CHABAHAR'S OPPORTUNITIES AND CHALLENGES

Strategic Significance of Chabahar for India

- **Economic Connectivity and Trade Facilitation**
  - The Chabahar Port **serves as a pivotal point in the International North-South Transport Corridor (INSTC)**, a multi-modal network aiming to connect India with Central Asia, Russia, and beyond.
  - By offering a direct sea-land route that bypasses Pakistan, **Chabahar significantly reduces the transportation time and costs for Indian goods** destined for these regions.
- **Geopolitical Leverage and Strategic Autonomy**
  - For India, **Chabahar is a strategic tool to assert its influence in the region and reduce its dependency on Pakistani routes**, which are fraught with geopolitical tensions.
  - By investing in Chabahar, **India secures a strategic foothold in Iran, a country with significant influence in West Asia and Central Asia.**
- **Regional Security and Stability**
  - **Chabahar Port also plays a critical role in India's approach to regional security and stability,** particularly concerning Afghanistan.
- **Counterbalancing Chinese Influence**
  - **Chabahar is strategically positioned to counterbalance Chinese influence in the region,** particularly with respect to the China-Pakistan Economic Corridor (CPEC) and the Gwadar Port.
  - **While China's Gwadar is geographically close to Chabahar, the Indian port offers an alternative route** that is crucial for diversifying regional supply chains.
- **Diplomatic Engagement and Multilateralism**
  - **Chabahar Port exemplifies India's commitment to diplomatic engagement** and multilateralism.
- **Energy Security**

- Given Iran's vast energy resources, **Chabahar Port also holds potential for enhancing India's energy security.**
- By providing a strategic entry point for Iranian oil and gas**, the port can facilitate energy imports, diversify India's energy sources**, and reduce dependency on any single country or route.

Challenges Surrounding Chabahar Port and India-Iran Relations

- **Sanctions and International Pressure**
  - **The imposition of international sanctions on Iran, particularly by the United States**, has significantly **impacted India-Iran economic relations.**
  - **Even the Chabahar Port project has had to navigate the complexities of U.S. sanctions**, requiring India to obtain periodic exemptions to continue its development.
- **Geopolitical Alignments**
  - **India's geopolitical alignments,** especially its strategic partnership with the United States, **sometimes clash with its engagements with Iran.**
  - For instance, **during the Obama administration, India reduced its oil imports from Iran** to align with U.S. policies on Tehran's nuclear program.
- **Competing Regional Interests**
  - Both countries have regional interests that sometimes diverge.
  - **While Iran seeks to maintain its influence in West Asia** and strengthen its ties with countries like China and Russia, **India's regional focus includes countering China's Belt and Road Initiative and securing its interests in Afghanistan.**

Conclusion

- **The Chabahar port project encapsulates the multifaceted nature of India-Iran relations,** blending economic interests with strategic imperatives.
- As both nations navigate their geopolitical landscapes, **Chabahar stands out as a testament to their enduring yet evolving partnership.**

WHAT IS ZIG?

Recently, to address its long-standing economic instability, the Reserve Bank of Zimbabwe (RBZ) has launched a new gold-backed currency called the ZiG.

- The **Zimbabwe Gold (ZiG)** is a new gold-backed currency **launched by Zimbabwe.**
- The ZiG, now the sixth currency used by Zimbabwe, has been in circulation since April 5, 2024.

Key features of ZiG

- The ZiG stands out as a new currency backed by gold reserves, ensuring its value is supported by the physical gold held by the government.
- **ZiG notes and coins** will be available and issued in denominations: 1ZiG, 2ZiG, 5ZiG, 10ZiG, 20Zig, 50ZiG, 100ZiG and 200ZiG, with the gold backing aims to provide stability and prevent currency devaluation.

Reasons for launching a new currency

- Zimbabwe has grappled with **high inflation,** with rates surpassing 500% in recent years.
- Consequently, the Zimbabwean dollar, introduced in 1980, lost its value due to Following this, the country relied on various currencies, primarily the US dollar, leading to limited control over its economy.
- The collapse of the Zimbabwean dollar in 2009, with hyperinflation peaking at 5 billion per cent, marked one of the most severe currency crashes in history.

