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Time: 45 Min

Date: 24-12-2024

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BHARATNET: BRIDGING THE DIGITAL DIVIDE

Context

- BharatNet, has helped connect more than **2.14 lakh** gram panchayats by utilising optical fibre, radio, and satellite technologies.

Background

- The government of India launched **BharatNet in October 2011**, under the **Ministry of Communications.**

- It is an ambitious project aimed at providing affordable high-speed internet access to every Gram Panchayat in the country.

- BharatNet operates as the world's largest rural broadband connectivity program.

Amended BharatNet 2023

- In 2023, the government approved the **Amended BharatNet Program (ABP)** at a cost of **Rs. 1,39,579 crores.**

- The program provides for internet access by Optical Fibre (OF) connectivity to **2.64 lakh GPs in ring topology** and also to provide connectivity to the remaining non-GP villages (approx. 3.8 lakhs) on demand basis.

- The ABP is aiming at;

  - **Provision of optical fiber connectivity** to non-GP villages on demand basis,

  - **Provision for Operation and maintenance for 10 years**, including monitoring of network uptime through Centralized Network Operating Centre (CNOC) and payment to Project Implementation Agency (PIA) as per Service Level Agreement (SLA),

  - **Provision of Power backup** of adequate level at GPs and Blocks,

  - **Provision of Remote Fibre Monitoring System (RFMS)** at Block for fibre monitoring.

Digital Bharat Nidhi (DBN)

- **DBN is a fund** that aims to improve the quality and accessibility of telecommunications services in India.

- It was established by the government of India as a replacement for the **Universal Service Obligation Fund (USOF).**

Working of BharatNet

- **Bharat Broadband Network Limited (BBNL),** a Special Purpose Vehicle (SPV) was incorporated in 2012 for the execution of the project.

- In 2016, the Telecom Commission approved to implement the project in three phases:

  - **Phase I:** Focused on laying optical fiber cables to connect **1 lakh** Gram Panchayats by utilizing existing infrastructure.

  - **Phase II:** Expanded the coverage to an **additional 1.5 lakh** Gram Panchayats using optical fiber, radio, and satellite technologies.

  - **Phase III:** Aims at future-proofing the network by integrating 5G technologies, increasing bandwidth capacity, and ensuring robust last-mile connectivity. This phase is ongoing, with a focus on improving accessibility and reliability.

Impact of BharatNet

- **Digital Inclusion:** The project has connected remote villages to high-speed internet, enabling access to e-governance services, online education, and telemedicine.

  - Initiatives like the **Digital India program** thrive on BharatNet's infrastructure.

- **Economic Opportunities:** With internet access, rural communities can participate in digital commerce, access financial services, and explore entrepreneurial opportunities.

- **Education and Healthcare:** BharatNet has enabled digital classrooms and telehealth services, bridging the resource gap in rural areas.

- **Empowering Local Governance:** Gram Panchayats use BharatNet to implement e-governance projects, improving transparency, efficiency, and citizen engagement in public services.

Conclusion

- BharatNet holds the promise of transforming rural India into a digitally empowered society. It is a **lifeline for millions of rural Indians** aspiring to connect with opportunities beyond their immediate surroundings.

- With robust execution and sustained efforts, BharatNet will continue to bridge the digital divide and empower every corner of India with the transformative power of the internet.

Source: PIB

INDIA'S PATH TO A VIKSIT BHARAT

In Context

- India's youth are seen as the country's greatest strength in driving the vision of a developed nation by 2047.

About the vision of Viksit Bharat by 2047.

- The **Viksit Bharat @2047 initiative** envisions a developed India by the centenary of independence, focusing on inclusive development, sustainable

progress, and effective governance, with youth playing a central role.

- Prime Minister Narendra Modi emphasized that youth are both the agents and beneficiaries of change.

Strategy

- The Union Budget 2024-25 outlines a comprehensive strategy to achieve 'Viksit Bharat' by focusing on **nine key priorities** that aim to create abundant opportunities for all citizens.

