

DAILY CURRENT AFFAIRS (DCA)

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Table of Content

Precision Medicine in India

Global Hunger Index 2024

Rupee Hits an All-Time Low of 84 Against the US Dollar

Nuclear Disarmament

Nobel Prize in Medicine 2024: Discovery of microRNA

News In Short

Aurora

National Commission for Protection of Child Rights (NCPCR)

Symbol Allocation to Political Parties

UNIFIL Mission

Murine Typhus

PM GatiShakti National Master Plan

WTO Cuts Trade Growth Outlook

Terminal High Altitude Area Defence (THAAD) Battery

Dragon Drones

Biopolymers

PRECISION MEDICINE IN INDIA

In News

- Precision medicine is bringing in a new era of personalized healthcare.

About Precision medicine

- Precision medicine, sometimes known as “personalized medicine” is an innovative approach to tailoring disease prevention and treatment that takes into account differences in people’s genes, environments, and lifestyles.
- The goal of precision medicine is to target the right treatments to the right patients at the right time.

Major Contributors

- Emerging technologies such as **gene-editing and mRNA** therapeutics also contribute to precision medicine.
 - ♦ In a recent success story, researchers were able to restore vision in people who had lost it due to a genetic mutation **using gene therapy**.
 - ♦ During the COVID-19 pandemic, researchers were able to **use the mRNA platform** to develop new vaccines in record time, winning the technology a Nobel Prize last year.
- **Organ-on-chips** is another area that promises precision medical solutions.
 - ♦ These small microfluidic devices containing human cells can replicate the microenvironment of a tumour or an organ in a laboratory setting.
 - ♦ They are expected to allow researchers to test drugs in settings more similar to the drugs’ eventual user.
- **Biobanks’ Role:** Biobanks store biological samples and genetic data, crucial for precision medicine. Large, diverse biobanks are essential for broad societal benefits.

Precision medicine in India

- Precision medicine has gained momentum since the completion of the Human Genome Project.
- Since then, genomics has played a major role in the diagnosis and treatment of various cancers, chronic diseases, and immunological, cardiovascular, and liver diseases.
- The Indian precision medicine market is estimated to be growing at a CAGR of 16% and is expected to be worth more than \$5 billion by 2030, according to industry estimates.

- Currently, it **contributes 36% of** the national bioeconomy, alongside cancer immunotherapy, gene editing, biologics, etc.

Developments

- The development of precision therapeutics is also part of the new **‘BioE3’ policy**.
- In October 2023, the Central Drugs Standard Control Organization approved NexCAR19, India’s domestically developed CAR-T cell therapy, and earlier this year the government opened a dedicated centre for it.
- India has 19 registered biobanks and the ‘Genome India’ programme finished sequencing 10,000 genomes from 99 ethnic groups, to identify treatments for rare genetic diseases, among others
 - ♦ The **Paediatric Rare Genetic Disorders (PRaGeD) mission** could help identify new genes or variants to develop targeted therapies for genetic diseases that affect children.
- Recently, the Apollo Cancer Centre and a collaboration between Siemens Healthineers and the Indian Institute of Science, Bengaluru, opened new facilities to deploy artificial intelligence for precision medicine.

Issues and Concerns

- At present, India’s regulation of biobanks is inconsistent, with gaps that could undermine public trust and limit the potential of precision medicine. In particular, there is no law to protect the rights of individuals
- India’s regulatory gaps could prevent it from maximizing precision medicine’s potential.
- In the absence of an overarching law, Indians could be deprived of the ownership of biological samples and/or the data thereof, and the profits from the resulting research findings.
- In the absence of a single authority to regulate biobanks and no penalty for misconduct, the risk of inconsistencies arising from sample mishandling and ethical violations like data or sample sharing for non-consenting purposes is nontrivial.

Global Comparisons

- The U.K., the U.S., Japan, China, and many European countries have laws or comprehensive regulations that address several biobanking issues, including informed consent, withdrawal rights, privacy, and data protection.

Suggestions

- India is a part of international groups like the Quad and BRICS, and an important plank of its

soft diplomatic efforts has been pharmaceuticals.

- ♦ It is a major supplier of generic drugs and is a hub of vaccine manufacturing, and it has plans to expand leadership to include next-generation therapeutics.
- Stronger data protections and oversight would boost public confidence in biobanks, align India with global standards, and position it for leadership in next-generation therapeutics.
- For precision medicine to succeed, biobanks need to be large and diverse. Otherwise only a small section of society will benefit from the findings of precision medicine.

