

# **AEROTROPOLIS AND CHANGING PARADIGMS OF GLOBAL COMPETITIVENESS AND THE AGGLOMERATION ECONOMIES -A CASE STUDY OF DURGAPUR AND EMERGING ISSUES**

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## **ABSTRACT**

*Airports have always been a city's outlying curiosity in the past. However ,with the establishment of Aerotropolis at a number of leading urban locations in United States of America (Detroit ,Atlanta ,Memphis ) Central America, Europe ,Asia and Middle East ,Urban planners and governments advocating the idea of the 'aerotropolis'. An aerotropolis is an urban complex with layout, infrastructure and economy centered on the airport. Just like the traditional metropolis with a city centre and rings of suburbs, the aerotropolis consists of an airport city core and outlying corridors and clusters of aviation-linked businesses. Many of these businesses are more dependent on suppliers and customers around the globe than local residents. "As globalization and time-based competition increase, the aerotropolis will become a magnet for firms requiring speedy connectivity to distant markets and the aerotropolis have become the stimulus for changing paradigms of global competitiveness and agglomeration economies," thus spoke Dr.John D.Sardana (Kenan Distinguished Professor of International Strategy and Entrepreneurship Development, University of North Carolina ,USA ) who pioneered the concept Durgapur , the urban area in Burdwan District of West Bengal which is the township for the prestigious public sector Steel Plant and many other heavy engineering industries and ancillaries and leading centre for engineering and allied education has been chosen for building the pioneer aerotropolis in India with a huge project cost of Rs. 10,000 Crores in 2010 and currently the project is under implementation . This aerotropolis with its hi-tech amenities is expected to usher in changing paradigms of global competitiveness and agglomeration impacts for the region. This research paper with a case study of Durgapur Aerotropolis and brings into focus on this aspect. This paper is divided into three parts .The first part introduces the concept of Aerotropolis and brings in clarity for the novel concept in contrast from a traditional location of Airport which is generally outskirts of a city .The second part presents the Durgapur Aerotropolis and its project details and management. The third part evaluates the global competitiveness; urban agglomeration impacts and*

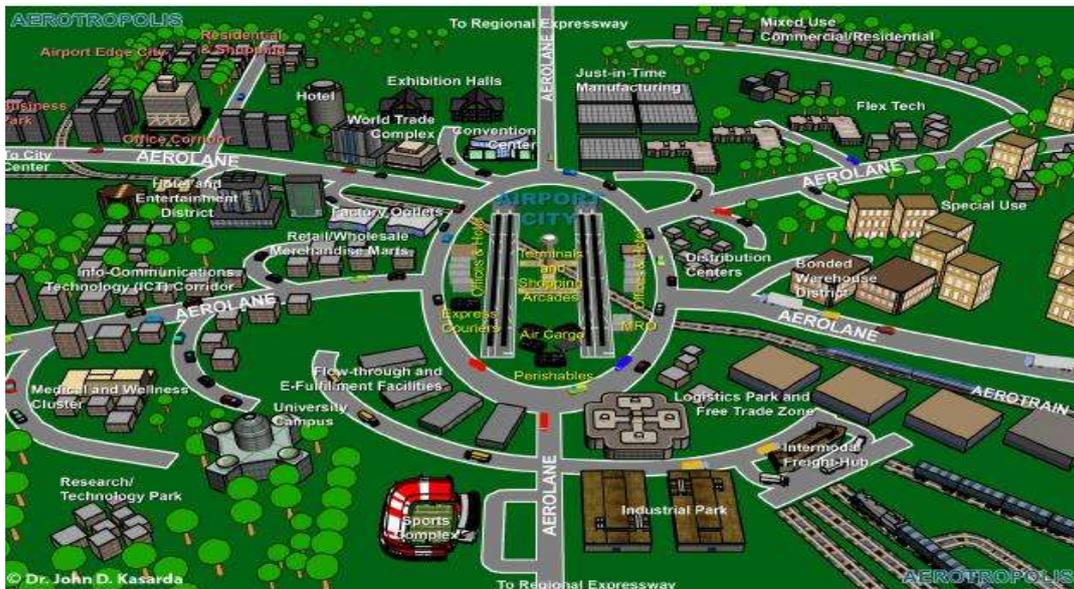
*such other changing paradigms on account of the establishment of Aerotropolis at Durgapur. The emerging issues of urban economics and other developmental impacts are posed in the conclusion.*

