**Flexible Use of Airspace between Air Force and Civil Airlines: An emergent Need to Provide Air Connectivity to Second and Third Tier Cities and Town**

1. **Background of the Study**

Aviation is a major determinant in facilitating the economy of a country; it is an industry that contributes to the nation’s progress and well-being. The rampant evolution of commercial aviation has paved the way for the development of the fastest and safest transportation mode. The world economy gets a positive thrust from aviation owing to its competence to quickly and safely mobilize all kinds of people to any part of the world (Ministry of Civil Aviation, 2019). An economy thrives on global connectivity as it gives the necessary impetus to promote trade and encourage interaction between people. Connectivity tends to bring people together, thereby promoting a healthy exchange of not only goods but also cultures and ideas (Das, 2018). However, this kind of connectivity eludes certain areas in a country that are not as developed compared to other cities and cities. Thus, improving connectivity becomes imperative to bolster an area’s prosperity and ensure its relentless growth (Regmi, 2013). Distance has always been a primary determinant from the perspective of trade and for the trade to flourish, connectivity plays a significant role in overcoming impediments that might be created by distance. When the regions are bereft of adequate connectivity, the opportunities engendered as a result of dynamic growth centres may fail to reach them and therefore, become limited to mostly first-tier cities (Das, 2018).

The two primary airspace users existing in the world are civilian and military. The civil aviation sector incorporates the private, commercial and the aircraft owned by the government that nationally and globally, transport passengers and cargo, while military aviation includes the aircraft owned by the State and deployed in transport, training, security and defence (International Federation Of Air Traffic Controllers’ Associations, 2017). Both sectors are integral to global stability. However, both cannot be functional within the same area of airspace, thereby enabling the construction of boundaries and segregation. Therefore, the States are bestowed with the responsibility of managing the limited airspace in such a way that adequately meets both civil and military aviation requirements. But this demarcation of spaces proves to be a hindrance in the accessibility of airspace to second and third-tier cities. Providing air connectivity to second and third-tier cities is one of the myriad ways to strengthen connectivity. In a span of seven decades, India has set an example of Civil-Military Cooperation for everyone to follow (Bujor, 2011). The Indian air transport sector has shown tremendous growth over the years and people can be hopeful for further growth in the coming years. The market of Indian domestic aviation is hailed as one of the fastest growing markets on the international level. The degree and scope of potential growth in the Indian domestic market can be ascertained from the fact that the number of domestic journeys undertaken in 2017 represented merely 7.3% of the total population of India (National Green Aviation Policy, 2019). This is where the concept of flexible use of airspace can be introduced. It can be explained on the grounds that the airspace is neither labelled as “military” nor “civil” but used as a flexible continuum on an everyday basis (Bujor, 2011). This flexibility dispenses a transient nature to any kind of necessary airspace segregations.

Needless to mention, air transport has been conducive to rapid growth in India’s international trade, giving it a faster and more reliable mode of transport services to take objects across long distances. Thus, for the economy to reach its absolute fruition, sustaining aviation industry, with its benefits reaching to all individuals regardless of their demographics, is important (National Transport Development Policy Committee, 2012). Better air connectivity allows manufacturing industries to make use of the speed and reliability of the air transport to send constituents across organizations located in diverse and distant places, thereby minimizing the inventory cost. Moreover, air transport also plays a critical role in the development of the tourism industry. It can be considered as one of the major contributors to the Indian economy Tourism (Satellite Account for India, Ministry of Tourism, Govt.of India/NCAER,2006).

As the name suggests, the concept of FUA, that is, flexible use of airspace maximizes the flexibility of airspace use and ascribes Air Traffic Management (ATM) an ability to increase the capacity of the air traffic system (Bujor, 2011). It also ensures that any inevitable segregation of airspace is authentic and occurs within a specific time period. This concept can be linked with the growing need for providing air connectivity to second and third-tier cities in the country. Today, 449 airports are operating under the ambit of Airport Authority of India (AAI). They are categorized by the following:

* Nature of operations
* Availability of domestic and international terminals
* Volume of passengers held in Tier I and Tier II
* Air traffic handling capacity, whether it low, medium or high

The four main airports in the cosmopolitan cities of New Delhi, Mumbai, Chennai and Kolkata are now being supplemented by secondary gateways (Das, 2018). The airports in a country are either of the two kinds:

* Greenfield, having scope for expansion
* Brownfield, having no further scope for expansion

Development of aerodromes and airstrips that corroborate connectivity for military and civil purposes at various places in the northeast has been aimed at in order to cope up with the limited accessibility ( Journal of Business and Management, 2018).

