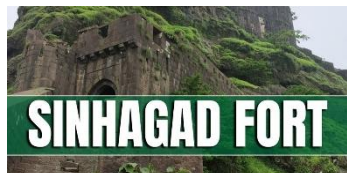


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### KEY FACTS ABOUT SINHAGAD FORT



- Sinhadgad, earlier known as ‘Kondhana’, is a fortress located near Pune, Maharashtra.
  - According to history, the fort was built 2,000 years ago and it is said that the name Kondana was derived from sage Kaundinya.
  - Mohammed bin Tughalak captured the fort from the Koli tribal chieftain, Nag Naik in 1340 CE.
  - Nearly 200 years later, the Maratha leader Shahaji Bhonsale captured the fort.
  - In 1647 CE, Shivaji held the stronghold.
  - In 1665 CE, as per the Treaty of Purandar, Shivaji handed over Sinhadgad to the Mughals and again captured it in 1670 CE, under the direction of Tanaji Malusare who was Shivaji's favorite general.
  - While recouping the fort during Battle of Sinhadgad, Malusare lost his life for which Shivaji Maharaj honoured the fort with name Sinhadgad Fort or Lion’s Fort.
  - Finally the British seized the fort from the Marathas in 1818 AD. The fort was later used as a retreat for many European residents of Pune.
  - **Architecture:**
    - It is a marvel of Maratha architecture and engineering.
    - The fort features two main entrances—the Pune Darwaza, facing Pune, and the Kalyan Darwaza, opening towards the Konkan region—both showcasing intricate stonework and strategic placement for enhanced security.
    - It has an advanced water storage system, which includes ancient rainwater harvesting techniques and natural reservoirs that ensure a continuous water supply.
    - The fort has several bastions, ramparts, walls, and gates that enclose its premises.
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### WHAT IS THE DART MISSION?



- DART (**Double Asteroid Redirection Test**) was a NASA space probe dedicated to investigating and demonstrating one method of **asteroid deflection** by **changing an asteroid's motion** in space through **kinetic impact**.
- It was **launched** in 2021.
- It was the **first-ever space mission** to demonstrate **asteroid deflection** by a **kinetic impactor**.
- It was the **world's first planetary defense technology demonstration**.
- It was aimed at finding out whether or not we could **redirect the trajectory** of a near-Earth object simply by **crashing into it**.
- The **target** of DART was a **binary asteroid system** consisting of a **smaller moonlet, Dimorphos, orbiting** around a **larger asteroid, Didymos**.
  - Because the two were **linked by gravity**, the theory went, **knocking little Dimorphos off-kilter** would affect both objects.
  - DART spacecraft **successfully collided with Dimorphos** in 2022.
  - The mission was a success. **For the first time**, humans have successfully **demonstrated the ability to change the motion of an asteroid** in space.

### WHAT IS THE DOOMSDAY FISH?



- The **oarfish** is commonly known as the “doomsday fish”.
- It is a **deep-sea dweller** that **rarely comes near the surface**.
- Scientific Name: *Regalecus glesne*
- **Habitat:** They are **deep-sea dwellers**, thriving most often in the **zone least explored by scientists to date: the mesopelagic zone (waters down to 1,000 meters)**.

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- **Features:**
  - It is known for its **long, ribbon-like body** that enables the species to **float inconspicuously** throughout the water column.
  - It also boasts **large eyes** and **foreboding red spines** that stick out to form a **crown-like cluster**.
  - Oarfish is the **longest bony fish known to exist in the ocean**.
  - They **float vertically** and use their **reflective bodies** as a type of **camouflage**.
  - It is a **filter feeder** and primarily eats krill, plankton, and other small crustaceans.

### Folklore Related to Doomsday Fish:

- In some areas of the world, these creatures are seen as being **harbingers of bad news**, particularly **disasters or destruction**.
  - The oarfish has the **nickname** of “**Ryugu no tsukai**,” or “**sea god’s palace messenger**,” in **Japanese folklore**.
  - This **myth** traces back to the 17th century and says that the **surfacing of the oarfish** is a **harbinger of future natural disasters**.
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### WHAT IS SHESHNAAG-150?



- It is a **long-range collaborative attack swarm drone**, with **autonomous systems** capable of **deep strikes** and **saturation attacks**.
- It is being **developed by NewSpace Research and Technologies (NRT)**, a **Bengaluru-based aerospace startup** focusing on **AI-driven unmanned systems** and **swarm robotics**.
- **Features:**
  - It can carry **25-40 kg payload** which is **sufficient to damage infrastructure**, military vehicles or personnel.
  - What sets it apart is its **AI-powered swarm tech** — **multiple drones can team up autonomously** to evade defenses and hit targets together.