**Keywords:** Aerotropolis, Global Competitiveness, Agglomeration Economies, Urban Economic Growth, Durgapur.

## INTRODUCTION

### **Aerotropolis: Concept**

The Aerotropolis is a new form of airport –centric commercial development that has transformed city airports into airport cities. It positions airports as 21<sup>st</sup> century drivers of business location, urban economic growth, and global economic integration. It can spark the ailing real estate development in many urban locations. Dr. John.D.Sardana, (Kenan Distinguished Professor of International Strategy and Entrepreneurship Development, University of North Carolina, USA) pioneered the concept of Aerotropolis .As Dr. Kasarda has researched this development around the world, he has seen and initiated the airport centric urban economic development from mere transportation and supply chain focused areas into mixed –use commercial centres. They meet the needs of both consumers and businesses: hospitality, entertainment, retail shops/malls, corporate offices, and locales for trade and industrial fairs /exhibitions etc. Aerotropoli are most prevalent in USA, Central and Latin America, Europe, Asia, and the Middle East. Dr.Kasarda’s research has shown that Aerotropoli would be the driver for changing paradigms of global competitiveness and agglomeration economies. The Aerotropolis is the physical internet that ties together the metro region in a number of leading urban locations to the global economy. Employment growth along with commercial development has been the most important benefit in many of these aerotropoli .around the world. As Dr.Kasarda’s research shows, Dubai has emerged as a full fledged Aerotropolis with its tourism, commercial and finance sectors built around its rapidly expanding air hub. Dubai as well as Memphis have effectively developed global air logistics hubs and surrounding aerotropoli that have attracted substantial external investment, boosted trade, and made these economies far more competitive. As developed by Dr.Kasarda, a typical urban economic development plan of an aerotropolis is presented below:



No Aerotropolis will look exactly like this but most will eventually take on similar features, led by newer "greenfield" airports less constrained by decades of prior surrounding development. The Aerotropolis is thus much more of a dynamic, forward-looking model than a static, cross-sectional model reflecting historic airport-area development to date. Although most aerotropolis development to date has been organic, spontaneous and haphazard — often spawning congestion and environmental problems — in the future it can be markedly improved through strategic infrastructure and urban planning.

- Dedicated airport expressway links (aerolanes) and airport express trains (aerotrails) should efficiently connect airports to major regional business and residential concentrations.
- Special truck-only lanes should be added to airport expressways, as should improved interchanges to reduce congestion.
- Time-cost accessibility between key nodes should be the primary aerotropolis planning metric rather than distance.
- Businesses should be steered to locate in proximity to the airport based on their frequency of use, further reducing traffic while improving time-cost access.
- Airport area goods-processing activities (manufacturing, warehousing, and trucking) should be spatially segregated from white-collar service facilities and airport passenger flows.
- Noise and emission-sensitive commercial and residential developments should be sited outside high-intensity flight paths.
- Cluster rather than strip development should be encouraged along airport transportation corridors with sufficient green space between clusters.

- Form-based codes should establish general design standards for airport area buildings, walkways, travel lanes, landscaping, and public space.
- Place making and way finding enhanced by thematic architectural features, public art, and iconic structures should make aerotropolis developments interpretable, navigable, and welcoming.
- Mixed-use residential/commercial communities housing airport area workers and frequent air travelers should be developed with easy commutes and designed to human scale providing local services and sense of neighborhood.

