

DAILY CURRENT AFFAIRS (DCA)

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FOOD ACCESS TO ALL

Context

- The **World Food Day 2024 (October 16)** theme is '**Right to Foods for a Better Life and a Better Future,**' highlighting the need for equitable access to safe, nutritious, and affordable food for all.

About

- **Food security** is vital for individual well-being and social stability.
- **The FAO's 2024 report** estimates that **733 million** people face hunger, highlighting the urgency of addressing food insecurity.

India's Journey Towards Food Security

- **Transformation from Food-Deficient to Food-Surplus Nation:** Over the past 60 years, India has shifted from being food-deficient to a food-surplus country.
 - ♦ The Green Revolution was pivotal in boosting agricultural productivity.
- **Supportive Policies:** Effective policies and advancements by institutions like the Indian Council of Agricultural Research (ICAR) played a crucial role. Enhanced supply chains have helped in ensuring better food availability.
- **Diversification of Agrifood Systems:** Initiatives like the **White Revolution (dairy)** and **Blue Transformation (fisheries)** have diversified India's agrifood system.
- **Focus on Addressing Inequalities:** India is focusing on reducing inequalities in food access and improving nutrition as part of its ongoing efforts in food security.

Challenges to Achieve Food Security

- **Small and Marginal Farmers:** With over 82% of India's 93 million agrarian households being small and marginal farmers, landholdings are less than two hectares.
 - ♦ These fragmented landholdings limit productivity, market access, and the adoption of modern techniques.
- **Natural Resource Degradation:** Unsustainable practices, such as overusing groundwater and chemical fertilizers, are degrading natural resources, threatening the long-term sustainability of agriculture.
- **Market Access:** Many smallholder farmers lack adequate infrastructure and supply chain access, limiting their ability to reach markets and fetch better prices for their produce.
- **Water Scarcity:** Agriculture in India is highly dependent on monsoon rains, which makes it vulnerable to droughts and inconsistent rainfall.

- **Outdated Farming Practices:** Despite advancements in agricultural technology, many Indian farmers still rely on traditional methods which hinder their productivity improvements.
- **Climate Change:** The increasing impact of climate change, with erratic weather patterns and extreme events, continues to pose risks to agricultural production and food security.

Government Steps Taken to Achieve Food Security in India

- **National Food Security Act (2013):** Guarantees subsidized food grains to a significant portion of the population, ensuring basic food security.
- **Fortified Rice Distribution (2024-2028):** Aims to tackle malnutrition by distributing fortified rice to millions, improving dietary nutrition.
- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):** Focuses on improving irrigation coverage and ensuring efficient water use in agriculture.
- **e-NAM (National Agriculture Market):** An initiative to create a unified national market for agricultural commodities, enabling farmers to sell their produce directly to buyers across the country.

Way Ahead

- Ensuring equitable food access requires strengthening both agricultural and non-agricultural livelihoods.
- While continuing to support rural farmers, it is crucial to address the growing urban food insecurity. A holistic approach to agrifood systems must incorporate sustainability, climate resilience, and inclusivity.

Source: TH

CCPA ISSUES GUIDELINES FOR REGULATION OF GREENWASHING AND MISLEADING CLAIMS

In News

- The **Central Consumer Protection Authority (CCPA)** has taken steps to regulate misleading environmental claims by issuing the **Guidelines for Prevention and Regulation of Greenwashing or Misleading Environmental Claims, 2024.**

Need

- These guidelines are designed to address the **growing issue of "greenwashing,"** where companies **falsely claim or exaggerate the environmental benefits** of their products, misleading consumers and diverting attention from genuine environmental efforts.

