



Aerospace & Defence

Government of Karnataka





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India's Rise as Aerospace & Defence Hub

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Karnataka leading Aerospace & Defence Revolution in India

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India's Rise as a Aerospace and Defence Hub



Defence

- **3rd** largest armed forces in the world
- Indian defence expenditure has reached **USD 42.83 billion (INR 4,283 Crores)** in 2017-18
- Total defence capital spending is estimated at USD 75.38 billion (INR 4.9 trillion) between FY 2017 and FY 2020

World's largest arms importer

CAGR @ 9.7%
(2008-16)

69% of capital spending is towards acquisition of **aircrafts & aero engines**



Sector has received FDI amounting to **INR 25.49 crores (USD 5.12 Million)** from April 2000 to June 2017 as per Department of Industry Policy and Promotion



Aerospace

- Indian aviation market expected to reach a value of **US\$ 54.8 billion (INR 5,480 Crores)** till 2019
- Total passenger traffic stood at **22.4 Crore** during 2016
- Indian carriers are expected to have possessions of **800 aircrafts** by 2020

CAGR @ 8.5%
(2014-19)

Among largest civil aviation market

Expected to become **3rd largest aerospace industry** by 2020

Sector Snapshot Karnataka



Karnataka undisputed Leader in Aerospace & Defence

Milestones in the Development of Aerospace Sector



Karnataka's Unique Advantages

Presence of more than **2,000 small and medium enterprises** focused on component manufacturing, tooling & testing equipment and assembling

High growth sizable market

Presence of India's flagship aircraft manufacturing and aviation research organizations such as HAL, NAL, ADA

Existing Value Chain

- ▶ 1st Aircraft Manufacturing Unit
- ▶ 1st Space Research Center
- ▶ First state to announce the aerospace policy
- ▶ Bengaluru International Airport is the first airport in India under PPP model
- ▶ India's first private aerospace SEZ, operational at Belagavi

Fast tracked approvals through Single Window Mechanism

Institutional Support

Leader in heavy manufacturing, Headquartered PSUs such as, BHEL, BEML, etc.

Manufacturing Expertise

Deep IT domain experience, Bengaluru is the world's fourth-largest technology cluster

Expertise in IT

Largest hub of semiconductor design companies

Ecosystem Integrators



Karnataka's World Class Hi Tech Aerospace & Defence Clusters

- Aerospace SEZ at Belagavi
- Co-locating a Aerospace Training Institute co-located with IAF training centre.
- Manufacturing cluster at Belagavi