Source: TH

GLOBAL HUNGER INDEX 2024

Context

- India has been ranked **105th out of 127 countries** in the **Global Hunger Index (GHI) 2024**, placing it in the **“serious” category** for hunger levels.

What is the Global Hunger Index (GHI)?

- GHI is a tool for **comprehensively measuring and tracking hunger** at global, regional, and national levels.
- The index is published by **Concern Worldwide**, an Irish humanitarian organisation, and **Welthungerhilfe**, a German aid agency.

BOX 1.1 ABOUT THE GLOBAL HUNGER INDEX SCORES

The Global Hunger Index (GHI) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. GHI scores are based on the values of four component indicators:¹



Undernourishment: the share of the population with insufficient caloric intake.



Child wasting: the share of children under age five who have low weight for their height, reflecting *acute* undernutrition.

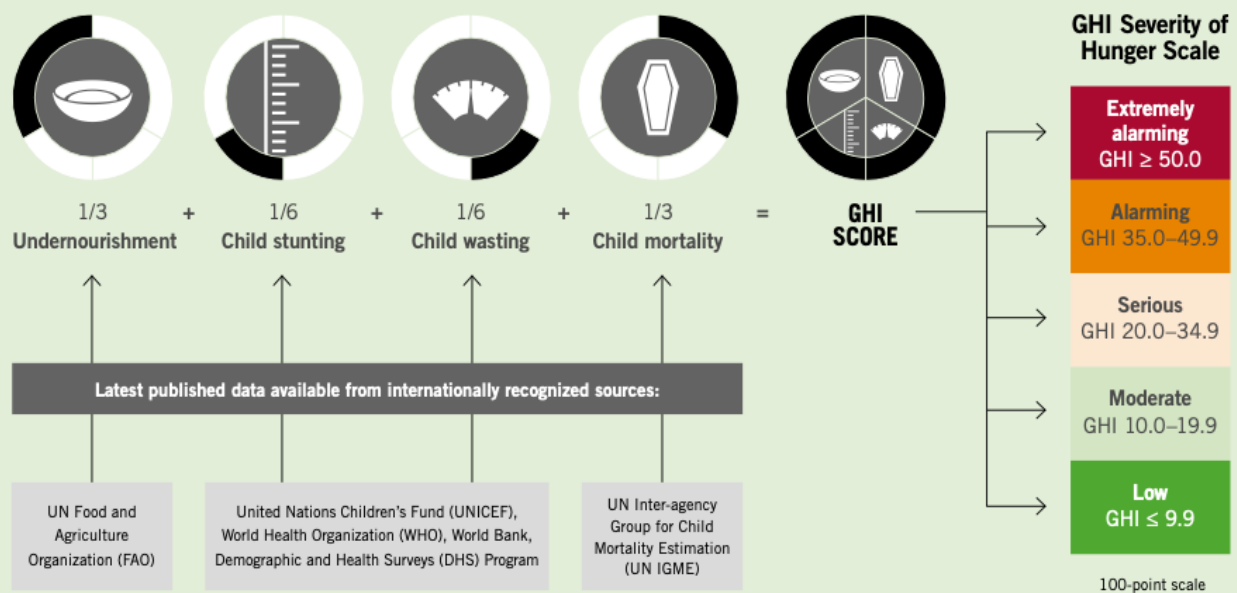


Child stunting: the share of children under age five who have low height for their age, reflecting *chronic* undernutrition.



Child mortality: the share of children who die before their fifth birthday, partly reflecting the fatal mix of inadequate nutrition and unhealthy environments.

These four indicators are aggregated as follows:



Based on the values of the four indicators, a GHI score is calculated on a 100-point scale reflecting the severity of hunger, where 0 is the best possible score (no hunger) and 100 is the worst.² Each country's GHI score is classified by severity, from *low* to *extremely alarming*.

