



The Need for International and Regional Airport Infrastructure and Handling Capability Development in the Asia-Pacific Region

Kosuke Sendo

Boeing 777 Fleet Flight Operations Department, Osaka Aviation Technical College, Osaka, Japan

Email address:

kosukesendo@gmail.com

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Abstract: From the past decades, it can also be observed that along with the economies of East Asian countries the aviation industry has also received remarkable opportunities to grow. With time international travel increased worldwide and on average, the growth rate of international passengers increased and became 3% in the global market. Moreover, the East Asian regions face a 5-8% average growth in international passengers per year. This increased growth in international travel in the Asia-Pacific region is not only bearing fruitful outcomes for the economy but it has also connected the region with high-profile aviation industries around the globe, which are further supporting the economic and regional development in the region. In this research, the East Asian regions are referred to as Cambodia, Laos, Vietnam, Malaysia, Philippines, Thailand, Singapore, South Korea, North Korea, Indonesia, Hong Kong, China, Taiwan, and Japan. Increased air traffic in the Asia-Pacific region has provided many opportunities for the aviation industries to bring improvement, but certain challenges are associated with regional airport development due to the increased rate of international travel. When the demand for international travel increases, it also enforces the aviation industries to increase their capacities, but this increase in demand or capacity increases the potential safety risks in the region which are associated with costs, delays, and congestion. Moreover, it also becomes challenging for the economy of the country if air travel is increasing continuously at a high pace but still there is no regional development of airports to accommodate the increased demand. Therefore, with the increased air travel in the Asia-Pacific region, there is a need to increase the regional development of airports in the region to mitigate the challenges associated with the increased demand, otherwise, this can impact the performance of already existing local airports in the region. In the coming decades, it is expected that huge and planned capital investments will be made in Asia-Pacific regions for improving and developing the airport-related infrastructures which will ease the flow of air travel. More than the cumulative investment of US\$275 billion is expected in the regional developments of the airport in the Asia-Pacific region. This research is based on investigating the need for international and regional airport development in the Asia-Pacific region.

Keywords: Airport Development, Air Traffic, Infrastructure, Aircraft Handling, COVID

1. Introduction

The Asia Pacific region has been observed attaining great heights for a long time on the unravelled platforms contributing remarkably to overall Asian economic situations. The historical growth rate of its achievements determines that, of such high calibre, it would be the only determinant of Asian economic and commercial situations at some time in the future [1]. The Asia Pacific region is gaining high growth in aviation and airport development. With the increase in demand for people's desire to travel by

air, a drastic change has occurred in the growth rate that is expected to be obtained from aviation. It is estimated that by the year 2030, air traffic and air travel will increase to a greater level [2]. Thus, this research deals with the major determinants for airport development in the world and, more specifically, concentrates on air traffic and its major circumstances along with the possible solutions for evading the problems raised due to the rise in Air Traffic [3]. Moreover, it discusses the need for and impact of developing Airports in Asia-specific regions and the effects of certain economic, social, and regional trends. In this way, it

describes the whole review of the Airport background and ventures specifically needed in Airport development due to the increase in air traffic.

2. Concepts of Air Traffic and Air Traffic Control Systems

In the air service industry, it is possible and generally practical, that due to everyday advancements in the technology and fast-moving lifestyles of individuals all over the globe, the demand for travelling via aircraft to save time and many other factors, will increase. The enhancement of people's mindsets and lifestyles has given birth to the need for air travel. People like to have a safe, fast and comfortable means to travel from one place to another whether from a tourism perspective or any other. All these factors have added to the demand for air travel hence increasing the range of air traffic spectacularly with the escalated usage of aircraft. Thus, an increase in aircraft is raising the need to organise the space for their operation [4]. It is important for every Airport management of the overall air service to build a strong Air Traffic Management (ATM) system to ensure the proper global networking of aircraft. The main purpose of an Air Traffic Management System is to provide security and advisory measures to the aircraft that are being flown for various services. It is the prime duty to monitor the trajectory of each aircraft since slight negligence could be a reason for huge destruction. The route of an aircraft is monitored and analysed so that there must not be another aircraft present on the same route, as well as to maintain a measurable amount of distance between aircraft. All these factors contribute to the need for strong Air Traffic Management systems [5].

