



## A STUDY ON THE IMPACT OF CONSTRUCTING A NEW TERMINAL IN CHENNAI INTERNATIONAL AIRPORT

**KUNDHAVEE J V, Mr. Arun Kumar**

*Student, II MBA Aviation management, Hindustan Institute of Technology & Science  
Assistant Professor (III), Hindustan Institute of Technology & Science*

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### ABSTRACT

Several studies have been conducted to analyze the impact of constructing new terminals at airports, including some that specifically focus on Chennai International Airport.

A study conducted by Praveen Kumar and T. P. Singh in 2017 titled "Economic impact of Chennai International Airport" evaluated the economic impact of Chennai International Airport on the state of Tamil Nadu. The study found that the airport had a significant positive impact on the state's economy, contributing to employment generation and increasing tourism in the region.

Another study by Kamalakannan S, R. Venkatesan, and M. B. Anoop titled "Environmental impact assessment of Chennai International Airport expansion" in 2016 analyzed the environmental impact of the airport's expansion project. The study found that the expansion would result in increased air and noise pollution in the surrounding areas and recommended mitigation measures to minimize the impact.

A study by Jibin George, C. Mahesh, and V. V. Ramesh Kumar in 2019 titled "A study on customer satisfaction at Chennai International Airport" evaluated the satisfaction levels of passengers using the airport. The study found that passengers were generally satisfied with the airport's services and facilities but suggested areas for improvement.

Additionally, a study conducted by Airports Council International (ACI) titled "Airport Economics Report 2021" provides insights into the financial and economic performance of airports globally. The report indicates that the COVID-19 pandemic has had a significant impact on airport finances, with a decrease in passenger traffic and revenue, but also highlights the resilience of the aviation industry.

Overall, the reviewed literature suggests that constructing a new terminal at Chennai International Airport could have positive economic impacts but may also result in environmental impacts that need to be mitigated. Additionally, ensuring high customer satisfaction levels should be a priority for the airport to maintain its competitive edge.

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## **INTRODUCTION:**

Chennai International Airport is one of the busiest airports in India, serving millions of passengers every year. As the number of passengers continues to grow, there is a need to expand the airport's capacity to meet the increasing demand. One way to address this issue is by constructing a new terminal. However, building a new terminal can have both positive and negative impacts on the airport and its surroundings. This impact could affect the capacity of the airport, the passenger experience, the local economy, and the environment. Therefore, a thorough study is needed to understand the potential impact of constructing a new terminal at Chennai International Airport. This paper will discuss the potential impacts of constructing a new terminal at Chennai International Airport, including the positive and negative effects on the airport and the surrounding community. It will also explore the factors that need to be considered when conducting a study on the impact of constructing a new terminal at the airport.

## **INDUSTRY PROFILE:**

The aviation industry has been experiencing significant growth in recent years, and the construction of new terminals at airports is a common occurrence in response to this trend. According to the Airports Council International (ACI), global passenger traffic has grown by an average of 5.5% annually over the past decade, reaching 8.8 billion passengers in 2018. The Asia-Pacific region has been the fastest-growing market, with China and India leading the way.

Chennai International Airport is one of the major airports in India and serves as a gateway to the southern region of the country. It is owned and operated by the Airport Authority of India (AAI) and has undergone several expansion and modernization projects over the years to keep up with the increasing demand for air travel. In 2018-19, Chennai International Airport handled over 22 million passengers, and the airport is projected to reach its maximum capacity by 2025. Therefore, the construction of a new terminal is crucial to meeting the growing demand and improving the airport's overall performance.

However, the aviation industry is also facing challenges related to sustainability and environmental impact. The construction and operation of airports and terminals can have significant negative effects on the environment and local communities, such as noise pollution, air and water pollution, and displacement of communities. As a result, there is a growing need for airports to adopt sustainable practices and mitigate their environmental and social impact.

### **COMPANY PROFILE:**

As mentioned earlier, Chennai International Airport is owned and operated by the Airport Authority of India (AAI), which is a statutory body working under the Ministry of Civil Aviation, Government of India. AAI is responsible for managing and maintaining a total of 137 airports in India, including 23 international airports.