Findings of the GHI 2024

- The 2024 Global Hunger Index **score for the world is 18.3**, considered **moderate**, down only slightly from the 2016 score of 18.8.
 - ♦ **Little progress** has been made on reducing hunger since 2016, and the prospects for achieving **Zero Hunger** by the target date of **2030 are grim**, with **42 countries** still experiencing **alarming or serious hunger**.
- **The wars in Gaza and Sudan** have led to exceptional food crises.
- **Somalia, Yemen, Chad, and Madagascar** are the countries with the highest 2024 GHI scores; Burundi and South Sudan are also provisionally designated as alarming.
- **Progress has been notable** for example in Bangladesh, Mozambique, Nepal, Somalia, and Togo, although challenges remain.
- **India's performance** remains concerning, in comparison to the South Asian neighbours such as **Bangladesh, Nepal, and Sri Lanka, which fall into the "moderate" category**.
 - ♦ India is listed alongside countries like **Pakistan and Afghanistan**, which also face severe hunger challenges.
- **The report reveals alarming statistics:** 13.7 percent of India's population is undernourished, 35.5 percent of children under five are stunted, 18.7 percent suffer from wasting, and 2.9 percent of children die before their fifth birthday.

Policy Recommendations

- Strengthen accountability to international law and enforce the right to food.
- Promote gender-transformative approaches in food and climate policies.
- Invest in gender, climate, and food justice, ensuring public resources address inequalities.

Initiatives by Government of India to address Hunger

- **Mid Day Meal Programme:** It is a flagship programme of the Government of India aiming at **enhancing enrolment, retention and attendance and simultaneously improving nutritional levels among children** studying in Government, Local Body and Government-aided primary and upper primary school areas across the country.
- **The National Food Security Act, 2013:** The Act provides for coverage of upto **75% of the rural population and upto 50% of the urban population** for receiving subsidized foodgrains under Targeted Public Distribution System (TPDS), thus covering about two-thirds of the population.

- ♦ The Act also has a special focus on the **nutritional support to women and children**.
- **Poshan Tracker:** The Ministry of Women and Child Development developed and deployed the '**Poshan Tracker**' ICT Application as an important governance tool.
 - ♦ The Poshan Tracker has incorporated WHO's expanded tables, which provide day-based z-scores, to dynamically determine stunting, wasting, underweight, and obesity status based on a child's height, weight, gender, and age.
- The Central Government launched **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** with the specific purpose of ameliorating the hardships faced by the poor and needy due to economic disruptions caused by the COVID-19 outbreak in the country.
 - ♦ The allocation of free food grains under PMGKAY **was in addition to normal allocation done under the National Food Security Act (NFSA), 2013**.
- **Saksham Anganwadi and Poshan 2.0 (Mission Poshan 2.0)** includes key schemes such as the **POSHAN Abhiyaan, Anganwadi Services and Scheme for Adolescent Girls** as direct targeted interventions to address the problem of malnutrition in the country.
 - ♦ The beneficiaries under the Anganwadi Services scheme are children in the age **group of 0-6 years, pregnant women and lactating mothers**.
 - ♦ Supplementary nutrition is provided to beneficiaries in the form of Hot Cooked Meals at Anganwadi Centres and Take Home Ration (not raw ration).

Source: TOI

RUPEE HITS AN ALL-TIME LOW OF 84 AGAINST THE US DOLLAR

Context

- The Indian rupee has recently crossed the 84 mark against the US dollar, marking an all-time low.

About

- **Currency depreciation** refers to the decline in the value of one country's currency relative to another currency.

- The Indian rupee has seen a periodic depreciation against major currencies, particularly the US dollar.

Reasons for depreciation of rupee

- Rising Crude Oil Prices:** The surge in global crude oil prices has led to increased import bills for India, thereby exerting downward pressure on the rupee.
- Outflows to China:** Foreign portfolio investors (FPIs) have shifted their investments from India to China, driven by the latter's recent monetary and fiscal measures aimed at stimulating its economy.
 - This trend reflects a 'Sell India, Buy China' strategy, causing a reduction in demand for the Indian rupee.
- Increased Demand for US Dollars:** There has been a heightened demand for the US dollar from foreign banks, exacerbating the rupee's depreciation.
- Weak Domestic Markets:** The overall weakness in domestic equity and bond markets has further contributed to the rupee's decline, making it less attractive to foreign investors.