- ◆ Productivity and resilience in Agriculture
- ◆ Employment & Skilling
- ◆ Inclusive Human Resource Development and Social Justice
- ◆ Manufacturing & Services
- ◆ Urban Development
- ◆ Energy Security
- ◆ Infrastructure
- ◆ Innovation, Research & Development and
- ◆ Next Generation Reforms

Various Steps Taken

- **National Policy on Skill Development & Entrepreneurship (NPSDE)** bridges gaps and expands apprenticeship opportunities.
- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** has trained 1.42 crore individuals since 2015.
- **Focus on Green Hydrogen and the PM Vishwakarm**a initiative to upskill diverse populations.
- **The Craftsmen Training Scheme (CTS)** focuses on long-term vocational training, with significant female participation.
- The Ministry of Youth Affairs has transformed the **National Youth Festival into the Viksit Bharat Young Leaders Dialogue**. This initiative aims to empower the youth to contribute to India's development in a holistic manner.
- **Digital India Land Records Modernization Programme (DILRMP):** Digitalisation has modernised land records in rural India, resolving conflicts, reducing fraud, and enhancing transparency in land management.
- **APAAR ID**: A digital academic identity for students, enabling smooth transitions and recognition of prior learning, facilitating educational opportunities and outcomes.
- **5G Connectivity and Inclusivity: I**ndia's digital transformation includes bringing 5G connectivity to remote areas, ensuring accessibility and promoting inclusivity across sectors like manufacturing, retail, healthcare, and agriculture.
- **PRAGATI Platform:** A platform for real-time monitoring of projects worth 18 lakh crore, ensuring timely implementation and efficient governance.
- **Aspirational Districts Program:** Digital tools are used to address challenges in backward regions, promoting inclusive growth and development.

Key Challenges

- **Economic Inequality**: The stark economic disparity that exists between various regions, communities, and income groups.
- **Skill Development and Education :** A large proportion of the youth still lacks the skills required for a rapidly changing job market, particularly in sectors like technology, healthcare, and sustainable industries.
  - ◆ Moreover, the educational infrastructure in rural areas remains inadequate, leaving many students without access to high-quality learning.
- **Climate Change**: The country faces serious environmental challenges, including air and water pollution, deforestation, and climate change impacts. Rapid industrialization, urbanization, and agricultural practices have put significant pressure on natural resources.
- **Governance and Corruption:** Corruption and inefficiencies in public administration remain pervasive in many areas.
  - ◆ This hampers progress and delays essential reforms.
- **Technological Impacts:** Advancements in AI and technology boost productivity but pose risks such as labor market disruptions and income inequality.

Conclusion and Way Forward

- India's path to Viksit Bharat is paved with comprehensive initiatives aimed at fostering

inclusive growth, enhancing productivity, and promoting sustainable development.

- By addressing key challenges and leveraging its demographic dividend, India is poised to achieve its vision of becoming a developed nation.
  - Strengthening institutions, improving transparency, and ensuring accountability at all levels of government are vital for creating a stable and thriving nation.

- The journey towards Viksit Bharat is not just a government mandate but a collective mission that involves every citizen, industry, and institution working towards a brighter and more prosperous future.

Source :PIB

GOVERNMENT ENDS NO-DETENTION POLICY

Context

- The Centre has scrapped the no-detention policy in schools governed by it, including Kendriya Vidyalayas and Jawahar Navodaya Vidyalayas.

About

- The decision will impact around **3,000 Central schools,** including Sainik Schools, which function under the Ministry of Defence, and Eklavya Model Residential Schools, under the Ministry of Tribal Affairs.

No Detention Policy

- **Under Section 16 of the Right to Education Act, 2009,** schools were prohibited from detaining students **up to Class 8.**

- **Reason:** With the possibility of students dropping out if they were detained, the no-detention policy was meant to ensure **children received a minimum level of education at least.**

- **Criticism:** In the years since then, several States called for scrapping the no-detention policy.
  - In 2016, the Central Advisory Board of Education passed a resolution **calling for scrapping the policy** on the grounds that students were no longer serious about their studies.

- **2019 Amendment:** The Act was then amended in 2019, allowing "appropriate government to hold back a child in the fifth class or in the eighth class or in both classes if the child fails in the re-examination.
  - This left it to the States to decide on scrapping the no-detention policy.

- Since the amendment, 18 States and UTs have done away with the no-detention policy.

New Policy

- It has now allowed schools to hold back students who fail annual examinations.

ADDITIONAL SUPPORT FOR STUDENTS
- Students who fail will receive re-examination opportunity within two months
- School heads must maintain records of struggling students
- Class teachers required to guide both students and parents
- Mandatory remedial teaching for failing students
- Focus on identifying and addressing learning gaps

Conclusion

- The policy led to the compromised academic standards in higher classes.

