**Vidya Vikas Education Trust's** College o Iniversa Engineering

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We are pleased to present the January 2023 edition of Benchmark. In this edition, you will an article on the "Navi Mumbai International Airport" and the contribution by Students and Faculty members of the Department of Civil Engineering highlighted in the month of December. News updates and departmental activities are part of Canvas.



### **Department Vision:**

- To excel in every area of Civil Engineering, inculcate research oriented study to explore hidden talent.
- Providing Opportunity to display creativity, out of the box thinking & innovativeness, aimed at providing cutting edge technology for sustainable development.

### **Department Mission:**

- Providing qualified, motivated faculties to deliver the content using updated teaching methodology, inviting industry experts from various areas to disseminate subject knowledge in Civil Engineering.
- Motivating students to undertake the Research Oriented studies, participate in competitions at all levels, grasping new techniques and methods which can be improved on further.
- Conducting and participating in seminars, workshops and training programs with a view to make the students industry ready and improve their employability factor for global career ahead.
- To create quality professionals capable of planning, designing and analytical skills for better infrastructural development in the field of Civil Engineering.



## **D. B. Patil International**

#### (Navi Mumbai International Airport)

Navi Mumbai International Airport, officially D. B. Patil International Airport, is an international airport being constructed in Navi Mumbai, Maharashtra, India. It will serve in parallel as an alternative with Mumbai's existing Chhatrapati Shivaji Maharaj International Airport (CSMIA), becoming the second airport of the Mumbai Metropolitan Region. The airport is a greenfield international airport being built by City and Industrial Development Corporation (CIDCO).

**Importance of the Project:** It will be connected with Navi Mumbai Metro's Line 1 and with the proposed Mumbai Metro's Line 8 (Gold Line). In the proposed Mumbai-Hyderabad High-Speed Rail (HSR) corridor from Mumbai to Hyderabad, the airport will be the starting point of the corridor, by having a terminal station.

History: The project was first conceived in November 1997. The Ministry of Civil Aviation (MoCA) constituted a committee to examine various sites for an extension to Chhatrapati Shivaji International Airport. The committee recommended a site at Mandwa-Rewas in June 2000, because the proposed airport was to have a single runway. That September, CIDCO revised the original proposal to provide for a pair of parallel runways and submitted its feasibility report to the MoCA. Airports Authority of India (AAI)'s sub-committee found the Navi Mumbai site technically and operationally feasible, and suggested that CIDCO carry out a detailed Techno-Economic Feasibility Study (TEFS) of the project. The TEFS was submitted to the State Government in September 2001, following which the International Civil Aviation Organization (ICAO) conducted a simulation study that confirmed that simultaneous operation of two airports was possible with appropriate procedures in place. In February 2007, CIDCO submitted a Project Feasibility and Business Plan Report to the MoCA, and the project received in-principle approval from the Union Cabinet in July 2007. In July 2008, the Government of Maharashtra granted approval for development of the project on a Public-Private Partnership (PPP) basis and appointed CIDCO as the nodal agency for its implementation. The project received defence clearance by the Ministry of Defence (MoD) by the end of 2010.

**Design Parameters:** It will be built in three phases, out of which the first phase of the airport will be able to handle 25 million passengers per annum. The airport will also have a low-cost carrier terminal capable of handling two million passengers per annum in the first phase. It will be expanded to its final capacity of third phase to handle more than 90 million passengers per annum. The Texas-based Jacobs Engineering Group, has charted the final masterplan for the airport, while the passenger terminals and the Air Traffic Control (ATC) tower have been designed by London-based Zaha Hadid Architects. It will have three state-of-the-art interconnected terminal buildings. The buildings will feature food courts, lounges, travellators, and other facilities for passengers. The buildings will be shaped like a lotus to provide an aesthetic theme.

**Finance of the Project**: The ₹16,700 crore (US\$2.1 billion) project is being executed by Navi Mumbai International Airport Limited (NMIAL), a special-purpose vehicle formed by the Adani Airports Holdings Limited and CIDCO, which will hold 74 percent and 26 percent equity shares of NMIAL respectively. CIDCO will build the project through a public–private

partnership (PPP) model on a Design, Build, Finance, Operate, and Transfer (DBFOT) basis. The airport covers an area of 1,160 hectares (4.5 sq.mi). CIDCO invited global tenders for requests for qualification (RFQ) on 5 February 2014. The agency received nine bids and shortlisted four bidders, including GMR Group, the GVK-led MIAL, Hiranandani Group, Zurich Airport, and Mia Infrastructure with Tata Realty and Infrastructure. CIDCO submitted their RFQs to the Project Management Committee (PMC) for scrutiny. The PMC then submitted its report to the Chief Minister of Maharashtra, who must approve the project, before it received final approval from the MoCA. The original estimated cost of the project was ₹47.66 billion (US\$600 million). This has since quadrupled to ₹160 billion (US\$2.0 billion). CIDCO's RFQ in 2014 estimated total project cost for the development of phase 1 and 2 of NMIA to be ₹95 billion (US\$1.2 billion). The cost of pre-development work was estimated at ₹23.58 billion (US\$300 million), which including ₹15.38 billion (US\$190 million) of land development for airport and ₹8 billion (US\$100 million) for other works.

