

Threat to Civil Aviation: Hijacking

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ABSTRACT

Abductions of hostages in India's civil aviation industry endanger the lives of Indian nationals and the entire country. In this paper, we take a close look at this threat from every angle: its background, present security measures, geopolitical factors, terrorist threats, internal security challenges, response and preparation efforts, technology, international cooperation, passenger awareness, and technology. Airline safety is becoming more of a priority than it was in the past due to the average attack severity skyrocketing, even if hijackings have generally decreased in frequency over the last several decades. In order to construct a taxonomy, this "incident-driven" study of a new database of hijackings that took place from 1993 to 2003 examined 27 traits of hijackings recorded in public sources. The four factions are associated with distinct terrorist acts. Number of perpetrators, severity of armed violence, affiliation with official groups, place of origin of flight, and international or domestic nature of the journey were some of the variables that grouped them into clusters. When comparing the four groups' strategies and chances of successfully resolving the attack, there was a significant difference.

Keywords:- civil aviation hijacking, India, security measures, terrorism, geopolitical factors, response and preparedness, technological advancements, international cooperation, passenger awareness.

Introduction

Many factors, including India's past, present, and future, as well as international and domestic policies, technological advancements, terrorist attacks, and human nature, contribute to the pervasive risk of hijacking in the country's civil aviation. To tackle this threat, we need a comprehensive plan that includes strong security measures, operations directed by intelligence, crisis response systems that work, innovation that never stops, international cooperation, and stakeholder participation. To protect its airspace and passengers against hijackings, India must stay alert, be flexible, and work together, even though the security situation is always changing. The objectives of this collection are threefold: first, to assess the existing and prospective dangers posed by terrorists to the security of civil aviation; second, to review the efficacy of different national and international programmes and policies designed to safeguard civil aviation; and third, to assess the prospective of novel or undervalued approaches to preventing and countering terrorist strikes on aviation. Contributors' expert knowledge of aviation terrorism and security and post-Cold War strategic context and conflict patterns are priceless assets. The text provides a solid foundation for understanding the dynamic nature of both domestic and international terrorism on a worldwide scale, as well as the ways in which these factors impact aviation terrorism. Ariel Merari's introductory essay offers an intriguing statistical study of terrorist patterns in aviation during the late 1960s and early 1970s, the era when contemporary international terrorism first appeared. If we want to find solutions to this threat, we must understand how aviation terrorism fits into larger patterns of violence and war. His discouraging conclusion may come as a shock to those unfamiliar with

the topic, despite the fact that the International Civil Aviation Organisation (ICAO) and other global organisations have made considerable efforts to enhance aviation security.

The nature of assaults on aeroplanes has remained relatively unchanged. In July 1968, terrorists attempted to extort money from politicians by hijacking an aeroplane. In May of 1949, an aeroplane detonated a bomb. In June 1968, the first armed assault on an airliner happened from a land-based location. May 1972 saw the first mass shooting at an airport, which innocent bystanders were uninvolved in. The development of effective countermeasures has been delayed for more than 30 years. This article will first give a high-level summary of the characteristics shared by attacks on commercial aviation so that the effectiveness of the response to this threat can be evaluated. In order to accomplish this, a comprehensive database of assaults on commercial aeroplanes was assembled from various sources. Among these sources are articles, books, databases like the one at Tel Aviv University's Political Violence Research Unit on terrorism, publications from the FAA, the ITERATE database, the chronologies of the Israel Defence Forces' Spokesman and RAND-St. Andrews University, and a large number of others. When it comes to reducing the danger of hijacking civil aeroplanes, which continues to jeopardise international safety, India is at a crossroads. The public's consciousness has been permanently altered by the spate of high-profile hijackings that have occurred on the Indian subcontinent in the last several decades. An intricate threat environment exists due to numerous factors, including terrorism, internal security concerns, historical events, technological advances, and continuing geopolitical tensions. As India's role in the global aviation industry grows, safeguarding its airspace and passengers becomes increasingly important. This introductory section explores the multi-faceted hijacking threat in India's civil aviation sector by touching on previous incidents, present security measures, geopolitical dynamics, terrorist threats, internal security challenges, technological advancements, international cooperation, the importance of passenger awareness, and response and preparation efforts.