The Ministry of Civil Aviation (MoCA), Government of India, released the National Civil Aviation Policy 2016 (NCAP 2016). One of the objectives of NCAP 2016 is to “enhance regional connectivity through fiscal support and infrastructure development” (Ministry Of Civil Aviation, 2016). The government introduced the UDAN (*Ude Desh ka Aam Nagrik*) scheme under which it suggested the development of tier II airports to ease the pressure on Tier I airbases which is apparent during peak seasons (Das, 2018). Thus, the scheme proposes the construction of some secondary airports to offset the burden from Tier I airports. Moreover, other important factors also weighed in that necessitated the need for secondary airports. AAI is seeking to develop over 90 more airports to soak up the excess pressure off the prevalent runway inventories (Ministry Of Civil Aviation, 2016).

Therefore, this study serves to explore the ways in which flexible use of airspace (FUA) would pave the way for development in remote cities and towns, places where vestiges of globalization are least noticeable.

1. **Literature Review**

According to the International Federation Of Air Traffic Controllers’ Associations (2017), airspace management (ASM) is the process that ensures the effectiveness of airspace and its use based on actual needs of the airspace users, both civil and military. It mentions the primary precepts and strategies that are as follows:

a) the airspace available ought to be managed flexibly

b) not only should airspace management processes accommodate the paths of dynamic flights, but they should also provide ideal operational solutions

c) when conditions need different kinds of traffic to be separated by airspace organisation, the size, shape, and time regulation of that airspace should be set in such a way that it diminishes the impact on operations

d) the use of airspace should be carefully governed and coordinated so as to assimilate the contradictory requirements of all the people and to minimize any kind of restrictions on how it operates

e) airspace reservations should be planned well in advance with changes made dynamically whenever possible. The system also needs to accommodate short-notice unplanned requirements

f) due to convoluted operations, the extent of flexibility might be limited

As per the Ministry Of Civil Aviation, Government Of India Ncap (2016), the NCAP incorporates and addresses the following policy areas:

a) Regional connectivity

b) Issue of Safety

c) Operations pertaining to Air Transport

d) Route Dispersal Guidelines

e) Need for International Operations

f) Bilateral traffic rights

g) Code-share agreements

h) Fiscal Support

i) Airports developed by State Govt, Private sector or in PPP (public-private partnership) mode

j) Airports Authority of India

k) Air Navigation Services

 l) Aviation Security, Immigration and Customs

m) Helicopters

n) Charters

o) Maintenance, Repair and Overhaul

p) Ground handling

q) Air-cargo

r) Aeronautical ‘ Make in India’

s) Aviation education and skill development

t) Sustainable aviation

u) Other miscellanies

v) Essential Services Maintenance

According to MariaDas (2018), the Regional Connectivity Scheme (RCS) postulates that the 18 third-tier cities of India will feature on India’s aviation map. In this landmark policy which is certain to be embraced by the masses, these cities are set to make their foray into the national and international front by January. The airlines are likely to submit their proposals to fly on many routes to and fro the aforementioned cities under the UDAN construct. Initiatives like these are monumental in championing unison of people, cities and forging interactions that did not seem possible before. Furthermore, making efficient use of the flexible airspace between airforce and civil airlines, such policies bring under the scheme swathes of airports that will be competent enough to connect second and third-tier cities and their markets while simultaneously relieving the pressure off the larger and bustling metropolises. Some major tier II sites and the interconnectivity of their airbases, including Agra, Allahabad, Gwalior, Gorakhpur, are the ones in which the government is likely to invest in the upcoming years. Ahmedabad, Jamnagar and Bhavnagar are also the incipient airports which are slowly unfolding as chief operational bases.

According to Regan (2013), the issue of regional transport connectivity is gaining prevalence in the Asian continent. Transport connectivity whether domestic or international is significant to allow the movements of goods and people to take place and plays a key role in the social and economic development of countries and regions. Various policies, initiatives, and projects are being thought out and implemented by countries to enhance regional connectivity in Asia.