Impact of Rupee depreciation

- Exports and Imports:** While a weaker rupee can **boost exports** by making Indian goods cheaper for foreign buyers, it also **raises the cost of imports**, particularly essential commodities like oil and machinery.
- Foreign Debt Servicing:** For companies and the government with significant foreign currency debt, a depreciating rupee **increases the cost of servicing** the debt, straining their financial positions.
- Inflation:** The increase in import costs lead to higher consumer prices, impacting purchasing power and potentially leading to **overall inflation in the economy**.
- Investor Sentiment:** A declining currency affects investor confidence, resulting in **reduced foreign direct investment (FDI)** and further capital outflows.

How does the RBI maintain the rupee value?

- Intervention in Forex Markets:** The RBI intervenes in the foreign exchange market by buying or selling dollars to stabilize the rupee's value. This helps mitigate excessive volatility.
- Monetary Policy adjustments:** By adjusting interest rates, the RBI influences capital flows. Higher interest rates can attract foreign investment, supporting the rupee's value.
- Forex reserve management:** The RBI maintains a buffer of foreign exchange reserves that can be utilized during times of currency volatility.

Way Ahead

- Long-term investment:** A stable rupee requires steady capital inflows. India should focus on attracting long-term foreign direct investment (FDI) rather than volatile foreign portfolio investments (FPI).
- Maximizing Remittances:** India is one of the largest recipients of remittances globally. Policies that make it easier for Non-Resident Indians (NRIs) to remit money home, can increase foreign currency inflows, stabilizing the rupee.
- Export Competitiveness:** The focus should be on enhancing the competitiveness of Indian exports by investing in sectors like technology, pharmaceuticals, textiles, and manufacturing.

Source: IE

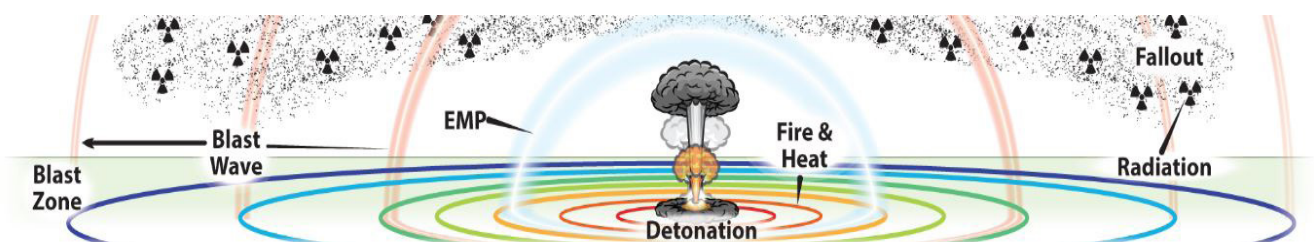
NUCLEAR DISARMAMENT

Context

- Japanese atom bomb survivors' organisation **Nihon Hidankyo has won the Nobel Peace Prize** for its "efforts to achieve a world free of nuclear weapons".
 - The argument for **nuclear disarmament** is rooted in the **terrible effects and aftereffects** of nuclear weapons, which were seen first hand in **Hiroshima and Nagasaki**.

About

- From the **immediate thermal and shock effects** to long term environmental damage, a nuclear detonation exacts terrible human costs.
- Weapons available today are **many times more devastating than the ones detonated in Japan in 1945**.



- **Concerns:** Over the first 9 weeks of a nuclear explosion, it is estimated that roughly 10% of deaths will be due to the effects of radiation, with 90% deaths being due to thermal injuries or blast effects.
 - ♦ However, the effects of radiation will manifest themselves in the **form of various cancers and genetic damage** over the coming years and generations.

Nuclear Disarmament

- Disarmament refers to the **act of eliminating or abolishing weapons** (particularly offensive arms) either unilaterally or reciprocally.
- It may refer either to **reducing the number of arms, or to eliminating entire categories of weapons.**

Nuclear Powers in the World

- There are **nine countries** recognized as possessing nuclear weapons.
- These countries are often referred to as “**nuclear-armed states**” or “**nuclear powers.**”
- United States, Russia, China, United Kingdom, France, India, Pakistan, North Korea and Israel.