BACKGROUND KNOWLEDGE

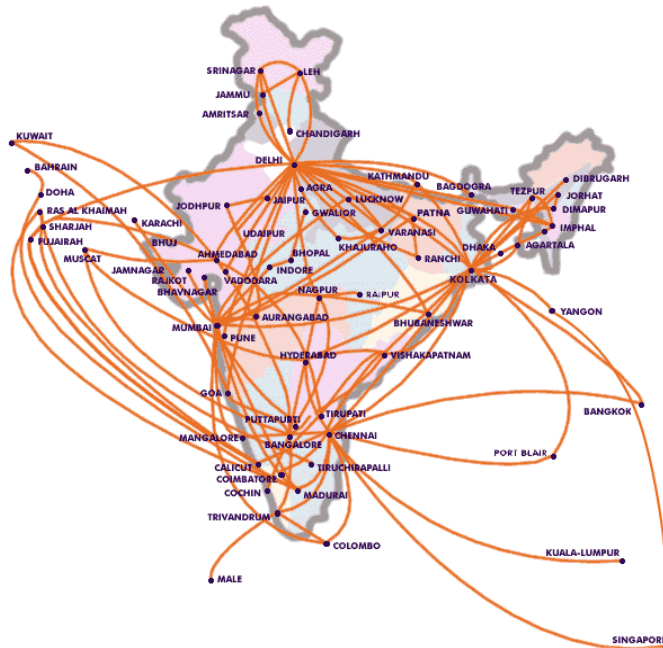
Along with previous high-profile incidents that had happened during the turbulent 1970s, the hijacking of Indian Airlines Flight IC-814 in 1999 brought attention to the vulnerability of India's airspace. The IC-814 kidnapping revealed serious flaws in India's crisis response systems, necessitated the release of three terrorists in return for the hostages' release, and demonstrated the necessity for stringent security measures and cooperation among different government departments. Assaults at airports and other locations, including attempted hijackings, have demonstrated the unpredictability of the threat and the necessity of maintaining constant vigilance. The present threat can be better understood by reviewing the past incidents of hijackings in India's civil aviation. The 1970s saw a worldwide spike in hijackings, and India was no exception. The 1971 hijacking and rerouting of an Indian Airlines flight to Pakistan is an early instance of this. Many more hijackings occurred in the decades that followed, the most high-profile of which occurred in 1999 aboard Indian Airlines Flight IC-814. In this incident, terrorists based in Pakistan hijacked a flight from Kathmandu to Delhi. Three radicals were freed following a seven-day standoff in return for hostages. The hijacking of the IC-814 highlighted the dire need for extensive improvements to aviation security and revealed serious flaws in India's crisis response systems. Hitchhikers were common in India throughout the '80s and '90s because of separatist movements and border issues. The events brought to light the exposure of Indian airspace and the difficulties presented by new security threats. Following the tragic events of September 11, 2001, which marked a watershed

moment in aviation security worldwide, India reassessed and fortified its security processes to conform to international norms. However, hijackings persisted in the civil aviation industry, and a handful of incidents involving Indian airports and airlines were reported.

PRESENT SAFETY PROTOCOLS

India has increased security measures throughout its aviation infrastructure in response to recent hijacking incidents and growing security concerns. There will be aircraft-specific air marshals, biometric screening and bomb detection technology, stringent passenger screening procedures, and ongoing training and improvement of aviation security officials' abilities. India has been able to identify and avert possible hijackings by increasing its cooperation with regional and international organisations to counter terrorism and improve information sharing. To prevent hijackings in the civil aviation sector, India has taken certain security precautions. Airports and airlines around the country have implemented a plethora of security methods and technology safeguards to ensure the safety of passengers. Tight passenger screening is part of India's strategy to make sure its planes are safe to fly. Using state-of-the-art scanning equipment, travellers are subjected to comprehensive inspections at various stages along their journey, such as during check-in, baggage screening, and boarding. The idea is to identify anything that might be considered suspicious or illegal. India has taken extra precautions to ensure the safety of its planes by doubling down on passenger screening and assigning qualified air marshals to some flights. In the case of a hijacking or other security breach, planes manned by these covert operatives are ready to intervene. Air marshals provide an extra degree of security for passengers and crew members and deter would-be hijackers. To reduce the possibility of hijackings and increase detection rates, India has also invested in cutting-edge security measures. Quicker screening of passengers and their luggage is now possible because of airport imaging technology (AIT), biometric identification systems, and bomb detection systems. Authorities may now identify any dangers before they become serious, and security checks are now quicker and more accurate, all because of these technological advancements. In order to guarantee the safety of its aircraft, India's plan relies on several authorities collaborating and exchanging data. The intelligence community, BCAS, and CISF collaborate closely to identify security risks, evaluate their seriousness, and devise responses. India works with groups like INTERPOL and the International Civil Aviation Organisation (ICAO) to exchange information, share best practices, and advance global security initiatives. To ensure that its aviation security officers are well-prepared and competent, India has funded training programmes and capacity development initiatives. To make sure everyone is ready to react quickly and easily in case of a hijacking or security breach, they often do drills, exercises, and simulations. Therefore, India's resilience and response time to new threats are both strengthened by these preparations. Present security measures implemented by India demonstrate the seriousness with which the nation regards the defence of its civil aviation industry against potential hijacking attempts. To ensure the security of its airspace, passengers, and crew, India has implemented a multi-pronged strategy to reduce hazards. Modern tools, expert staff, cross-agency coordination, and global partnerships are all part of this plan. Nevertheless, it is crucial to consistently keep an eye on, adjust to, and fund creative security solutions since the threat is always evolving.