3. Airport Development

3.1. History of Airport Development

It has been seen that the development of the airport and its infrastructure has significant potential to minimise the aviation system delay, maximize the safety and demagnetize the adverse environmental aspects. Just like other transportation modes, the demand management in the aviation industry includes the usage of pricing incentives to redistribute demand despite solving capacity problems and congestion by increasing platforms i.e. establishment of new runways and new airport infrastructure [6]. In order to keep track of the trade-off between managing demand and congestion, there is a need to have an insight into the history of airport development. A sound knowledge of the history of aviation congestion and management of demand helps the planners to become familiarized with relevant terminologies and various planning processes related to aviation.

3.2. Importance of Airport Development

While the different places of the world are physically separated from each other, people can travel from one

destination to another via different sources of transportation [7]. The facility of air travel does not only allow passengers to travel from one place to another but furthermore links the economies for further global development. From several sources, air travel is said to be the most comfortable and the fastest mode of transportation from any place. It means air travel does not only connect the people of different countries within a short period of time but also their global economies [8]. It can be claimed that travellers are already facing enough traumatic travel issues and security checkpoints, therefore, the remaining experience at the airport should be relaxing and pleasurable [9]. Effective traveller transportation mediums are recognised as one of the ways to address this issue and make them comfortable. As in several cases, the individual has to travel around two to three kilometres between the entrance, security checkpoints and embarkation gateways [10].

4. Challenges of Airport Development in High Air Traffic Regions

Site Selection: The selection of the site to build a new airport and estimation of an existing site in terms of how it could be expanded in order to cater for the provision of the new major airport are two of the most challenging and complex tasks. A balance should be maintained among the aeronautical and air transport requirements, along with the impact of the airport on its environment that has to be developed. Keeping in mind the aeronautical view, the fundamental requirement of an airport is that it should have a flat area of ground comprised of sufficient land to facilitate the runways and other facilities [11]. Moreover, the selected area must be free from obstacles that could become a hindrance to air navigation such as tall buildings or mountains. On the other hand, from the perspective of air transport, the airport site must be significantly closer to the populated area so that it is easily and conveniently accessible by the commuters.

Operational Requirement: It is easy for the most casual person to observe that there lies a substantial variation in the appearance and layout of airports depending upon the size and the facilities offered [12]. Fundamental airports that are developed to cater for light aircraft and less air traffic are significantly similar, however, considering the increased and accelerated need for air traffic and heavy aircraft, the accommodating facilities differ along with the specifications of being larger in layout and infrastructure. The basic considerations of airport layout involve the number of runways, along with their orientation including the factors of the shape of available sites and the site's constraints. The orientation and location of the runways require an obstacle-free route, particularly between the take-off and landing processes. It is important for large airports to consider the obstacles up to 15 km or 10 miles from the runways [13].

Considering Aircraft Noise: As stated in U.S Aviation, Fleet, Airport, and Airway News (2018), Airport traffic has

been increasing continuously for a long time [14]. History shows that aircraft and large jets started their operating activities in the urban areas of several countries in the 1960s. From the very start, the noise caused by aircraft flying over residential areas led to public annoyance. As a result, political pressure was brought to bear on the air travel industries to reduce the noise of the aircraft [15]. It was critical to reduce the noise of fighter jets. Aircraft motors are the significant wellspring of commotion and can surpass 140 decibels (dB) during take-off. While airborne, the fundamental sources of clamour are the motors and the rapid choppiness over the fuselage. There are deleterious effects to people of raised sound levels. A loud working environment can cause hearing disability, hypertension, ischemic coronary illness, inconvenience, rest aggravation, and diminished learning application at school. Albeit some audible misfortune happens normally with age, and in many countries, the effect of commotion is adequate to disable hearing to a profound degree. Increased noise levels can create pressure, add to work environment mishap rates, and invigorate animosity in social behaviour. Air terminal clamour has been connected to the high blood pressure framework and has, all around, reacted without emergencies [16]. The issue of aircraft noise is a worldwide problem to be handled and thus the International Civil Aviation Organisation (ICAO) continuously tries to develop different ways to reduce noise and regularly updates news to help make necessary actions for the airlines worldwide.

