



Making Durgapur Aerotropolis Environmentally Viable

KEYWORDS

Aerotropolis, sensitivity analysis, environmentally viable

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ABSTRACT *The civil aviation sector in India is growing at a phenomenal pace. India's domestic aviation market has tripled in the past five years (IATA, 2012) and thus becoming a major contributor to the country's economy. The aviation industry, which was limited to the metropolitan areas, has now spread its wings to the smaller cities.*

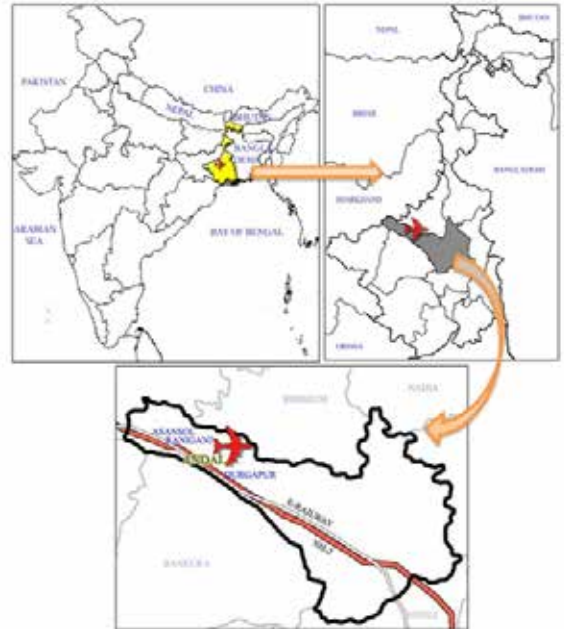
Durgapur Aerotropolis is India's first green field private airport along with the concept of Aerotropolis, located near Durgapur in West Bengal. Environmental implications of this Aerotropolis can be a serious issue if the project area is environmentally sensitive like Durgapur due to its location being adjacent to the coal reserve. In this paper attempts has been made to identify the issues regarding the proposed site and recommendations have been made in form of suggestions along with identification of a probable alternative site location to make this Aerotropolis environmentally viable.

1. Introduction:

An Aerotropolis exists as an airport city and functions as an economic hub centered around an airport, which is analogous in shape to the traditional metropolis made up of a central city and its rings of commuter-heavy suburbs. Airports are itself sensitive land uses in nature and the developments around the airports are often organic, sporadic and haphazard, leading to chronic environmental and infrastructure problems. Therefore this unique urban plan, to develop integrated Airport cities with all other related facilities, requires a careful development approach to locate it. But there is no existing legislation and environmental guidelines particularly for planning and siting of an Aerotropolis in India to stop any irreversible damage to the surrounding environment.

2. Background:

Bengal Aerotropolis Project Ltd. envisions an Aerotropolis in Andal at Durgapur, West Bengal (refer Map No.1) comprising an airport (on existing abandoned airstrip dating back World War II), industrial, I.T and business park, logistic hub, education and health city and a supporting township with an expected final population of 150000. It is a green field development and first of its kind in India which is being developed in association with Singapore's Changi Airports International. This new city will not only create new opportunities in service, trade, commerce, and tourism sector diversifying the economic base of the region but also act as density magnet that will draw some of the population stress away from metros and bring a semblance of consistency in the socio-economic development fabric of the country.