Chennai International Airport is a major hub for domestic and international airlines, including Air India, IndiGo, SpiceJet, and Emirates. It is equipped with two terminals, with Terminal 1 serving domestic flights and Terminal 2 serving international flights. The airport has undergone several expansion and modernization projects over the years, including the construction of a new runway, taxiway, and apron, as well as the installation of new navigational aids and a state-of-the-art air traffic control tower.

The proposed construction of a new terminal at Chennai International Airport is aimed at meeting the growing demand for air travel and improving the airport's overall capacity and efficiency. The new terminal is expected to have a capacity of 30 million passengers per year, and it will be constructed using sustainable and eco-friendly materials and practices. The project is estimated to cost around Rs. 2,476 crore and is expected to be completed by 2022.

### **NEED FOR THE STUDY:**

**Capacity:** The study would need to assess the current and projected capacity of the airport, as well as the impact of the new terminal on the airport's overall capacity. This would involve analyzing passenger traffic data, flight schedules, and airport infrastructure.

**Passenger experience:** The study would also need to consider how the new terminal would impact the passenger experience. This would involve analyzing the design of the new terminal, including the layout, amenities, and services offered to passengers.

**Economic impact:** The study would need to assess the economic impact of the new terminal on the surrounding area, including the creation of new jobs and the potential for increased tourism and business activity.

**Environmental impact:** The study would also need to consider the potential environmental impact of the new terminal, including the use of resources such as water and energy, as well as the impact on air and noise pollution.

**Cost:** The study would need to assess the costs associated with the construction of the new terminal, including both the initial construction costs and ongoing maintenance and operational costs.

Overall, a comprehensive study on the impact of constructing a new terminal at Chennai International Airport would need to consider a range of factors in order to provide a complete assessment of the project's potential impact.

#### **OBJECTIVES OF THE STUDY:**

The objective of the study on the impact of constructing a new terminal at Chennai International Airport is to provide a comprehensive assessment of the potential positive and negative impacts of the project.

#### **The study aims to achieve the following specific objectives:**

To assess the capacity requirements of the Chennai International Airport and evaluate the need for constructing a new terminal to meet the growing demand for air travel.

To evaluate the potential economic impact of the new terminal on the airport and the

surrounding community, including the creation of employment opportunities and the potential for increased tourism.

To evaluate the potential environmental impact of the new terminal, including its impact on air and noise pollution, and develop appropriate mitigation measures to minimize any negative impact.

To assess the potential social impact of the new terminal on passengers, airlines, nearby residents, and the local community.

To identify potential issues and challenges that may arise during the construction phase and develop appropriate mitigation measures to minimize disruptions and negative impacts.

To evaluate the financial feasibility of the new terminal, including the cost of construction and maintenance and the potential revenue generation.

To provide recommendations and guidelines for the design, construction, and operation of the new terminal to maximize its potential benefits and minimize its negative impacts.

#### **LIMITATIONS OF THE STUDY:**

Some potential limitations of the study on the impact of constructing a new terminal at Chennai International Airport include:

**Time constraints:** The study may be limited by the available time to conduct research and collect data. It may not be possible to gather data over a longer period to better understand the impact of the new terminal on the airport and the surrounding community.

**Availability of data:** There may be limitations in the availability of data, especially with

regard to economic and environmental impacts, which could limit the accuracy of the analysis.

**Limited scope:** The study may focus on the immediate impact of the new terminal on the airport and the surrounding community and may not take into account the long-term impact on the region's economy, environment, and social fabric.

**Assumptions:** The study may be based on certain assumptions that may not hold true in practice, which could affect the accuracy of the analysis and conclusions.

**External factors:** The study may not account for external factors such as changes in the global economy, national policies, or technological advancements that could impact the airport's demand, revenue, and operations.

#### **REVIEW OF LITERATURE:**

Several studies have been conducted to analyze the impact of constructing new terminals at airports, including some that specifically focus on Chennai International Airport.

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Economics Report 2021" provides insights into the financial and economic performance of airports globally. The report indicates that the COVID-19 pandemic has had a significant impact on airport finances, with a decrease in passenger traffic and revenue, but also highlights the resilience of the aviation industry.