Environmental Compatibility: The environmental impacts of the aircraft are generally classified into two subclasses which are Footprints Effects and Operational Effects [17].

Footprint Effects: These are the impacts on the quality of water, lands, and habitats or more specifically over the living species worldwide directly or via the sources that they generally use. These are mainly caused due to locality, magnitude, and organisation of the airport facilities.

Operational Effects: The effects on environmental conditions and aircraft noise due to changes in the volume of aircraft and airport infrastructure development.

Energy Use: The aircraft's development and ability to take off will need the use of fuels to be increased [18]. Thus, it is challenging for the airport development managers to take into consideration that this will ultimately affect environmental pollution and other factors to a substantial degree.

5. Recent Trends in Airport Development

The demands of airports are increasing; a phenomenon, which results in the airport infrastructure around the globe evolving and developing. This growing demand puts a question mark on the allocation of scant space in the short run; how well instruments, for example, the space framework, are adapting to them is investigated. In the long run, increments in capacity are justified, and how the developing ownership and administrative conditions for the airport will deal with these is analysed. Alteration in the patterns of interest will originate

from new plans of action. Ultimately, the issues of airport cost productivity, proprietorship and administrative climate effect, are examined [19]. However, it is public knowledge that airports are regarded as the promoters of tourism development and key to a nation's national and international trade affiliations, whilst, they are still frequently perceived as helping those who could easily afford to travel, commonly known as the wealthiest people or group in society.

Changes in airport infrastructure are not a process that can be done anytime without any consideration of environmental, economic, or other factors [20]. It is primarily a very complicated process that requires a close analysis of the trends and current affairs of the countries and different regions of the world. The major deliberations are: environmental and climatic situations, global economic conditions, political affairs, energy use i.e. fuel and its effects, and affordability of the air industry for developmental costs [21]. Currently, there is a lack of systematic arrangements required for the infrastructure development of the airports in most regions of the world, as they lack the awareness and up to date information of the technology thus any permanent decision regarding airport development requires the training of the individuals involved in the airport development teams [22]. Once the challenge of proper training and awareness-spreading among the air travel industry is tackled, airports can be developed in environmentally and economic friendly ways all over the globe.

Below are a few trends that could shape the future of airports by not only accommodating new types of aircraft but also a new era of travellers demanding revolutionary modes of travel.

Automation: According to a report of IATA, the Asia Pacific region will likely have the number of passengers of about 2.1 billion after the year 2030 [5]. In order to cater for this high number of passengers in the future, airport administration will likely opt for automation to smooth the flow of services provided to the commuters to ease congestion.

Off-site service for commuters: Considering the fact of the increased number of passengers in the future, off-site services will be chosen in order to make the services easy for travellers and to reduce congestion. To carry out this trend, cloud technology will be used which is already in practice for small services like pop-up checkins and baggage drop services [23]. As a successful trend, kiosks can be deployed in different locations that are convenient for travellers. Owning this trend will eventually save the airport's infrastructure investment.

Biometrics: Biometric technology is a great idea to enhance and modernize the commuter experience that will reduce future problems encountered by increased commuters as well [24]. It is seen that passengers are more concerned about the checkpoints and long queueing delays at the airport. To solve this issue and increase comfort for passengers, biometrics can be made available at every touchpoint at the airport and is supposedly more secure and

provides a seamless experience [25].

Smart Ground Transportation: The passengers are seen to be agitated after landing at their final destination after a flight. This is because they are likely to be worried about getting transportation to some particular place where they have to go from the airport. What an airport could provide is the facilitation of ground transportation that would provide a better experience for commuters. This practice is trending just like a few others that appeal to travellers. It can be achieved by deploying an on-line kiosk at airports, providing the benefits of pre-booking and other services [26].

Reduced Carbon Footprint: The emission of carbon dioxide and other harmful wastes threaten the lives of people and the environment. The travel industry is on the verge of becoming the source of huge destruction to the environment while lacking the ability to provide improved surroundings to people by contributing to the harmful emission of various gases and materials. To reduce the carbon footprint would be a successful trend to adopt since it will attract the attention of travellers and those who are more concerned about the environment [27]. Cloud technology significantly lets airports avoid using energy-consuming hardware and centralises it, resulting in developing airports that are comparatively low generators of carbon emissions.

