Sustainability of Food Products: Special Reference with MSME Units in Tamilnadu

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Abstract:

Infrastructure for transportation is frequently cited as being essential to fostering growth and development. The basic tenet of the argument is that in order to profit from markets, one must first gain access to them. This notion is backed by the observation that the building of infrastructure, such railroads, occurred during periods of fast economic growth in the development of countries that are now wealthy, like the U.S., Japan, and Western Europe.

The transportation infrastructure facilities that affect the sustainability of MSME in the state of Tamilnadu are the subject of this study. This Study also discusses the resources available in Tamilnadu to foster the growth of MSME there.

Over the past 50 years, the Micro, Small, and Medium Enterprises (MSME) sector has grown to be a very active and dynamic area of the Indian economy. By encouraging entrepreneurship and innovation, it greatly aids in the economic and social development of the nation. Only agriculture produces more substantial employment opportunities at a cheaper capital cost.

The information from websites, earlier research papers, research articles, newspapers, books, etc. was used to develop this study. Only secondary data were used to create the study. The secondary data come from publications and websites run by the government. On the basis of MSME imports, exports, and internal mobility from Tamilnadu, the hypotheses are explained. It discusses how transportation affects the viability of Tamilnadu MSME food production units

Keywords: *Transportation, Sustainability, MSME, Infrastructure.*

9.1 Introduction:

Transportation is the major factor that influences the sustainability of food products around the world. In Tamilnadu, The fresh food item has a short shelf life. Most of the food products are perishable by nature; however, the processed, semi-processed, and ultra-processed food products have their own shelf lives. Like India, the country is large and has different types of geography. So, moving the food items from one place to another is difficult.

Otherwise, if it had a perfect transportation system, Fortunately, Tamil Nadu has concentrated on building transport infrastructure and also has all types of transport systems effectively. Roadways, railways, waterways, and airways are developed in Tamilnadu to transport goods for domestic use as well as export.

Moving people, animals, and products from one location to another is done through transportation. People have relied on horses and carts or carriages for this since the dawn of human civilization. Ships have been used by nations all over the world for maritime trade for hundreds of years.

In more recent times, industrialization helped make trains and rail freight more widely used, and further technological advancements resulted in the creation of automobiles, aircraft, and even spacecraft. Can you possibly picture a world without automobiles, trucks, or other types of transportation like buses, trains, or aeroplanes?

The Micro, Small and Medium Enterprises (MSME) sector drives India's economic expansion and makes a significant contribution to job creation, the expansion of manufacturing capacity, regional development that is balanced, and socioeconomic empowerment. It is the country's second-largest employer, behind agriculture. MSMEs are the primary sources of new jobs globally. Many of us don't really know what it was like previously, even if older generations may still recall what it was like to live in a time when national and international transit networks weren't as developed. It's simple to neglect transportation, but life without it would be very different.

According to the Ministry of MSME's Annual Report (2018–19), the GDP of India's MSMEs accounts for about 28.9% of the total. Additionally, MSMEs account for 48.1% of all Indian exports. Small scale industries are now categorized as Micro, Small and Medium Enterprises as a result of the passage of the Micro, Small and Medium Enterprises Development Act, 2006.

An enterprise is classified as a Micro, Small or Medium Enterprise based on the following composite criteria: --

With a sizable base of both large companies and small businesses, Tamil Nadu is still a thriving industrial state. An estimated seven lakh micro, small, and medium-sized enterprises (MSME) registered in the State, or roughly 15.1% of all such units in the nation, with an estimated investment of Rs 32,000 crore. As may be seen from the thousands of new investment proposals that the State has received. Here is a peek at the state's industrial landscape.

9.2 Review of Literature:

Thai (2008) developed and verified a ROPMIS model while researching service quality in maritime transportation. There are 24 different variables in the study as a whole. Customer satisfaction was found to be 50 percent heavily influenced by outcome, process, and management factors. The social duty factor was a newly included component in this study.

Davis and Mentzer (2006) found that customer loyalty was significantly influenced by problem resolution, dependability, communication, timeliness, and responsiveness. The study found that customer retention depends on the quality of the logistics service. For model fit statistics and testing validity, loyalty can be a second order construct with two dimensions—attitudinal and behavioral.

According to Liang et al. (2006), certain conditions are more crucial for a freight forwarder to manage when managing their services. There are 34 components to it, including dimensions for distribution, cost and efficiency, information services, warehousing, supporting, and customer service.