In short, aerotropolis development and sustainable "smart growth" can and should go hand-in-hand. The above outcomes will not occur under most current airport area planning approaches which tend to be localized, politically and functionally fragmented, and often conflicted. A new approach is required bringing together airport planning, urban and regional planning, and business-site planning in a synergistic manner so that future Aerotropolis development will be more economically efficient, aesthetically pleasing, and socially and environmentally sustainable. The real question is not whether Aerotropolises will evolve around major airports (they surely will). It's whether they will form and grow in an intelligent manner, minimizing problems and bringing about the greatest returns to the airport, its users, businesses, surrounding communities, and the larger region it serves.

Major airports have become key nodes in global production and enterprise systems offering them speed, agility, and connectivity. They are also powerful engines of local economic development, attracting aviation-linked businesses of all types to their environs. These include, among others, time-sensitive manufacturing and distribution facilities; hotel, entertainment, retail, convention, trade and exhibition complexes; and office buildings that house air-travel intensive executives and professionals.

The rapid expansion of airport-linked commercial facilities is making today's air gateways anchors of 21st century metropolitan development where distant travelers and locals alike can conduct business, exchange knowledge, shop, eat, sleep, and be entertained without going more than 15 minutes from the airport. This functional and spatial evolution is transforming many city airports into airport cities. As more and more aviation-oriented businesses are being drawn to airport cities and along transportation corridors radiating from them, a new urban form is emerging—the Aerotropolis—stretching up to 20 miles (30 kilometers) outward from some airports. Analogous in shape to the traditional metropolis made up of a central city and its rings of commuter-heavy suburbs, the Aerotropolis consists of an airport city and outlying corridors and clusters of aviation-linked businesses and associated residential development. A number of these clusters such as Amsterdam Zuidas, Las Colinas, Texas, and South Korea's Songdo International Business District have become globally significant airport edge-cities representing planned postmodern urban mega-development in the age of the Aerotropolis. A quote of Dr. John D. Karsada is apt here :

"The true challenge is planning to get the Aerotropolis right. If there is not appropriate planning, airport-area development will be spontaneous, haphazard, economically inefficient, and ultimately unsustainable. The aerotropolis model brings together airport planning, urban and regional planning, and business-site planning, to create a new urban form that is highly competitive, attractive, and sustainable."

Asia and Middle East economies adopt a strategic and philosophically different view of their airports compared to the USA and Europe. While the former treat their airports as primary infrastructure assets to compete in 21<sup>st</sup> Century, the USA and Europe all too often treat them as nuisances and environmental threats to be controlled. The concept and implementation of aerotropolis as developed by Dr.Sardana would go a long way in changing the philosophy.

The aviation sector in India has seen much transformation after liberalization. From being government-owned, the domestic airline industry is now dominated by privately owned full-service airlines and low-cost carriers. In the past ten years, private airlines have changed the rules of the game, and they now account for more than 75% of the domestic air traffic. The rapid growth of the airline industry leaves vast scope for airport infrastructure to develop and modernize. In India, metropolises have flourished as the nerve centres of all major economic and commercial activities. Poor air connectivity at tier-I and tier-II cities have made them inaccessible, and consequently, less attractive for prospective investors. This has led to an imbalanced growth of the urban economy. However, with the population in key metros rising beyond permissible limits, tier-I and II cities have to prepare for the future. The aviation industry, which was limited to major cities, has now spread its wings to smaller cities, as they hold vast untapped potential. A key plank of airport development was privatization. Though the government has taken many initiatives in alliance with the private sector for capacity augmentation, such as modernization and upgradation of existing airports and development of greenfield airports, project implementation is woefully tardy. While airport modernization received an enthusiastic response from private companies, non-metro airports and greenfield projects are virtually stuck, owing to doubts about the commercial viability of these projects. .

