



## ADOPTING AEROTROPOLIS MODEL FOR URBAN DEVELOPMENT: A CASE STUDY OF NAVI MUMBAI INTERNATIONAL AIRPORT

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### ABSTRACT:

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### KEYWORDS:

**URBANIZATION, TRANSPORT NETWORKS, DEVELOPMENT PROJECTS, URBAN PLANNING, DISPLACEMENT.**

### INTRODUCTION

The necessity to transport people and things from one location to another, which is currently the precursor of the globalised society we live in, has made airports unquestionably the driving tools of the twenty-first century. In order to meet the demand for tourist, maintain the social, political, and economic linkages across countries, and preserve the existing market demand and supply, air transportation is crucial. The same has changed airports into the versatile commercial and transportation centres. Professor John Kasarda, Director of the University of North Carolina's Centre for Air Commerce, is the author of the term "Aerotropolis." According to Kasarda, airports are the fifth wave of transit-oriented development that is reshaping major cities in a similar way as earlier urban clusters. The idealised definition of an Aerotropolis, as shown in the figure, is a sub-regional economy in which the Airport city serves as a catalyst for economic growth associated with a concentrically expanding mix of clustered uses, including office and warehousing, residential housing, retail stores, commercial real estate, as well as time-efficient logistics, industrial development, and manufacturing activities, among others. In addition to serving as a hub for air transportation, airports also offer a variety of commercial and recreational amenities. Good airline service, in the words of Professor John Kasarda, "is a vital determinant for quick and structured urban economic development." In the new age of urbanisation, airports will define commercial locations and give direction to urban growth, just as expressways did in the 20th century, railroads did in the 19th century, and seaports did in the 18th century. The urban and peri-urban economies are significantly impacted by the airport's

development. Airports are becoming into airport cities, and by giving individuals from all walks of life access to employment possibilities, as well as significantly influencing the local and regional economies (Kasarda,2011).

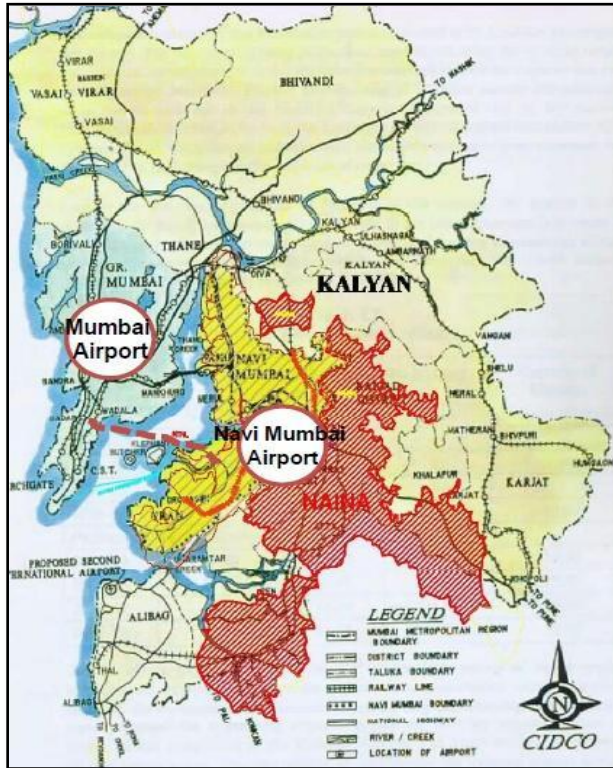
### NAVI MUMBAI INTERNATIONAL AIRPORT (NMIA)

The Mumbai Metropolitan Region (MMR), which includes Mumbai, Kalyan, Vasai-Virar, Navi Mumbai and Thane, has a total coverage of 4355 square kilometres. According to the 2011 census, the region's population was over 21 million; by 2022, that number is projected to reach over 30 million. Mumbai's metropolitan area has experienced substantial economic expansion as India's financial capital. The change from conventional manufacturing to trading and service industries has been a major factor in the economy's growth over time.