By using the fuzzy quality function, the customer requirements-based service quality priorities have been determined. The findings showed that the top five prioritized features were tracking, employee professionalism, information system, and warehouse security management. Wang (2015) looked at an Australian company's Third-party Logistics business performance measurement.

The study evaluated the efficiency of logistics by taking into account aspects like on-time delivery, frequency of uninterrupted operation, flexibility, frequency of damage and identified the problems relating to lost or damaged freight, delays, customer complaint.

9.2.1 Research Methodology:

This research model is designed from the information available on websites, previous research papers, research articles, newspapers, books, etc. The research is made up secondary data only.

The secondary data are carried from government websites, and government publication. The theories are described on the basis of MSME exports, imports and domestic movement from Tamilnadu. It talks about the role of transportation in sustainability of food product MSME units in Tamilnadu.

9.2.2 Objectives of the Study:

- To know the transportation infrastructure available in Tamilnadu for MSME export/import and domestic transit.
- To know the role of transportation in sustainability of MSME food products units in Tamilnadu.

9.3 MSME Contribution in Tamilnadu:

According to the National Sample Survey (NSS) 73rd round, which was carried out between 2015 and 2016 by the National Sample Survey Office, Ministry of Statistics & Program Implementation, Government of India, Tamil Nadu has the third-largest share of MSMEs in the nation, with 8% of all businesses.

It has the most non-farm units and accounts for about 15.24% of India's microenterprises. The Annual Survey of Industries demonstrates Tamil Nadu's dominance in the industrial sector (2017-18). The majority of the nation's factory workers—more than 25 lakh-work in Tamil Nadu. The state ranks fourth in the nation for the number of factories with 37,987.

In terms of total industrial output and capital invested, Tamil Nadu is ranked third in the. With a total investment of Rs. 2, 73,241.00 crores, around 23.60 lakh businesses have registered or filed the Small Scale Industries (SSI), Entrepreneur Memorandum (EM) Acknowledgement Part II/ Udyog Aadhaar Memorandum (UAM), creating employment prospects for about 151.61 lakh people. Over 6000 different goods are produced by MSMEs in the State for both domestic and international markets.

They offer substantial industries in the State a solid and dependable vendor base. In Tamil Nadu, MSMEs are primarily found in industries like food and beverage production, clothing and textile production, printing, metal fabrication, machinery and equipment production, leather, rubber and plastics production, chemical production, wood and furniture production, etc.

The districts of Chennai, Coimbatore, Erode, Kanchipuram, Krishnagiri, Madurai, Salem, Tiruppur, Virudhunagar, and Vellore are mostly home to manufacturing MSMEs. The districts of Chennai, Coimbatore, Dindigul, Kanchipuram, Namakkal, Salem, Thoothukudi, Thiruvallur, Trichy, and Vellore have the highest concentration of service MSMEs.

9.4 Transportation in Tamilnadu:

The transport infrastructure consists of a network of roads, rails, and seaports as well as airports. Tamil Nadu is making steady progress toward Realising an all-inclusive growth path plan in this sector because to its robust transportation infrastructure and cutting-edge communication network. Investments from both the public and private sectors portend steady growth. Reviewing the state's transportation and communications sector uncovers numerous strategic initiatives that align with the goals outlined in the Indian Roads Congress' (IRC's) road development plan VISION: 2021, which spans a 20-year timeframe (2001-2021).

9.4.1 Road Network:

The Tamil Nadu government has the rare distinction of establishing a separate Highways Department as early as 1946 to handle the State's roads and bridges. In 1954, Tamil Nadu was a pioneer in developing standardized specifications for roads and bridges.

The department's goals are to offer all-weather road connectivity to remote settlements and to maintain and develop the roads under government control. Minor Ports were subsequently included in this Department's purview. This department afterwards adopted the moniker Highways and Minor Ports Department.

9.4.2 Highways of Tamil Nadu:

- The overall length of the roads in Tamil Nadu's road network is 1,99,040 km. Based on traffic volume and connection, Tamil Nadu's approximately 14257 km of highways are divided into State and National Highways. The following list includes the various road types and their lengths:

TAMILNADU ROAD NETWORK	
Class	Length (Km)
National Highways/ Expressways	4873
State highways	9384
Major District roads	11288
Other District roads	36096
Other village roads	137999
Total(approx.)	199040

Source: Department of Highways, Chennai.

With the help of a World Bank loan, the Tamil Nadu Road Sector Project Wing of the Highways & Minor Ports Department (HMPD) and the National Highways Authority of India (NHAI) upgrade, relocate, and repair rural roads, district roads, and state highways.