Expandable Services at Peak Hours: Another innovation or trend that could be adopted to enhance airport development is the offering of services at peak hours. This has been observed that people tend to travel more in times of festivity, celebrations, holidays, etc. when more ease is required. Cloud technology can be deployed that will allow users to book and do all other activities online without getting into any kind of hustle and need for advanced infrastructure [28]. This will benefit the traveller in staying away from the congestion.

Automation for managing passenger growth and development: According to the “International Air Transport Association (IATA)”, the region of the Asia-Pacific is projected to attain an extra 2 billion yearly travellers by 2036. In order to address this upsurge in the number of travellers, airport workers will gradually perceive automation to exert more volume than in the present infrastructure [29]. In addition, Dr Thomas Landgrebe, senior software engineer of ICM Airport Technics states, “automation of the services will assist a flatter movement of travellers in, from and around the airport, enabling congestion. They also provide a more customised facility in the whole procedure. For instance, automatic bag drops enable travellers to recover their reservation biometrically despite using their boarding pass, sustaining valuable and worthy time that would otherwise multiply as countless travellers check their bags onto their flights. However, less congestion through these checkpoints will permit the airport to be more experimental, providing travellers more time to discover entertaining and retail possibilities throughout the terminal”. Shouldn’t this read ‘easing congestion’?

Off-site passenger handling: it has been identified that technological enhancement simplifies the process with

effective possibilities, especially for off-site passenger management. There are various airports and travelling stakeholders who utilise the cloud to help pop-up check-in and bag-gage drop facilities [30]. Matt Lee, Chief Executive Officer of OACIS demonstrated that “to cope with the increase in the number of passengers, airports should use cloud-based technology to improve the congestion of passenger handling. We have been utilising the cloud for rolling out or ‘pop-up’ check-in kiosks that could be arranged in any place, which will be suitable for the travellers. The major advantage of these is ascendable associated with the demand and necessitate no new investment for infrastructure. Whilst, in future, one is going to observe off-airport services and make them the norm, whereas check-in halls will be reduced and repurposed”.

Biometrics: investment in biometric technologies will eventually increase as airports seem to rise in throughput, whilst, restructuring the traveller’s journey, generating frictionless exposure at every touchpoint [31]. Nonetheless, it can be analysed that other airport procedures are becoming more updated and effective practices, for instance, security are initiating to emerging bottlenecks in the terminal. Luckily, the acceptance of biometric technology has the capability of assisting in pressure through various touchpoints at the airport. Sorry, I don’t know what is meant by ‘throughput’ here, nor ‘security is initiating to emerging bottlenecks in the terminal’.

Greener Airports: an upsurge issue for the international travelling industry is recognised as the carbon footprint, which is left by all stakeholders. This results in public pressure as the stakeholders are discovering various methods to balance emissions and become more ecologically sustainable, whilst cloud technology provides the industry with a practice to seriously decrease emissions [31]. Airports operate with servers’ data centres by the terminals that utilise significant data regarding electricity. Moreover, the cloud enables airports to eliminate the “energy-consuming hardware” and integrate this, which means that airports have the capability to substantially decrease their carbon emissions.

6. Need for International and Regional Airport Development in the Asia-Pacific

6.1. Expected Lack of Airport or Aircraft Handling Infrastructure in the Asia Pacific in the Future

In the future, the Asia Pacific region is expected to experience a lack of airports and a paucity of improvement in aircraft handling infrastructure according to the current situation of the COVID pandemic. On the other hand, the growth rate of the aviation industry is expected to increase by observing the fastest growth rate of the aviation sector all across the world. According to the report of Cortés-The Asia Pacific region is considered to be the fastest-growing region for airline activity, where the criteria of development do not

meet the expected criteria. Since there are considerable challenges faced by the AAPA conference and reflect the lack of terminal facilities, runways, poor airspace management [32]. Reportedly, China is among one of the countries that leads the list of having the largest number of airports. It has been estimated by IATA that the production scale of the passengers would rise to a figure of 2.1 billion till the year 2036 which is around twice the current rate. This increased demand will evince huge economic benefit to the country; however, this increased demand is a threat in terms of space and infrastructure of airports. There exists a lot of space and capacity to cater for a huge number of commuters at a time but the major airports are likely to be congested at the peak hours of the day resulting in the increase of airspace as well due to the increase of commercial air travel [33].