Treaties Related to Nuclear Disarmament

- **Treaty on the Non-Proliferation of Nuclear Weapons (NPT):** Signed in **1968** and entered into **force in 1970**, the NPT aims to prevent the spread of nuclear weapons and promote disarmament.
 - ♦ It divides the world into nuclear-weapon states (NWS), recognized as possessing nuclear weapons at the time of the treaty’s signing, and non-nuclear-weapon states (NNWS), which agree not to develop or acquire nuclear weapons.
 - ♦ The treaty also requires NWS to pursue disarmament negotiations in good faith.
- **Treaty on the Prohibition of Nuclear Weapons (TPNW):** Adopted by the United Nations in **2017** and opened for signature in 2018, the TPNW aims to prohibit the development, testing, production, stockpiling, stationing, transfer, use, and threat of use of nuclear weapons.
 - ♦ It represents a significant step towards nuclear disarmament, although it has not been signed by nuclear-armed states.
- **Comprehensive Nuclear-Test-Ban Treaty (CTBT):** Opened for signature in **1996**, the CTBT aims to ban all nuclear explosions for both civilian and military purposes.

- ♦ While the treaty has been signed by **185** countries and ratified by **170**, it has not entered into force as nuclear-armed states must ratify it to become operational.
- **Outer Space Treaty:** This multilateral agreement entered into force in 1967 and bans the siting of weapons of mass destruction in space.
 - ♦ All nine states believed to have nuclear weapons are parties to this treaty.

Arguments in Favour of Nuclear Disarmament

- **Humanitarian Concerns:** Nuclear weapons possess unparalleled destructive power, capable of causing immense loss of life, widespread devastation, and long-term environmental damage.
- **Global Security:** The proliferation of nuclear weapons increases the likelihood of their use, whether intentionally or accidentally, leading to catastrophic consequences for humanity.
- **Economic Benefits:** Maintaining and modernizing nuclear arsenals incurs substantial financial costs for countries whereas funds can be redirected from nuclear weapons towards more constructive purposes to improve overall well-being.
- **Non-proliferation and Arms Control:** By demonstrating commitment to disarmament, nuclear-armed states can encourage non-nuclear-weapon states to adhere to non-proliferation agreements and refrain from developing their own nuclear capabilities.
- **Ethical and Moral Imperatives:** Eliminating nuclear weapons is viewed as a moral imperative and a step towards building a more peaceful and just world.
- **Environment Pollution:** Nuclear weapons testing and potential use have devastating environmental consequences, including radioactive contamination of land, air, and water.

Arguments Against Nuclear Disarmament

- **Deterrence:** Proponents of nuclear deterrence argue that possessing nuclear weapons serves as a powerful deterrent against potential adversaries, preventing conflicts and maintaining strategic stability.
- **National Security:** Possessing nuclear arsenals provides a form of insurance against potential threats and enhances the ability to protect the interests and sovereignty of a country in an uncertain international environment.
 - ♦ For these countries, relinquishing nuclear weapons could be perceived as weakening their security posture and leaving them vulnerable to external threats.

- **Strategic Stability:** Nuclear weapons are often seen as instruments for maintaining strategic stability between rival nuclear-armed states.
- **Geopolitical Tensions: Tensions between nuclear powers** such as **India and Pakistan, USA and Russia, and North Korea and the USA** make disarmament difficult. In regions of high conflict, nuclear weapons are seen as necessary for survival or maintaining a balance of power.
- **Verification and Compliance:** Critics argue that without robust verification mechanisms and effective enforcement measures, countries may exploit disarmament agreements for strategic advantage.
- **Geopolitical Realities:** Deep-rooted mistrust, unresolved conflicts, and strategic competition among states make it difficult to envision a scenario in which all countries would willingly and simultaneously relinquish their nuclear weapons.

Way Ahead

- Nuclear disarmament is seen as a crucial step towards reducing the risks and promoting international peace and stability.
- While achieving complete nuclear disarmament may be a long-term objective, incremental progress can still be made through concerted international efforts and cooperation.
- It requires sustained commitment from all nations to work towards a world free of nuclear weapons, ensuring the security and well-being of future generations.

India's Nuclear Weapon Program

- **Smiling Buddha:** In 1974, India conducted its first nuclear test code-named "Smiling Buddha, and since then, it has developed a nuclear triad consisting of land-based, sea-based, and air based delivery systems.
- **Operation Shakti:** In 1998, India conducted a series of nuclear tests at Pokhran, codenamed "Operation Shakti."
 - ◆ These tests included both fission and fusion devices and marked India's formal entry into the nuclear weapons club.
- **International Criticism:** The international community has criticised India's nuclear weapons programme, particularly the United States and its allies.
- **No First Use:** India has a "no first use" policy, meaning it pledges not to use nuclear weapons first in a conflict but reserves the right to retaliate if attacked with nuclear weapons.