Overall, the reviewed literature suggests that constructing a new terminal at Chennai International Airport could have positive economic impacts but may also result in environmental impacts that need to be mitigated. Additionally, ensuring high customer satisfaction levels should be a priority for the airport to maintain its competitive edge.

# New traffic pattern for cars at airport

## Separate Entry And Exit Points For Domestic & Int'l Terminals

TIMES NEWS NETWORK

**Chennai:** Chennai airport will open separate entry and exit points for domestic and international terminals. The new traffic pattern will come into force at 11am on Thursday.

The airport, which now has only one entry and exit at present, will have three entry points. Vehicles coming to drop passengers at the domestic terminal now take a right turn to the ramp. Such vehicles will now take a left turn and drive up a ramp near the airport metro station, turn right and reach the departure terminal.

Cars that come to drop passengers at the international terminal will enter through a new gate, take a left turn and drive up the

**NEW ROUTES:** Map for the revised traffic flow at Chennai airport from today

Private cars can pick up passengers from the domestic and international terminals in front of the buildings, while cabs except those of Ola will have to pick up passengers from designated spots in the parking area. Ola has worked out a deal with the airport to have a designated parking lot and a pick-up point.

The new arrangement will speed up vehicular traffic at the airport, said an Airports Authority of India official. The 10-minute free time for vehicles will continue, and parking charges will remain the same for now. "We've set up new signages and toll booths to ensure there is no confusion," said the official.

Earlier, all vehicles headed to domestic and international departure terminals used to drive up a flyover and come down at the farther end of the flyover past the international departure terminal to exit. This pattern used to take time because there was only one entry and exit for all vehicles.

The new traffic pattern was put on trial in April this year before being fine tuned.

farther arm of the flyover and take a right turn to reach the departure terminal before driving down a ramp near the metro rail station.

Vehicles reaching arrival terminals on the ground floor will follow the same circular pattern

on the ground floor. Three points have been opened on GST Road for vehicles coming out of the airport to take 'U' turns to go towards Pallavaram.

A press release said there will be a separate lane for pick-up and another for reaching the parking lot on the ground floor. Cars heading to pick up passengers will not be able to access the lane to parking lot and will have to leave the airport (without delay). The vehicles in the parking lot will have to pick up passengers from designated pick up points.

## **CONCEPTUAL REVIEW:**

Constructing a new terminal at Chennai International Airport is a complex process that involves various stakeholders and impacts several areas. The conceptual review of the impact of constructing a new terminal can be divided into several areas, including:

**Economic impact:** Constructing a new terminal at the airport can have a positive economic impact on the region. It can create jobs, stimulate local businesses, increase tourism, and improve the airport's financial performance.

**Environmental impact:** The construction and operation of the new terminal can have environmental impacts such as increased air and noise pollution, traffic congestion, and habitat destruction. Mitigation measures such as implementing green technologies, reducing emissions, and enhancing public transportation can help minimize the environmental impact.

**Social impact:** The airport expansion can have a social impact on the surrounding communities, including changes in land use, displacement of residents, and disruptions to daily life. Community engagement and participation can help address concerns and ensure that the expansion benefits local communities.

**Operational impact:** The new terminal can impact the airport's operations, including aircraft movements, passenger flows, baggage handling, and security. It is essential to assess and plan for these operational impacts to ensure that the airport continues to operate efficiently and safely.

**Customer experience:** The new terminal's design and facilities can impact the passenger experience, including comfort, convenience, and accessibility. Ensuring high customer satisfaction levels can improve the airport's reputation and competitiveness.



## **THEORITICAL REVIEW:**

The theoretical review of the impact of constructing a new terminal at Chennai International Airport can be viewed through various theories and concepts, including:

**Economic theory:** According to economic theory, constructing a new terminal can have a positive impact on the airport's financial performance, as it can increase the airport's capacity to handle more passengers and aircraft, leading to increased revenue. The economic theory also suggests that airport expansion can stimulate the local economy, generate employment opportunities, and increase tourism.

**Environmental sustainability:** Environmental sustainability theory emphasizes the importance of minimizing the environmental impact of airport operations. A new terminal's construction can have negative environmental impacts, such as air and noise pollution, habitat destruction, and increased carbon emissions. Environmental sustainability theory suggests that airport expansion should consider green technologies, reducing emissions, and enhancing public transportation to mitigate environmental impacts.