Key highlights of the guidelines are

- **Clear Definitions:** The guidelines provide definitions for terms such as environmental claims and greenwashing.
 - ♦ **Greenwashing** refers to any deceptive or misleading practice, such as concealing, omitting, or exaggerating environmental claims. It also includes the use of symbols or imagery that emphasize positive environmental aspects while downplaying or concealing negative or harmful attributes.
- **Application:** These guidelines apply to all environmental claims made in the marketplace.
- **Substantiation and Disclosure:** Companies must substantiate their environmental claims with credible evidence and detailed disclosures, including methodology and data supporting the claims.
 - ♦ Terms such as sustainable, natural, organic, and regenerative cannot be used without proper qualifiers or adequate substantiation.
- **Third-Party Certifications:** The guidelines accept statutory or independent third-party certifications to **verify environmental claims** like compostable, degradable, or recyclable.
- **Transparency Requirements:** Companies are required to provide clear and accessible disclosures about the environmental claims they make. The claims should specify what aspect they refer to (e.g., product, manufacturing process, or packaging) and be supported by reliable scientific evidence or certifications.

About Central Consumer Protection Authority (CCPA)

- Established under Section 10 of the **Consumer Protection Act (CPA), 2019** and operates under the **Ministry of Consumer Affairs, Food and Public Distribution**.
- The body plays a key **role in regulating matters related to consumer rights violations**, unfair trade practices, and misleading advertisements.
- It is empowered to protect consumer rights by preventing false or misleading advertisements, among other responsibilities.
- **Section 21 of the CPA, 2019:** This section grants the CCPA substantial powers to act against false or misleading advertisements, and outlines specific penalties for such practices

Source: PIB

LAUNCH OF THREE AI CENTRES OF EXCELLENCE TO PROPEL INNOVATION**Context**

- The Central government announced the setting up of three centers of excellence (CoE) in artificial intelligence (AI) in healthcare, agriculture and sustainable cities.

About

- **The Union Budget of 2023-24** had proposed the setting up of AI-CoEs with a financial outlay of 990 crore over the period of **2023-24 to 2027-28**.
 - ♦ **The CoE in healthcare** will be led by the All India Institute of Medical Sciences (AIIMS) and Indian Institute of Technology (IIT) in Delhi.
 - ♦ The CoE in agriculture will be led by IIT in Ropar, Punjab.
 - ♦ The CoE in sustainable cities will be led by IIT IIT Kanpur

What is a Centre of Excellence (CoE)?

- A Centre of Excellence (CoE) is a **specialized hub that brings together research, innovation, and industry expertise** to tackle important challenges in a specific field.
 - The AI-CoEs are going to be solution providers and would create a new generation of employment providers and wealth creators.
 - In the case of these new AI CoEs, the focus will be on:
 - ♦ **Enabling cutting-edge AI applications** tailored to healthcare, agriculture, and urban sustainability.
 - ♦ **Promoting knowledge exchange** among academia, industry, and startups.
 - ♦ **Training professionals and students** to develop the skills required to become future AI leaders.

Impact on India's Startup Ecosystem

- **Access to Research and Technology:** Startups will benefit from advanced AI research and access to experimental labs, data, and technical platforms provided by the CoEs.
- **Collaboration Opportunities:** Startups will benefit from partnerships with educational institutions and industry experts, fostering knowledge exchange and collaborative growth.

Significance

- **Healthcare:** Predictive analytics and AI-based diagnostics will transform patient care and public health management.

- **Agriculture:** AI-powered tools will help optimize crop yields, reduce wastage, and improve supply chain efficiency.
- **Sustainable Cities:** The CoEs will drive smart transportation solutions, waste management systems, and energy-efficient urban infrastructure, promoting green urbanization across the nation

Way Ahead

- These institutions would give further impetus to the start-up ecosystem in the country, help create a new generation of job and wealth creators and establish new paradigms of global public good.
- The CoEs would promote multidisciplinary research with the right kind of collaboration among like-minded resources and this could result in achieving optimum results.

Source: TH

NATIONAL ELECTRICITY PLAN (TRANSMISSION)

In News

- The National Electricity Plan (Transmission), launched by the Union Cabinet.

