

# NEWS TODAY

## Air pollution poses threat to Sundarban Mangrove Ecosystem

This was highlighted in a study conducted by the Bose Institute, Kolkata, and the Indian Institute of Technology (IIT), Kanpur.

### Key Findings:

- **Key sources of Air pollution:** Pollutants enriched with **black carbon** from Kolkata and the **Indo-Gangetic Plain** along with localized sources such as biomass burning.
- **Rising Reactive Oxygenated Species (ROS):** Acidic components of **PM2.5 pollutants** with heavy metals is fostering the generation of ROS, posing a severe threat to mangrove cells.
  - ⊖ ROS are oxygen-containing radicals that are capable of independent existence with one or more unpaired electrons.

### About Sundarban Mangrove Ecosystem

- **World's largest mangrove ecosystem**, named after the species **Heritiera fomes**, known as **Sundri** in Bengali.
- Located on **world's largest delta** of the **Ganges, Brahmaputra, and Meghna rivers** on the Bay of Bengal in India and Bangladesh.
- Designated as a **Biosphere Reserves** and **UNESCO World Heritage Site**.
- Declared as a **Wetland of International Importance** under the **Ramsar Convention**.

### Importance of Sundarban Mangrove Ecosystem

- Extremely **rich in biodiversity** such as Bengal Tigers, Gangetic Dolphins etc.
- Mitigate climate change by **sequestering carbon**.
- **Reduces the fury of cyclonic storms** and prevent erosion due to tidal action.
- Millions of people depend on it for their livelihood and sustenance through fishing, etc.

### Recommendations to Reduce Air pollution

- ⊖ Promote **solar and wind energy**, transitioning to electric transportation and subsidising LPG.
- ⊖ Regulate tourism and **ban diesel generators**.
- ⊖ Restrictions on Carbon emitting industries, regulating brick kilns etc.

## Report on International Forest Governance (IFG) Released

**International Union of Forest Research Organizations (IUFRO)**, a non-profit organisation has released report titled **International Forest Governance: A Critical Review of Trends, Drawbacks, and New Approaches**.

- It is the **first global synthesis report** on IFG (refer to box) since 2010, summarises the most significant developments on IFG after 2010.
- Report has been released in the backdrop of the 19th session of the **UN Forum on Forests (UNFF19)**.

### Key Concerns related to IFG

- IFG has had **limited success** in **reducing deforestation**.
  - ⊖ Rate of deforestation is about 10 million hectares per year as of 2020 (**Food and Agriculture Organization**).
- It is more **crowded** and **fragmented** than ever due to the **proliferation of new actors and instruments**.
- Increasing urgency of the climate crisis has influenced the **commodification of forests** for their **carbon sequestration potential**.
  - ⊖ This has led to the rise of new markets for **carbon and biodiversity** that often focus on **short-term economic gains** over long-term **sustainability and justice**.
  - ⊖ Phenomenon is also referred to as **climatisation of forests**.
- Role of **Community-led** and **philanthropic financing mechanisms** is limited.

### Recommendations

- **Setting prices** on environmental and social externalities, recognition and management of public goods, and establishing alternative funding schemes.
- Adopting a **Polycentric governance approach** in an interdependent system.

### About IFG

- IFG comprised of the **policy, legal and institutional frameworks** for international decision-making on forests. Its stakeholders include-
  - ⊖ **Key Institutions:** UNFF, a functional commission of the **UN Economic and Social Council (ECOSOC)** with universal membership.
    - ◆ **Collaborative Partnership on Forests (CPF)** was formed to support the work of UNFF.
  - ⊖ **Forest-related international conventions:** Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), etc.
  - ⊖ **Regional Agreements:** Amazon Cooperation Treaty

## Indian Council of Medical Research (ICMR) released 17 Dietary Guidelines for Indians (DGIs)

DGIs focus on a **food-based approach** for attaining **optimal nutrition** and represent the **recommended amounts of nutrients** that should be consumed through food to ensure a **balanced diet**.

- A **balanced diet should provide** not more than **45% calories from cereals, and millets** and up to **15% of calories from pulses, beans and meat** and the rest from **nuts, vegetables, fruits, and milk**.