The concept of aerotropolis, though at a nascent stage, is gaining momentum in India. This is because aerotropolis is a more viable investment option than stand-alone airports. In an aerotropolis, a major share of revenue comes from non-aeronautical components such as real estate, hospitality and tourism, which yield faster returns than the aeronautical components. In this model, even though the aeronautical part has a long gestation period, the financial standing of the developer is not affected because of returns from allied/non-aeronautical developments. The Indian aviation industry is on the verge of a metamorphosis. After decades of haphazard development around old airports, time has come for the idea of aerotropolis.

## **Durgapur Aerotropolis: The Project Details and Management**

A premier initiative in this concept is the Durgapur Aerotropolis. The Asansol-Durgapur region in West Bengal has emerged as a natural choice for an aerotropolis. The region has existing facilities and new opportunities in the fields of metalwork, power-intensive industries, mining, iron and steel, engineering, petrochemicals, and information & communication technology (ICT). It is also a natural epicenter of the geographical region, defined by the new industrial areas of Bankura and Purulia to its south, Birbhum to its north, Hooghly to its east and the mining areas of Dhanbad-Bokaro to its west. Situated on the bank of the Damodar, Durgapur is surrounded by Asansol and Burdwan sub divisions in the west and the east while the districts of Bankura and Birbhum border it on the southern and the northern sides. A Map of Durgapur is given here.



Durgapur Aerotropolis has been designed as a unique infrastructure project on 2,346 acres where a greenfield airport of code 4C is being built, around which there would be other components like a logistics hub, industrial park, IT park, commercial zone and social infrastructure like school, colleges, hospitals, golf course and theme park. The Design and Build Contract for Durgapur Airport by Bengal Aerotropolis Projects Limited (BAPL), to Simplex Infrastructures Limited, an Indian infrastructure construction company. Changi Airports International (CAI), the international arm of CAG, has a 26% stake in BAPL. The scope of the contract involves an initial development of a 2,800 meter long runway along with a passenger terminal building capable of handling one million passengers annually. A letter of award has been issued to the construction company for immediate commencement of work at site. BAPL is a specialist company formed for the development of the Durgapur Aerotropolis. The Durgapur Aerotropolis is India's first aerotropolis project and its first privately owned merchant airport. The aerotropolis involves the setting up of an industrial park, a logistics hub and a township around the privately owned greenfield airport. The aerotropolis at Durgapur would be constructed at a cost of Rs.624 Crore in the first phase for the airport and allied facilities. The project is CAI's first investment in an Indian greenfield airport city project. Aerial view diagrams of the Aerotropolis project at Durgapur are presented here:





Through its subsidiary, Changi Airport Planners and Engineers (CAPE), CAI has been actively involved in the aerotropolis project. CAPE is engaged by BAPL in a technical consultancy for the development of the airport. CAPE has been involved in developing the conceptual design for airside facilities, passenger terminal building and ancillary airport operations buildings, and advising BAPL on the preparation of the airport tender documents and evaluation of the bids for the finalization of the Design and Build Contract for the airport. Mr. Wong Woon Liong, Chief Executive Officer, CAI, says the project has been progressing as planned, with the award of the Design and Build contract being a significant milestone. “We are pleased to be able to participate in the development of this aerotropolis project. With the achievement of this significant milestone, we will continue to use our expertise to support the management and expansion of the airport, which is an essential part of Durgapur Aerotropolis.” Mr. Arvind Pande, Chairman, BAPL, says, “CAPE, with its association with Singapore Changi Airport, has rich experience and expertise in airport planning and has provided BAPL with sound advice. We are delighted to be associated with them and look forward to an enduring and long-term relationship with them to take the aerotropolis project to the next level.”

Changi Airport Group (CAG) ([www.changiairportgroup.com](http://www.changiairportgroup.com)) was formed on 1 July 2009 as a result of the corporatization of Singapore Changi Airport. As the company managing Changi Airport, the world's most awarded airport, CAG undertakes key functions focusing on airport operations and management, air hub development, commercial activities and airport emergency services. Through its subsidiary Changi Airports International, the Group

invests in and manages foreign airports to spread the success of Changi Airport internationally.