About National Electricity Plan (Transmission)

- The Central Electricity Authority (CEA) developed the plan in consultation with stakeholders, emphasizing the integration of 47 GW of Battery Energy Storage Systems and 31 GW of Pumped Storage Plants.
- **Key components:** The plan outlines the **addition of over 191,000 circuit kilometers of transmission lines** and 1,270 GVA of transformation capacity from 2022-2032, with a focus on high-voltage systems (220 kV and above).
 - ♦ It encompasses **cross-border interconnections** with countries like Nepal, Bhutan, and potential links to Saudi Arabia and the UAE.
 - ♦ It emphasizes the **adoption of new technologies such as Hybrid Substations** and high-performance conductors and aims to foster skill development in the sector.
 - ♦ It also includes provisions for **delivering power to green hydrogen and green ammonia manufacturing hubs**, which are emerging as key sectors in India's green economy.
 - These hubs will be located at coastal regions such as Mundra, Kandla, Gopalpur, Paradeep, Tuticorin, Vizag, and Mangalore.

Objectives and Need

- Power demand is expected to surge to 388 GW by 2031-32, necessitating enhanced transmission infrastructure.
- Therefore, The plan aims to facilitate the transmission of 500 GW of renewable energy by 2030 and over 600 GW by 2032.
- Overall, the plan signals significant investment opportunities, with over INR 9,15,000 Crores anticipated in the transmission sector by 2032.

Challenges

- Lack of clarity in regulatory policies can create uncertainty for investors and slow down infrastructure development
- Construction of new transmission lines often faces opposition due to environmental impact concerns,
- A shortage of skilled professionals in the transmission sector can hinder the development.

Future Outlook

- The National Electricity Plan is seen as a crucial step toward **achieving net-zero emissions by 2070**.
- It serves as a roadmap for balancing growing energy demand with green energy goals, positioning India as a global leader in clean energy by 2047.

About Central Electricity Authority (CEA)

- A statutory organization under the Ministry of Power, was established through the **Electricity (Supply) Act, 1948**, and now functions under the provisions of the Electricity Act, 2003.
- CEA provides expert advice to the Ministry of Power on technical, economic, and operational matters related to electricity generation, transmission, and distribution.

Source: PIB

COASTAL FLOODING DUE TO RISE IN SEA LEVELS

Context

- Global warming is **raising sea levels** and making flooding more common in some areas.
 - ♦ Researchers have held them responsible for **discouraging the growth of plants of many tree species in coastal areas**.

About

- The study paper has reported that **a rising sea and coastal flooding** could actually **enhance**

the resilience of some coastal tree species while being detrimental to others.

- One species in particular, the **American holly (Ilex opaca)**, responded by increasing the rate at which it grew — while loblolly pine (*Pinus taeda*) and pitch pine (*Pinus rigida*) trees **suffered under higher water levels**.
- **Cause:** The tree rings consist of water vessels. When a tree is exposed to a lot of rain along with appropriate levels of sunlight and ambient temperature, it also develops more water vessels.
- But a heavy downpour and a deluge would disrupt this process altogether and prevent the plant from growing normally.

Sea-level Rise Accelerating

- Sea levels were increasing by around **2 mm/year in 1993**.
 - ♦ This rate has since **doubled** and climate researchers expect floods in coastal areas will increase **threefold by 2050**.
- **Reason: Climate change** brought on by **fossil-fuel burning** and **greenhouse gas emissions** has led to a steady increase in global temperatures.
 - ♦ As a result, **sea surface temperatures and glacier** melting have increased, eventually rising sea levels and posing a major threat to coastal cities worldwide, including Indian coastal cities.

Climate Change

- Climate change refers to **long-term shifts in global or regional climate patterns**.
- It's primarily **driven by human activities**, such as burning fossil fuels, deforestation, and industrial processes, **which release greenhouse gases** like **carbon dioxide (CO₂) and methane into the atmosphere**.
- These gases trap heat, causing the Earth's temperature to rise—a **phenomenon known as global warming**.
- **Impact:** It threatens the essential ingredients of good health – clean air, safe drinking water, nutritious food supply and safe shelter – and has the potential to undermine decades of progress in global health.

Concerns with Increase in Sea Level

- **Flooding:** It leads to more frequent and severe flooding in coastal areas, threatening infrastructure, homes, and livelihoods.
- **Displacement:** Rising seas force communities to relocate, leading to displacement and potential conflicts over resources.