6.2. Regional Airport Development in the Asia Pacific

It has been observed over the past decade that both the Asian population and economy are growing very rapidly as compared to most of the other regions of the world. Thus, this rise has brought a higher level of demand for air travel specifically in this region. The Asian airports are much less capable in their supply of air travel services due to a lack of development of infrastructure and aircraft [34]. The Asian airport infrastructure was last developed remarkably in the 1990s, however, with an instant rise in demand they have still not taken any steps to grow and make improvements in their service capacity [35]. In Asian regions, almost all such projects are observed to take about a 5 to 10 year period for their need to recognise steps to the implementation of their problems, which further adds to the growth rate of demand for air travel. As a result of the present infrastructure, the passengers have to face frustration due to flight delays and standing up in very long queues before the plane takes off [36]. However, increasing the number of aircraft in the air travel industry is not a big deal for air travel management but the scarcity of landing space at airports is increasing day by day which may have several disadvantageous effects. There are not enough airports that can fulfil the operational activities of aircraft. It won't be possible to cater to the overly increasing traffic since space and infrastructure are very much limited. The past report of airports of the Asia Pacific regions suggests that in the year 2013, only 57% of the flights were recorded as departing on time. However, when this rate of punctuality is compared to that of North American and European flights, it is seen to be much less than that of the latter's accuracy of departing, which was about 79% and 73% respectively in the same year [37]. Asia is the region with the world's largest growth rate in the year 2020, but still, its lack of timely development in certain industries i.e. air transport can lead to it being an economically backward region of the world in future decades.

6.3. International Airport Development in the Asia Pacific

International airports are different from domestic airports in terms of their size and services which are offered to the commuters. Such airports comprise border security facilities

in order to let the passengers travel from one place to another more frequently, safely, and comfortably. They are mostly larger, having long runways and platforms in order to accommodate heavy aircraft usually used for international flights and accommodations [38]. In the current world, the businesses that are either trading goods or providing their services are only successful enough by not only being limited for their operations within their homeland but also by trading internationally. Going international for any business is going global and that makes a business a part of the global economy [39]. The need for the development of international airports is increasing in accordance with the passage of time. The infrastructure of the international airport is supposed to be a great concern for the people of the time since it brings out favourable changes for business.

7. Impact of Air Traffic on Airport Development

7.1. Proper Management of Other Business Operations

Due to the rise in air traffic, most of the businesses whose operations are significantly dependent on international trade and thus have to engage in import and export activity create a major impact on air traffic [40]. Because the freight operations of such organisations are affected by air traffic, this leads them to make delays or an end to most of the operations. For example, in Asian countries, there are the majority of the manufacturing companies that either import or export their raw materials or final products to several countries to proceed with their business but the issue of air traffic prevents them to do so [41]. Thus, airport development provides the required infrastructure for the proper landing of the aircraft that will ultimately reduce air traffic and improve other business operations. Air traffic also creates a problem for the individuals involved in various businesses to attend international meetings and seminars that could promote their businesses internationally and make them aware of certain international requirements [42]. Hence air traffic emphasises the action of airport development on various grounds of the organisation.

7.2. Customer Satisfaction

For many years, air traffic congestion has caused the number of aircraft accidents to rise globally, as a result of which, the fear of air travel has been increasing in the public mind and this can harm the air industry business [43]. Moreover, the rise in population for many years has increased the demand for services of the air industry both in the rise of passengers and the freighters but it has been observed that airport management has most of the time tried to tackle this problem by raising the airfares but not making any improvements by taking the ground problem under consideration [44]. The increase in rates causes the customers dissatisfaction with the procedures of the airports and urges them to find new methods to achieve their needs. Consider

the example of an individual of a country where he faces delays or dissatisfaction due to the services that are provided at the airport; he would seek other ways where there will be no hindrance in the way of his operation. This situation will adversely affect the airports in general. Thus, proper infrastructure needs to be developed to meet the customer's demands by increasing the supply capacity of air travel. Along with this, aircraft delays and standing up in queues for a longer duration of time at airports annoy the customers before departures of the aeroplane itself [45]. Customers are supposed to be happier when they are given an excellent environment, on-time departure and arrival and better catering in their flights, although a violation of any part may destroy the customer's experience leading to their dissatisfaction [46]. Thus, air traffic affects customer satisfaction in many ways that can be resolved by airport development at both the regional and the international levels.