Changi Airport ([www.changiairport.com](http://www.changiairport.com)) handled 37.2 million passenger movements in 2009 and registered a monthly record of 3.83 million in December 2009. Presently, Changi serves 96 airlines flying to some 200 cities in about 60 countries and territories worldwide. A flight takes off or lands at Changi every two minutes.

### **About Changi Airports International**

Changi Airports International (CAI) is an airport investor and manager. It has been involved in the development of various airports throughout the world. CAI's portfolio concentrates on airport assets in emerging economies. These assets are targeted for their growth and value enhancement over a medium term horizon. The portfolio is balanced with a component consisting of assets in the more mature airport markets. Apart from its 26% stake in Bengal Aerotropolis Project Limited, it has recently acquired a 5% stake in Gemina S.p.A., the holding company of Aeroporti di Roma, the operator of Rome's airport system.

BAPL made presentations to the network planning groups of airlines. It had suggested route plans to the airliners, which includes two daily flights to Delhi and one flight to Bombay and Kolkata each day. It had also proposed three flights in a week to either Chennai or Bangalore depending on passenger traffic, which would be linked with either Guwahati or Bagdogra in North Bengal. Work is on in all aspects of airport like terminal building, runway and ATC building is fast progressing and is expected to be operational by January 2013. The 6,500-sq m terminal building will have an annual passenger-handling capacity of one million. In the first year, the company it is expecting passenger traffic of about 350,000. The airport would have a 2,800-foot long runway to accommodate aircraft like Boeing B-737 s and Airbus A-320 s. It can be extended to 3,300 feet to meet the needs of larger aircraft. BAPL is currently scouting for a South-East Asian partner to build a maintain-repair-overhaul (MRO) facility for narrow-bodied aircraft like Boeing 737, Airbus 320 and 319s. BAPL is also trying to create a Free Trade Warehousing Zone, from where airline companies can easily access spare parts.

### **Global Competitiveness, Urban Agglomeration Impacts and Other Changing Paradigms of Durgapur Aerotropolis**

As like any other large infrastructure projects, airports also generate benefits and costs to the adjoining region and the economy. As we consider these ,the following factors can be observed :

Durgapur-Asansol is one of the most centrally located industrial zones in eastern India. While Asansol is fast emerging as a trade and commerce destination, Durgapur is emerging as a manufacturing, educational, IT and logistics hub. Durgapur is the site of an integrated steel plant complex besides an alloy steel plant and is the major centre of coal mining. The region is well served by a major railway and road network.

A spree of development has happened before and after the proposed airport project was developed in Durgapur - Asansol region. Promoted earlier as an industrial township, the region saw the first phase of development during the last decade. In 2001, City Plaza was one of the first malls that came up in the township. It paved the way for a spurt in shopping

malls and other infrastructure projects. This was followed by a private- public partnership project in the City Centre area by Bengal Shristi Infrastructure Development Ltd, a joint venture between the Asansol Durgapur Development Authority (ADDA) and Shristi Infrastructure Development Corporation Ltd. The project comprised a business centre, residential complex and a retail centre. The project brought in the Inox multiplex brand along with Big Bazaar. Major brands such as Reebok and One Dollar Shop followed. Several companies also set up their south Bengal regional offices in the complex. Following this there was a flurry of activities in the City Centre area that included the setting up of Suhatto mall and several hotels such as Ginger and Peerless' Sarovar Portico. However, the real thrust came after the State government announced the setting up of the country's first airport city – Aerotropolis – near Durgapur. Aerotropolis, a Rs 10,000-crore project, is being developed by the Bengal Aerotropolis Projects Limited (BAPL). The recent inauguration of Shracchi's Junction Mall and its decision to set up a sports complex-oriented township has only cemented the area's reputation as the emerging real estate hotspot. Shracchi is scouting for additional land to set up residential and other commercial projects. Developments relating to information technology too have been on the cards with the State government setting up an additional 56,000 sq feet facility for IT and BPO companies.

