Current Affairs - 10 October 2024

UNIVERSAL POSTAL UNION

Recently, on the occasion of World Post Day, the Department of Posts, Government of India, unveiled a special set of commemorative postage stamps celebrating the 150th anniversary of the Universal Postal Union (UPU).

- It is a **United Nations specialized agency** and the postal sector's primary forum for international cooperation.
- It was established by **the Treaty of Bern of 1874.** It is the second oldest international organization worldwide.
- **Functions:**
    - It **coordinates postal policies** among member nations in addition to the worldwide postal system.
    - It **sets the rules for international mail exchanges** and makes recommendations to stimulate growth in mail, parcel and financial services volumes and improve the quality of service for customers.
    - It fulfils an **advisory, mediating and liaison role** and provides technical assistance where needed.
- **Member countries:**
    - **Any member country** of the **United Nations** may become a member of the UPU.
    - **Any non-member country** of the **United Nations** may become a UPU member, provided that its request is approved by at least two-thirds of the member countries of the UPU.
- The UPU now has **192 member**
- **Structure:** It consists of four bodies,
    - **The Congress:** It is the supreme authority of the UPU and meets every four years.

- **The Council of Administration:** It ensures the continuity of the UPU's work between Congresses, supervises its activities and studies regulatory, administrative, legislative and legal issues.
- **The Postal Operations Council:** It is the technical and operational mind of the UPU and consists of 48 member countries elected during Congress.

- **The International Bureau:** Fulfilling a secretariat function, the International Bureau provides logistical and technical support to the UPU's bodies.
- **Headquarters:** Bern, Switzerland

NOBEL PRIZE IN CHEMISTRY FOR DECODING PROTEIN DESIGN AND STRUCTURES

Why in News?

The 2024 Nobel Prize for chemistry will be shared by (American scientist) **David Baker** "**for computational protein design**" along with (Briton scientist) **Demis Hassabis and** (American scientist) **John Jumper "for protein structure prediction."**

Last year the Nobel Prize for Chemistry was jointly awarded to Moungi G. Bawendi, Louis E. Brus and Alexei I. Ekimov for the discovery and synthesis of quantum dots.

Why is Work on Protein Important?

- **The role played by proteins:**
  - Proteins are **vital for life** and participate in nearly all biological processes. **For example:** Haemoglobin transports oxygen and Insulin aids in glucose absorption.
  - Hence, any disruption in protein production can impact human health.

What the 2024 Chemistry Nobel was Awarded For?

- **For creating innovative tool - AlphaFold:**
  - AlphaFold is an **AI tool** created by Hassabis and Jumper that accurately predicts protein structures in a fraction of the time.
  - It utilises known amino acid sequences to make fast and reliable predictions.

- **For designing new proteins:**
  - Baker created **Rosetta software** to predict protein structures.
  - He used Rosetta to reverse-engineer protein design, allowing the creation of new proteins by entering desired structures.
  - David Baker developed **synthetic proteins** that do not exist in nature.
  - As his methods are more efficient, it allowed for **quicker development of proteins for specific tasks**, like breaking down plastics.

What Makes the 2024 Chemistry Nobel Significant?

- **Simplifies understanding of proteins:** Enhanced visualisation of protein structures helps understand biological functions and disease mechanisms, including antibiotic resistance and microbial degradation of plastics.
- **Key to understanding critical areas:** The ability to design proteins with novel functions opens doors to: **nanomaterials, targeted pharmaceuticals, rapid vaccine development and environmental solutions**.
- **Curing diseases:** These innovations have far-reaching implications for developing new treatments and addressing protein-related diseases.
- **Recognition to AI:** The Nobel Prize emphasises the transformative role of AI in biological research.

NATIONAL MARITIME HERITAGE COMPLEX (NMHC)

- **Under** the **Sagarmala programme**, the **Ministry of Ports, Shipping, and Waterways** is developing the NMHC, a world-class facility at **Lothal, Gujarat.**
- NMHC is set to become an international tourist destination, **showcasing India's maritime heritage** from ancient to modern times through an **edutainment approach** utilizing the latest technology.

