

Indian Navy deploys 3 warships in the Arabian Sea amidst rising attacks on vessels

➤ **INS Mormugao, INS Kochi and INS Kolkata** were deployed in the Arabian Sea in the wake of attacks on ships passing through Red Sea trade route in West Asia.

➤ **About Red Sea:**

⊕ Red Sea, one of the most saline bodies of water in the world, is an inlet of the Indian Ocean between Africa and Asia.

- ◆ The Sea has seven littoral states (Egypt, Sudan, Eritrea, Djibouti Saudi Arabia and Yemen).
- ◆ It extends from the Suez Canal to the Bab el-Mandeb Strait which connects with the Gulf of Aden and then with the Arabian Sea.

⊕ It connects major consumers in Europe with large suppliers in Asia.

- ◆ 12% of global trade and much of the world's oil is shipped through it.

⊕ **Initiative to Protect**

- ◆ Protected by the **Combined Maritime Forces (CMF)**, a 39-nation partnership, which includes the navies of the US, India, Australia, France, the UK, Saudi Arabia, and Yemen.
- ◆ Recently US launched a naval coalition 'Operation Prosperity Guardian' under the umbrella of CMF to create a safe corridor in the region.
- ◆ **Djibouti Code of Conduct (2009)** was adopted under the International Maritime Organization.



Angola withdraws from Organization of the Petroleum Exporting Countries (OPEC)

➤ OPEC is an intergovernmental Organization.

⊕ Established at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.

- ◆ Its other members are Algeria, Equatorial Guinea, Gabon, Libya, Nigeria, the Republic of the Congo, and the United Arab Emirates.

⊕ **Key Objective: Co-ordinate and unify petroleum policies** among Member Countries, to secure fair and stable prices for petroleum producers.

- ◆ And, ensure efficient, economic, and regular supply of petroleum to consuming nations.

⊕ **HQ:** Vienna, Austria.

➤ **Significance of OPEC:** It possess more than 80% of the world's total crude oil (mixture of hydrocarbons that exists in liquid phase) reserves.

⊕ Also, OPEC+ represents around 40% of world oil production.

- ◆ OPEC+ is a coalition of OPEC and 10 other major oil-exporting nations, including Russia.

➤ **How does OPEC regulate the Crude oil Prices?**

⊕ Oil prices are mainly determined by demand and supply.

⊕ It mainly uses a spot or future sale mechanism.

- ◆ **Oil spot prices** represent the cost of buying or selling oil immediately.
- ◆ Oil futures are contracts in which one agrees to exchange an amount of oil at a set price on a set date.

⊕ OPEC uses **Brent Crude** as a benchmark for quality.

- ◆ **WTI (West Texas Intermediate)** is another major benchmark.



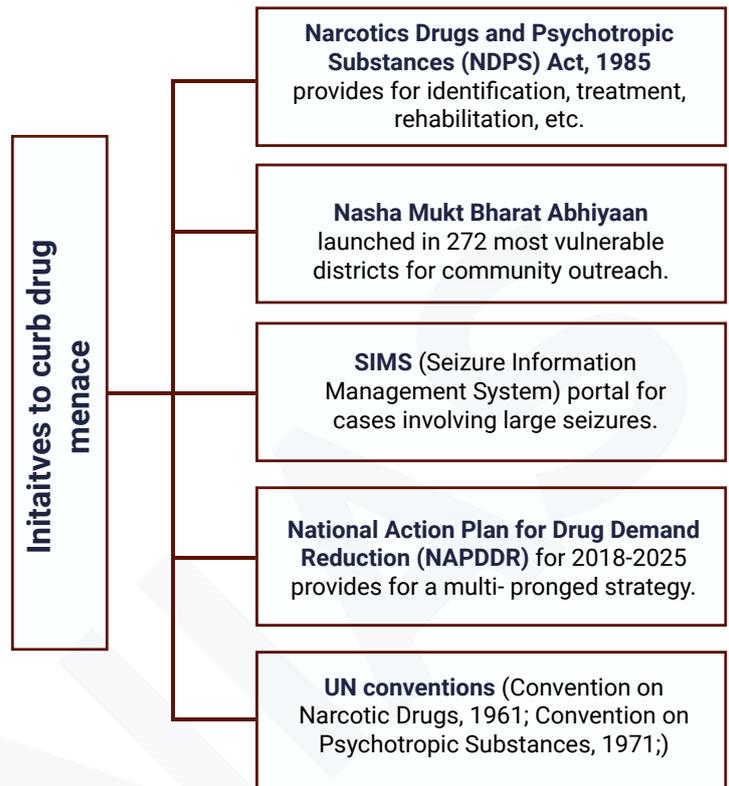
Prime Minister urged religious leaders and social organisations to launch mass-movement against drug menace