- With the scrapping of no detention policy, the fear of failing will enable children to learn at least basic concepts to excel in exams.

- This will ultimately benifit the children and increase the educational and academic standards in India.

Source: IE

INDIA'S PHARMACEUTICAL MARKET FOR FY 2023-24 IS VALUED AT USD 50 BILLION

Context

- India's pharmaceutical market for **FY 2023-24** is valued at **USD 50 billion** with domestic consumption valued at USD 23.5 billion and export valued at USD 26.5 billion.

Pharmaceutical Sector of India

- The Pharmaceutical industry in India is the **third largest** in the world in terms of volume and **14th largest** in terms of value.

- **Major segments of industry** include generic drugs, OTC medicines, bulk drugs, vaccines, contract research & manufacturing, biosimilars and biologics.

- The Pharma sector currently contributes to around **1.72% of the country's GDP.**

- India is the **3rd largest producer of API** accounting for an **8% share** of the Global API Industry.

Indian Pharmaceutical Market (US$ billion)

Year	Value
2021	42.0
2024	65.0
2030	130.0
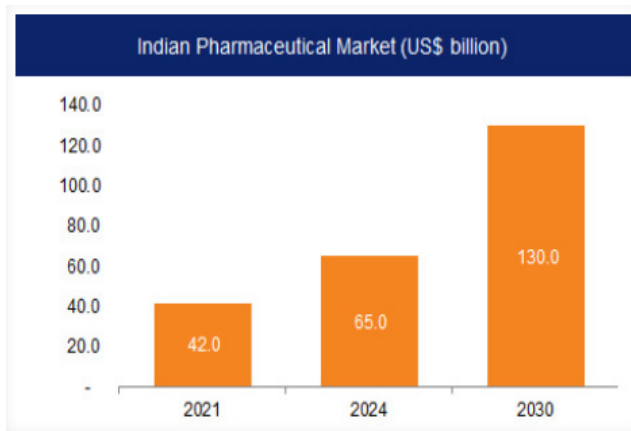
Achievements of Pharmaceutical Sector of India

- India accounts for **60% of global vaccine production**, contributing up to 70% of the WHO demand for **Diphtheria, Tetanus and Pertussis (DPT)** and **Bacillus Calmette–Guérin (BCG) vaccines**, and 90% of the WHO demand for the measles vaccine.

- India supplies over **50%** of Africa's requirement for generics, **~40%** of generic demand in the US and **~25%** of all medicine in the UK.

- **The cumulative FDI equity inflow** in the Drugs and Pharmaceuticals industry is **US$ 22.52 billion** during the period 2000-2024, almost **3.4%** of the total inflow received across sectors.

- The nation is the **largest provider of generic medicines** globally, occupying a **20% share** in global supply by volume, and is the leading vaccine manufacturer globally.

  - India is known as the "**pharmacy of the world**" due to the low cost and high quality of its medicines.

Challenges for Pharmaceutical Sector of India

- **Intellectual Property (IP) Protection:** India's patent laws, especially concerning compulsory licensing and Section 3(d) of the Indian Patent Act, have led to frequent disputes with multinational corporations.

- **Dependence on Imports:** APIs and Key Starting Materials (KSMs) import dependence exposes the industry to vulnerabilities related to supply chain disruptions and price fluctuations.

- **Skilled Human Resource:** Indian pharmaceutical industry requires a highly skilled workforce to drive research and development, manage operations, and ensure quality control.

- **Failing the quality tests:** The country's pharma industry has largely been in denial over quality-related concerns expressed by national and international observers.

  - According to a **Central Drugs Standard Control Organization (CDSCO)** survey in **2014-2016, a**bout five per cent of Indian drugs, several of them manufactured by large pharma companies, failed the quality test.

Government initiatives

- **The Production Linked Incentive (PLI) scheme** for pharmaceuticals is being implemented with a total outlay of **Rs. 15,000 crore (US$ 2.04 billion)** spanning from 2020-21 to 2028-29.

- **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP):** Quality generic medicines are made available at affordable prices to all through dedicated outlets.

- **100% Foreign Direct Investment (FDI)** in the pharmaceutical sector is allowed under the **automatic route for greenfield** pharmaceuticals.