- The project will be **completed in phases:**
    - **Phase 1A** will have an **NMHC museum** with **6 galleries**, which also includes an **Indian Navy & Coast Guard gallery** envisaged to be one of the largest in the country with external naval artifacts, a **replica model of Lothal township** surrounded by an open aquatic gallery, and a jetty walkway.
    - **Phase 1B** will have NMHC museum with **8 more galleries**, **Light house museum** which is **planned to be the world's tallest**, Bagicha complex (with a car parking facility for about 1500 cars, a food hall, a medical centre, etc.).
    - **Phase 2** will have **Coastal States Pavilions** (to be developed by respective coastal states and union territories), Hospitality Zone (with maritime theme eco resorts and museuotels), Recreation of real-time Lothal City, **Maritime Institute** and hostel and **4 theme-based parks** (Maritime & Naval Theme Park, Climate Change Theme Park, Monuments Park, and Adventure & Amusement Park).
- **Phases 1A and 1B** of the project are to be developed in **Engineering, Procurement and Construction (EPC) mode** and **Phase 2** of the project will be **developed through land subleasing/ PPP** to establish NMHC as a world-class heritage museum.
- A **separate society** will be set up for the **development of future phases**, to be governed by a **Governing Council headed by the Minister of Ports, Shipping and Waterways** under the Societies Registration Act, 186
    - This society will manage the implementation and operation of the NMHC.

WHAT IS RICE FORTIFICATION?

- Fortification is the process of **adding Fortified Rice Kernels** (FRK), containing FSSAI-prescribed micronutrients (Iron, Folic Acid, Vitamin B12) to normal Rice in a ratio of 1:100 (Mixing 1 Kg of FRK with 100 Kg custom milled rice).

- Fortified rice is **nearly identical to traditional rice** in aroma, taste, and texture. This process is done in the rice mills at the time of milling of rice.
- It is a **cost-effective, culturally appropriate strategy** to address micronutrient deficiency in countries with high per capita rice consumption.
- Rice Fortification is a 2-step process – (1) Production of Fortified Rice Kernels (FRK) (2) Blending of rice with FRK
- **Processes used for rice is fortification**
    - Various technologies, such as **coating, dusting, and 'extrusion'**, are available to add **micronutrients to regular rice**.
    - Adding micronutrient technology involves the production of **Fortified Rice Kernels (FRKs)** from a mixture using an 'extruder' machine. It is considered to be the best technology in India.
    - Dry rice flour is mixed with a **premix of micronutrients** and water is added to this mixture, which is then passed through a twin-screw extruder with heating zones.
    - Kernels similar in shape and size to rice are produced, which must "resemble the normal milled rice as closely as possible".
    - The kernels are dried, cooled, and packaged. FRK has a **shelf life of at least 12 months.**
    - The kernels are blended with regular rice to produce fortified rice. Under the Ministry's guidelines, 10 g of FRK must be blended with 1 kg of regular rice.
- According to FSSAI norms, 1 kg of fortified rice will contain the following: iron (28 mg-42.5 mg), folic acid (75-125 micrograms), and vitamin B-12 (0.75-1.25 microgram).

INS NIRDESHAK

It is the second in a series of four **Survey Vessels** (Large) being built by the Garden Reach Shipbuilders and Engineers.

- **Features**
  - It displaces about **3400 tons** and overall length is 110 meters. It can achieve speeds in excess of **18 knots.**
  - It is propelled by two marine diesel engines combined with fixed-pitch propellers.
  - It was built using '**Integrated Construction' technology**. This was in compliance with applicable provisions and regulations of the Classification Society (IRS).
  - It is fitted with state-of-the-art hydrographic equipment such as **data acquisition and processing systems,** autonomous underwater vehicles, remotely operated vehicles, DGPS long-range positioning systems, digital side scan sonar, etc.
  - It has an **indigenous content** of over 80% by cost.

Significance: The delivery of Nirdeshak is a tribute to the collaborative efforts of a large number of stakeholders, MSMEs and the Indian industry in **enhancing the maritime prowess of the nation** in the Indian Ocean Region.

CARACAL

Caracal is an elusive, primarily **nocturnal animal** which has traditionally been valued for its litheness and extraordinary ability to catch birds in flight.