#### **Challenges:**



**Commencement of Actual Work: Navi Mumbai International Airport plans** 

The coastal land required is about 2,900 ha (7,200 acres) with 1,320 ha (3,300 acres) for the core airport activity and another 245 ha (610 acres) on Waghivali Island to be developed as Mangrove Park and will have two parallel runways each 3,700 m (12,139 ft) long. It is to be located on National Highway 348 near Panvel, about 35 km (22 mi) from the existing Chhatrapati Shivaji Maharaj International Airport. The airport will have a terminal area of 250,000 m2 (2,700,000 sq ft) and a cargo area of 100,000 m2 (1,100,000 sq ft) and handle 50–55 million passengers annually. The site of the airport is located in an area of 9.5 km2 (3.7 sq mi).

Prime Minister Narendra Modi unveiled the foundation plaque at the ground breaking ceremony for the airport in Mumbai on 18 February 2018. The airport's construction was started in August 2021, and is expected to be fully operational by 2025. CIDCO floated a tender to select the engineering, procurement, and construction contractor for the project in August 2018. In September 2019, GVK awarded a contract for construction of the airport to Larsen and Toubro (L&T). It was expected that the first phase of the airport will be completed by July 2024. However, according to a recent announcement, the first and second phases have been merged and construction will complete in December 2024 with the airport opening in 2025.

By Deep Parikh,

## **Facilities**

**Structure:** An apron area of 67,000 m2, 17,000 m2 terminal area, and parking for ten code C aircraft.

**Runways:** two Runway 08L/26R: 3,700 by 60 metres (12,140 ft × 200 ft) & Runway 08R/26L: 3,700 by 60 metres (12,140 ft × 200 ft)

Terminals: 1, 2, and 3.

**Cargo terminal:** domestic cargo Spread over 33,000 m2 & international cargo spread over 23,700 m2

**Other facilities:** The airport will have a 151,000 m2 (1,630,000 sq ft) fuel farm and three aircraft hangars.



## **Departmental Activity & Achievements**

Your hard work inspires us, your determination motivates us and your success makes us so happy. Congratulation on the results of all your hard work. Your passion is incredibly motivating! Best wishes on your well-earned success! Dr J.B. Patil



Dr. Jitendra Bajirao Patil, did his BE Mechanical from Dr Babasaheb Ambedkar Marathwada University Aurangabad, Masters in Management Studies in Marketing from Mumbai University, MS in Psychotherapy and Counselling from Institute of Psychotherapy & Management Studies, Mumbai, He have completed my PhD in Technology Management from New Age International University, Seborga, Europe, and Now He have recently completed my PhD in Information Technology from University of Mumbai.

Success is the fruit of good ideas pursued with energy, intelligence, and determination." No wonder you're doing so well Your ambition is so inspiring! Congratulations on your well-deserved success!



He is a Certified Road safety Auditor with a strong background of Traffic

Engineering. He is Professor Department of Civil Engineering, Universal College of Engineering and Research Scholar at S. V. National Institute of Technology, Surat. Research area includes analysis and design of Roundabout in addition to PCU, Gap estimation, Capacity estimation and Delay at roundabout in heterogenous traffic condition using site observation as well as simulation (VISSIM).



NEWS BULLETINE

Prioritise sustainable, energy-efficient infrastructure to advance pace of development: Puri

Union Housing and Urban Affairs Minister Hardeep Singh Puri on Tuesday said the strategy for the future must be to prioritise sustainable and energy-efficient infrastructure to advance the pace of development. Speaking at the 63rd foundation day of National Buildings Construction Corporation (NBCC), Puri said the company has made a name for itself as a trusted partner of the government to resolve difficult projects, such as the stalled Amrapali project in Noida, according to an official statement.

## What are the five most popular job sectors in Australia?

To read more <u>Click here</u> or scan the QR



Australia is a popular destination for overseas students. The country offers an array of options to students studying in Australia and each course comes with a job opportunity. It is expected that by the end of 2022, Australia will have over 5,50,000 job openings across five sectors. Therefore, those, who want to study and work in Australia, need to understand which job sectors are popular in the country and offer job opportunities.

# FUN ACTIVITIES

## Civil engineering

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