Drug menace in India

- ⊕ Alcohol, cannabis, opium, and heroin are the major drugs abused in India.
- ⊕ Approximately **13% of drug and substance abusers** in India are **under 20 years old**.
- ⊕ **Adolescence is a critical-risk period** for the initiation of substance use.
 - ◆ Children affected by substance abuse are considered children in need of care and protection under **Juvenile Justice (Care and Protection of Children) Act 2015**.
- ⊕ **Regional prevalence:** Punjab, Assam, Mizoram, Chhattisgarh, Gujarat, Haryana, Bihar, Delhi, etc. are among the most affected states.
- ⊕ **Poverty, peer pressure, illiteracy, low self-esteem, genetic predisposition, etc.** are the key causes of drug abuse.

Issues in curbing drug menace

- ⊕ **India serves as a hub for drug trafficking** as it is positioned between the Death Triangle (Thailand, Myanmar and LAOS) and Death Crescent (Pakistan, Afghanistan and Iran) major opium production region globally.
 - ◆ **Porous borders** further compound the issue.
- ⊕ **Technology advancements** like the use of the dark net using cryptocurrency for drug trafficking.
- ⊕ **Criminalising drug abuse** brings **social stigma to drug addicts**, discouraging them from seeking medical assistance.
- ⊕ Lack of study to assess the **impact of drug abuse on society**.



Indian Navy commissioned stealth guided missile destroyer INS Imphal

- **INS Imphal** is the third of four **indigenous Visakhapatnam class stealth-guided missile destroyers** under **project 15B**.
 - ⊕ **Project 15B** is the latest in the lineage of **Project 15A (Kolkata class)** and **Project 15 (Delhi class)** indigenous destroyers with upgraded capabilities and greater indigenous content.
 - ⊕ The other two destroyers of this Project are **INS Visakhapatnam** and **INS Mormugao**.
- **Key Features:**
 - ⊕ It is designed by the Indian Navy's **Warship Design Bureau** and constructed by **Mazagon Dock Shipbuilders Limited (MDL)**, Mumbai.
 - ⊕ It is **armed with** medium-range surface-to-air missiles, **Brahmos** surface-to-surface missiles, **Indigenous torpedo launchers** etc.
- It has a **high level of indigenization (about 75%)**, highlighting efforts towards Atmanirbhara Bharat in the defence sector.
- **Need for Defence Indigenization:**
 - ⊕ **Autonomy:** Decision-making autonomy in Geo-strategic issues.
 - ⊕ **Reducing dependence on import:** World's largest arms importer between 2018-22 (as per **SIPRI Report**).
 - ◆ Also, it Aims to US\$5 billion in defence exports by 2025.
 - ⊕ **Prevention from disruption of supply-chain:** Like the Russia-Ukraine conflict.
 - ⊕ **Other:** Tackling neighbours like China, supporting friendly nations etc.
- **Challenges:** Lack of **private participation**, less allocation of funds for **R&D** (less than 1%; far less than the US, China) etc.

Initiatives taken

- **Defence Acquisition Procedure (DAP)-2020** gives priority to procurement from domestic sources
- **Positive Indigenisation List** (Items included in the list are barred from imports).
- Innovations for Defence Excellence (iDEX)
- **Corporatization** of Ordnance factories.
- **Defence Industrial Corridors**
- **SRIJAN** portal, provides access to the vendors to take up items that can be taken up for indigenization.
- System for Advanced Manufacturing Assessment and Ranking (SAMAR) certificates.

Standing Committee on Petroleum and Natural Gas (PNG) submitted its report on Review of Policy on Import of Crude Oil

Key Observations:

- ⊕ **Prone to geo-political tensions:** Majority of India's hydrocarbon imports are sourced from the **Middle East region**.
- ⊕ **Rising demand:** India imported about **87%** of its crude oil consumption in 2022-23 and demand for petroleum products is likely to increase in the future.
- ⊕ **Asian Premium:** Country should not be made to pay Asian premium.
 - ◆ **Asian premium** is an extra amount levied by the **Organization of the Petroleum Exporting Countries (OPEC)** from Asian countries above the actual selling price of crude oil.
- ⊕ **Use of local currency:** Lack of momentum in the settlement of crude oil imports in Indian rupee.