- The Department of Pharmaceuticals has set up **seven National Institutes of Pharmaceutical Education & Research (NIPERs)** as institutes of national importance, which conduct high end research in various pharma specializations.

- The government has framed a **"National Policy on Research & Development and Innovation in the Pharma-MedTech Sector in India" in 2023** to encourage R&D in pharmaceuticals and medical devices.

- **Patents rules :** Since 2014, Patents Rules have been amended several times to streamline and simplify filing and processing of patent applications, remove irregularities, redress procedural delays, and complexities in patent granting procedure.

- **Start-Ups Intellectual Property Protection (SIPP)** scheme facilitates protection of Patents, Trademark and Designs by interested Startups, and all Indian innovators using the services of the Technology and Innovation Support Centers (TISCs) established in India.

Way Ahead

- The pharmaceutical industry in India is a significant part of the nation's foreign trade and offers lucrative potential for investors.

- Speedy introduction of generic drugs into the market has remained in focus and is expected to benefit the Indian pharmaceutical companies.

- In addition, the thrust on rural health programmes, lifesaving drugs and preventive vaccines also augurs well for the pharmaceutical companies.

New Drugs and Clinical Trials Rules, 2019

• **Disposal of clinical trial and new drug applications** by way of approval or rejection or seeking further information within a period of **90 days.**

• In case of application to conduct clinical trial of a new drug or investigational new drug as part of drug discovery, research and manufacture in India, the application is to be disposed of within a period of **30 days.**

• **Provisions for accelerated/ expedited approval** process in certain situations like unmet need, orphan drugs for rare diseases etc.

• Provisions for pre-submission and post submission meetings of the applicants with CDSCO for formal discussion and case specific regulatory pathway.

Source: PIB

INDIA'S CRUDE OIL RESERVES

Context

• According to a report by the Lok Sabha's Standing Committee on petroleum and natural gas India's crude reserves are currently around **3.61 million tonnes, which is 67% of their rated capacity.**

Key Highlights by the Committee:

• **Maintaining Optimum Reserves:** The Committee recommended the Ministry of Petroleum and Natural Gas to maintain the optimum level of Indian Strategic Petroleum Reserves.

• **Budgeting:** The government had allocated Rs 5,000 crore in the budget estimates 2023-24 for filling up crude oil reserves.

  ◆ The Committee finds the capital expenditure of the Ministry and Oil PSUs in the current financial year inadequate.

  ◆ It recommended an increase in the allocation towards capital expenditure in the next possible opportunity.

• **Indian Strategic Petroleum Reserves** was set up with an objective to ensure energy security for the country in the event of oil shocks.

  ◆ Under the Budget Estimate 2024-25, the finance ministry has allocated an amount of Rs 408 crore for construction of underground caverns in Phase – II of Indian Strategic Petroleum Reserves.

• **Concern:** The Committee highlighted that a cautious approach is required for maintenance of sufficient buffer stock of crude oil due to the highly uncertain geopolitical scenario around the world, primarily the major suppliers of crude oil.

Crude Oil Imports by India

• India's reliance on imported crude oil climbed to 88.2% during the first six months of FY25, up from 87.6% in the same period of FY24.

• India is the **world's third largest crude oil importer.**

• **India's main sources of crude oil imports** are Iraq, Saudi Arabia, Russia, United States and the United Arab Emirates.

Supplier	Volume (mn bpd)	Market share (%)
Russia	1.79	38.1
Iraq	0.88	18.7
Saudi Arabia	0.62	13.2
UAE	0.43	9.2
US	0.22	4.7

• **The top five oil-producing nations in 2024** were the United States, Saudi Arabia, Russia, Canada, and China.

• **The top oil-consuming countries** in the world are the United States, China, India, Russia and Saudi Arabia.

Challenges Faced by the India in Crude Oil Imports:

• **Price Volatility:** Fluctuating global oil prices significantly impact India's import costs, affecting its economy and inflation.

• **Geopolitical Risks:** Political instability or conflicts in key oil-producing regions (like the Middle East, Russia, and Venezuela) disrupt supply chains and cause price spikes.

• **Dependence on Imports:** India relies on imports for about 85% of its crude oil, making it vulnerable to disruptions in supply and external factors.

• **Exchange Rate Fluctuations:** As India pays for crude oil in US dollars, changes in the exchange rate increase costs, especially when the rupee weakens.

• **Environmental Concerns:** Crude oil extraction and consumption contribute to environmental issues, pushing India to balance energy needs with sustainability.