- **Saltwater Intrusion:** Salinity contaminate freshwater sources, affecting drinking water supplies and agriculture.
- **Economic Impact:** Coastal industries, such as fishing and tourism are severely impacted, leading to job losses and economic instability in affected regions.
- **Biodiversity Loss:** Ecosystems like mangroves and coral reefs are threatened, impacting biodiversity and the services these ecosystems provide.
- **Health Risks:** Flooding leads to the spread of waterborne diseases.

India's Efforts to Combat Climate Change

- **Renewable Energy Expansion:** India has set ambitious targets for renewable energy generation, aiming to increase its capacity significantly.
 - ♦ It has invested heavily in solar and wind energy projects, with the goal of reducing reliance on fossil fuels and lowering greenhouse gas emissions.
- **International Commitments:** India is a signatory to the Paris Agreement, committing to reduce its carbon intensity and increase the share of non-fossil fuel energy sources in its total energy mix.
 - ♦ It has announced its aim to meet **50% of its electricity demands from renewable energy sources by 2030**.
- **Afforestation and Forest Conservation:** Recognizing the role of forests in carbon sequestration and climate regulation, India has initiated programs to increase forest cover, restore degraded lands, and promote sustainable forest management practices.
- **Clean Transportation:** India is promoting the adoption of electric vehicles (EVs) and has set a target of **30% EV market share by 2030**.
 - ♦ The government has introduced incentives and subsidies to support the production and adoption of EVs.
- **Climate Resilience:** India is investing in measures to enhance climate resilience and adaptation, particularly in vulnerable sectors such as agriculture, water resources, and coastal areas.
- **International Cooperation:** India actively participates in international forums and collaborations on climate change, engaging in initiatives such as the **International Solar Alliance and the Coalition for Disaster Resilient Infrastructure**.

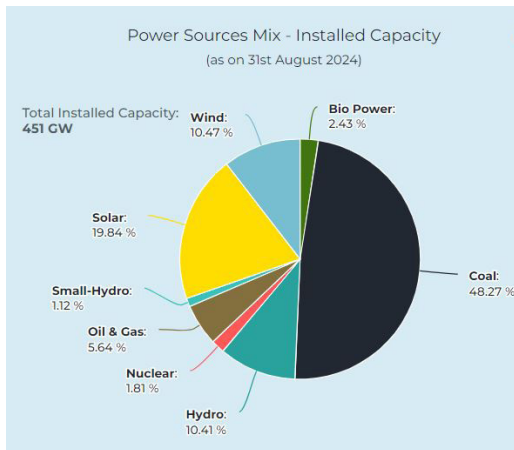
Source: TH

INDIA'S TOTAL RENEWABLE ENERGY CAPACITY CROSSES 200 GW MARK

Context

- India has reached a **significant milestone** as the country's **total renewable energy capacity** crosses the **200 GW (gigawatt)** mark in 2024.