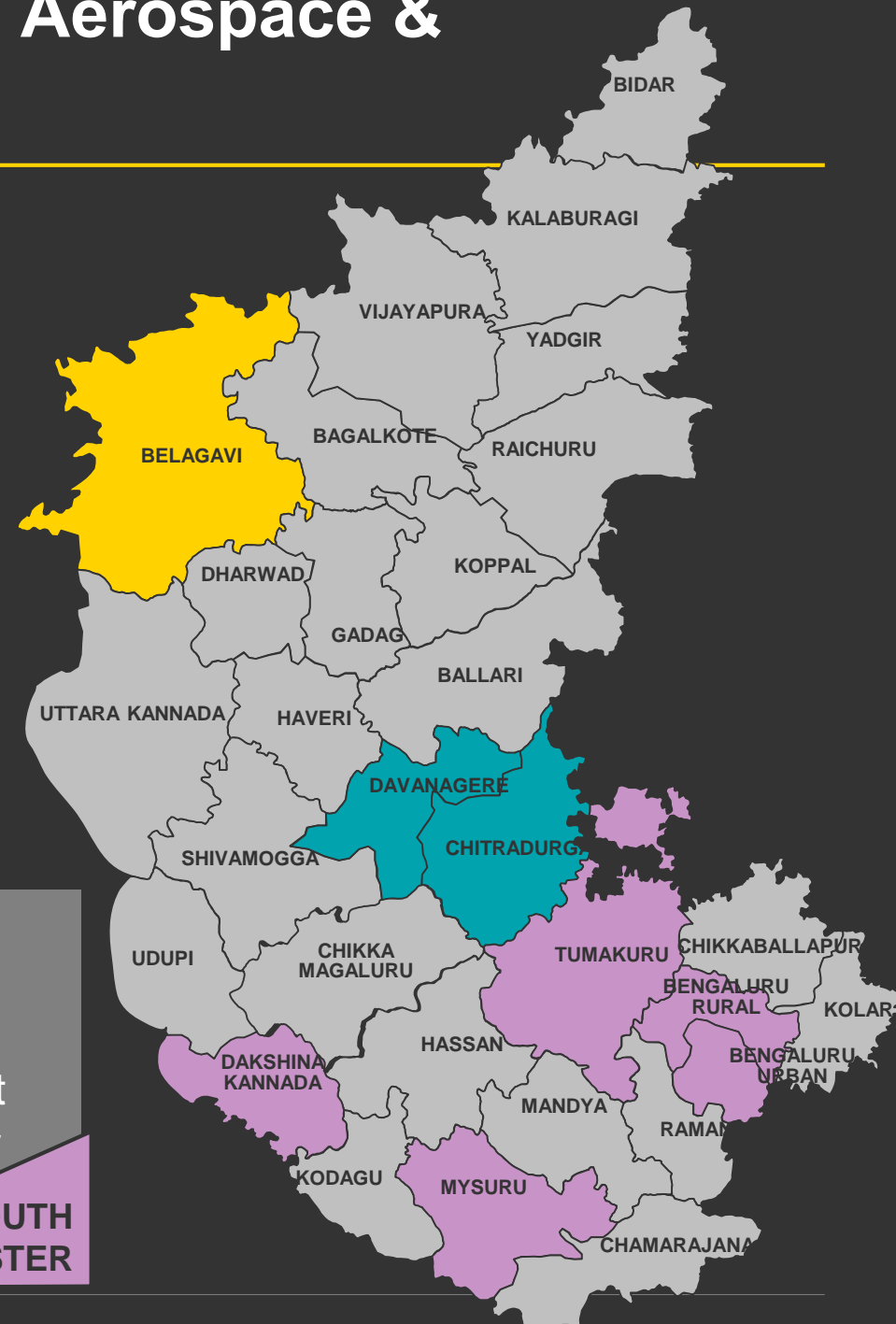
NORTH CLUSTER

- Establishment of Aerospace Research & Innovation Centre co-located with IISc proposed at Chitradurga
- Aerospace & Aeronautical University at Davanagere
- Establishment of Flying training school at Davanagere

CENTRAL CLUSTER

- Hi-tech Defence & Aerospace Park & SEZ, Devanahalli.
- MRO at KIAL & Mysuru
- Manufacturing cluster at Dakshina Kannada District
- Defence production cluster in the Aerospace sector around HAL Helicopter Unit, Tumakuru

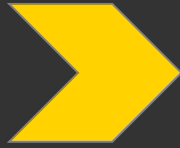
SOUTH CLUSTER



Academia, Research & Innovation Centre



Colleges
&
Training
Centres



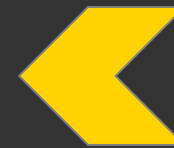
- ▶ **Indian Institute of Science (IISc)** and **Council for Scientific Industrial Research** offers opportunities in research and training for aeronautical graduate
- ▶ Establishment of **Aerospace Research & Innovation Centre** co-located with IISc proposed at Chitradurga
- ▶ **Aerospace & Aeronautical University** at Davanagere
- ▶ Establishment of **Flying training school** at Davanagere
- ▶ Co-locating a **Aerospace Training Institute** co-located with IAF training centre



- ▶ Government-funded **Indian Space Research Organization** headquartered in Bengaluru
- ▶ **Defence Research and Development Organization** under Ministry of Defence has **ten high end labs** in Bengaluru/Karnataka, the **most in any city in India**
- ▶ The Aeronautical Society of India formed a platform where engineers, industrialists and professionals could work together for the industry



Think-tanks
&
Innovation
Centres



Global Linkages

March 2009



India's first public-private aerospace research consortium and it is devoted to emerging network technologies and concepts

December 2009



European Aeronautic Defence and Space company

Commenced research operations in Bengaluru

March 2010



Create a manufacturing joint venture company in Bengaluru with **Hindustan Aeronautics Limited**

2017



Government of Karnataka partners with Dassault Systèmes to Set Up a Center of Excellence in Aerospace & Defense

2015

Boeing, Tata Advanced Systems sign pact for aerospace, defence manufacturing



operations in Bengaluru
(Source: The Hindu, July 15, 2015)



May 2009



Research, development & engineering facility in Bengaluru

Policy Push

Karnataka Aerospace
Policy 2013-23



Robust Policy Environment

Position Karnataka as a vibrant aerospace hub of Asia and a globally recognised aerospace destination



Phase II (2018-23)

- ▶ Attract investments to the tune of INR 36,000 crores (6 Billion USD) in the Aerospace sector
- ▶ Create additional employment opportunities (direct and indirect) to about 60,000 persons in the next five years by a process of inclusive development
- ▶ Enhance the contribution of Aerospace sector towards increasing the share of industry in the State's GDP from 30% to 32%

 Since 2013-14 the State has approved **119 project proposals** with a proposed investment of INR 11,820 crore with an employment potential for about 35,000 persons

Incentives



- ▶ Investment Promotion subsidy
- ▶ Exemption from stamp duty
- ▶ Concessional registration charges
- ▶ Exemption from entry tax
- ▶ Subsidy for Effluent Treatment Plant (ETP)
- ▶ Exemption from tax on electricity tariff

MRO Focus



- ▶ Boosting exports
- ▶ Focus on R&D
- ▶ Operationalization of Bengaluru Aerospace Park and Bangalore Aerospace SEZ

Policy Highlights

- ▶ Encourage airports in the State to support MRO as a strategic activity
- ▶ Setting up of MRO facilities
- ▶ Special incentives for MRO segment

Special Interventions



- ▶ Focus on cluster approach
- ▶ Aerospace University and Flying school
- ▶ Funding Ventures through Karnataka Aerospace Venture Capital Fund
- ▶ Aerospace, Research & Innovation Centre

Differentiators



Key Players



Global companies in Karnataka



AIRBUS



Rolls-Royce®



AEQUS®
ecosystems of efficiency



Honeywell
THE POWER OF **CONNECTED**

THALES

Mahindra
AEROSPACE



Future Opportunities



Bengaluru's Heli-taxi Service



Bengaluru is set to launch a helicopter taxi service from its international airport to Electronics City, helping passengers save hours in commute and beat the city's traffic

Thumbby Aviation will start the service with one helicopter, eventually expand to connect Whitefield, the HAL airport, and some high-rise buildings that have rooftop helipads, based on the demand

1 Establishment and Strengthening of Infrastructure

2 Augmenting capacity for Research, Design and Development for defence products

3 Encouraging synergistic sectors like civil aerospace and internal security

4 Building collaborations and investments in emerging technologies

5 Focus on skill development to enhance generation of technical manpower

6 Establishing MRO facilities to achieve faster turnaround times



Thank You