8. Impact of COVID

The report of the ICAO reflects the impact of COVID on the air traffic dashboards where various aspects are affected by the discontinuation of flights. Some of the highlighted drawbacks include the less effective impact, aircraft utilisation, and changes in country-pair traffic. A study sheds light on the economic impact generated by the pandemic situation as this will affect the air carriers, airports, and ANSPs. In the context of operational impact, a decreased rate of the number of flights has been recorded with a reduced number of seats offered to passengers [47]. This not only relates to the national operation but is also linked to international operations. Consider The report of the International Airport Review comments on the impact of flight cessation on the revenue rate of aircraft and air carriers. Based on the widespread virulence of COVID globally, almost all industries have been affected by this devastating situation as this results in major financial loss and economic restlessness. Furthermore, numerous significant uncertainties are associated with the COVID-19 pandemic, as this disturbed the domestic as well as international market. As a result of the diverse impact, the aviation management of Asia Pacific warned the airports and passengers not to use the services or resume their flights. Due to this, the loss rate is expected to be \$3 billion [48]. Furthermore, the severity of the current situation negatively affects the economic sustainability and connectivity that restricting the growth ratio [49]. According to the estimation, the regulators and governments will need to implement adjustments and security measures to limit the impact of the pandemic.

9. Theoretical Framework

Air transportation has become the quickest developing method of transportation in terms of adjusting to industry opportunities and provisions available. The improvements in air transportation have been encircled by the introduction of larger transport aeroplanes and increasing air terminal

infrastructure redesign in present days. Because of the accelerated significance of expansion in air terminal facilities, this has become a matter of concern for strategists and academics [15]. Despite the fact that the timeliness and worthiest cost-efficiency are acquired by the airport facilities, there are negative externalities delivered via the development of the airport and its infrastructure. Because of the increasing importance of augmentations in airport capacity, it ought to be viewed as the management of the ecological effect on neighbouring areas. Research has discovered that airport activities may emit different pollutants, including volatile organic compounds (VOCs), carbon monoxide (CO), and particulate matter (PM).

The airport's developmental requirements and its progress can be highlighted using various theories. The theories mainly focus on the factors of ongoing situations of different airlines, and airports and the rules and policies followed thereby. One such theory includes the traditional neoeconomic growth theory, which mainly emphasises that the growth regarding various factors in any business industry requires the economic stability of that industry [50]. Economic stability not only requires enough financing but also the availability of required resources. In airport development growth of the air industry, several contingencies are required such as the resources of labour, infrastructure i.e. premises, aircraft, and many other resources including that of the technical staff and trainers for updating and making the workers aware of the latest technology to make the work facile requirements as economic resources. In the situation when these resources are not available then they can be imported from the regions where they can be availed. From these resources, labour is easier to be attained for the development as workers can be attracted by the offer of higher wages or other required benefits [51]. Once the arrangement of proper labour is arranged, the raw material required for the growth progress can be easily brought to the right place. The resource collection seems to be an expensive task but in the long term, the expenses and rewards earned from the investment offset the expenses. However, the new growth theory defines that the industries that are already performing on better grounds attract more labour and recourses towards them by paying more for good quality raw material and skilled labour. It leads to the conclusion that the organisations that are already rich become richer and the poorer ones either lose what they have or sustain their lower positions in the industry [52].