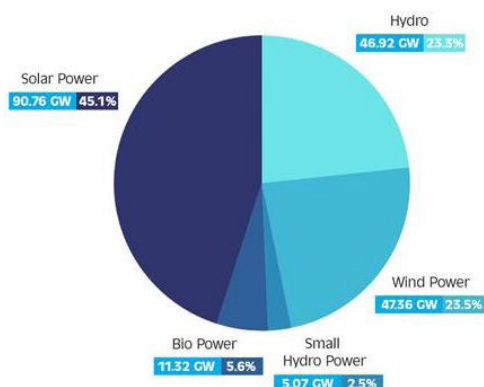
India's Energy Basket



India's Renewable Energy Capacity

- India's **total electricity generation capacity** has reached **452.69 GW**.
- Having the **8,180 MW (megawatt) of nuclear capacity**, the **total non-fossil fuel-based power** now accounts for **almost half** of the country's installed electricity generation capacity.
- As of 2024, **renewable energy-based electricity generation capacity** stands at **201.45 GW**, accounting for **46.3 percent** of the country's total installed capacity.
 - Solar power** contributes towards **90.76 GW**, **wind power** follows closely with **47.36 GW**, **hydroelectric power** generating **46.92 GW** and small hydro power adding **5.07 GW**, and **biopower**, including biomass and biogas energy, adds another **11.32 GW**.
- High Upfront Costs:** The initial investment for renewable energy infrastructure, such as solar panels and wind turbines, is significant, which can be a barrier for many regions and investors.
- Geographical Disparities:** Renewable resources are unevenly distributed, with some regions having limited access to wind or sunlight. This geographical imbalance can limit the feasibility of renewable energy adoption in certain areas.
- Governance Issue:** Inconsistent government policies, regulatory challenges, and bureaucratic delays can slow down project approval and implementation, creating uncertainty for investors and developers.
- Infrastructure Development:** The transition to renewable energy requires significant infrastructure development.
 - The speed and scale of this infrastructure development can be a challenge for a country as large and diverse as India.
- Grid Integration:** Integrating renewable energy into the existing power grid is a complex task.
 - The grid must be flexible and capable of handling fluctuations in supply.

Renewable Energy Capacity in India



India's Targets

- India has a vision is to achieve **Net Zero Emissions by 2070**, in addition to attaining the short-term targets which include:
 - Increasing renewables capacity to **500 GW by 2030**,
 - Meeting **50% of energy requirements** from renewables,
 - Reducing cumulative emissions by **one billion tonnes by 2030**, and
 - Reducing emissions intensity of India's gross domestic product (GDP) by **45% by 2030 from 2005 levels**.

Challenges in Renewable Energy

- High Upfront Costs:** The initial investment for renewable energy infrastructure, such as solar panels and wind turbines, is significant, which can be a barrier for many regions and investors.
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Steps Taken by Government for Transition to Renewable Energy Sources

- National Solar Mission (NSM):** It was launched in **2010**, it has set ambitious targets for solar capacity installation, including grid-connected and off-grid solar power projects.
- Green Energy Corridors:** The Green Energy Corridor focuses on enhancing the transmission infrastructure to facilitate the integration of renewable energy into the national grid.
- National Wind Energy Mission:** Focuses on the development and expansion of wind energy in India. The target for wind energy capacity is set at **140 GW by 2030**.

- **National Clean Energy Fund (NCEF):** It was established to support research and innovation in clean energy technologies and projects that help in reducing greenhouse gas emissions.
- **Renewable Purchase Obligation (RPO):** This requires power distribution companies and large electricity consumers to procure a certain percentage of their power from renewable sources, encouraging the demand for renewable energy.
- **Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM):** It includes the installation of solar pumps, solarization of existing grid-connected agricultural pumps, and the establishment of solar power plants on barren or fallow land.
- **International Solar Alliance (ISA):** India played a key role in establishing the International Solar Alliance, a coalition of solar-resource-rich countries to address their energy needs through the promotion of solar energy.

Conclusion

- This accomplishment is a testament to the nation's **commitment to a sustainable energy future** including solar, wind, hydro, and bioenergy.
- With ambitious targets set for the future, India is well-positioned to emerge as a **global leader in renewable energy**, contributing to environmental sustainability and energy security.
- These ongoing efforts reflect a holistic approach to building a greener economy, ensuring that India not only meets its energy needs but also addresses the pressing challenges of climate change and resource conservation.

Source: BS

NEWS IN SHORT

NORTHEAST MONSOON (RETREATING MONSOON)

Context

- The northeast monsoon set in over Tamil Nadu and Puducherry, bringing heavy rain to the northern parts of the State.

About

- The **Northeast Monsoon**, also known as the **Retreating Monsoon**, occurs from **October to December** and is characterized by winds blowing from the northeast.
- This monsoon primarily affects **southeastern India**, including Tamil Nadu, and parts of the eastern coast.

- During this period, the northeast trade winds bring **moisture from the Bay of Bengal, resulting in rainfall**.
- The Northeast Monsoon is crucial for replenishing water supplies in regions with less rain during the Southwest Monsoon.