The current airport, Chhatrapati Shivaji Maharaj International Airport (Mumbai Airport), located in Sahar-Santacruz, Mumbai, is unable to meet the expanding needs of business and service operations for both local and foreign travellers. To build a larger airport at the same site would require expansion at the current location and the huge capital investment. By 2030–2031, the MMR region is expected to have a demand for aviation of 100 million passengers annually (MPAA). According to CIDCO, Mumbai Airport will be able to accommodate 40 MPAA, while remaining 60 MPAA can be accommodated by the proposed Navi Mumbai International Airport. South and Central Mumbai would have easy access to the proposed airport thanks to the Mumbai Trans Harbour Link (MTHL), which will run from Sewri in Mumbai to Chirner in Navi

Mumbai. MMR and its surrounding territories are anticipated to make up the majority of the NMIA's potential catchment area.

**FIGURE 1**  
**LOCATION OF NMIA**



Source: CIDCO,2015

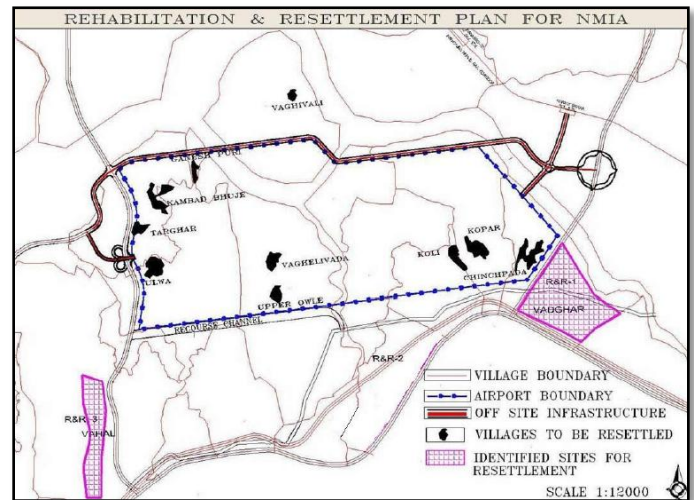
In the upcoming years, it is unlikely that the strain on Mumbai Airport would lessen, since there are very few foreign flights at Pune and Nagpur Airports, which are the other two international airports in the state of Maharashtra. As a result, the NMIA is anticipated to see considerable passenger traffic, which will improve the area's growth potential. Public-private partnerships (PPP) are being used to construct the airport. The airport's spread is 9.5 km<sup>2</sup> (3.7 sq mi) in size, with two parallel runways that can operate simultaneously and separately, as well as full-length taxiways on either side of the runways. The new large aircraft that are compliant with airport code 4-F can be accommodated on the airfield. According to CIDCO, the new airport was suppose to handle 10 million passengers annually in its first phase (by the end of 2014), 25 million by 2020, 45 million by 2025, and 60 million by 2030. The airport will cover 1,405 ha in total (3,470 acres). The Aamra Marg will offer access from the west, while National Highway 4B will be the primary road providing access from the east to the airport. The new airport will be accessible by 10-lane approach road leading to its terminal building (CIDCO,2014).

**REHABILITATION AND RESETTLEMENT OF PAPS OF NMIA**

Although CIDCO already owned the majority of the land

needed for the project, 10 villages— Ganeshpuri, Vaghivali, Kopar, Chinchpada, Ulwe, Vaghivali-Vada, Kombadbhuje, Upper Owale, Kolhi, and Targhar—had to be relocated. Around 3500 homes, small businesses, and other structures near the airport were impacted by the relocation process. The villages of Vadghar, Dapoli, and Vahal are close to the identified relocation areas. The PAPS have approved CIDCO's R&R Policy, which is consistent with current Central and Maharashtra Government policies. Each PAP will receive 12.5 percent developed land as per the previous arrangement from CIDCO and 10 percent additional land in lieu of compensation from the company. Pushpknagar is being developed as the relocation site and allocations have already begun for some village.

**FIGURE 2**  
**REHABILITATION AND RESETTLEMENT SITES FOR NMIA PAPS**



Source: CIDCO, 2014

The additional provisions for rehabilitation include 100 shares of NMIA at a price of Rs. 10 per share, contracts during construction, industrial training for youth, Rs. 1000 per sq. ft. as the cost of building a new home, and one-time monetary compensation for loss of livelihood. In addition, CIDCO will offer social services such crematoriums, bus stops, community centres, banks, post offices, playgrounds, schools, and Gram Panchyat offices at the relocation site.