**Customer satisfaction theory:** According to customer satisfaction theory, passengers' satisfaction with the airport's facilities and services is critical for the airport's success. A new terminal's design and facilities can impact the passenger experience, including comfort, convenience, and accessibility. Customer satisfaction theory suggests that the airport should prioritize ensuring high customer satisfaction levels to maintain its competitive edge.

**Stakeholder theory:** Stakeholder theory suggests that airport expansion should consider the needs and interests of all stakeholders, including local communities, airlines, employees, and the environment. Stakeholder theory suggests that engaging with stakeholders and addressing their concerns can help ensure a successful and sustainable airport expansion project.

**Systems theory:** Systems theory suggests that airports are complex systems that involve various interrelated elements, including passengers, airlines, facilities, and services. A

new terminal's construction can impact the airport's operations and the interactions between these elements. Systems theory suggests that airport expansion should consider the airport's overall system's dynamics to ensure that the airport continues to operate efficiently and safely.

Overall, a theoretical review of the impact of constructing a new terminal at Chennai International Airport can provide a framework to understand the implications of the project and identify strategies to maximize the benefits and minimize the negative impact.



Source: Times of India  
Dated on 16<sup>th</sup> April 2023

**RESEARCH GAP:**

Although there has been some research on airport expansion and its impact on airport performance, there is a research gap in the specific context of the impact of constructing a new terminal at Chennai International Airport. Some of the potential research gaps include:

**Environmental impact:** While environmental sustainability theory suggests that airport expansion should consider minimizing environmental impacts, there is a need for empirical studies to investigate the specific environmental impacts of constructing a new terminal at Chennai International Airport. This research could include an analysis of the impact on air and noise pollution, carbon emissions, and natural habitats.

**Stakeholder engagement:** While stakeholder theory suggests that airport expansion should consider the needs and interests of all stakeholders, there is a need for empirical studies to investigate the specific impact of stakeholder engagement on the success of the project. This research could include an analysis of the effectiveness of stakeholder engagement strategies, the concerns and expectations of different stakeholder groups, and the impact of stakeholder engagement on project outcomes.

**System dynamics:** While systems theory suggests that airport expansion should consider the airport's overall system's dynamics, there is a need for empirical studies to investigate the specific impact of constructing a new terminal on the airport's overall system at Chennai International Airport. This research could include an analysis of the impact of the new terminal on airport operations, safety, and efficiency.

**Table:**

Modal Spilt in Metro Hub Airports (Access & Egress Trips)

Access Trips				Egress Trips			
Car	Taxi	Bus	Metro	Car	Taxi	Bus	Metro
30.70%	64.40%	0.50%	4.40%	33.90%	58.80%	60.00%	6.70%
37.30%	43.80%	15.80%	3.10%	34.30%	46.10%	15.80%	2.80%
34.50%	57.60%	5.10%	2.80%	28.90%	58.60%	11.43%	1.10%
31.10%	48.30%	8.30%	9.40%	2.90%	29.40%	48.70%	9.40%

### **STATEMENT OF THE PROBLEM:**

The Chennai International Airport is experiencing a significant increase in passenger traffic, and the existing terminal is facing capacity constraints. To address this issue, the airport authority is planning to construct a new terminal. However, it is crucial to understand the potential impact of constructing the new terminal on the airport's operations, passenger experience, environment, and local community. Therefore, the problem statement is to examine the impact of constructing a new terminal in Chennai International Airport and identify the opportunities, challenges, and recommendations for enhancing the airport's performance and sustainability.

### **SIGNIFICANCE OF THE STUDY:**

The significance of studying the impact of constructing a new terminal at Chennai International Airport lies in its potential to inform decision-making related to the expansion of the airport. Understanding the positive and negative impacts of building a new terminal can help stakeholders make informed decisions about the project. For example, the study can inform decisions about the design and layout of the new terminal, the timing of construction, and the potential economic and environmental impacts. The study can also help identify potential issues and challenges that may arise during the construction phase and develop appropriate mitigation measures.

Additionally, the study can help address concerns and considerations of various stakeholders, such as the airport authority, airlines, passengers, nearby residents, and the local community. It can provide a comprehensive understanding of the potential impacts of the new terminal, which can help build support and consensus among stakeholders for the project. This can help minimize conflicts and opposition, reduce delays, and ensure successful implementation of the project.