Interestingly, this phenomenon of big Kolkata-based developers seeking for land here has led to the rapid spiraling in land prices in the township. In a span of five years, land prices in some of the areas have doubled. City Centre emerging as the business centre of the region has seen commercial plot prices move up to Rs 10 lakh a cottah (720 sq.ft). Five years back, the cost was anywhere between Rs 2.5 to three lakh per cottah. From Rs three to four lakh per cottah to Rs eight lakh a cottah, land prices in Beniachitti – another preferred area for developers - have gone up by manifold. In the Bidhannagar area, price of one cottah of land stands at Rs five/six lakh. Industry sources, however, say that the demand for land has been an inflated or artificial one. According to them, middlemen and land brokers have been pushing up land prices by deliberately delaying its availability.

Proposed airport and airport city at Andal near Durgapur crossed its last hurdle by giving up the quest for final tranche of 144 acres of land that was yet to be acquired. This major landmark and sensitive decision taken by the promoters of the project paved the way for the setting up of the airport by the year end 2012. This news will certainly be a welcome relief for the development hungry people of Durgapur. Agitation of unwilling farmers who did not wanted to part away with their land demanding a higher compensation, will now have no other option but to make way for this dream project is set to bring a sea change in the life of the people of Durgapur and adjoining area ushering in massive development.

For a large economy like our India, an expanding internal market would form the foundation for supporting a project of the nature and size of the airport at Durgapur. This necessarily implies growing regional specialization and inter-regional trade .Huge economic base in Steel Mining and heavy engineering industries has been there in Durgapur –Asansol belt prior to the airport project. Entrepreneurial activity of all sizes, small, medium and large and both kinds private and public sector have created a large employment base in the region. On account of this development, income generation and consumption growth was also observed along with rise in primary and secondary employment generation .The growth of basic industries like Steel, Mining and other heavy engineering industries gave rise to

agglomeration economies resulting in establishment of newer types of ‘export ‘industries in the urban region of Durgapur –Asansol adding to their regional economic base. Along with this development ,a strong linkage between the basic industries like Steel ,Mining and heavy engineering industries and ancillary and supporting components industries has also led to the growth in entrepreneurial activity .

Global competitiveness for the region and national economy at large would also be observed on account of setting up the Aerotropolis at Durgapur based on the development of the kinds and types as described above. To spur up the speed of development in the region, Union Government support would also be required to the State Government, apart from the World bodies like World Bank /OECD / Asian Development Bank etc.

## CONCLUDING OBSERVATIONS

- Development of industrial cities like Durgapur always require both growth of basic and supporting industries and infrastructure of all kinds including market ,finance ,logistics and supply chain etc. Aerotropolis Project at Durgapur is expected to contribute to the regional development at a greater speed and size, in a “big push “way.
- Following Dr.Kasarda’s research, global competitiveness would be driven by the huge projects like Durgapur Aerotropolis to the region as well as the economy at large.
- Airports Authority of India have observed that GVK ,a leading Infrastructure developer airports that have been newly established with a joint venture with Foreign airport developers at Bangalore have failed to bring value in bringing funds to the desirable level in equity and managerial control of the airport facilities. While establishing the Aerotropolis at Durgapur, BAPL has adopted a joint venture with Changi Airports International at Singapore after a careful selection and equity partnership of 26 %. It is expected that this new Aerotropolis would be adopting international best practices and be profitable to bring value .
- Airports like Durgapur Aerotropolis cannot function on their own; they need service of roads and railways, which is already well developed in Asansol –Durgapur belt. Such projects also need huge supply of specialized maintenance and repair organization (MRO) which has been included in the project as observed earlier.
- Although certain costs like the loss of agricultural land to the farmers /land owners, air and noise pollution would arise on account of such large projects, the varied benefits and economies would outweigh the costs. Therefore, the cost benefit analysis of Durgapur Aerotropolis would also prove that infrastructure development projects are primary drivers of development to the nation.

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