### Need for DGIs

- **Dual burden of malnutrition:** Significant proportion of children suffers from impaired nutritional status creating dual burden of **undernutrition and overweight/ obesity**.
- **Disease burden:** Estimates show that **56.4% of the total disease burden in India** is due to **unhealthy diets**.
- **Changing Dietary preferences:** Owing to aggressive advertising and marketing of unhealthy, highly processed, high-fat, sugar, and salt (HFSS) which can contribute to long-term health issues, including an increase in non-communicable diseases.

### Key highlights of the DGIs

- **Choose variety of oil seeds, nuts, nutriceals, and legumes** to meet daily needs of fats and essential fatty acids.
- **Read information on food labels** to make **informed and healthy food choices**.
- **Minimize the consumption of HFSS and ultra-processed foods (UPFs)**.
- Along with balanced diet, **be physically active and exercise regularly** to keep one physically and mentally fit and promote good health.

### Initiatives for Nutritional Security in India

- **Integrated Child Development Services (ICDS) Scheme, 1975.**
- **Food Safety and Standards (Packaging and Labelling) Regulations, 2011** by Food Safety and Standards Authority of India.
- **Pradhan Mantri Poshan Shakti Nirman (PM POSHAN)** under the National Food Security Act, 2013.
- **'My Plate for the Day'** initiative by National Institution of Nutrition to provide dietary diversity.

## New mRNA vaccine for brain cancer triggers a strong immune response

Vaccine, developed by scientists at University of Florida, in its first-ever human clinical trial quickly reprogrammed the immune system to glioblastoma, most aggressive and lethal brain tumor.

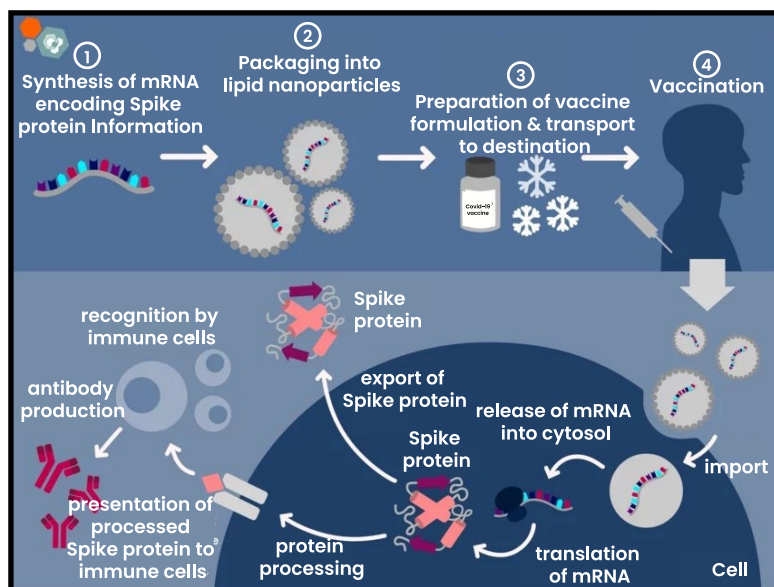
- Treatment of brain cancers are challenging due to **poor chemotherapy response, debilitating side effects from radiotherapy and surgery**.

### About mRNA Vaccines

- **mRNA (messenger Ribonucleic Acid)** is a genetic molecule that contains instructions or recipe that directs cells to make a protein using its natural machinery.
- It delivers **genetic material, encapsulated in lipid nanoparticles**, into body to prompt **protein production** that match up with parts of pathogen called antigens.
- Immune system sees these foreign antigens as invaders dispatching defenders called **antibodies and T-cells** and training immune system for potential future attacks.

### Other Vaccine Technologies

- **Live-attenuated vaccines:** Contain weakened live pathogens from bacteria or viruses. **e.g., the measles, mumps, and rubella (MMR) Vaccine.**
- **Inactivated vaccines:** Uses deactivate live pathogens, creating immunity without causing disease. **e.g., Polio vaccines.**
- **Viral vector vaccines:** Uses a harmless virus to deliver genetic code to host cells. **e.g., Ebola vaccine.**
- **Subunit vaccines:** Made from a pathogen piece, excluding live pathogens, and can be produced from the original pathogen or recombinantly. **e.g., Pneumococcal vaccines.**



## Inter-services Organisations (Command, Control and Discipline) Act, 2023 Notified

Act seeks to empower **Commander-in-Chief (C-i-C)** and **Officer-in Command (O-i-C)** of Inter-Services Organizations (ISOs) with all disciplinary and administrative powers over the serving or attached personnel.