• **Diversification of Sources:** India's effort to diversify its sources of oil can be challenging due to competition and varying terms from different suppliers.

Steps Taken by India to Manage its Crude Oil Imports:

- **Diversification of Supply Sources:** India is expanding its oil import base by sourcing crude from multiple countries, including Iraq, Saudi Arabia, the UAE, U.S. and even Russia to reduce dependency on any single region.

- **Strategic Petroleum Reserves (SPR):** India has developed strategic oil reserves to ensure supply during emergencies or geopolitical disruptions.

- **Promotion of Domestic Production:** India is encouraging domestic exploration and production of oil through initiatives like the Hydrocarbon Exploration and Licensing Policy (HELP) to increase self-sufficiency.

- **Energy Efficiency and Alternatives:** India is investing in renewable energy and improving energy efficiency to reduce overall reliance on crude oil.

- **Bilateral Agreements:** India has signed long-term agreements with countries like Saudi Arabia, Iraq, and Russia to ensure stable and reliable oil supplies.

Way Ahead

- India aims to boost domestic exploration and production to reduce import dependence and improve energy security.

- Expanding renewable energy capacity (solar, wind, biofuels) will help diversify India's energy mix and reduce reliance on fossil fuels.

- Expanding the Strategic Petroleum Reserve (SPR) to ensure adequate supply in times of crisis.

- To manage price volatility, India can explore more hedging strategies and long-term agreements with suppliers for stable prices.

Source: FE

QUANTUM SATELLITE

Context

- The chairman of the Mission Governing Board of the National Quantum Mission (NQM) recently announced India's plans to launch a quantum satellite in 2-3 years to enable quantum communications.

National Quantum Mission (NQM)

- It was conceptualized by the Prime Minister Science Technology Advisory Council (PM-STIAC) with a total outlay of **Rs 6003.65 Crore** for a period of **eight years** from 2023 to 2031.

- The Mission aims to seed, nurture, and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology (QT).

- The Mission aims to establish **four Thematic Hubs (T-Hubs)** in domains such as,
    - Quantum Computing,
    - Quantum Communication,
    - Quantum Sensing & Metrology, and
    - Quantum Materials & Devices.

What is a quantum satellite?

- A quantum satellite is a communications satellite leveraging the **principles of quantum physics** to secure data transmissions.

- **Significance:** The emergence of quantum computers poses a threat to existing cryptographic systems.
    - Quantum satellites aim to ensure secure communications by employing quantum cryptography particularly **Quantum Key Distribution (QKD)**

How Are Messages Secured in Quantum Communication?

- **Quantum Measurement:** Measuring a quantum system (like photons) alters its state.
    - If an eavesdropper intercepts a quantum key encoded in photons, their actions will disturb the photons, alerting the sender and receiver to a breach.

- **Quantum Entanglement:** Entangled particles remain connected such that a change to one particle instantaneously affects the other, ensuring that any interception is immediately detectable.

Global scenario

- China launched the world's first quantum satellite, **Micius, in 2016.**
    - China has also launched other quantum satellites, including **Quantum Experiments at Space Scale (QUESS).**

- **United States:** Boeing is targeting 2026 to deploy a small quantum networking satellite.

Challenges with QKD

- **Authentication Issues:** QKD cannot authenticate the source of the transmission.

- **Hardware Dependency:** QKD relies on specific hardware, making upgrades or patches challenging.

- **Cost:** High infrastructure costs can be a barrier to widespread adoption.

- **Denial-of-Service (DoS) Risks:** An eavesdropper can disrupt transmissions, preventing legitimate users from accessing the system.

Way Ahead

- While QKD holds immense potential, the U.S. The National Security Agency recommends **post-quantum cryptography (PQC)** over quantum cryptography.
- PQC employs advanced classical encryption methods that resist attacks from both classical and quantum computers.

Concluding remarks

- While challenges remain, integrating quantum technologies could provide a comprehensive framework for secure data transmission in the future.
- As quantum physics continues to redefine technological paradigms, such initiatives will ensure India remains at the forefront of global scientific advancements.

Source: TH

NEWS IN SHORT

LESOTHO

In News

- India has sent a humanitarian aid consignment of 1,000 metric tonnes to Lesotho to assist with food security and nutritional needs.

About Lesotho

- **Geography :** It is a country in Southern Africa.