India's stance on nuclear disarmament?

- India has argued that any country's possession of nuclear weapons poses a threat to global security, and that the only way to ensure peace and stability is for all nuclear weapons to be destroyed.
- India is **not a signatory to the Non-Proliferation Treaty (NPT)**, and stated that the NPT is discriminatory and perpetuates a two-tiered system of **nuclear haves and have-nots** by unfairly restricting access to peaceful nuclear technology for non-nuclear weapon states.
- **National Security:** India's nuclear weapons programme is a legitimate expression of its national sovereignty, and that India has the right to defend itself against potential threats.
 - ◆ India's nuclear disarmament and nonproliferation policy is complex and nuanced, reflecting the country's **desire for security and recognition**, as well as its commitment to global disarmament and non-proliferation.

Source: IE

NOBEL PRIZE IN MEDICINE 2024: DISCOVERY OF MICRORNA

Context

- The Nobel Prize for Medicine 2024, has been awarded to scientists **Victor Ambros and Gary Ruvkun** for their **discovery of microRNA**.

What is MicroRNA?

- MicroRNA are molecules that **help cells control their protein production**.
 - ◆ Different cells in the body create different proteins, depending on their specific functions.
- The **differentiation among cells is governed by gene regulation**, which effectively turns on or off specific genes in a cell in order to allow it to carry its specific task.

Proteins formation

- The body makes proteins in a complex process with two broad steps.
 - ◆ **In the transcription step**, a cell copies a DNA sequence into **messenger RNA (mRNA)** in the nucleus. The mRNA moves from the nucleus, through the cell fluid, and attaches itself to the ribosome.

- ♦ **In the translation step**, another type of RNA called **transfer RNA (tRNA)** brings specific amino acids to the ribosome, where they are linked together in the order specified by the mRNA to make the protein.
- **Micro RNA**, or miRNA, regulates the production of proteins by bonding with and subsequently **silencing the mRNA** at an appropriate juncture. The process is called **post-transcriptional gene regulation**.

Significance of the study

- The discovery revealed a **new dimension to gene regulation** where MicroRNAs are fundamentally important for how organisms develop and function.
- A single microRNA can regulate the expression of many different genes and similarly a single gene can be regulated by multiple microRNAs.
 - ♦ Hence **microRNA coordinating and fine-tuning** entire networks of genes.
- The cells and tissues do not develop normally without microRNAs. Abnormal regulation by microRNA can contribute to cancer.
- **Mutations in genes coding** for microRNAs have been found in humans, causing conditions such as congenital hearing loss, eye and skeletal disorders.

Source: TH

- ♦ These are caused by the interaction of solar wind with **oxygen and nitrogen gas in the atmosphere**.

Source: TH

NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS (NCPCR)

Context

- The National Commission for Protection of Child Rights (NCPCR) has raised concerns by urging a halt to state funding for madrasas unless they adhere to the Right to Education (RTE) Act.

National Commission for Protection of Child Rights (NCPCR)

- **Background:** NCPCR is a statutory body set up under the **Commissions for Protection of Child Rights (CPCR) Act, 2005**.
 - ♦ It is under the administrative control of the **Ministry of Women & Child Development**.
- **Structure:** This commission has a **chairperson and six members** of which at least two should be women.
- **The Commission's Mandate** is to ensure that all Laws, Policies, Programmes, and Administrative Mechanisms are in consonance with the Child Rights perspective as enshrined in the Constitution of India and also the UN Convention on the Rights of the Child.
 - ♦ The Child is defined as a person in the **0 to 18 years** age group.

Functions of NCPCR

- The Commission shall **examine and review the legal safeguards** in place for the protection of child rights.
- It shall **present reports to the Central Government** annually or at intervals deemed appropriate on the functioning of those safeguards.
- **The Commission shall not enquire** into any matter that is already under consideration by a State Commission or any other legally constituted Commission.

Source: TH

SYMBOL ALLOCATION TO POLITICAL PARTIES

Context

- The Election Commission of India brought in **new rules** for **allocation of symbols to Registered Unrecognised Political Parties (RUPPs)**.

NEWS IN SHORT

AURORA

In News

- Auroras captured at India's Highest Observatory in Hanle, Ladakh.