- Banks in Zimbabwe have been converting the previous national currency, the Zimbabwe dollar, into ZiGs, aiming to promote simplicity, certainty, and predictability in monetary and financial matters.

TINY SATELLITE TO MEASURE HEAT LOST FROM EARTH'S POLES

Why in news?

Recently, the National Aeronautics and Space Administration (NASA) launched one of the two climate satellites, which would study **heat emissions at Earth's poles**. The second satellite will be launched in the following days.

The mission to study the poles has been named **PREFIRE (Polar Radiant Energy in the Far-InfraRed Experiment).**

Significance of measuring heat emissions at Earth's poles

- **To analyse Earth's energy budget**
  - The Earth's energy budget is the balance between the amount of heat incoming to Earth from the Sun and the amount of heat outgoing from Earth into space.
  - The difference between the two determines the planet's temperature and climate.
- **Currently no way to measure heat radiated from the Arctic and Antarctica**
  - A large amount of the heat radiated from the Arctic and Antarctica is emitted as far-infrared radiation.
    - Far-infrared radiations are wavelengths of 3-1,000 μm within the infrared range of electromagnetic radiation.
  - However, there is currently no way to measure this type of energy. As a result, there is a gap in knowledge about the planet's energy budget.

CubeSats

- CubeSats are miniature satellites with a basic design consisting of a 10 cm x 10 cm x 10 cm cube, known as "one unit" or "1U."
- Each unit weighs no more than 1.33 kg.
- As per NASA, depending on their mission, CubeSats can be configured in various sizes, including 1.5, 2, 3, 6, and 12U.

- **Origins and Development**
  - CubeSats were first developed in 1999 by California Polytechnic State University and Stanford University as educational tools.

- Their low cost and reduced mass compared to traditional satellites made them attractive for technology demonstrations, scientific research, and commercial purposes.

- **Difference from SmallSats**
  - Small spacecraft (SmallSats) focus on spacecraft with a mass less than 180 kilograms and about the size of a large kitchen fridge.
  - Even with small spacecraft, there is a large variety of size and mass that can be differentiated.
    - Minisatellite, 100-180 kilograms
    - Microsatellite, 10-100 kilograms
    - Nanosatellite, 1-10 kilograms
    - Picosatellite, 0.01-1 kilograms
    - Femtosatellite, 0.001-0.01 kilograms

PREFIRE mission

- **Mission Objectives**
  - The two PREFIRE satellites will be placed in a near-polar orbit at an altitude of about 525 kilometers.
  - Their mission is to measure the amount of heat radiated into space by the Arctic and Antarctica, helping scientists understand how this radiation influences the planet's climate.
- **Importance of the Mission**
  - Their observations will help us understand the fundamentals of Earth's heat balance, allowing us to better predict how our ice, seas, and weather.

RISING HEAT STRESS IN SIX METROS - STUDY

Why in news?

According to a study by Delhi-based Centre for Science and Environment, India's megacities of Delhi, Mumbai, Chennai, Bengaluru, Kolkata and Hyderabad are experiencing worsening heat

stress. This is due to a trend of rising **relative humidity** over the past two decades. The study also pointed out that these cities are also experiencing warmer nights due to urban heat island effect.

Heat Stress

- Heat stress occurs when the body cannot get rid of excess heat. When this happens, the body's core temperature rises and the heart rate increases.
- Basically, it refers to the **physiological stress** experienced by the body when exposed to excessive heat, particularly in high-temperature environments.

- **Causes**
  - High ambient temperatures
  - High humidity levels, which reduce the body's ability to cool through sweating
  - Physical exertion, especially in hot conditions
  - Inadequate hydration
  - Poor ventilation in workspaces or living environments
- **Symptoms**
  - As the body continues to store heat, the person begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink. The next stage is most often fainting and even death if the person is not cooled down.

Urban heat island (UHI) effect

- UHI effect refers to the phenomenon where urban areas experience significantly higher temperatures than their rural surroundings.
- This temperature difference is primarily due to human activities and the specific characteristics of urban environments.