9.4.3 National Highways:

The government of India has classified or declared as National Highways any segments of road with a heavy traffic intensity of more than 30,000 Passenger Car Units (PCUs) linking several state capitals, significant ports, vast industrial zones, and tourism destinations.

The "National Highways Wing" of the Highways & the Minor Ports Department in Tamil Nadu was founded in 1971 to handle the tasks of enhancing, maintaining, and renewing National Highways as prescribed by the National Highways Authority of India (NHAI).

9.4.4 Railways:

As a part of Southern Railway, Tamil Nadu has a good rail system. The Southern Railway network, which has its main office in Chennai, covers a sizable chunk of the southern peninsula of India, including the states of Tamil Nadu, Kerala, Puducherry, and tiny amounts of Karnataka and Andhra Pradesh.

There are 532 railway stations in Tamil Nadu, which has a total length of 5,952 km (3,698 mi) of railway track. With the majority of India's largest cities, the system connects it. There are several major rail intersections in the state, including those in Salem, Coimbatore, Madurai, Erode, and Chennai.

9.4.5 Sea Port:

With 17 minor ports and the second-longest coastline (1076 kilometers), Tamil Nadu has three large ports. The Tamil Nadu Port Department was in charge of managing and controlling Tamil Nadu's minor ports.

The former Tamil Nadu Port Department was transformed into the Tamil Nadu Maritime Board with effect from 18.03.1997 by the Tamil Nadu Marine Board Act, 1995 (Tamil Nadu Act 4/96), in keeping with the maritime history and in recognition of the need for expansion in the maritime industry. The ex-officio Chairman of the Board is the Government of Tamil Nadu's Minister for Highways and Minor Ports.

SEAPORTS IN TAMILNADU			
Seaport	Annual Cargo tonnage (Million Tonnes)	Annual Revenue (Crores)	Annual vessels handled
Chennai	51.88	890 .40	2181
Ennore	11.01	166.58	1006
Tuticorin	28.64	387.80	1492

9.4.6 Airports:

33 percent of AAI's revenue is also generated by the two airports. The airport is the top airport both in India and among airports in Tamil Nadu. The airport is a crucial component of Tamil Nadu Travel due to the volume of freight and air traffic it manages. In addition, the airport served as the penultimate stop on Air India's inaugural route from Bombay to Belgaum in 1954.

The airport is also known as the Chennai Meenambakkam Airport since its initial passenger terminal was constructed on the northeastern side of the airfield, which is located in the Meenambakkam area. The airport's new terminal complex is south of Pallavaram, and the previous terminal is now a cargo facility for delivery services.

Trichy Airport (TRZ): Trichy Airport is a tiny airport that is about 7 kilometres from the city. It offers flights to important Indian cities as well as to nearby nations like Singapore and Sri Lanka.

The Coimbatore Airport (CJB) is located in Peelamedu, about 8 kilometres from the city, and offers flights to all significant Indian cities.

Madurai Airport (IXM): Approximately 13 kilometres distance Madurai Railway Station from Madurai Airport, which offers connecting flights to Mumbai, Bangalore, and Chennai.

9.5 Role of Transportation in Sustainability:

9.5.1 Transportation for work:

More economic opportunities are created as a result of resource distribution and accessibility, for both individuals and enterprises. In order to collect raw materials and deliver manufactured or processed goods—which people couldn't purchase and use without—many sectors rely on quick and effective transportation? The majority of commercial activities depend on transportation, particularly those that are related to agriculture, mining, tourism, etc. In addition to making it easier for individuals to go to work, accessible and efficient transportation also generates jobs in the transportation industry.

9.5.2 Transportation for connectivity:

Without international trade, you wouldn't be able to access the vast array of imported goods and meals as well as the information and experiences associated with various cultures. Not just frills, but also requirements. Transport promotes international ties, knowledge expansion, and the connection of goods and customers. As members of powerful and cooperative organisations, we can grow into better people through transferring knowledge, abilities, and products between cultures. Transportation facilitates the removal of artificial barriers and the reduction of the physical distance that once divided people and places.

9.5.3 Transportation for convenience:

Additionally, this connectivity offers degrees of ease that were unimaginable a century ago. Huge societal changes have resulted from infrastructure investments and the increased opportunities they have created, from the ease of international travel to the more recent emergence of the gig economy. Thanks to transportation, modern living is more convenient than ever, from Amazon Prime's next-day delivery to buying a late-night pizza. You can commute to work in a distant city by car, bus, or train, and stop at the store anytime you

need something. Without transportation, it would be impossible to optimize the resources and infrastructure that allow us to prosper in this quick-moving, developed society.

