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15 April 2024

National and International News

### Statue of Valour



#### Context:

- The Statue of Valour, unveiled by Prime Minister Narendra Modi on March 9, 2024, has sparked diverse opinions, much like the **varying support for the leading candidates in the North-East ahead of the Lok Sabha Elections.**

#### About:

- The statue honors **Bir Lachit Borphukan, a revered Ahom general known for his leadership in the Battle of Saraighat in 1671**, where he successfully thwarted the Mughal army's attempt to conquer Assam.
- It is part of the **Lachit Borphukan Maidam Development Project**, aimed at commemorating the legacy of this iconic figure and promoting tourism in the region.
- Borphukan started his **military journey as a Ghora Barua, a cavalry officer, serving under King Jayadhwaj Singha.**

#### Ahoms:

- The Ahom Kingdom, spanning from **1228 to 1826** in the **Brahmaputra Valley of present-day Assam, India**, was founded by Chaolung Sukaphaa, a prince from Mong Mao (modern-day Yunnan, China).
- The Ahoms, originating from **Southeast Asia, settled in the Brahmaputra Valley after defeating local rulers.**
- Known for its diverse population and well-organized military, the **Ahom Kingdom boasted infantry, cavalry, artillery, and a navy.**
- The Ahoms integrated with the local culture, adopting the language, religion, and customs of the regions they conquered.



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### Asia Development Outlook report

#### Why in news?

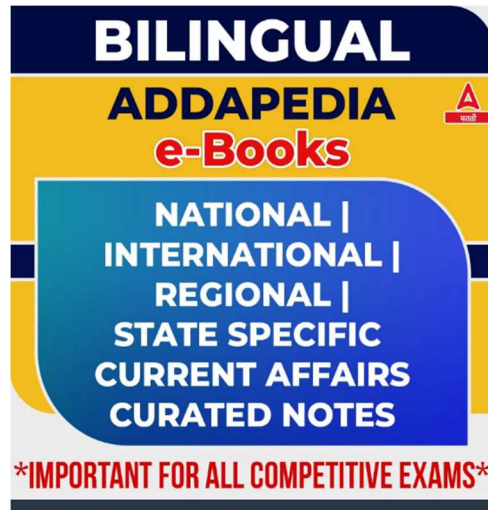
- Asia Development Outlook report is released by the Asian Development Bank.
- As per report, India's GDP growth is forecasted to slow from 7.6% in 2023-24 to 7% in 2024-25, before improving to 7.2% in 2025-26.

#### Did you know?

- India is a founding member of the Asian Development Bank and the bank's fourth largest shareholder.

#### About ADB:

- **Full name:** Asian Development Bank
- **Established Year:** 1966.
- **Headquarters:** Manila, Philippines.
- The Asian Development Bank was established as a regional development bank. In India, it was established under the "**Asian Development Bank Act, 1966**".
- **Composition:** The Asian Development Bank is operated by a Board of Governors, which is composed of one representative from each member state.
- **Aim of the Organization:** To promote economic development and poverty reduction in Asia and the Pacific.
- **Programs/Activities/Services Offered by the Organization:** The Asian Development Bank provides assistance to its developing member countries, the private sector, and public-private partnerships through grants, loans, technical assistance, and equity investments to promote development.
- The Asian Development Bank has 68 members, of which 49 are from the Asia and Pacific region.





मराठी

### Wayanad Wildlife Sanctuary

#### Ecosystem integration



Tribal forest-watchers constructing a temporary watchtower atop a huge tree at Muthanga in the Wayanad Wildlife Sanctuary to keep a tab on poaching and wildfire.



### Why in news?

- A fire broke out in the **Sulthan Bathery forest range** under the **Wayanad Wildlife Sanctuary in Kerala**.
- The fire destroyed close to 100 hectares of forest.

### Key Points:

- **The fire spread rapidly due to several factors:**
  - Dried bamboo pods
  - High temperature due to the absence of summer rain
  - Strong wind
  - Withered undergrowth
- The fire also affected a **rubber plantation** near the sanctuary.

### Wayanad Wildlife Sanctuary:

- Wayanad Wildlife Sanctuary is located in **Wayanad, Kerala**.
- Established in: **1973**.
- **Objective:** Conserving the biological heritage of the region.
- It is an **integral part** of the **Nilgiri Biosphere Reserve**. The **Western Ghats, Nilgiri Sub-Cluster**, including all of the **sanctuary**, is under **consideration by the World Heritage Committee** for selection as a **World Heritage Site**.
- **Geographical Features:** The sanctuary includes four **hill ranges: Sulthan Bathery, Muthanga, Kurichiat, and Tholpetty**.
- **Rivers and Highways:** The **Kabini river**, a **tributary of the Kaveri River**, flows through the sanctuary.
- **Habitat and Ecosystem:** The sanctuary is home to both **moist and dry deciduous trees** and **semi-evergreen forests**.
- **Endangered Animals/Species:** It is home to **gaur, Indian elephant, deer, and Bengal tiger**. It also hosts the **dhole or Asiatic wild dog**, an **endangered large carnivore**.
- **Ecological Importance:** Home to over 3,700 known species and a significant population of **Asian elephants**.
- **Challenges and Threats:** The sanctuary is battling the **encroachment of alien plant species**. Human pollution,



cutting of trees, forest fire, wildlife population resulting  
 food deficiency, disturbances in the community forest,  
 illegal poaching were the major threats to wildlife.