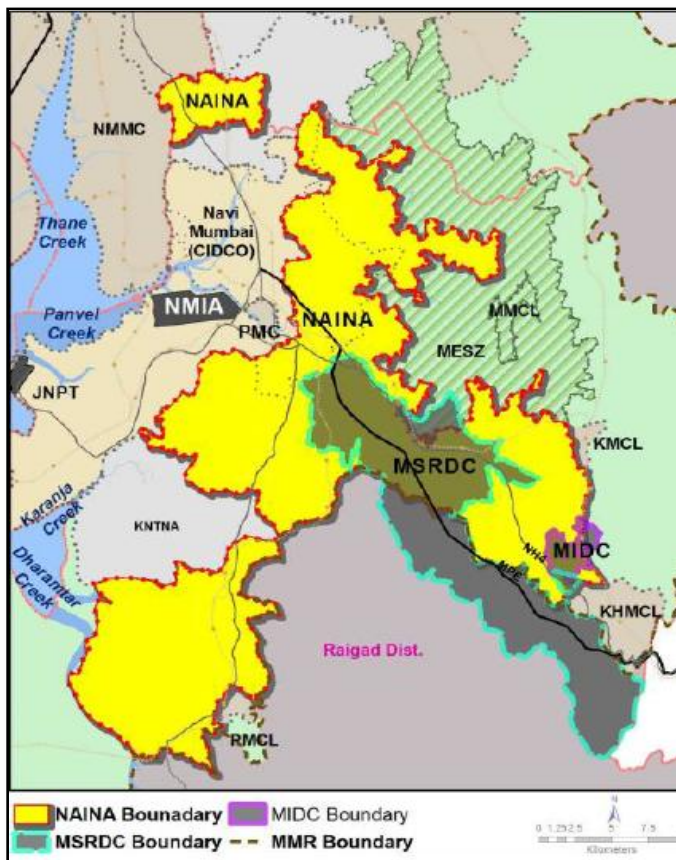
**NAVI MUMBAI AIRPORT INFLUENCE AREAS (NAINA)**

The Environmental and Coastal Regulatory Zone (CRZ) approval for the construction of the Navi Mumbai International Airport was issues in the year 2010 by the Ministry of Environment & Forest (MoEF), Government of India. The Master Development Plan for the Navi Mumbai region needed to be revised in light of the planned Airport development, which was one of the requirements the Ministry had set forth. The goal was to prevent unanticipated growth in the vicinity of the future airport. As a result, CIDCO took the initiative to create its Action Plan for environmental protection and sound urban

planning, which will aid in the sustainable development of the proposed airport's Influence Zone. To determine the airport's impact area, a variety of elements were taken into account, including geography, transportation, Airport Authority of India (AAI) regulations, the existence of the Matheran Eco-Sensitive Zone, and MMRDA plans. As part of the sub-area development, CIDCO has chosen the concept of an aerotropolis, indicating that the development will be focused on an airport.

According to CIDCO's estimations, the Influence Zone may be thought of as extending outward around 25 kilometres from the proposed airport. As a result, the Navi Mumbai Airport Influence Areas (NAINA) development plan took shape. Due to its proximity to the airport—25 kilometres radially—the chosen region fits the bulk of the criteria. It has adequate connections but no planning authority or special planning authority (SPA). Reviewing current and future land uses was a part of the Influence Zone (IZ) planning process. CIDCO was already working on creating a thorough transportation system for NMIA. It extended its planning to create an Action Plan and Development Plan for NAINA in order to decrease travel times and traffic. In order to create a transportation network and select priority locations for the development and regulation of the Influence Zone, the strategy seeks to identify airport routes with a greater potential for influence (CIDCO,2014).

**FIGURE 3  
COVERAGE OF NAINA**



Source: CIDCO, 2014

**CHANGES IN APPROACH TO DEVELOPMENT:  
SHIFT FROM NAINA SCHEME TO TOWN PLANNING  
SCHEME**

A shift from 'NAINA Scheme-a voluntary approach' to 'NAINA Town Planning Scheme - an act to Land Pooling' was necessitated due to the delayed implementation of the NAINA scheme. The Town Planning Scheme (TPS) is considered one of the best tools of Urban Land Management to get serviced land with infrastructure and amenities in urban fringe areas, which are likely to grow haphazardly. The town planning scheme is a joint land development project undertaken by the owners. The planning authority stepped in as an agent on behalf of the owners. It provides for smooth vesting of lands to planning authorities for public purposes. The Lands in the scheme are pooled and reconstituted according to equitable formula. Procedures of TPS through MR and TP Act, 1966 and MR and TP Rules, 1974 are broadly divided into four stages — Declaration stage, Owners' Meet Stage, Sanctioning of Draft Scheme, Appointment of Arbitrator and its Role.