REVIEW OF LITERATURE



In spite of an abundance of research on a worldwide scale, no significant findings have been derived from the Indian context. The academic community has largely ignored the contributions of Indian writers who have helped illuminate problems and offered solutions in the Indian industry.

According to Rameshan P. (2018), even the most well-known Indian airline, Air India, has experienced certain problems. The research concluded that there is no single cause for Air India's problems. A diverse fleet, excess capacity, competitive fares, high pay for inefficient staff, insurance premium burden, government restrictions on foreign investment, and a lack of desire to hedge against fluctuations in jet fuel prices are all factors that should be considered. Among the several difficulties encountered by the airline industry in 2017 are rivalry from other airlines, high operational and fuel expenses, taxes, inadequate infrastructure, and terrorist threats. There are a plethora of additional considerations, such as possible new competitors and unnecessary government intervention.

To identify cost-effective techniques, Banerji, Mukherjee, and Siroya (2016) analyse Indigo. The inquiry uncovered a number of tactics that proved to be highly economical. During these phases, we had to eliminate unnecessary aircraft types to cut down on inventory costs, automate procedures to shorten turnaround times, maximise trip usage by taking advantage of connecting flights, and limit luxury services to just two choices: additional legroom and pre-ordered meals.

The aviation business in India is currently facing numerous challenges, including an inadequate supply of qualified pilots, skyrocketing fuel prices, monopolistic behaviour on the part of airports and aircraft manufacturers, prohibitive beginning costs, and excess capacity (Chattopadhyay, 2015). One potential direction to go is to investigate recent technical developments.

Choudhuri et al. (2015) was another group that attempted to analyse the problems affecting India's civil aviation sector. The aviation industry in India is among the world's top ten, and it serves 41 million international and 121 million domestic passengers annually. Even while activity has grown, the industry is still losing money. During the 2014 fiscal year, Indigo was supposedly one of several large private companies that made a profit. Some of the most important things that came out of the study were these: the government hasn't come up with aviation industry policies for the future, there is a scarcity of

qualified workers, there isn't much competition among airports, the engineering fees for maintenance are prohibitive, and there is a small pool of potential customers. In their investigation, the researchers came up with other potential answers. Some of these measures included a change to the fuel tax, an increase in foreign direct investment (FDI) into the aviation industry, a decrease in maintenance, repair, and operations (MRO) costs, and the preparation and hiring of adequately qualified personnel.

The depreciation of the rupee, a complicated tax system for fuel utilised in air turbines, and expensive maintenance, repair, and overhaul (MRO) expenses are the primary obstacles encountered by India's civil aviation sector (Choudhury, Dixit, & Tiwari, 2015).

The study conducted by Singh (2016) delves into the significant obstacles encountered by this sector. Overcrowding and rapid expansion of passenger traffic at large airports, skyrocketing fuel costs for air aircraft, exorbitant airport fees, and fierce competition from budget and luxury airlines are among the most pressing issues. Premium airlines have lowered their fares to remain competitive.