- **Causes**
  - **Surface Characteristics:** Urban areas have more asphalt, concrete, and buildings that absorb and retain heat, unlike rural areas with vegetation that provide cooling through

- **Heat Generated by Human Activities**: Industrial processes, vehicles, air conditioning units, and other machinery generate heat.
- **Reduced Vegetation:** Less green space and fewer trees mean less shading and cooling from plants.
- **Building Density:** Tall buildings and narrow streets can trap heat and reduce airflow, limiting cooling.
- **Waste Heat:** Energy consumption for lighting, heating, and cooling buildings releases additional heat.

- **Mitigation Strategies**
  - **Increased Vegetation**: Planting trees and creating green spaces
  - **Cool Roofs and Pavements**: Using materials that reflect more sunlight and absorb less heat.
  - **Green Roofs**: Installing vegetation on rooftops can provide insulation and reduce heat absorption.
  - **Urban Planning**: Designing cities to include more parks, green belts, and open spaces can improve airflow and reduce temperatures.
  - **Improving Energy Efficiency** of buildings.

INS KILTAN

Indian Naval Ship Kiltan arrived at Muara, Brunei and was accorded a warm welcome by the Royal Brunei Navy.

INS Kiltan is an indigenously-built **anti-submarine warfare** stealth corvette.

- This is the third of the four **Kamorta-class corvettes** being built under Project 28.
- The ship derives its name from one of the islands in Aminidivi group of the strategically located Lakshadweep and Minicoy group of islands.
- Designed by the Indian Navy's in-house organisation Directorate of Naval Design and built by Garden Reach Shipbuilders & Engineers (GRSE) in Kolkata.

Features

- It is India's first major warship to have a **superstructure of carbon fibre composite material** resulting in improved stealth features, lower top weight and maintenance costs.
- The ship hosts a predominantly indigenous cutting-edge weapons and sensors suite which includes heavyweight torpedoes, ASW rockets, 76 mm caliber Medium Range gun and two multi-barrel 30 mm guns as close-in-weapon system (CIWS) with dedicated fire control systems, missile decoy rockets (Chaff), advanced ESM (Electronic Support Measure) system, most advanced bow mounted sonar and air surveillance radar.

WHAT IS EUCALYPTUS?

The Kerala government recently issued an order allowing the Kerala Forest Development Corporation (KFDC) to plant eucalyptus trees for its financial sustenance in 2024-2025.

Eucalyptus is a large genus of more than **660 species of shrubs and tall trees** of the myrtle family (Myrtaceae).

- Some of the **tallest trees** in the world are eucalypti.
- It is **native to Australia, Tasmania**, and nearby islands.
- In Australia, the eucalypti are commonly known as **gum trees or stringybark trees.**
- Many species are cultivated widely in many areas of the world as shade trees or in forestry plantations.

Features:

- It has a **gum-infused bark**, **long stems** and **circular leaves** that are hard to digest if eaten whole.
- **Small flowers** grow on eucalyptus trees. They come in **many colors**, including white, yellow and shades of red.

- Eucalypti also have **small woody capsules**. Inside the capsules are seeds.

- **Uses:**
  - It is widely used for its medicinal properties.
    - Some eucalyptus leaves contain an oil that has a strong smell.
    - It is useful to treat a variety of common diseases and also works amazingly when applied topically in diluted form.
    - The main compound of eucalyptus oil is cineole, also known as eucalyptol. The oil also contains **flavonoids and tannins**, which acts as **anti-inflammatory and antioxidants.**
    - It is known for its ability to relieve congestion and ease breathing in colds.
    - It is also used as a **pain reliever** for sore and overextended muscles.
    - It is an excellent topical remedy for aching **joints and rheumatism**. It helps improve blood circulation.
  - Eucalyptus wood is tough and durable. It is used to build things such as furniture and fences.

Eucalyptus Plantations in India:

- **Eucalyptus tereticornis and Eucalyptus hybrid** are the two most widely planted eucalypts **in India.**
- It is widely grown in Tamil Nadu, Andhra Pradesh, Gujrat, Haryana, Mysore, Kerala and in the Nilgiri Hill.
- It grows well in **deep, fertile, well-drained loamy soil** with adequate moisture.