Map No.1: Location Map of Aerotropolis at Durgapur, West Bengal

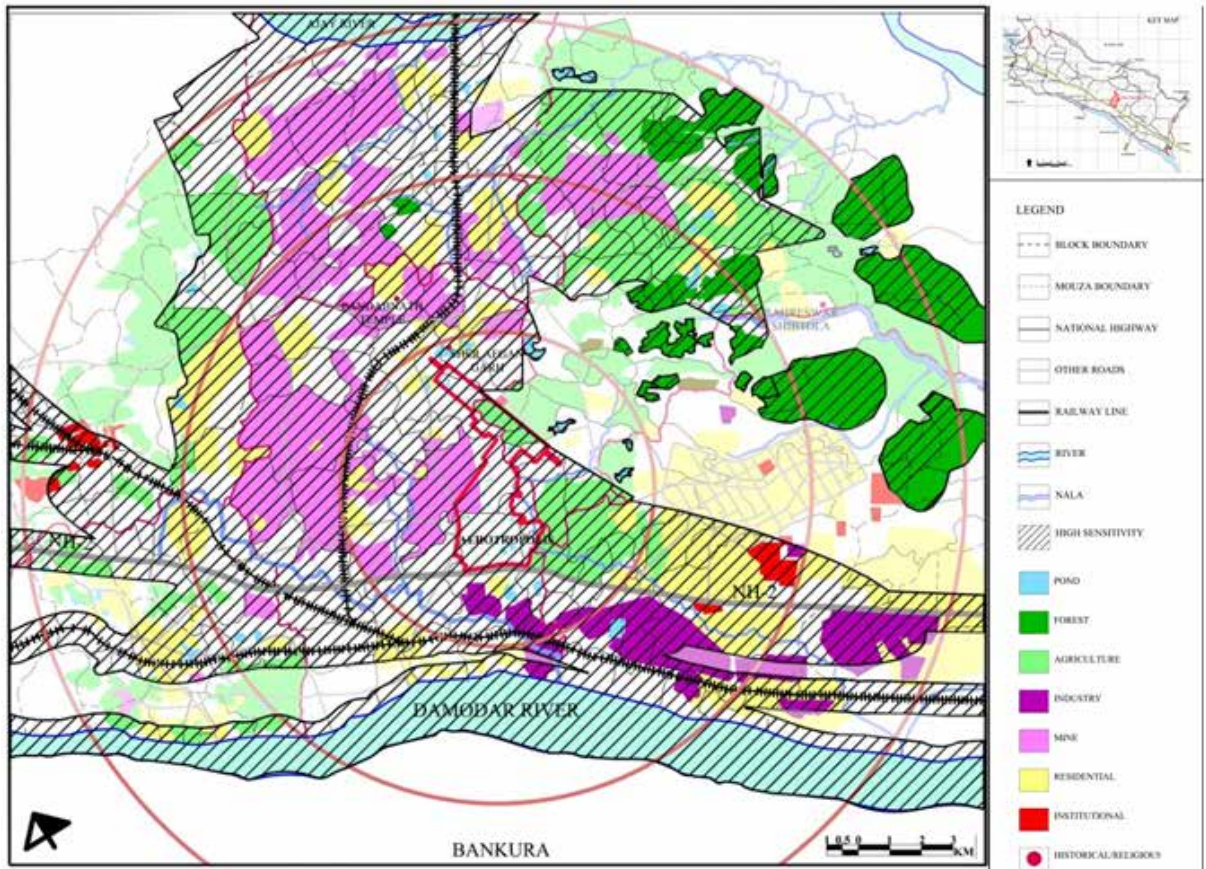
Environmental implications of this Aerotropolis can be a serious issue as the project area is environmentally sensitive due to its location being adjacent to the coal reserve and the area has been declared by the Central Pollution Control Board (CPCB) as one of the 22 critically polluted areas of the country. Moreover there are no such guidelines or stringent standards for this kind of modern urban development like Aerotropolis which can create a serious damage to the environment without proper planning.

3. Issues Related to Durgapur Aerotropolis:

Based on the 'sensitivity analysis' of the surrounding of this particular project and assessing the 'land use compatibility' with the sensitive zones and surrounding sites it has been identified that:

With a proper planned township environmental problems can be handled beforehand but the location of the project makes it infeasible according to sensitivity analysis which

shows that the project site is highly sensitive with its surrounding environmental features (refer Map No.2).



Map No.2: Sensitive sites on and around Aerotropolis

This conflict of the mining area and the township can be a serious threat for the project in this particular site which will consequently increase the problems of land subsidence, coal seam fires, air pollution and soil erosions.