Source: DTE

ATMOSPHERIC RIVERS

Context

- According to a new study atmospheric rivers have shifted about **6 to 10 degrees** toward the two poles over the past four decades, changing weather patterns around the world.

About

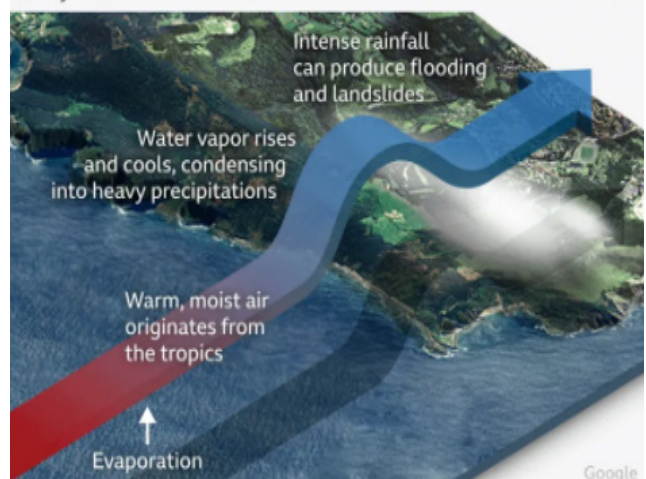
- Atmospheric Rivers are the storms that travel as **huge, invisible ribbons of water vapor** and dump heavy rains.
- An average atmospheric river is about **2,000 km long, 500 km wide** and nearly **3 km deep**.
- These “rivers in the sky” carry some **90% of the total water vapor** that moves across the Earth's mid-latitudes.

Impact of Atmospheric Rivers

- The **water vapor forms a band** or a column in the lower part of the atmosphere which **moves from the tropics to the cooler latitudes** and comes down as rain or snow, devastating enough to cause floods or deadly avalanches.
- As the earth warms up faster, scientists say these atmospheric **rivers have become longer, wider and more intense**, putting hundreds of millions of people worldwide at risk from flooding.

What are atmospheric rivers?

Long columns of water vapour travel thousands of miles and dump heavy rains



Source: DTE

BLUE LINE

In News

- The United Nations reported that Israeli forces have fired upon its peacekeepers stationed near the **Blue Line**.



About Blue Line

- It is a **120-km United Nations-recognized demarcation**, established in 2000 to mark the withdrawal of Israeli military forces from southern Lebanon.
- It **separates Lebanon from Israel and the Golan Heights**, though it is not recognized as an official international border.
- The line is made of blue barrels and runs from the **Mediterranean to the Golan Heights**.

Source: TH

EMIGRATE V2.0 WEB PORTAL

Context

- External Affairs Minister Dr S Jaishankar has inaugurated the **eMigrate V2.0 web portal and Mobile App**.

About

- The eMigrate portal promotes **safe and legal mobility channels for Indian workers going abroad**.
- The upgraded platform offers **24/7 multilingual helpline support** and a feature for feedback, ensuring timely redressal of issues faced by workers abroad, especially in the Gulf region.
- The platform also **supports job-seekers** by offering a one-stop marketplace for overseas employment opportunities.
- The portal aligns with **Goal 10 of the 2030 Agenda for Sustainable Development Goals** which promotes the facilitation of orderly, safe, regular, and responsible migration and mobility of people.

Source: AIR

DIPHTHERIA

Context

- Recently, Children in the Deeg district of Rajasthan **died due to diphtheria**.

About

- It is a **highly contagious, infectious disease** caused by a bacterium called *Corynebacterium diphtheriae*.
 - It affects **children from newborns to 16 years** of age.
 - The bacteria most commonly infects the **respiratory system**.
 - It makes a toxin that kills healthy tissues in the respiratory system.
- Symptoms:** Sore throat, fever, chills, swollen lymph nodes, skin sores, and weakness.
- Treatments:** Antibiotics and an antitoxin that neutralizes the diphtheria toxin. A vaccine is available.
 - It is covered under the **Universal Immunization Program in India**.

