

2020



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# CURRENT AFFAIRS

**SCIENCE & TECHNOLOGY**

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BusinessLine



## **1. Gaganyaan, Chandrayaan 3 & Second Spaceport**

### **Why in News?**

Four pilots from the Indian Air Force (IAF) will undergo astronauts training in Russia for Gaganyaan. Also, Chandrayaan-3 mission has been approved by the Indian government.

- Gaganyaan is the first Indian crewed flight to space.
- Chandrayaan-3 is the successor to the Chandrayaan-2 mission and it will likely attempt another soft-landing on the lunar surface.

### **Gaganyaan**

- Gaganyaan, India's maiden human space flight programme, was announced by the Prime Minister in his Independence Day speech in 2018.
- It is the ₹10,000-crore Indian human space flight scheduled for 2022.
- It is designed to have 3-7 crew members spend 3-7 days in space in a 400-km orbit.
- With this, India could potentially become the fourth country to send a man to space, after the erstwhile USSR, the US and China.
- The first of the two pre-Gaganyaan flights with a humanoid will be launched in 2020-end along with some of the six shortlisted microgravity experiments.

### **Chandrayaan 3**

- Chandrayaan-3 will have a rover and a lander, but not an orbiter.
  - Since Chandrayaan-2's orbiter had a life of seven years, it would be used for the third lunar mission as well.
- Although scores of landers sent by Russia, the U.S. and the Chinese have explored the moon's surface, so far, no other agency has landed in the southern hemisphere of the moon.
  - ISRO hopes to be the first to do so.
- As per ISRO, the total cost of Chandrayaan-3 mission will be over Rs 600 crores.
  - In comparison, the total cost of the Chandrayaan-2 mission was Rs 960 crores.

### **Second Spaceport in Tamil Nadu**

- The Tamil Nadu government has started acquiring 2,300 acres of land in Thoothukudi district for ISRO's second launch port.
  - Currently satellites are launched from the Sriharikota launch centre in Andhra Pradesh.
- Thoothukudi offers a locational advantage to launch towards India's South.

- The new port will handle mainly the Small Satellite Launch Vehicle (SSLV) that is under development.
  - SSLVs are meant to put a payload of up to 500 kg in space.
- The space agency ISRO preferred its second spaceport at Thoothukudi, located on the east coast and near the equator for the following reasons:
  - **Speed Boost to Rockets:** The Earth's rotation provides a speed boost to rockets launched in the eastward direction, and headed for an equatorial orbit around the planet.
  - **Save Lives:** If there is a failure during the launch, then the debris from an explosion would fall directly into the Bay of Bengal instead of land. Further, a southern spaceport reduces the distance to the South Pole and ensures access to a vast, unpopulated area below the flight path.
  - **Fuel Efficiency:** At present, once the rocket lifts off from Sriharikota, it flies further east to avoid Sri Lanka and then steers itself back towards the South Pole. This manoeuvre requires more fuel.

## **2. Dornier Aircraft**

### **Why in News?**

The Indian Air force formally inducted the Flight Information system (FIS) Dornier aircraft into No. 41 Squadron at a ceremony at Air Force Station Palam New Delhi.

### **Dornier aircraft**

- The Dornier-228 aircraft is a multi-purpose, fuel-efficient, rugged, lightweight twin-turboprop aircraft with a retractable tricycle landing gear.
- It is a **multi-role Short Range Maritime Reconnaissance (SRMR)** aircraft with twin-engine manufactured by Hindustan Aeronautical Ltd. (HAL), Kanpur.
- The aircraft can be used for-
  - electronic warfare missions
  - maritime surveillance
  - search and rescue
  - providing target data to weapon platform.
- This aircraft has been exported to Seychelles and Mauritius.

### **Hindustan Aeronautics Limited (HAL)**

- It is an Indian state-owned aerospace and defence company headquartered in Bangalore, India.
- It is governed under the management of the Indian Ministry of Defence.

### **3. DRDO Young Scientists Laboratories**

#### **Why in News?**

Prime Minister dedicated to the nation 5 Young Scientists Laboratories of Defence Research and Development Organisation (DRDO), in Bengaluru.

#### **Young Scientists Laboratories**

- These are located in five cities viz, Bengaluru, Mumbai, Chennai, Kolkata and Hyderabad.
- Each lab will work respectively in the following manner:
  - Quantum technologies
  - Cognitive technologies
  - Asymmetric technologies
  - Smart materials
  - Artificial intelligence

### **4. Indian Science Congress**

#### **Why in News**

The Prime Minister addressed the 107<sup>th</sup> session of Indian Science Congress at the University of Agricultural Sciences (UAS) in Bengaluru, Karnataka.

#### **Key Points**

- The **theme** of the congress for 2020 is “**Science & Technology: Rural Development**”.
- Indian Science Congress is a major focal point for scientists, researchers and academicians interested in various aspects of scientific discoveries and technologies.

#### **Indian Science Congress**

- The Indian Science Congress Association (ISCA) owes its origin to the foresight of two British Chemists, namely, Professor J. L. Simonsen and Professor P.S. MacMahon.
- The first meeting of the Congress was held from January 15-17, 1914 at the premises of the Asiatic Society, Calcutta.



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