Presence of Airport in this highly sensitive zone makes the development unviable.

According to the Perspective Plan 2025 document of ADPA (Asansol Durgapur Development Authority), few percentage of the project site is coming under "Restricted Development Zone" which also contradicts the land use of the Aerotropolis.

If the project still continues to be carried out it can face other problems like:

Dependency on the polluted surface water from Damodar River, can affect the population of the site if no measures are taken for proper treatment of the water.

The site is prone to be affected by air pollution from the critically polluted surrounding sites because of its particular location in between the industrial area and the colliery sites of Durgapur and Asansol.

Due to the construction and operation activity of Airport, noise pollution and vibration is an issue for the population of the township.

One of the main concerns is for the large no. of small and fragmented wetlands in the proposed project site and their proper integration in the proposed land use.

Due to the presence of wetlands there is a habitat of birds and consequently construction of the Airport in the site poses a threat to bird strike which is still a serious issue for all the Airports of our world.

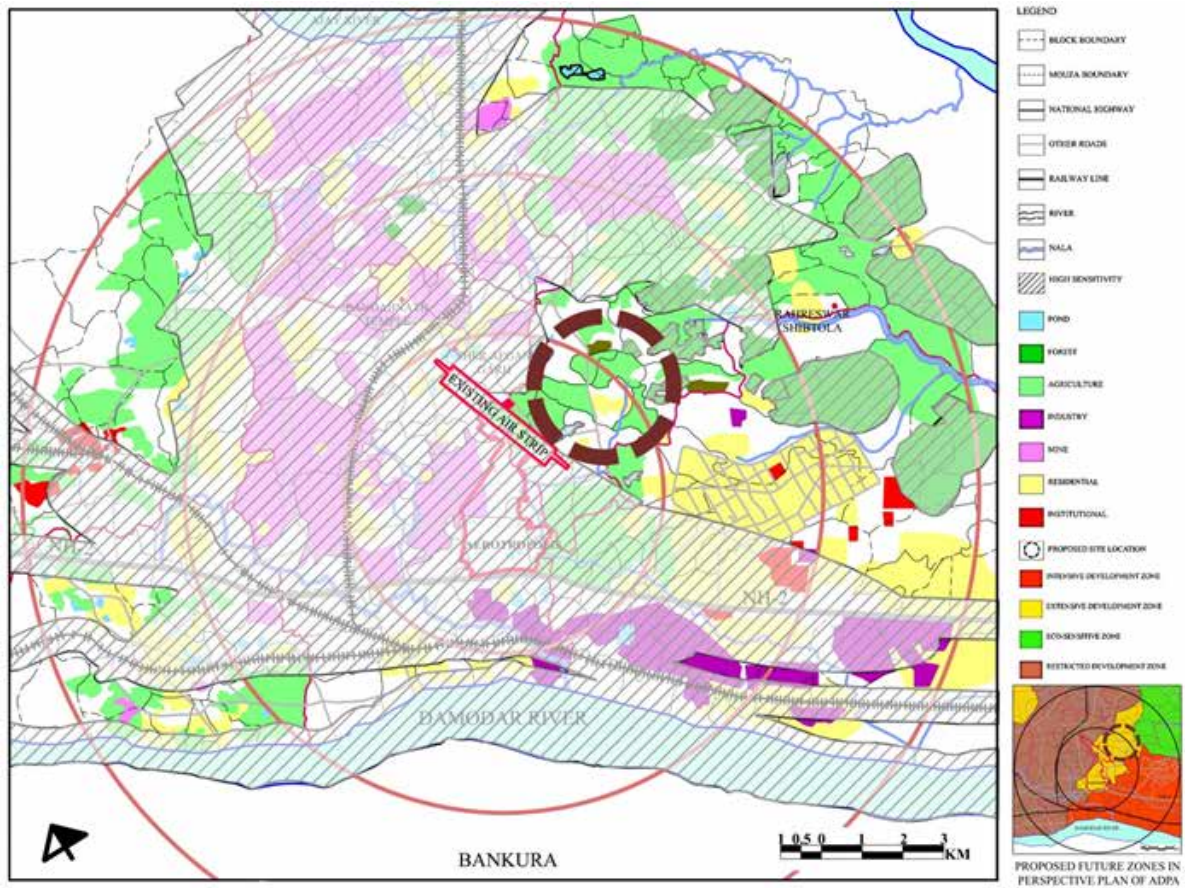
4. Recommendations for Durgapur Aerotropolis:

If the project has to be carried out then it is necessary to identify an alternative project site with a suitable land use plan which will be compatible with the surrounding areas.

Alternative Site:

It is not any more a question whether the Aerotropolis will come along with the Airport or not. Anyhow the development shall grow along the Airport. So the best possibility of shifting the project site is made according to the sensitivity analysis which shows there is possibility to shift the project location on the other side of the Airport (North-East) where enough land is available which is not sensitive in its nature (refer Map No.3).

Overlaying the map of the area, which is not sensitive in nature for development, and existing land use map of the area around the existing Airstrip, and the map of proposed zones according to Perspective plan of ADPA, the site for shifting the project has been identified.



Map No.3: Alternative Site Location for Aerotropolis

- Water demand is projected as 1.1MLD for the Airport and 25MLD for the township. This must be met from alternative sources and no ground water abstraction should be allowed in the township.
- Surface water can be abstracted to meet the water demand but Water Treatment Plant must be set up to ensure the quality of the drinking water.
- Expected sewage generation from airport is estimated as 0.88 MLD and from township is estimated as 21 MLD. Thus a Sewage Treatment Plant of capacity 1MLD is required for the Airport area along with oil interceptor and a STP of 22MLD is required for the township.
- Green Buffers must be created around the Airport and Plantations upto 30m along the National Highway to avoid the effect of Air and Noise pollution.
 - Plant Species which should be used for pollution: Azadirachataindica (Neem) Saracaindia (Ashoka)
 - Plant Species which should be used for road side plantation: Azadirachataindica (Neem) Ficusreligiosa (Pipal) Phyllanthusemblica (Amla)
- It should be ensured that in the approach air funnel zone up to a distance of 5km, no residential, schools, hospitals are permitted.
- Quantity of solid waste generation is projected for the airport as 4.3 MT/day and for the township 126 MT/day and horticulture waste is 7 MT/day. Horticulture waste shall be stored separately with biodegradable waste fraction for subsequent treatment and disposal.

A detailed solid waste management plan shall be prepared. Nodumping ground should be located at least around 1km radius of the Airport to avoid the problem of Bird Strike.

- Major Polluting Industries and Red category Industries categorized by CPCB (Central Pollution Control Board) must be avoided in this Aerotropolis project.
- Augmentation of existing ponds and channelizing them through a network is needed to create a surface water network which will serve as ground water recharge as well as storm water drainage channel for the township.
- Recycling of water (reuse of treated waste water) and Rain water harvesting provisions should be mandatory in the township to ensure the water availability for the Aerotropolis.
- A significant increase of road traffic is expected with the projected air traffic passengers for 2038 is 20lakh per annum. Therefore it is important to check the road capacity and provide adequate transportation and parking facility for the township.

5. Conclusions:

The project site for the Aerotropolis is not at all viable on the current location due its environmental sensitivity. Therefore a proposed zone for future Aerotropolis has been proposed based on the environmental guidelines to minimize the impact and disruption of fragile balance of nature. Since the existing airstrip needs to be incorporated, the proposed probable location of the Aerotropolis is identified without disturbing the airstrip and based on the sensitivity analysis, existing land use map of the area around the existing Airstrip and the map of proposed zones according to Perspective plan of ADPA. A further feasibility study must be done with other environmental

considerations (like land suitability, land acquisition and rehabilitation, connectivity etc.) before applying it for the planning of the Aerotropolis.

6. Acknowledgements:

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