Source: IE

SHARP RISE IN CANCER CASES

In News

According to a study by the Indian Council of Medical Research-National Centre for Disease Informatics and Research, Cancer cases and deaths in India are expected to sharply increase between 2022 and 2045.

About the study

- The study assessed cancer trends in BRICS countries (Brazil, Russia, India, China, and South Africa), finding similar trends in South Africa.
- Incidence Increase:** A projected 12.8% increase in cancer incidence in India is expected by 2025 compared to 2020, linked to rising life expectancy.
- Leading Cancer Types:**
 - Among men**, the most common cancers are **prostate, lung, and colorectal**.
 - India has a notably high incidence of lip and oral cavity cancers due to high tobacco consumption.
 - For women**, breast cancer is the leading cancer type across BRICS, except in China, where lung cancer is more prevalent.
 - Cervical cancer is the second leading cancer in India and South Africa.

- **Factors:** Low socioeconomic status and lifestyle risk factors contribute significantly to the high rates of oral cancer.
- **Global Impact:** BRICS countries account for over a third of new breast cancer cases and deaths worldwide, showing an upward trend in incidence.
 - ♦ Lung cancer is the leading cause of death in all BRICS countries except India, where breast cancer leads.
 - ♦ Trachea, bronchus, and lung cancers contribute significantly to Disability Adjusted Life Years (DALYs), but breast cancer is the most significant in India.

Suggestions

- The researchers emphasize the importance of investigating cancer risk factors and health systems to improve cancer outcomes in the context of sustained economic growth and existing cancer control plans in BRICS countries.

Source:DTE

WORLD TELECOMMUNICATION STANDARDIZATION ASSEMBLY (WTSA)

In News

The Prime Minister inaugurated the World Telecommunication Standardization Assembly (WTSA) 2024 at Bharat Mandapam in New Delhi

- He also inaugurated the 8th edition of India Mobile Congress 2024 during the programme.

About WTSA

- It is the governing conference for the International Telecommunication Union (ITU), held every four years.
- This is the first time the assembly will be hosted in India and the Asia-Pacific region.
- The event attracted over 3,000 leaders, policymakers, and tech experts from more than 190 countries, focusing on telecom, digital, and ICT sectors.
- **Focus Areas:** Discussions covered the future of standards for critical technologies such as 6G, AI, IoT, Big Data, and cybersecurity.
- **Importance for India :** Hosting WTSA 2024 positions India to influence the global telecom agenda and future technology standards.
 - ♦ Indian startups and research institutions are expected to gain valuable insights into Intellectual Property Rights and Standard Essential Patents.

Do you know ?

- India Mobile Congress, Asia's largest digital technology forum, has become a well-known platform across the globe for showcasing innovative solutions, services and state-of-the-art use cases for industry, government, academics, startups and other key stakeholders in the technology and telecom ecosystem.
- The India Mobile Congress 2024 will showcase over 400 exhibitors, about 900 startups, and participation from over 120 countries.
- The event also aims to showcase more than 900 technology use case scenarios, host more than 100 sessions and discussion with over 600 global and Indian speakers.

Source:PIB

DR. A P J ABDUL KALAM

In News

- Prime Minister pays tribute to Former President of India (11th), **Dr A P J Abdul Kalam on his birth anniversary.**

About Dr. A P J Abdul Kalam

- Dr. Avul Pakir Jainulabdeen Abdul Kalam was born on October 15, 1931, in Rameswaram, Tamil Nadu.
- He is known as the **“Missile Man of India.”**
- He specialized in Aeronautical Engineering from the Madras Institute of Technology.
- **Major Contributions:** As Project Director, he developed India's first indigenous Satellite Launch Vehicle (SLV-III), successfully launching the **Rohini satellite in 1980**. Contributed to the PSLV configuration.
 - ♦ He worked at DRDO, leading the Integrated Guided Missile Development Programme (IGMDP).
 - Developed **AGNI and PRITHVI missiles** and focused on self-reliance in defense systems.
 - ♦ He served as **Scientific Adviser to the Defence Minister**, overseeing the **Pokhran-II nuclear tests** that established India as a nuclear weapons state.
 - ♦ He chaired the Technology Information, Forecasting and Assessment Council (TIFAC), **guiding experts to create a roadmap for India's development** into a developed nation.
 - ♦ He served as **Principal Scientific Advisor** to the Government from 1999 to 2001, influencing policies and strategies for national development.