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- It has an operational **range of over 1,000 km.**
- It can **stay airborne for over five hours**, enabling it to **loiter over target areas** before executing an attack.
- It is equipped with **real-time surveillance, autonomous target identification, and strike capabilities.**
- It has the ability to **operate in GPS-denied environments using visual navigation systems.** This ensures that the drone can still **reach targets even if satellite navigation signals are jammed** during warfare.

#### EXERCISE LAMITIYE



- It is the **joint military exercise** conducted between **India and Seychelles.**
  - ‘**LAMITIYE**’ means ‘**Friendship**’ in the Creole language.
  - It is a **biennial training event** and has been conducted in **Seychelles since 2001.**
  - **Participating Troop:** The contingent comprises of personnel from the **ASSAM Regiment** and participation from **Indian Navy and Indian Air Force** including **INS Trikand** and a **C-130 aircraft.**
  - **Exercise LAMITIYE 2026:**
    - This edition marks a significant **milestone with the participation of all three services** of the Indian Armed Forces.
    - The exercise will strive to enhance synergy in the domains of **Sub-conventional Operations in Semi-Urban environment** and cooperation and interoperability between both the sides during Peace Keeping Operations.
- Both sides will jointly train, plan and execute a series of **tactical drills** for neutralisation of likely threats that may be encountered in Semi-Urban environment, while exploiting and showcasing New Generation Equipment and technology.
- It will include **Field Training Exercises, combat discussions,** case studies, lectures & demonstrations, culminating with Validation Exercise.

### DEFICIENT WINTER RAINS TRIGGER EARLY SUMMER

- The India Meteorological Department (IMD) had predicted **above-normal day temperatures** in western Himalayan regions, central India, and peninsular India for March, along with more heatwave days in Gujarat and Andhra Pradesh.
- These forecasts materialised within the first week of March, with several regions experiencing unusually high temperatures.
- According to the IMD, temperatures are expected to remain high for a few days but may decline with the arrival of a **Western Disturbance**, a winter weather system originating near Iran that brings moisture from the Mediterranean region.

### **Dry Winter Behind Early Heat**

- The unusually warm conditions are partly due to a dry winter season.
- February was the **third driest** since 1901, with all-India rainfall in January–February only 16 mm, about 60% below normal. Both rainfall and snowfall remained significantly low.
- This occurred because of fewer **Western Disturbances** since November 2025, which normally bring winter precipitation.
- Additionally, the **absence of wind convergence between** westerly and easterly winds, which usually carries moisture to central and northern India, reduced rainfall further.
- Dry winters often lead to an early onset of summer heat, as the lack of soil moisture allows land to heat up more quickly, resulting in higher temperatures.

### **Rising Temperatures Threaten Rabi Crops**

- The sudden increase in temperatures is likely to affect standing rabi crops such as mustard, wheat, gram, groundnut, sesame, sorghum, and safflower, along with vegetables like potato and fruits such as apples.
- Farmers have been advised to increase irrigation to maintain soil moisture, but this could place additional pressure on already stressed local water resources.

### THE LESSON IS NATIONAL SECURITY CANNOT BE OUTSOURCED

- The war involving Iran, the United States, and Israel has exposed serious weaknesses in the security framework of the Persian Gulf.
- What was expected to be a rapid victory for two of the world's most **technologically advanced militaries** has instead evolved into a conflict that challenges long-standing assumptions about military power, deterrence, and regional alliances.
- Iran's ability to retaliate against strategic targets has shaken the confidence of Gulf states in decades-old **security guarantees** offered by the United States.
- The unfolding conflict reveals the fragility of externally backed security arrangements and reinforces a fundamental principle: **national security cannot be permanently outsourced**.

### **Iran's Strategic Retaliation and the Changing Nature of War**

- Iran's response has altered the anticipated course of the war. Rather than collapsing under pressure, Iran has demonstrated the capacity for strategic retaliation by striking targets previously considered safe.
- These include multiple **American military bases** across the Gulf region in Saudi Arabia, the United Arab Emirates, Qatar, Bahrain, Jordan, Iraq, Syria, and Oman.
- By targeting these facilities, Iran has demonstrated that even the most protected installations are not immune to modern warfare.