### NexCAR19

#### Why in news?

- **NexCAR19**, the country's first 'Made in India' CAR T-cell therapy, was recently launched.
- The therapy was developed by IIT Bombay and the Tata Memorial Centre.

#### About NexCAR19:

- NexCAR19 is a type of **immunotherapy** known as **CAR T-cell therapy**.
- In this therapy, a patient's **immune cells (T cells)** are **engineered in a lab** to produce special proteins called **chimeric antigen receptors (CARs)**.
- These receptors are designed to recognize specific proteins, or antigens, found on the surface of cancer cells.
- **Purpose and Importance:** Treat different types of **cancer**, particularly blood cancers like **leukemia** and **lymphoma**. It's important because it represents a **major breakthrough in cancer treatment**. It provides a new, potentially **more effective way to fight cancer**, especially for patients for whom other treatments have failed.
- **Unique Features:** One of the standout features of NexCAR19 is its "**humanised**" design. It's tailored to **mimic the human immune system** more closely, which aims to enhance the therapy's effectiveness while minimizing the risk of immune system rejection.
- **Applications:** NexCAR19 is used mainly to **treat certain types of blood cancers**, including B-cell acute lymphoblastic leukemia (ALL), diffuse large B-cell lymphoma, follicular lymphoma, high-grade B-cell lymphoma, mantle cell lymphoma, multiple myeloma, and primary mediastinal large B-cell lymphoma.

**Advantages:** It's an **affordable CAR T-cell therapy**, costing significantly less than comparable treatments available globally. Lab and animal studies indicate **lower drug-related toxicities**, including reduced neurotoxicity and Cytokine Release Syndrome (CRS).

**Challenges or Drawbacks:** One significant concern is **cytokine release syndrome (CRS)**, a serious reaction that can occur



following the CAR-T infusion. Additionally, while the therapy is promising, it **doesn't work for everyone** and **can be expensive**.

### TREATMENT FOR SPECIFIC B-CELL CANCERS

NexCAR19 is a prescription drug for B-cell lymphomas, lymphoblastic leukaemias when other treatments have been unsuccessful

**PATIENT'S WHITE** blood cells are extracted by a machine through a process called leukapheresis and genetically modified, equipping them with the tools to identify and destroy the cancer cells.



**NEXCAR19 IS** manufactured to an optimal dose for the patient, and typically administered as a single intravenous infusion. Prior to this, the patient is put through chemotherapy to prime the body for the therapy.

#### HOW NEXCAR19 WORKS



**T-cells** are naturally made by the body as an advanced defence against viruses and cancer cells.

As T-cells mature, they develop specific connectors (receptors) to target key signals on cancer cells.



**Scientists have** identified certain proteins that are abnormally expressed on the surfaces of specific types of cancer cells. Specially designed receptors can find and bind to these cells.



**However, cancers** can limit the inbuilt extent and efficiency with which T-cells are able to seek and fight them. This results in an increase in cancer burden.



**A safe shell** of a virus is used to genetically engineer T-cells so they express Chimeric Antigen Receptors — connectors that target a protein called CD19 on B-cell cancer.

Source: ImmunoACT

### All We Imagine As Light

#### Why in news?

- Payal Kapadia's film, **All We Imagine As Light**, has become the **first Indian title in over 40 years to feature in the prestigious In Competition section of the Cannes Film Festival**.
- British-Indian filmmaker Sandhya Suri's Santosh will also be showcased at the **77th edition of the film gala under the Un Certain Regard section**.

#### About Payal Kapadia:

- Payal Kapadia is an alumna of the Film & Television Institute of India (FTII) and is best known for her acclaimed documentary **A Night of Knowing Nothing**, which won the Oeil d'or (Golden Eye) award at the **2021 Cannes Film Festival's Director's Fortnight side-bar**.

#### Did you know?

- The last Indian film to compete for the coveted Palme d'Or award (It is the highest prize awarded at the Cannes Film Festival) was legendary filmmaker Mrinal Sen's Kharij in 1983.
- Neecha Nagar is the only Indian film ever to win the top honour at Cannes back in 1946.



मराठी

**Need for time standard for moon's surface**

**Context:**

- The need for a **standardized time system on the Moon has arisen due to the fact that time on the Moon behaves differently from time on Earth.**
- This difference is a **consequence of Einstein's Theory of General Relativity**, which explains that gravity can bend both space and time.
- As the **Moon has less gravity than Earth**, time moves slightly faster there.
- To address this, NASA is working on creating a time standard that can be used by various international organizations and private companies operating on the lunar surface.

**About:**

- Establishing a **lunar time standard involves deploying atomic clocks on the Moon.**
- These clocks will need to be placed at multiple locations due to factors like the **Moon's rotation and the presence of mascons**, which are dense areas beneath the lunar crust that affect the local gravity field and thus the flow of time.
- By combining the outputs of these clocks using an algorithm, a precise virtual timepiece for the Moon can be created, which can then be synchronized with **Coordinated Universal Time (UTC)** for seamless operations between the Earth and the Moon.

**Standard time on Earth:**

- **On Earth, UTC serves as the basis for most timekeeping systems and time zones.**
- Countries adjust their local time by adding or subtracting hours from UTC based on their position relative to the **Greenwich meridian.**
- This meridian, located in **Greenwich, England, serves as the prime meridian from which longitudes are measured.**
- Countries to the west of the Greenwich meridian subtract hours from UTC, while countries to the east add hours.
- This system allows for a **globally coordinated time standard despite the Earth's varying rotational speeds at different latitudes.**

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