About Auroras

- Auroras are brilliant ribbons of light weaving across Earth's northern or southern polar regions.
- Aurora in the Northern Hemisphere is called **aurora borealis** and in the Southern Hemisphere it is called **aurora australis**.
- These natural light shows are caused by **magnetic storms** that have been triggered by **solar activity**, such as solar flares (explosions on the Sun) or coronal mass ejections (ejected gas bubbles).
 - ♦ Energetic charged particles from these events are carried from the Sun by the solar wind.

About

- ECI has made it **mandatory** for them to furnish audited accounts of last three financial years, expenditure statements of last two elections, and the signature of the authorised office-bearer of the party along with the application form for symbols.
- **RUPPs** are either **newly-registered parties** or those which have **not secured enough percentage of votes** in the Assembly or general election to become a State party, or those that have never contested elections after being registered.
 - ♦ Common symbols are provided to RUPPs based upon an undertaking that they would put up “at least 5% of total candidates with regard to said Legislative Assembly election of a State”.

Symbol Allocation

- Symbols are allotted to political parties and contesting candidates as per the **provisions of the Symbols Order by ECI**.
- A **recognised political party** has a reserved symbol that is **not allotted to any other candidate in any constituency**.
- For **registered but unrecognised political parties**, one of the free symbols is allotted as a common symbol during an election if that party contests in two Lok Sabha constituencies or in 5% of seats to the Assembly of a State as the case may be.

Source: TH

UNIFIL MISSION**Context**

- According to the United Nations Interim Force in Lebanon (UNIFIL), Israel Defense Forces (IDF) fired on UN peacekeepers in Lebanon.

What is UNIFIL?

- UNIFIL is a peacekeeping mission established by the **UN Security Council (UNSC) in 1978**, after Israel invaded Lebanon.
- The UNSC passed **Resolutions 425 and 426**, calling on Israel to withdraw from Lebanon.
- UNIFIL was deployed to Lebanon to fulfill three objectives;
 - ♦ Confirming the withdrawal of Israeli forces,
 - ♦ Restoring international peace and security,
 - ♦ Assisting the Government of Lebanon in ensuring the return of its effective authority in the area.

Source: TH

MURINE TYPHUS**Context**

- Recently, a Kerala man was diagnosed with the bacterial disease **murine typhus**.

About

- Also known as **endemic typhus**, flea-borne typhus or flea-borne spotted fever.
- Caused by **flea-borne bacteria Rickettsia typhi**.
- It is transmitted to humans through the bites of infected fleas. Once a flea is infected, it can spread the disease for the rest of its life. Murine typhus is **not spread from one person to another**.
- Found worldwide, primarily in **tropical and subtropical climates** where rats and rat fleas are present.
- **Symptoms:** Fever, chills, headache, and rash.
- **Treatment:** There is no vaccine currently available against the disease.

Source: IE

PM GATISHAKTI NATIONAL MASTER PLAN**Context**

- **The PM GatiShakti National Master Plan (NMP)** for multimodal connectivity, launched in 2021 has completed **three years of implementation**.

About

- It was launched to enhance the country's **infrastructure and promote seamless connectivity** across various sectors.
- It is a transformative approach for economic growth and sustainable development which is driven by **seven engines** - railway, roads, ports, waterways, airports, mass transport and logistics infrastructure.
- **Implementation:** PM Gati Shakti will **incorporate the infrastructure schemes** of various Ministries and State Governments like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN etc.
 - ♦ **Economic Zones** like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, agri zones will be covered to improve connectivity & make Indian businesses more competitive.
 - ♦ It will also **leverage technology** extensively including spatial planning tools with ISRO

(Indian Space Research Organisation) imagery developed by BiSAG-N (Bhaskaracharya National Institute for Space Applications and Geoinformatics).

Source: BS

WTO CUTS TRADE GROWTH OUTLOOK

In News

- The World Trade Organization (WTO) revised its projection for world merchandise trade growth in 2025 down to 3%, from an earlier estimate of 3.3%.