## **RESEARCH METHODOLOGY:**

The research methodology for investigating the impact of constructing a new terminal in Chennai International Airport could include the following steps:

**Data collection:** The researcher can collect data from various sources, such as academic journals, reports, and databases, to gather information on the impact of airport expansion on airport performance, environmental sustainability, customer satisfaction, stakeholder engagement, and system dynamics.

**Survey:** The researcher can conduct a survey among passengers, airport staff, and other stakeholders to gather their perceptions of the new terminal's impact on the airport. The survey could include questions about the design, facilities, and services of the new terminal, as well as its impact on customer satisfaction, stakeholder engagement, and system dynamics.

**Interviews:** The researcher can conduct interviews with key stakeholders, such as airport managers, government officials, and representatives from local communities and businesses, to gather their views on the new terminal's impact on the airport and its surrounding areas.

**Case study:** The researcher can conduct a case study of Chennai International Airport to analyze the impact of the new terminal on airport performance, environmental sustainability, customer satisfaction, stakeholder engagement, and system dynamics. The case study could include an analysis of airport data, such as passenger traffic, revenue, and operations, as well as an assessment of the new terminal's impact on the airport's overall system.

**Data analysis:** The researcher can use various data analysis techniques, such as regression analysis, correlation analysis, and descriptive statistics, to analyze the collected data and identify the impact of constructing a new terminal in Chennai International Airport.

## **RESEARCH DESIGN:**

The research design for studying the impact of constructing a new terminal in Chennai International Airport can include the following elements:

**Research approach:** The research approach can be a mixed-method approach, combining both qualitative and quantitative research methods. This approach allows the researcher to gather a wide range of data from different sources and perspectives.

**Research strategy:** The research strategy can be a case study approach, where Chennai International Airport can be studied as a case to understand the impact of constructing a new terminal. The case study approach can help in understanding the context, complexities, and dynamics of the airport system.

**Sampling:** The sampling strategy can be a purposive sampling technique, where the researcher selects participants based on their relevance and importance to the research objectives. The participants can include airport management, airport staff, passengers, government officials, local community representatives, and businesses.

**Data collection methods:** The data collection methods can include surveys, interviews, and secondary data analysis. Surveys can be conducted among passengers and airport staff to understand their perceptions of the new terminal. Interviews can be conducted with key stakeholders to understand their views and opinions on the new terminal. Secondary data analysis can be conducted on airport data, such as passenger traffic, revenue, and operations.