Small land owners demanded CIDCO initiate the scheme as they were short of funds and lacked technical know-how and belief in a person taking the lead for aggregation among themselves. Due to internal clashes, they could not come together, which led to CIDCO receiving sporadic proposals for the NAINA scheme. Developers stuck in the process of aggregation, aggregation of oddly shaped plots resulting in non-functional planning, difficulty in getting authorized access to land-related documents, small landowners not receiving consent from all co-owners and non-development of linear infrastructure because of sporadic schemes. Accordingly, CIDCO launched TPS-1 of 19.11 hectares in August 2017, which got its preliminary sanction by the Government in September, 2019, TPS-2 sanctioned in November, 2021. There are a total of 11 TPS in IDP area.

Thus, it may be noticed that by learning from the issues faced during the land acquisition of the Navi Mumbai Project, CIDCO has sought to deal with the PAPs more cautiously. On the one hand, it has carried out bulk land acquisition, i.e., NMIA project, which offers developed land to PAPs, which they can develop themselves or sell to a developer, instead of monetary compensation for land. On the other hand, it is notified that the area is under NAINA but will not be carrying out bulk land acquisition, as the lands will be acquired as and when the need arises by partnering with the PAPs.

**CONCLUSION**

Land is the most important asset in urban fringe, irrespective of its productivity, its mere possession ensures security of livelihood. This was highly evident through the issues of PAPs of Navi Mumbai project, as the value of land resources is so great that PAPs who have sold their land in exchange for generous financial benefits are now finding it difficult to make ends meet. Amongst the villages situated in IDP area of NAINA project, the

immediate urban fringe villages, like Palidevad, Vichumbe, Devad, and Kolkhe, are facing dwindling of natural resource i.e., land due to urban influences, leading to severe stress on the daily life. In order to cope with this change, households, especially the landless and economically weaker sections, look for work in the urban sector, but due to their low levels of technical and educational capabilities, they hardly make it past the surviving stage of the livelihood ladder. Due to the high land rent in this area, the some of the landowners have accumulated wealth. Despite being close to the city, immediate urban fringe households were generally found on a lower rung of the income ladder. This implies that the urban fringe households cannot currently benefit from the urban commercialised economy.

Although the research on the rural-urban edge is expanding, its dynamic character makes it difficult to define and delineate. This is largely because to variations in location and circumstance, which lead to various forms of urbanisation processes and their ensuing effects on the urban fringe. The present research viewed the urban fringe as a transitional area where activities from the rural and urban area collide. The urban fringe is an area undergoing transition rather than having a clear boundary, and change itself plays an important role here.

The growth and extension of urban areas have a significant socioeconomic and physical impact on the natural resources and population of fringe rural villages. Those who are the original inhabitants and those who have migrated to the urban fringe, both of these categories of community members, face the effects of urbanization in varying degrees. Their capacity to adapt in order to survive is a vital aspect of urban fringe livelihood. Urban fringe livelihoods have the characteristic of changing over time and adapting to changing conditions. This is a continuous process that is not static but changes from one season or year to the next. The ability to access available resources, activities, and opportunities may change

seasonally and throughout the year, which can cause the resources to be built up, deteriorated, or instantly destroyed. Also, in general sense, an aerotropolis model of development is planned in a concentric circular manner, whereas the planning of NAINA region is fragmented.

The urban fringe of Navi Mumbai has undergone a noticeable modernization and economic activity shift during the past two decades. The previously dominant agricultural practises are coming under more and more strain, and new opportunities for market-oriented agriculture are opening up. There were significant variations observed in the opportunities and resources available, which led to new forms of livelihood. Due to their proximity to the growing aerotropolis, the urban fringe households have more alternatives for non-agricultural jobs. Urban infrastructure's pull factor and expanded employment prospects are drawing migrants from all around the country to Navi Mumbai region. The number of inter-linkages between rural-urban areas have grown dramatically, and the village economy in the NAINA region is now entwined with that of the expanding city of Navi Mumbai and Mumbai Metropolitan Region.

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