- In India, it is **called siya gosh**, a Persian name that translates as '**black Ear'.**
- They typically use abandoned porcupine burrows and rock crevices for maternal dens but can be found with their young in dense vegetation.
- They **live in small herds** and their **shy and elusive nature** makes them difficult to spot in the wild.
- **Habitat:** They live in woodlands, **savannahs and in scrub forests**.
- **Distribution:**

- The most suitable habitat for caracals in **Rajasthan, Gujarat and Madhya Pradesh** is located in Kutch, the Malwa Plateau, the **Aravalli hill range** and the Bundelkhand region,
- It is found in several dozen countries across Africa, the Middle East, Central and South Asia.

- **Threats:** Large-scale hunting, illegal trading and loss of natural habitats are considered significant threats to the species.
- **Conservation status**
  - **IUCN:** Least concern
  - **The Wild Life (Protection) Act, 1972**: Schedule I

CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

- The Carbon Border Adjustment Mechanism (CBAM) is a policy initiative by the **European Union** (EU) aimed at reducing carbon emissions by imposing a carbon price on imports from countries with less stringent climate policies.
- It ensures that imported products face the same carbon costs as those produced within the EU, promoting fair competition and encouraging global decarbonization efforts.
- **Key Features of CBAM:**
  - CBAM aims to **prevent carbon leakage**, where companies shift production to countries with looser carbon regulations to avoid stricter EU climate policies.
  - It aligns with the EU's climate goals, particularly its **European Green Deal**, targeting **net-zero emissions by 2050**.
  - **Scope:**
    - Initially, CBAM covers sectors with high carbon emissions, including **cement, steel, aluminium, fertilizers, electricity**, and **hydrogen**.

- The mechanism calculates the embedded carbon emissions in imported products and imposes an equivalent carbon price.

- **Implementation Timeline:**
  - **2023-2025**: Transition phase where importers report the carbon emissions of their goods without paying the adjustment.
  - **2026** onwards: Full implementation where importers will be required to purchase **CBAM certificates** corresponding to the embedded carbon emissions of their imports.

- **Working Mechanism of CBAM:**
  - **CBAM Certificates:**
    - Importers must buy CBAM certificates to cover the carbon emissions of their imported goods, matching the EU's **Emissions Trading System** (ETS) price.
    - The price of CBAM certificates will reflect the EU's internal carbon price, ensuring a level playing field for domestic and foreign producers.
  - **Calculation of Carbon Emissions:**
    - The carbon footprint of imported goods is calculated based on direct emissions during their production.
    - If a country already imposes a carbon price, this can be deducted from the CBAM obligation, avoiding double taxation.

News Summary:

- Finance Minister criticized **the European Union's (EU) Carbon Border Adjustment Mechanism (CBAM)** and new **deforestation rules**, describing them as **"unilateral"** and **"arbitrary"** measures that could harm countries like **India**.
- According to her, these measures could negatively impact **economic growth** and hinder **green energy transition goals** in developing nations. She labelled the **CBAM** as a **trade barrier**, suggesting that it creates additional challenges for countries working towards their **net-zero commitments**.

KEY FACTS ABOUT THARU TRIBE

The Pradhan Mantri Awas Yojana (PMAY) homes bring smiles to women of the Tharu tribe in the Kheri district near the Indo-Nepal border.

- The Tharu tribe is one of the indigenous groups living in the **Terai plain** on the **Indo-Nepal border.**
- They live in both **India and Nepal.**
- In the Indian terai, they live mostly in **Uttarakhand, Uttar Pradesh and Bihar.**
- In 1967, this tribe was documented as a **Scheduled Tribe** by the Government of India.

Language: They have their own language called **Tharu** or Tharuhati, a language of the **Indo-Aryan subgroup** of the Indo-Iranian group of the **Indo-European family**.

Economy: Most Tharu practice **agriculture**, raise cattle, hunt, fish, and **collect forest products.**

- Most of their food involves rice, lentils, and vegetables.
- They **build their homes from bamboo and mud.**

Society:

- Despite their **patrilineal social system**, **women have property rights** greatly exceeding those recognized in Hindu society.
- Tharu **marriages are patrilocal within the tribe.**
- A common feature of the Tharu community is the **joint family system of living in long houses.**
- Tharus live in **compact villages**, usually in the middle of a forest clearing. Each village is **governed by a council and a headman.**