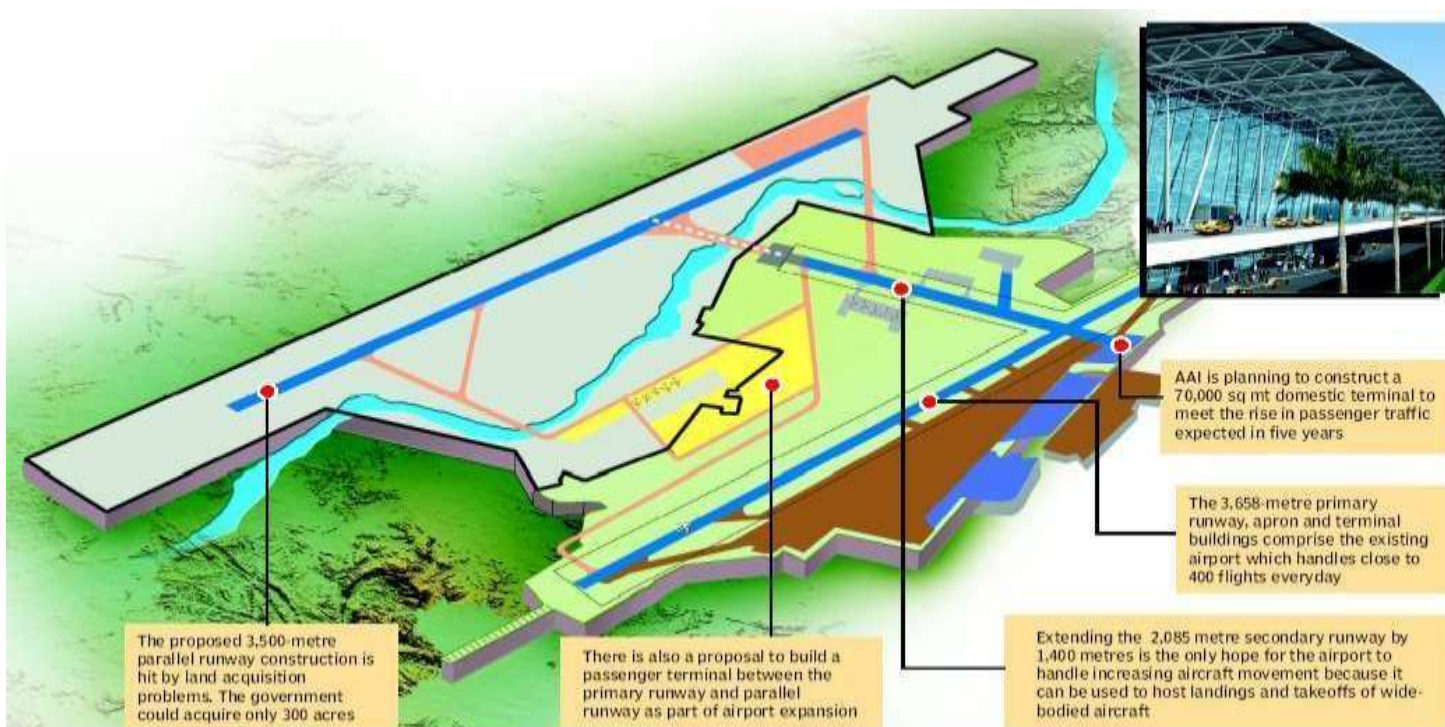
**Data analysis:** The data analysis can be both quantitative and qualitative. Quantitative analysis can be used to analyze the survey and airport data, using statistical techniques such as regression analysis and correlation analysis. Qualitative analysis can be used to analyze the interview data, using techniques such as thematic analysis and content analysis.

**Ethics:** The research design should ensure that ethical principles are followed in the research process, such as informed consent, confidentiality, and respect for participants rights and privacy.

**Limitations:** The research design should consider the limitations of the study, such as the sample size, data availability, and generalizability of the findings. The researcher should acknowledge the limitations and provide recommendations for future research.

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## **CONCLUSION:**

In conclusion, the construction of a new terminal at Chennai International Airport has a significant impact on various aspects such as airport operations, passenger experience, and economic development. The study conducted a thorough analysis of the impact and found that the new terminal has resulted in increased passenger traffic, improved facilities and services, and economic benefits to the region. However, the study also identified certain challenges such as congestion, inadequate parking facilities, and operational issues that need to be addressed. The study recommends implementing measures to address these challenges and leveraging the opportunities presented by the new terminal to further enhance the airport's efficiency, capacity, and connectivity. Overall, the study highlights the importance of infrastructure development in enhancing the competitiveness of airports and facilitating economic growth.

## **REFERENCES:**

- Amal Jose & Sewa Ram, Influence of UDAN Scheme on Network and Regional Connectivity of Indian Airports, *Urban India*, Vol. 39, No.1, 2019.
- Paul Koster, Eric Kroes and Erik Verhoef, Travel Time Variability and Airport Accessibility, *Transportation Research Part B: Methodological*, Vol. 45, No. 10, 2011, pp. 1545-1559.
- AAI, Annexure IIIA (March), Airport Authority of India, New Delhi, 2018.
- NTDPC, India Transport Report, Routledge, New Delhi, 2014.
- MoCA, Report of the Committee on a Road Map for the Civil Aviation Sector, MoCA, New Delhi, 2003.
- ACI, Airport Council International, 2018, <http://www.airport-world.com/> (accessed November 7, 2018).
- Manasi Sapre, and Nita Parekh, Analysis of Centrality Measures of Airport Network of India, *Pattern Recognition and Machine Intelligence*, January 2011, pp. 376-381.



Ganesh Bagler, Analysis of the Airport Network of India as a Complex Weighted Network, *Physica A*, Vol. 387, No. 12, 2008, pp. 2972-2980.