Key Findings

- GDP Growth: World real GDP** is projected to grow by 2.7% in both 2024 and 2025.
 - Lower inflation and reduced interest rates are expected to boost consumer and investment spending.
- Services Trade Outlook** is more favorable than goods trade, with strong growth in 2024. Commercial services trade grew 8% year-on-year in the first quarter of 2024.
- Global merchandise trade** saw a 2.3% year-on-year increase in the first half of 2024, recovering from a 1.1% contraction in 2023 caused by inflation and high interest rates.
- Region wise :** European Trade Outlook: European exports are expected to decline by 1.4% and imports by 2.3% in 2024, with the automotive and chemicals sectors dragging down performance.
 - Asian Trade Performance:** Asia is projected to lead global export growth, with 7.4% growth in 2024. China, Singapore, and South Korea are key contributors, while India and Vietnam's imports show strong growth.
 - North & South American Trade: South America is rebounding, while North American trade is driven by the U.S., with Mexico showing stronger import growth.
- Geopolitical Concerns:** Escalating conflicts, especially in the Middle East, could disrupt global energy costs and shipping routes, indirectly affecting global trade.
- Monetary Policy Divergence:** Diverging central bank policies could cause financial volatility, impacting capital flows and debt servicing for poorer economies

Source : TH

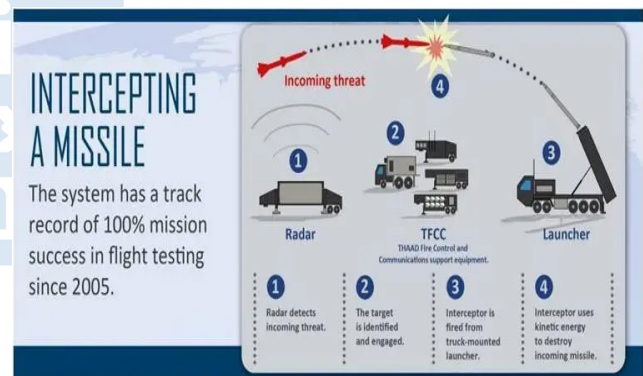
TERMINAL HIGH ALTITUDE AREA DEFENCE (THAAD) BATTERY

In News

- The U.S. will send a Terminal High Altitude Area Defence (THAAD) battery and troops to Israel amid its conflict with Hezbollah.

About THAAD

- It is an **American anti-ballistic missile defense system** capable of intercepting short, medium, and intermediate-range missiles. It uses a **“hit to kill” approach**, destroying missiles during their descent.
- It was developed by the U.S. after Iraq's Scud missile attacks in the 1991 Gulf War, which caused significant damage in Israel and Saudi Arabia. After initial proposals in 1987 and multiple test failures, a successful version emerged in 1999.
- The U.S. deployed parts of the THAAD system to Israel in 2008, with further deployments in 2012 and 2019, enhancing Israel's military strength.



Source:HT

DRAGON DRONES

Context

- A new deadly weapon known as the **“dragon drone”** has surfaced in the Russia-Ukraine war.

What are dragon drones?

- Dragon drones release a substance called **thermite, a mixture of aluminum and iron oxide**, developed a century ago to weld railroad tracks.
- When ignited (with the help of an electrical fuse), thermite triggers a **self-sustaining reaction** that is quite difficult to extinguish.
- Dragon drones tend to be **low-flying** because thermite is more effective when it's in close contact with the target.

- It can **burn through almost anything**, from clothes to trees to military-grade vehicles, and can even burn underwater.
 - ♦ On humans, it causes **severe burns and bone damage**.

Source: IE

BIOPOLYMERS

In News

- The Union Minister inaugurated India's first demonstration facility for biopolymers at Jejuri in Pune (Maharashtra).

About

- **Objective:** The facility is a demonstration of India's commitment to transitioning from fossil-based plastics to eco-friendly alternatives, addressing the global plastic pollution crisis.
- **India's Growing Bioeconomy:** India's bioeconomy has grown to more than US \$150 billion in 2023 and is projected to reach US \$300 billion by 2030.

- ♦ Earlier, the government has approved the **BioE3 Policy (Biotechnology for Economy, Environment, and Employment)**, aimed at promoting sustainable growth against the backdrop of climate change and resource depletion.

What is Biopolymer?

- They are the materials derived from biological sources such as fats, vegetable oils, and sugars, which offer several advantages over traditional synthetic polymers, which are typically made from petrochemical sources.
- Biopolymers decompose naturally in the environment, primarily through the action of bacteria, leading to minimal environmental pollution.
- When biopolymers degrade, the carbon dioxide (CO₂) they release can be absorbed by the crops or biomass used to replace them, thus maintaining a carbon-neutral cycle.

Source: PIB