- ISO is a body of troops including a **Joint Services Command** consisting of persons, subject to Air Force Act 1950, Army Act 1950, and Navy Act 1957, or any two of the said Acts.
- Presently, the **C-i-Cs or O-i-Cs of ISOs are not empowered to exercise disciplinary or administrative powers** over the personnel belonging to other services.

### Key highlights of the Act

- **ISO: Central government may constitute an ISO** with personnel belonging to at least two of the three services: Army, Navy and Air Force.
  - ⊕ **Existing ISOs** (Andaman & Nicobar Command, Defense Space Agency, and National Defense Academy) shall be deemed to be constituted under the Act.
- **Commanding Officer (CO):** Provides for CO to command a unit, ship, or establishment, who can initiate all disciplinary or administrative actions over personnel.
- **Applicability:** To all personnel of the Army, Navy, and Air Force, and to persons of other forces as notified by the Central Government.

### Significance

- Expedient disposal of cases, avoiding multiple proceedings, reducing financial burdens, greater integration and jointness among Armed Forces, etc.

## UNGA passes a Resolution calling Security Council (SC) to admit Palestine as member of UN

The **Resolution** does not give **Palestinians full membership**, but recognises it as **qualified to join UN**.

- India voted in favour of the resolution.

### Process for admission of New Members to the UN

- State accepts **Charter commitments** by submitting an application to **Secretary-General**.
- UNSC requiring affirmative votes from **9 out of 15 members** and no vetoes by 5 permanent members (China, France, Russia, UK, and the US).
- If the SC recommends, then **UN General Assembly's (UNGA) two-thirds majority vote** is required for admission of new state.
- Membership becomes effective upon adoption of the resolution.

### India-Palestine relations:

- India was the **first non-Arab State** to recognise the **Palestine Liberation Organisation** as the sole and legitimate representative of the Palestinian people in 1974.
- India was also one of the first countries to recognise the **State of Palestine in 1988**.
- India and Palestine relations are influenced by India's relations with Israel.
  - ⊕ In the 2nd decade of 21st century, India began **de-hyphenation foreign policy** (refer to box) while dealing with both the countries.

### De-hyphenation foreign policy

- De-hyphenation means **dealing with two countries, having adversarial relationship between them, in an independent manner**.
- This would **mean building relationship with one, ignoring the complexities of its relations with the other**.
- India's de-hyphenation has allowed it to leverage and **capitalise** on its position in areas such as **defence, energy security and trade**.

## Also in News



### Neural Processing Unit (NPU)

Global Tech-giant Apple has unveiled M4 chip which is a 16-core Neural Engine, termed as NPU.

#### About NPU

- It is a dedicated processor designed specifically for accelerating neural network processes.
  - ⊕ **Neural network** is a type of machine learning algorithm that mimics human brain for data processing.
- NPUs are **optimized for handling complex** mathematical computations integral to artificial neural networks.
- **Other types of processing units**
  - ⊕ **Graphic Processing Units (GPUs):** Versatile and excel in handling graphics rendering and parallel tasks,
  - ⊕ **Central Processing Units (CPUs):** General-purpose brains of a computer, handling a wide range of tasks.



### Hermes-900

**Indian Army and Navy will receive Hermes-900, also known as Drishti-10 drones**, to boost their surveillance capabilities.

#### About Hermes-900

- It is a next generation multi-role, Medium Altitude Long Endurance (MALE) **unmanned aerial system**.
- Features **over-the-horizon, persistent multi-mission, multi-payload capabilities with class leading payload carrying capacity** of 350 kgs.
- Capable of performing missions for area dominance, persistent **Intelligence, Surveillance, Target acquisition, and Reconnaissance (ISTAR)**.
- Can also perform **ground support and maritime patrol missions**, and offers the capability for integrated multi-platform, multi-sensor operation.



### Deadbots

Researchers have highlighted concerns related to Deadbots.