Recommendations:

- ⊕ **Interdisciplinary group of experts:** Ministry of petroleum and natural gases should establish this group to **design policy measures** for reducing demand for fossil fuels.
- ⊕ **Coordinate with other oil-importing countries:** To push for bringing reforms in crude oil pricing.
 - ◆ **Make efforts to withdraw Asian premium** by cooperating with other countries which also have to bear this cost.
- ⊕ **Explore newer and shorter routes:** To ensure economy and lesser geo-political tensions
- ⊕ **Others:** Diversify the imports of crude oil and gas etc.

NPCI begins deployment of 'UPI Tap and Pay' facility for payment apps

- **UPI Tap and Pay facility** utilises **near-field communication (NFC) technology** to capture details about a payee's UPI ID without the need for a quick response (QR) code.
 - ⊕ Mobiles and devices, which have the NFC capability, can use the service.
- **NFC** uses **electromagnetic radio fields** to allow two compatible devices to share information **within a short range** (4-5 centimetres).
 - ⊕ **RFID and Bluetooth** also use radiofrequency but their reach is much higher
 - ⊕ The range of **RFID communication** is 100 metres or more and **Bluetooth** is **10-100 meters**.
- **Working process:** An NFC-compatible device **emits radio frequency signals** that interact with an NFC tag, **creating a current facilitating communication** between the two.
 - ⊕ The **tag is passive** (can only send information), while the **other device** like a smartphone is **active** (capable of both sending and receiving information).
- **Benefits of NFC**
 - ⊕ Enables **contactless payment**.
 - ⊕ **Uses encryption** to guarantee the **security and privacy of transactions**.
 - ⊕ **Faster information sharing** with NFC-device enabled with peer-to-peer sharing.
 - ⊕ Can help **hospitals better track patient information**.

About NPCI

- National Payments Corporation of India (NPCI), an umbrella organisation for operating **retail payments and settlement systems in India**,
- It is an initiative of **RBI and Indian Banks' Association (IBA)** under the **Payment and Settlement Systems Act, 2007**.
- It has been incorporated as a **"Not for Profit" Company** under Section 8 of Companies Act 2013.

Also in News



Anaemia

- Indian Council of Medical Research (ICMR) initiates steps to provide easy to use **non-invasive testing** to tackle anaemia in India

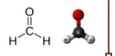
About Anaemia:

- ⊕ It is a condition in which the number of **red blood cells** or the **Hemoglobin** concentration within them is lower than normal.
 - ◆ **Hemoglobin** is a **protein** found in **red cells** that **carries oxygen** from the **lungs** to **all other organs**.
- ⊕ It mainly affects **women and children**.
 - ◆ As per the **India's National Family Health Survey 5 (2019-21)**, **59.1%** of **adolescent girls** and **57%** of **women (15-49 years)** are suffering from it.
- ⊕ **Key Initiatives:** Anaemia Mukh Bharat (AMB), 2018.



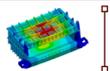
Electronic Soil (e-Soil)

- Researchers develop '**electronic soil**', a **low-power bioelectronic growth substrate**, tailored for hydroponic cultivation.
 - ⊕ e-Soil can **electrically stimulate the root system** and growth environment of plants.
- Hydroponics is **soil-free plant cultivation**, utilising **water, nutrients, and a substrate** for root attachment. **This method offers numerous benefits**.
 - ⊕ **Precise nutrient control** ensures faster growth, higher yields, and superior quality produce.
 - ⊕ **Enables vertical cultivation** in large towers to maximise space efficiency.
 - ⊕ **Uses dramatically less water** compared with conventionally grown plants.
 - ⊕ Such plants have **significantly fewer pests**.



Formaldehyde (CH₂O)

- Researchers developed a new non-invasive sensor that can detect **formalin** adulteration in fishes.
 - ⊕ Formalin is a solution of 37% formaldehyde.
- **About Formaldehyde:**
 - ⊕ It is a **colorless, strong-smelling, and flammable chemical**.
 - ⊕ **Usage:** Manufacture of resin, production of plastic, cosmetics industry, household products, disinfectants, preservatives, etc.
 - ⊕ World Health Organisation has classified it as carcinogenic to humans.
 - ◆ A **carcinogen** is a substance, organism, or agent capable of causing cancer.