### **The Gulf Security Arrangement and Its Failures**

- **The Gulf Security Arrangement**
  - After the **Iranian Revolution** of 1979–80, Gulf monarchies perceived Iran as a major geopolitical and ideological threat. In response, the United States emerged as the primary guarantor of regional stability.
  - The **Carter Doctrine** declared that any attempt by external forces to control the Persian Gulf would be viewed as a threat to American vital interests, to be countered with military force if necessary.

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- **The Failures**

- Reports indicate that several Gulf countries have depleted their **missile interceptors**, while the United States prioritises limited defensive resources for **Israel**.
- For many Gulf states, the realisation that **external security guarantees** may not hold during major crises has been deeply unsettling.

### Lessons for India: The Importance of Strategic Self-Reliance

- For decades, India remained one of the world's largest **arms importers**, relying heavily on foreign suppliers for military equipment.
- The **Kargil War** of 1999 exposed critical shortages and operational vulnerabilities caused by excessive dependence on imports. The **Kargil Review Committee** subsequently emphasised the need for defence self-reliance.
- Meaningful progress accelerated after 2014 with the policy emphasis on **Atma Nirbharta**.
- Domestic defence manufacturing expanded significantly, reducing the share of imports while encouraging **private sector participation**.
- Indigenous platforms such as the BrahMos missile, the Tejas fighter aircraft, advanced artillery systems, and domestic ammunition production strengthened India's strategic capabilities.
- India has also expanded defence exports, reaching record levels in recent years while reducing import dependency.

### Conclusion

- The Iran–U.S.–Israel conflict has exposed structural weaknesses in the Gulf's long-standing security framework.
  - Iran's ability to strike high-value targets has challenged the perception of **military invulnerability** surrounding American infrastructure in the region.
  - More importantly, the inability of the United States to fully shield its allies has raised serious questions about the credibility of external protection systems.
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### ANAVARAN PORTAL



- It has been operational since 2024.
- It has been using **satellite data and machine learning** to enable Forest Survey of India to issue location alerts on the **loss of forest cover to states every 15 days** so that targeted field inspections can be carried out.
- **Technology Used:**
  - The Anavaran alert system is **based on the Google Earth Engine (GEE) platform**. It uses **Sentinel-2 satellite images** as input data.
  - For continuous monitoring during cloudy and monsoon seasons, this is further integrated with **Sentinel-1 Synthetic Aperture Radar (SAR) data**.

### **Key Facts about Forest Survey of India (FSI)**

- It is a premier national organization established on June 1, 1981, under the **union Ministry of Environment, Forests and Climate Change**.
- **Mandate:** It is responsible for **assessment and monitoring of the forest resources** of the country regularly. In addition, it is also engaged in providing the services of training, research and extension.



### NATIONAL HIGHWAYS GREEN COVER INDEX

- It is an initiative of **National Highways Authority of India**.
- It has been prepared in coordination with the **National Remote Sensing Centre (NRSC)** of the Indian Space Research Organisation (ISRO).
- The initiative aims to provide a scientific and quantitative assessment of green cover within the **Right of Way (RoW) along the National Highways network** by leveraging advanced space-based technologies.
  - It measures the percentage of land covered with vegetation along highway corridors, including plantations on the left and right sides of the road, as well as in the median wherever feasible.

- The analysis is conducted for every one-kilometre highway segment using the **Normalized Difference Vegetation Index (NDVI)** derived from satellite imagery.
- **Significance:**
  - It offers a robust, reliable, cost-effective, and time-efficient mechanism for macro-level estimation of the green cover along the National Highways.
  - It will enable comparison, ranking, and targeted interventions for **improved plantation management**.

### SILENT VALLEY NATIONAL PARK



- **Location:** It is located along the **southwest corner** of the Nilgiris in South India, in Kerala.
- It is one of the last undisturbed tracts of **tropical rainforest in India**.
- It constitutes the centerpiece of the **Nilgiri Biosphere Reserve**, sanctified as a **World Heritage Site by UNESCO in 2012**.
- **River:** It is nourished by the **Kunthipuzha River**.
- **Vegetation:** It has four types of vegetation “West Coast **tropical evergreen forest**, southern sub-tropical **broad-leaved hill forest**, **montane wet temperature forest**, and grasslands.

**Flora:** The flora of the valley includes many species of **flowering plants**, orchids, ferns and fern allies, liverworts, lichens, and algae.

- Plants of high medicinal value as well as the towering **Culinea trees** are also found here.

**Fauna:** It is famous for its population of **lion-tailed macaques**, **Nilgiri langur**, **Malabar giant squirrel**, Indian elephant, tiger, leopard, and gaur (Indian bison).