METHODOLOGY

The evaluation of the four clusters that emerged in the investigation might prove useful to law enforcement when handling hijacking situations. The research categorised hijacking incidents into four groups based on four factors: the number of perpetrators, the presence of weapons, the nature of the flight (domestic or international), and the country of origin of the flight. All four factions had vastly different ideas about how to end the onslaught and how likely they were to succeed. Cluster 1 hijackers were notoriously unprepared and frequently operated independently; on occasion, the issue was settled prior to the arrival of law enforcement. Loss minimization, especially to civilians, must be the primary focus of law enforcement in these situations due to the high probability of success, the presence of massive quantities of ordnance, and the lack of bluffing. Cluster 2 uncovered a number of armed criminals linked to terrorist groups. Because this cluster is clearly using power techniques, law enforcement may have to change their approach to negotiations. Since Cluster 3 instances included several armed culprits rather than terrorist groups, they were more likely to be effectively enforced than Cluster 2 occurrences. Cluster 4, a separate group, is especially affected by the flight characteristics. Training pilots and flight attendants to respond to emergencies is an essential part of aviation security. In order to establish and evaluate criteria for crew training, aviation security also gains from understanding the potential dangers that passengers may encounter while in flight. From 176 hijackings documented between 1993 and 2003, this study used text analysis to extract relevant information about the occurrences. Annotations, graphs, and primary sources

Location Determination

The study's participants were chosen from among the aviation schools and carrier offices in Nagpur city.

Selection of Samples

Members of the group, ground crew, research students, ex-representatives, and aviation specialists were all part of the study's participants.

DATA ANALYSIS



You need to correct any errors, discrepancies, or missing data in your dataset to guarantee its accuracy and reliability. This process may call for Excel, Python, or R, among others. With exploratory data analysis (EDA), one can gain a deeper understanding of the data's properties, distributions, and linkages. Ability to discover patterns and trends in data, as well as data visualisation techniques such as box plots, scatter plots, and histograms, can be a part of this. By searching for statistically significant differences or correlations between variables, statistical tests can be utilised to study certain data hypotheses or queries. Common statistical tests include t-tests, chi-square, regression, analysis of variance (ANOVA), and correlation.

DISCUSSION

Hijacking of an Airline

Unlike in the past, the actual presence of the hijacker is no longer necessary for the hijacking of an airliner. It is possible for unauthorised individuals to physically access aircraft and alter critical flight records. Snatching up a small device and connecting it to the plane's network gives attackers a chance to steal sensitive information like the plane's altitude and ground speed.

Pilots flying aimlessly without the ability to utilise way point navigation to determine their whereabouts might be one of the severe consequences of interfering with the navigational communication system, according to reports from Ukraine. Planes enter restricted airspace because they can't detect their proximity to the ground when the power goes out, or other systems fail and you can't be tracked.

A flight operated by Indian Indigo also came perilously close to a midair collision in January 2022. Their tracks momentarily overlapped, prompting the air traffic controller (ATC) to redirect the two flights. The DGCA has reportedly stated their determination to take "strictest action against anyone found delinquent" following a probe, as reported by PTI.

A hijacking of a plane

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CONCLUSION

The Fluid Nature of the Threat An exceptionally high degree of dependability and security has been achieved as a result of the significant technical advancements in aviation safety. However, a new threat has persisted throughout the past three decades. Civilian aircraft have been targeted by bombs while in flight. Attacks on airports and airline offices have occurred at random. The problem of violent acts against civil aviation was first brought to the forefront of the global agenda in the late 1960s and early 1970s, when aircraft hijackings first attracted extensive notice. In order to prevent these kinds of attacks, the international community has adopted several measures. Some governments have responded to the seriousness of the threat posed by cyber assaults by enacting stricter security regulations. The International Civil Aviation Organisation (ICAO) has also taken important steps to counter acts of

violence against civil aviation. Notable successes of the International Civil Aviation Organisation (ICAO) include the 1963 Tokyo Convention, the 1970 Hague Convention, and the 1971 Montreal Convention. These conventions, which were created, adopted, and later recognised globally, address issues of air violence. On the other hand, the international community's first responses were shortsighted. Nearly every nation and organisation made stopping hijackings of aeroplanes their top concern. The potential for violent acts directed towards civil aviation, such as in-flight bomb plots, was not adequately investigated. In fact, in the early 1980s, hijackings of aeroplanes gave way to more sophisticated sabotage-bomb assaults, which posed a greater danger to civil aviation. Politically motivated hijackings of high-profile planes do occur, as happened with TWA 847 in June 1985, but terrorists in the aviation industry have adjusted their tactics in reaction to enhanced security measures. The increase in complex bomb attacks on civil aviation is a new and worrisome development. Such a high level of sophistication had never before been used against civil aviation.

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