  - ◆ It is a highland country with plateaus, hills, and mountains. Its highest point is **Thabana Ntlenyana** at 3,482 meters.
- **The capital**: Maseru
- **History :** Lesotho, initially inhabited by Khoisan hunter-gatherers, was later settled by Bantu and Sotho-Tswana peoples.
  - ◆ In 1822, King Moshoeshoe I unified the region, which became a British protectorate in 1843, known as Basutoland.

  - ◆ Lesotho gained independence on October 4, 1966, with King Moshoeshoe II as its first sovereign.
- **Society :** The country is predominantly Christian (80%), with 20% following indigenous beliefs.
- **Economy :** Lesotho's economy is driven by industries such as food, textiles, handicrafts, and subsistence farming.

Source: AIR

NATIONAL CONSUMER DAY & PROTECTION LAWS

In News

- On National Consumer Day 2024, the Union Minister will launch several key initiatives aimed at enhancing consumer protection and ensuring consumer rights.

National Consumer Day

- In India, National Consumer Day is celebrated annually on **December 24th** to commemorate the enactment of the **Consumer Protection Act, 1986, (replaced by Consumer Protection Act 2019)** which received the assent of the President on this date.
- The **2024 National Consumer Day** theme is "Virtual Hearings & Digital Access to Consumer Justice," reflecting the government's focus on improving consumer justice through digital platforms like e-filing and virtual hearings.

Initiatives and Protection laws

- **Launch of Consumer Protection Apps:** The 'Jago Grahak Jago App,' 'Jagriti App,' and 'Jagriti Dashboard' will help identify and report "dark patterns" in e-commerce, which manipulate consumer behavior.
  - ◆ These tools use AI and will support the Central Consumer Protection Authority (CCPA) in resolving consumer disputes efficiently.
- **e-Mapp Portal**: A unified digital platform will integrate state legal metrology portals, easing licensing and verification processes for businesses and enhancing transparency.
- **AI-enabled NCH 2.0**: The National Consumer Helpline Portal is being upgraded with AI-powered chatbots and multilingual support to offer improved grievance resolution.
- **SMART Standards: T**he Bureau of Indian Standards (BIS) will introduce machine-readable standards that are interactive, intelligent, and dynamic, transforming how standards are created and used.

- **The Department of Consumer Affairs (DoCA), established in 1997**, focuses on consumer protection in India.
  - It implements various laws and regulations, including the Consumer Protection Act, 2019, which strengthens consumer rights in the digital era, particularly for online transactions, and established the Central Consumer Protection Authority (CCPA) to handle false advertisements.
- **The Bureau of Indian Standards (BIS) Act, 2016** ensures product quality and safety, and the Legal Metrology Act, 2009 governs accurate measurement in commercial transactions.

Source :PIB

MARBURG VIRUS DISEASE

Context

- Rwanda has successfully managed its first-ever Marburg Virus Disease (MVD) outbreak and officially declared it over.

About

- The disease is named after **Marburg, the German city** where scientists became ill with the disease's first known cases in **1967**, while handling **monkeys imported from Uganda.**
- It is a **highly contagious virulent disease** that causes hemorrhagic fever, with a **fatality ratio of up to 88%.**
  - It is in the same family as the virus that causes Ebola virus disease and they show similar symptoms.
- **Host and Spread:** Marburg's natural host is a **fruit bat,** but it can also infect **primates, pigs and other animals.**
  - Human outbreaks start after a person has contact with an infected animal.
- **Symptoms:** High fever, severe headache and severe malaise. Muscle aches and pains are a common feature.
- **Treatment:** There are no vaccines and no proven treatment available for Marburg virus disease.

Source: DTE

NEW NATIONAL HUMAN RIGHTS COMMISSION (NHRC) CHAIRPERSON

In News

- The President of India appointed retired **Supreme Court Justice V. Ramasubramania**n as the

Chairperson of the **National Human Rights Commission (NHRC)**, filling the vacancy that had existed since June 2024.

National Human Rights Commission (NHRC) of India

- It was established on 12 October 1993 under the Protection of Human Rights Act (PHRA), 1993.
  - The Act was amended by the Protection of Human Rights (Amendment) Act, 2006.
- **International Standards:** NHRC is in conformity with the **Paris Principles**, which were adopted at the first international workshop on national human rights institutions in Paris in October 1991, and endorsed by the UN General Assembly in Regulation 48/134 of 20 December 1993.