- **Literary Contributions:** Authored notable books, including “Wings of Fire,” “India 2020,” “My Journey,” and “Ignited Minds,” widely read and translated into many languages.
- **Awards and Honors:** He was awarded the **Padma Bhushan, Padma Vibhushan, and the highest civilian award, Bharat Ratna.**

Source: PIB

EUROPA CLIPPER

Context

- NASA has launched the Europa Clipper, to investigate Jupiter and its moon, Europa.

Europa Clipper

- The Europa Clipper is the largest spacecraft Nasa has built for planetary exploration.
- It will take five- and-a-half years to reach its destination, and Clipper will approach Europa at a distance of just 25 km from its surface.

Structure

- The spacecraft has **massive solar panels** to generate sufficient power required for the long distance between Jupiter and the Sun.
- The main body of the spacecraft has **nine scientific instruments** including radar to penetrate Europa’s icy shell, cameras to map its surface, and devices to analyze its atmosphere and composition.

About Europa

- Europa was discovered by **Galileo Galilei in 1610**, alongside three other moons (**Io, Ganymede, and Callisto**), collectively known as the **Galilean moons**.
- Europa is covered by an ice sheet estimated to be **15 to 24 km** thick.
- Beneath this ice sheet, scientists believe there could be a subsurface ocean, possibly up to 120 km deep. It is making Europa a prime candidate for the search for extraterrestrial life within our solar system.

Source: BS

GANGES AND INDUS RIVER DOLPHINS

Context

- Recently a 8,000-kilometer aquatic survey was carried out by the Wildlife Institute of India (WII) for the assessment of dolphin populations.

Ganges River Dolphin (*Platanista Gangetica*)

- **Characteristics:** Ganges River Dolphin is essentially **blind and hunts by emitting ultrasonic sounds (echolocation)** waves that bounce off of fish and other prey.
 - ♦ Because of the sound it produces when breathing, the animal is popularly referred to as **Susu**.
- **Distribution:** It is distributed in Ganges and Brahmaputra river basins of India, Nepal and Bangladesh. It can only live in freshwater.
- **Threat:** Ganges river dolphin is facing severe threats from water development projects, Pollution, hunting and death due to accidental catches in fishing gear.
- **Conservation status:** The Ganges river dolphin is protected under
 - ♦ **Schedule 1** of the **Indian Wildlife (Protection) Act 1972**,
 - ♦ **Appendix 1** of the Convention on International Trade in Endangered Species (CITES) and
 - ♦ **Appendix 1** of the Convention on Migratory Species (CMS).
 - ♦ **IUCN status:** Endangered
- **National and State Symbol:** The Ganges river dolphin was designated as a **national aquatic species in 2009** and as the **state aquatic animal of Assam**.

Indus River Dolphin (*Platanista minor*)

- **Characteristics:** The Indus River Dolphin is also functionally blind and relies on echolocation to navigate and find prey.
 - ♦ It is commonly referred to as **Bhulan** in local languages.
- **Distribution:** The Indus River Dolphin is found in the Indus River system in Pakistan and a small population is present in the **Beas River** in India.
- **Threat:** Water diversion projects have significantly reduced its habitat range, confining populations to isolated sections of the river.
- **Conservation Status:** Protected under Schedule I of the Indian Wildlife (Protection) Act 1972 in India.
 - ♦ **Appendix I** of the Convention on International Trade in Endangered Species (CITES).
 - ♦ **Appendix I** of the Convention on Migratory Species (CMS).
 - ♦ **IUCN status:** Endangered
- **State Symbol:** The Indus river dolphin is the state aquatic animal of **Punjab**.

Source: DTE