1. **Aims and objectives of the study**

**3.1 Aim**

The study aims at an examination of the extent of reconciliation between the airforce and the civil airlines. Its major aim is to bring out the flexible use of airspace to perpetuate connectivity ease in second and third-tier cities.

**3.2 Objectives**

To achieve the aforementioned aim, the study has the following objectives:

1. To investigate the existing conflictual relationship between the airspace occupied by airforce and the airspace available for civilians.
2. To understand and critically analyze the concept of flexible use of airspace (FUA).
3. To examine the ins and outs of the Indian government’s UDAN project and assess how it is instrumental in achieving the broader aim of the study.
4. To study ways in which flexible use of airspace would propel development and provide connectivity to second and third-tier cities.

**4. Research Methodology**

The research methodology employed in this study is intended to employ a structured questionnaire survey with close-ended questions from about 500 respondents who are associated with the aviation sector. Inclusion criteria for the respondents may include that they belong to either military aviation section or the private or commercial aviation sector. Incorporation of individuals from both the sectors allows identification of the multi-factorial aspects of air connectivity issues in the second and third-tier cities and town. Face to face interviews will then be conducted for further analysis. The data collected through structured questionnaire survey would be designed according to the objectives and aim of the study. The survey would be conducted in different cities so as to obtain a holistic view in this regard. Any individual who does not belong to the aviation sector or just claims to have the knowledge of aviation without any formal experience would fall under the exclusion criteria. The survey is expected to include both male and female respondents. The survey would initially record basic demographic information like age, gender, family members, and education. Thereafter, research questions pertaining to the study objectives will be made. The obtained questionnaires will then be thoroughly checked and explored. Statistical tools will be utilised to analyse the collected data. The preferred tool for the analysis of data is SPSS.

 Ethical considerations containing a series of rules and regulations will also be followed to complete the study of work ethically. It will deliver a proper standard of the research work. The participants taking part in the questionnaire process will not be forced as per the research ethics. They could withdraw at any point in time if they want to. It is thus essential to explain the participants regarding the research purpose and then seek their permission before involving them in the questionnaire survey method. The researcher will ensure that the collected data will be secured and will be kept away from access to the third party. Data privacy is an essential concern in the research. The data received from the study would be used for academic purposes and not for commercialization. The researcher in the following research would thus maintain the ethics by keeping the privacy of the documents collected and preserving it from the access of the third party.

  **5. Rationale of the Study**

 The study on this topic is required because it incorporates the very important issue of connectivity between tier I and tier II, tier III cities. Apart from the metropolitan and rest of the tier I cities, the development in the remainder of the cities in the country is mostly stalled owing to a significant lack of adequate connectivity in these places. Also, the study is needed to understand the esoteric concept of the flexible use of airspace and amalgamate it with the need to propel development in the areas hitherto undeveloped. Most importantly, the research is discernibly important because it contributes to the scant literature that is available on the subject. A study by Regmi (2013) reviews ongoing efforts of Asian countries to improve transport connectivity and discusses the issues and challenges faced by them. However, this study contributes differently in that it takes India as its focal point and indicates the importance of harmonizing civil and military airspaces in order to provide benefits to the tier-I and tier-II cities.

**6. Scope and Significance of the Study**

This study will examine the reasons for an apparent rigidity in the use of airspace by the Air Force. Its significance can be driven home in the different ways it will address the necessity of flexible use of airspace between the air force and the civil airlines. The study will also assist in building an understanding on the condition of the cities of the country and will explore various ways to bring them under the radar of the country’s developmental plans and schemes. It has a tremendous scope as it will inspire more researches to be conducted on the dire need of establishing connectivity in the country.

 **7. Expected Outcome of the Study**

The researcher expected the following outcomes before beginning with the research:

* A need to bring development to remote areas of the country, that is, the tier-II and tier III cities, is urgent and requires government intervention.
* The Indian air transport sector has shown drastic growth in recent years and is presaged to grow faster in the coming years.
* FUA ensuring simultaneous civil and military flights.
* FUA supporting the development of joint civil-military constructs.

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