#### About Deadbots

- **Deadbots (also referred to as Griefbots)** are AI chatbots that simulate the language patterns and personality traits of the dead using the digital footprints they leave behind.
- **Concerns:**
  - ⊕ People might develop strong emotional bonds with such simulations, which will make them particularly vulnerable to manipulation.
  - ⊕ It can cause lasting psychological harm and fundamentally disrespect the rights of the deceased.
  - ⊕ It could be used by companies to spam surviving family and friends with unsolicited notifications, reminders, etc.



### Orangutan

Malaysia plans to gift Orangutans to major palm oil-importing nations with aim to boost its credentials as a conservator of biodiversity.

#### About Orangutan

- Orangutans are great apes native to Sumatra (*Pongo abelii*, *Pongo tapanuliensis*) and Borneo (*Pongo pygmaeus*) in Southeast Asia.
- Only great ape found outside of Africa.
- Live in tropical forests and prefer forest in river valleys and floodplains of their respective islands.
- Reproductive rate is extremely low which makes their populations highly vulnerable.
- Conservation status: All 3 species are Critically Endangered in IUCN Red List.



### Oleander Flower

Kerala banned the use of oleander flowers in temple offerings after death of two women due to accidental poisoning from the flower.

#### About Oleander Flowers (*Nerium oleander*/ rosebay)

- It is a rapidly growing evergreen, rounded shrub or small tree native to Europe and Asia.
- Also known as arali and kanaveeram in Kerala.
- It is heat, drought, wind, air pollution, salt, and poor soil tolerant.
- All parts of the plant are highly toxic as it contains cardiac glycosides (a type of chemical) including nerioside and oleandroside.



### Gulf of Aden

Pirates' attack in the Gulf of Aden raises concern.

#### About Gulf of Aden:

- It is a deepwater basin that forms a natural sea link between the Red Sea and the Arabian Sea.
- It is named after the Port of Aden (a Yemeni port).
- It is situated between the coasts of Arabia and the Horn of Africa.
- Main bordering countries: Somalia (South), Yemen (North), Arabian Sea (east), Djibouti (West).
- The dominant relief feature of the gulf's terrain is the Sheba Ridge.
  - ⊕ It's an extension of the Indian Ocean ridge system.



### Launch Vehicle Mk III (LVM3)

New Space India Limited (NSIL) seeks participation of private partners to manufacture rocket LVM3 (Geosynchronous Satellite Launch Vehicle Mk III).

#### About LVM3

- LVM3 or Fat Boy is the new heavy lift launch vehicle of ISRO for achieving a 4000 kg spacecraft launching capability to GTO (Geosynchronous Transfer Orbit).
- It is a three stage launch vehicle.
  - ⊕ It includes two solid propellant S200 strap-ons and L110 liquid stage, C25 cryogenic stage.
- Application:
  - ⊕ Used in Chandrayaan-2 and Chandrayaan-3.
  - ⊕ To be used in Gaganyaan Mission as well.



### Glide Phase Interceptor (GPI) Project

Japan and U.S are collaborating on a hypersonic missile-intercepting system called GPI Project.

#### About GPI Project

- It launches modified missiles from the US Navy surface warships, aimed at intercepting hypersonic weapons during their "most vulnerable" glide phase.
  - ⊕ Hypersonic missiles can reach speeds faster than Mach 5, which is nearly 4,000 miles per hour.
- **Glide Phase:** During this phase hypersonic weapons separate from boosters after peak of their trajectory, use gravity to accelerate towards Earth, and perform a pitch manoeuvre to enter a flatter trajectory towards target.

## Places in News



### Cambodia (Capital: Phnom Penh)

Cambodia formally accepted the Agreement on Fisheries Subsidies.

#### Political features:

- Located on the Indochinese mainland of South East Asia.
- Land borders: Thailand (west and northwest), Laos (northeast) and Vietnam (southeast).
- Maritime boundary: Gulf of Thailand (southwest).

#### Geographical features:

- Major Mountain Range: Dangrek
- Highest Point: Mount Aôral.
- Major River: The Mekong River (the longest in South East Asia).
- Lake: The Tonle Sap (the largest freshwater lake in South East Asia)



AHMEDABAD



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BHOPAL



CHANDIGARH



DELHI



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