FEAST (Finite Element Analysis of Structures)

- Vikram Sarabhai Space Centre (VSSC), ISRO developed FEAST, a **Finite Element Analysis (FEA) software**.
 - ⊕ FEA is a **computerized method for predicting how a product reacts to real-world forces**.
- FEAST will be used to perform **FEA** of various types of structures including **rockets, aircraft, satellites, buildings, etc.**
 - ⊕ So far, users have mostly **depended on expensive software versions from foreign firms** for this function.
- **VSSC, Thiruvananthapuram (Kerala)**, is the lead centre of ISRO responsible for the **design and development of launch vehicle technology**.



Veer Baal Diwas

- Veer Baal Diwas, **observed annually** on December 26th, honors the **sacrifices of the Younger Sahibzade**.
- Four **sons of the tenth Sikh Guru - Guru Gobind Singh Ji** are called **Sahibzade**.
 - ⊕ **Baba Ajit Singh and Baba Jujhar Singh** (Elder Sahibzade) were martyred in the Battle of Chamkaur in 1704 against Mughal forces.
 - ⊕ **Baba Zorawar Singh and Baba Fateh Singh** (Younger Sahibzade) were sealed alive by Wazir Khan in a wall for **refusing to embrace Islam**.
 - ◆ **Gurudwara Sri Fatehgarh Sahib** is dedicated to their great martyrdom.



OSIRIS-APEX

- **OSIRIS REX** (Origins, Spectral Interpretation, Resource Identification and Security-Regolith Explorer) is embarking on a new mission as **OSIRIS-APEX (Apophis Explorer)**
 - ⊕ Recently, **OSIRIS REX** delivered a sample from **asteroid Benu**.
- **OSIRIS-APEX**
 - ⊕ It will study **Apophis** when it will be closest to Planet Earth i.e. 20000 miles.
 - ◆ Apophis is an **S-type asteroid** made of **silicate materials and nickel-iron**.
 - ⊕ The mission aims to **observe the physical changes** in asteroid Apophis **induced by Earth's gravitational pull**.
 - ⊕ **Space Agency: NASA**



Ionosphere

- Ionospheric observations at **Bharati station, Antarctica**, found a **substantial seasonal variation in ionospheric density**.
- **About Ionosphere:**
 - ⊕ It is a **part of Earth's upper atmosphere**, which is partially ionized extending from 100-1000km.
 - ⊕ Extreme Ultraviolet (EUV) and x-ray **solar radiation ionizes the atoms** and molecules thus creating a layer of electrons here.
 - ⊕ **Significance:** It **reflects and modifies radio waves** (used for communication and navigation).
 - ◆ In polar regions, it is highly dynamic and acts as a **major energy sink for space weather events** e.g. Geomagnetic storms, Solar flares, etc.



Jumping spiders

- A team of researchers has discovered two **new species of jumping spiders** from Kerala and Tamil Nadu.
- They belong to the **genus Afraflacilla**.
 - ⊕ **Only three species** belonging to the genus had been hitherto discovered in the country.
- **Characteristics features:**
 - ◆ Consists of **dark brown carapace**.
 - ◆ Abdomens are **light brown**.
- They are Widespread from **Africa to Australia**.

Personality in News



Bina Das (24 Aug 1911- 26 Dec 1986)

- Bina Das, a revolutionary from West Bengal, hailed from a **family involved in the Brahma Samaj and the freedom struggle**.
 - ⊕ Her **father inspired Subhas Chandra Bose**.
- In 1932, she attempted to **assassinate Bengal Governor Stanley Jackson** (to protest against the British) at the University of Calcutta **but faced failure**, leading to a **nine-year imprisonment**.
- Later, she **joined Congress**, took part in the **Quit India movement** (1942), and served in **Bengal Provincial Legislative Assembly** (1946 to 1947) and West Bengal Legislative Assembly (1947 to 1951).
- She was accorded **Padma Shri** for her contributions in social work.
- **Dhira Dhar** translated her Bengali autobiography.
- **Values:** Valour, Patriotism, Empathy, etc.



Bina Das
(24 Aug 1911- 26 Dec 1986)