Qualifications of Members of NHRC

The qualifications of full-time members of the National Human Rights Commission (NHRC) are as follows:

Chairperson	A retired Chief Justice of India or a Judge of the Supreme Court.
1st Member	A serving or retired Judge of the Supreme Court
2nd Member	A serving or retired Chief Justice of a High Court
3rd, 4th and 5th Member	Persons having knowledge or practical experience with respect to human rights. **Note:** Out of these three members, **one should be a woman.**

- **Constitution of NHRC:** The Commission consists of a Chairperson, five full-time Members and seven deemed Members.
- **Appointments** : The Chairperson and Members of the National Human Rights Commission (NHRC) are appointed by the President of India based on recommendations from a Committee.
  - This Committee includes the Prime Minister (Chairperson), the Speaker of Lok Sabha, the Home Minister, the leaders of the opposition in both Lok Sabha and Rajya Sabha, and the Deputy Chairman of Rajya Sabha.
- **Purpose**: NHRC is a reflection of India's commitment to the promotion and protection of human rights.
  - NHRC is responsible for promoting human rights awareness at both national and international levels, encouraging stakeholders in human rights literacy.

> **Do you know?**
> - **Definition of Human Rights:** Section 2(1)(d) of the PHRA defines human rights as those related to life, liberty, equality, and dignity of individuals, guaranteed by the Constitution or embodied in international covenants, and enforceable by courts in India.

Source :IE

CHILIKA LAKE

Context

- Environmentalists and fishermen have strongly opposed the construction of a proposed 4-kilometre bridge over Odisha's Chilika lake.

About Chilika Lake

- **Location:** Chilika lake, Asia's largest brackish water lagoon, located in Odisha.
  - It lies between the deltas of the Mahanadi and Godavari rivers, opening out into the Bay of Bengal.
- **Conservation Status:** Chilika Lake was designated Ramsar Wetland of International Importance in **1981** making it the **first Ramsar Site of India.**
  - The lake is also part of the Chilika Wildlife Sanctuary, which helps protect its flora and fauna.
- **Ecological Significance:** It is home to a diverse avian population, with the 2024 bird census recording 1,137,759 birds of 187 species, including migratory birds.
  - It is also the habitat of the **endangered Irrawaddy dolphins,** frequently sighted in the Satapada region.

Source: DTE

SPADEX MISSION

In News

- The SpaDeX (Space Docking Experiment) mission, developed by ISRO, marks a significant step in advancing India's space exploration capabilities. It will be launched on December 30, 2024.

About the Mission

- **Brief:**
  - SpaDeX is designed to test and demonstrate the technology required for docking two spacecraft in orbit. This is a complex maneuver that requires precise control and coordination.
  - The mission involves two spacecraft – a "chaser" (SDX01) that will actively pursue and dock with a "target" (SDX02) spacecraft.

- **Objectives:**
  - **Primary:** To demonstrate the rendezvous, docking, and undocking of two spacecraft in low Earth orbit.
  - **Secondary:** To test technologies like inter-satellite power transfer and composite spacecraft control, which are crucial for future robotic and human spaceflight missions.
- **New Technologies:**
  - **Docking Mechanism:** SpaDeX will utilize a low-impact androgynous docking system, enabling a safe and secure connection between the two spacecraft.
  - **Sensor Suite:** Advanced sensors, including a Laser Range Finder (LRF) and Proximity and Docking Sensor (PDS), will ensure precise and controlled docking.
  - **RODP Processor:** A GNSS-based system will provide accurate position and velocity data for the spacecraft.
  - **ISL Communication:** An autonomous inter-satellite link will enable real-time communication and data sharing between the spacecraft.

Significance of the SpaDeX Mission

- **Technological Milestone:** Positions India as the fourth country globally (after the USA, Russia, and China) to develop and demonstrate in-space docking technology.
- **Space Exploration Advancements:** Enables critical capabilities for:
  - Chandrayaan-4
  - Space stations
  - Sample return missions
  - Long-term interplanetary missions
- **Cost-Effective Innovation:** Focuses on indigenous and scalable solutions, making advanced space operations more cost-efficient for future missions.
- **International Collaboration:** Adopts standards similar to the International Docking System (IDS), promoting compatibility for global partnerships in space exploration.

Source: TH

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