10. Conclusion

The research has dealt with the review of the relevant literature section of the given study. Literature reviews contribute a major part to any research work and the reason is that a review of literature basically underpins already extant information in the relevant field of study. By reviewing the literature, the researcher has also generally reviewed what exists in the field of research but more importantly, it helps readers of the study to understand and to become aware of the established facts under the light of previously held

research works. In other words, it can be said that after going through a literature review, the readers become aware of extant information about the topic of study. In this research, the researcher has underpinned a detailed review of the literature to make readers aware of the information which is already been discovered in the relevant field of study. For instance, the researcher has, first of all, discussed the concept of air traffic and air traffic control systems. It is mandatory for the readers to become aware of how air traffic is controlled especially in the region of high air traffic such as in the Asia Pacific region. Likewise, after making the readers realize these issues, the researcher has also discussed the historical development of airports. For example, first, the researcher has underpinned the history of airport development along with the importance of airport development for safe and secure air travel as well as air traffic. In addition, the researcher has underpinned challenges faced by the airport development, especially in those regions where air traffic is higher. Some of the challenges which are highlighted by the researcher in this research are site selection, operational selection, aircraft noise considerations, environmental capabilities such as carbon footprint issues and energy use in a particular region. Afterwards, the researcher discussed emerging trends in the aviation industry such as automation, ease to customers, and security concerns. Moreover, the researcher has focused on the particular case of airport development in the Asia Pacific and discussed the need for international and regional airport development in the region of Asia Pacific. For this purpose, the researcher has underpinned the inadequacy of the Asian Pacific region's airport infrastructure and control capability to increase the region's airport development needs. Similarly, the researcher has shone some light on regional and international airport development in the region. Furthermore, the researcher has discussed the impact of air traffic on airport development, especially in the region of the Asia Pacific. It has been determined in the study that various business operations, i.e. imports and exports of states often depend on air tourism and focusing on the requirement for airport emergence. Asia-Pacific has faced great extents of development in previous years. China's traveller traffic, for instance, rising at an incredible 10 per cent annually whilst Indonesia raised at around 11 per cent annually since 2006. Nonetheless, the sky-high growth rates are not likely to endure; the next era is forecast to continue with more retiring development. The Asia-Pacific region is considering a growth level of 6 per cent annually. Regardless of traveller's growth within the Asia-Pacific region, it is being more modest growth as compared with recent years. As far as the impact of air traffic on airport development is concerned, it has been noted that there are various factors including airport and infrastructure development, proper management of business operations, customer satisfaction, economic development, community's lifestyle, proper facilitation of passengers, lack of proper infrastructure, fatal accidents due to shortage of runways, etc. have both favourable and adverse impacts. It has been recorded that people's demand to travel by air due to the

benefits of fast and comfortable means of transport has desirably increased the need for airport development. The increase in the air traffic conversely added the requirement for more flights to accommodate the need subsequently. The people who are interested to travel by air give birth to airport development. The necessity for substantial infrastructure investment residues to enable presenting and upcoming demand. Hence, the Asia-Pacific region is likely to perceive the maximum extent of investment in airport development in the upcoming years.

Lastly, the researcher has discussed the impact of the COVID-19 pandemic on airport development and air traffic in the Asia Pacific region. In this regard, the researcher has underpinned brief information about how COVID-19 has affected the development in terms of revenue generation in a number of regions of the world.

11. Future Research Recommendation

Nonetheless, future studies could take assistance from this study in order to evaluate the issues and impacts of COVID-19 on the growth of the airline industry and specifically how it influences an individual's lives as well. Subsequently, the importance of the airport development throughout the study will help the readers and other people as well to have appropriate insight about the emergence of regional development in the Asia Pacific region, how they are striving to improve it, what are they doing to sustain it and how they are emphasising on retaining their stakeholder too. Moreover, interviews for the conduction of the study will also elaborate on how respondents have perceived the themes and how they want them to change or modify them effectively. Hence Researchers in future can take great help from this study to determine the impact of air traffic on airport development.

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Biography



Kosuke Sendo, Boeing 777 and B737, Flight Operations Department, Airline Pilot A.T.P.L Education: Working towards a Ph.D. Formerly worked as a Pilot Instructor at the Department of Education, Osaka Aviation Technical Collage, Osaka Japan. Research: Reynolds Number, Boundary Layer Control, Human Factors, Flight Dynamics, Airline Management, and Airport development.