9.5.4 Transportation for wellbeing:

Although the purpose of human existence is a somewhat serious subject for a haulage company blog, most people have similar goals. As you might have imagined, transportation makes all of this possible. Without chances that transportation provides, we wouldn't be able to find housing, find employment, visit family and friends, and eat enough to stay healthy, attend college, or go on vacation.

Of course, transportation is essential for delivering and dispersing life-saving supplies like medicine and medical gear. Internationally developed technologies are frequently a necessity for our security and safety, from police and firefighters to government offices. Transportation is the key to everything.

9.5.5 Transportation for business:

Any business must be able to obtain supplies, transport them to a production site, and distribute their finished products. Transportation links businesses to customers and suppliers, establishing a crucial structure that enables supply to satisfy demands for both personal and professional use. The mobility that transportation offers stimulates both domestic and global economies. Transport expenses make about 6%–12% of the country's GDP, whereas logistics costs make up 6%–25% of GDP. The value of all assets and infrastructure related to transportation might possibly exceed 50%.

9.5.6 Transportation for movement of goods:

Facilitating the flow of commodities is the most obvious and significant way that transportation benefits businesses. Production and distribution have evolved along with transportation techniques throughout history. This is especially important for agricultural and perishable products like dairy and poultry. Companies may now source, produce, and deliver commodities anywhere in the world because to the gradual globalization of transportation systems, which span seaports, rivers, and canals, highways, railroads, and even the internet. Additionally, customers can buy these products from them practically anywhere. Modern logistics and transportation are more swift and effective, which boosts corporate growth and revenue. They can deliver things of higher calibre more quickly, which enhances client service. Customers who are happy with their products are more likely to buy more of them.

9.5.7 Transportation for labour mobility:

Transport is able to move labour as well as goods between sites. It is significantly simpler to boost production rates by shifting labour, equipment, and supplies to where they are needed and/or where associated costs are lower, whether this is through local commuting or utilizing global labour. Production and labour increase capital, which allows corporations to invest in other industries.

It keeps a loop going that keeps supply chains operating efficiently to avoid delays and shortages, and it creates jobs, giving people more money to spend on other things or put back into the economy.

9.5.8 Transportation for controlling prices:

Monopolies on the market are typically avoided, fostering healthy competition. The capacity to find inexpensive raw materials on overseas markets and to employ qualified labour contributes to low production costs. Companies frequently give part of these savings to their customers because, generally speaking, the lower the cost of production, the less consumers must pay for it. By improving the coordination of their operations, transportation also aids in cost savings for enterprises.

To accommodate demand, they can simultaneously transport items to numerous locations and areas. Because of the competition among producers, companies always seek to lower their costs.

9.5.9 Transportation for mass production:

Transport is an essential component of every stage of production, from planning and designing to sourcing and manufacturing to distribution and consumption. By increasing the variety of inputs (such as labour and materials), it expands outputs (a wider variety of commodities across broader markets).

By maximizing processes and transactions, transportation helps businesses to purchase and then sell more items, lowering the cost per unit. As was already noted, quick and affordable mass production benefits customers as well because it allows for greater value at lower costs.

9.5.10 Transportation for maximizing profits:

To retain customers in very competitive markets, businesses must deliver superior goods and services. A business's ability to operate over the long term depends heavily on its ability to maintain and expand its production, which depends on an efficient transportation infrastructure.

You're likely to encounter a wide range of transit issues in the absence of effective transportation management. Customers are extremely disappointed when things like improper product handling, sending goods to the wrong locations, and late deliveries occur. Additionally, it might be detrimental to regional economies.

On the other hand, a transport system that has been optimized enables firms to run their distribution and supply chain operations efficiently from beginning to end. Movement and coordination are made easier, which increases access to cheaper labour and commodities and raises the profit margin for the goods produced.

9.6 Conclusion:

There are a number of reasons why good transportation infrastructure is advantageous for economic development. First, it reduces trade costs and promotes market integration. This should reduce price volatility and reallocate resources in line with comparative advantage. It also increases market size which allows firms to capture gains from increasing returns and promotes more intense competition.

Second, it promotes factor mobility. It is easier to migrate to the city if one can come back easily whenever needed. It is easier to lend to someone whose project you can visit. It is easier to put your savings in a bank if the bank is more accessible. Third, it is easier to take advantage of opportunities for investment in the human capital: you can send your child to a better school or take him to a better doctor.

Fourth, and more intangibly, the free movement of people and goods may bring with it new aspirations, new ideas, and information about new technologies.

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