

Factly Weekly

Compilation

2024

**For UPSC CSE Prelims
Exam**

**1st Week
July 2024**

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UPSC Syllabus: Economy

First Report on Transition Finance

Why in the news?

The Expert Committee on Climate Finance has submitted its first report on Transition Finance.

Transition finance facilitates the decarbonization efforts of high-emitting industries, such as steel, cement, chemicals, aviation, and shipping, with the ultimate goal of reaching net zero.

Efforts to decarbonize high-emitting industries require a collaborative approach. Therefore, this initiative highlighting the need for sustainable finance to achieve global growth, stability, and Bharat's Net Zero Target by 2070, requiring an estimated USD 10 trillion.

About Expert Committee on Climate Finance

1. It was formed on December 21, 2023
- 2. Members:** It includes experts from policy think tanks, standard setters, consultants, industry, and global financial institutions.
- 3. Objective:** Develop a roadmap for creating a climate finance ecosystem at GIFT IFSC, focusing on Transition Finance and establishing it as a global climate finance hub.

Highlights of the Report

1. The Report on Transition Finance captures the recommendations by the Expert Committee under three pillars:

- i) Scope and definition of Transition Finance
- ii) Policy and Regulation
- iii) Financial Mechanisms and Instruments

2. Focus Areas:

- i) Driving investments in hard-to-abate sectors like steel, cement, shipping, and fertilizers.
 - ii) Strategic recommendations based on global best practices to enhance GIFT-IFSC's role in attracting international climate capital.
3. IFSCA will develop a Transition Finance framework based on the report's recommendations. The Committee will continue its work and draft its next report on transforming GIFT-IFSC into a Climate Finance Hub.

SEHER Program

Why in the news?

Recently, the Women Entrepreneurship Platform (WEP) and TransUnion CIBIL have launched the **SEHER program**.

About SEHER Program

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1. Launched by: Women Entrepreneurship Platform (WEP) and TransUnion CIBIL

2. Aim: SEHER aims to **increase financial awareness among women** entrepreneurs in India. The program also aims to **promote the importance of a good credit history and CIBIL score** for easier access to finance.

3. The program helps women understand and manage credit which is crucial for business growth.

4. Key Goals of SEHER:

i) Financial Literacy: **Educate women on financial topics**, including their CIBIL Rank and commercial credit reports.

ii) Business Skills: **Provide resources and training** to help women manage and grow their businesses.

iii) Access to Finance: Help women **understand how to access and manage credit** effectively.

5. WEP's Role: WEP is a **public-private partnership platform** incubated at NITI Aayog. It focuses on **creating an ecosystem that supports women entrepreneurs**.

6. TransUnion CIBIL's Role: It provides **financial insights and credit information**. It aims to improve the financial skills of women entrepreneurs.

7. Impact:

i) Business loan demand by women has **grown 3.9 times** from FY 2019 to FY 2024.

ii) 38% of the 1.5 crore borrowers with a business loan in March 2024 were women.

iii) The portfolio balance for business loans by women **grew at 35% CAGR** from March 2019 to March 2024.

8. SEHER will **offer personalized resources, financial literacy content, and tools** to women entrepreneurs.

Importance of Women Entrepreneurs in India:

i) India has 63 million micro, small, and medium enterprises (MSMEs), with 20% owned by women.

ii) Women-owned businesses employ around 27 million people.

iii) Accelerating women's entrepreneurship could create over 30 million new businesses and up to 170 million new jobs.

About Women Entrepreneurship Platform (WEP):

i) WEP was established by **NITI Aayog** in **2018** and became a public-private partnership in 2022.

ii) WEP **supports women entrepreneurs** by providing entrepreneurship promotion, access to finance, market linkages, training and skills development, mentoring and networking, and business development services.

About TransUnion CIBIL:

i) TransUnion CIBIL is India's **leading information and insights company**.

ii) It provides solutions to **enhance economic opportunities and personal empowerment**. It serves banks, financial institutions, NBFCs, housing finance companies, microfinance companies, and insurance firms.

UPSC Syllabus: Indian Polity and Governance

Centre issues advisory for ads on food and health products only

Why in the news?

The Ministry of Information & Broadcasting has recently issued a new advisory specifically targeting advertisements for food and health products.

About Advisory for Ads on Food and Health Products

1. This advisory requires advertisers and advertising agencies in these sectors to upload an **annual self-declaration certificate** on designated platforms.
2. This new directive **supersedes all previous advisories from the Ministry and is solely applicable to the food and health sectors**. This means that only these sectors are required to submit the self-declaration certificate annually.
3. According to the advisory, the platforms for uploading the self-declaration certificates are the **Broadcast Seva Portal for TV and radio advertisements** and the **Press Council of India Portal for print media and internet advertisements**.
4. Advertisers and advertising agencies involved in **promoting products and services in the food and health sectors are advised to comply by uploading their annual self-declaration certificates** on these specified platforms.

UPSC Syllabus-Index and Reports

Holistic Progress Card

Why in the news?

PARAKH, a standard-setting body under NCERT, recently released the **Holistic Progress Card**, a report card designed for secondary school students (Classes 9 to 12). Similar HPCs were earlier designed for students from classes 1 to 8.

About Holistic Progress Card

Objective-To transform evaluations by focusing on **diverse skills and competencies**, instead of just the performance in periodic pen-and-paper tests and exams.

Applicability-Classes 9 to 12

Implementation- It will not be used in the ongoing 2024-25 academic session.

Features-

A) Teachers and officials will receive training for its implementation. **States** have the option to either implement the HPC released by **NCERT** or **adapt** it according to their requirements..

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B) The HPC differs from internal marks in Board exam evaluations. It reflects the child's **academic achievements** over the years and is intended to enhance the Board exam results. It will be **integrated** with the Board results.

C) The progress card includes various sections like the one where students assess themselves on skills like **'time management'** and **'plans after school'**.

D) It includes an **'accomplishments inventory'** covering academic skills such as independent **work/research** and **critical and creative thinking**, as well as life skills like understanding the value of money and budgeting etc.

E) It includes the **teacher's assessment** of the student in group projects, the student's reflections on their own performance, and peer feedback on their understanding and contributions to the project.

What is the significance of Holistic Progress Card for classes 9 to 12?

1) It will realign school report cards with the **National Curriculum Framework for School Education (NCFSE)**.

Read More- [Govt. releases pre-draft of National Curriculum Framework for school](#)

2) It will contribute towards bringing **equivalence** across different boards.

Snowblind Malware

Why in the news?

Recently it has found that a new banking malware called **'Snowblind'** is targeting Android users to steal banking credentials.

About Snowblind Malware

1. About: Snowblind is a **new type of Android banking malware** designed to steal banking credentials by bypassing security features.

2. Key Features:

i) Snowblind uses a built-in Android security feature to **bypass anti-tamper mechanisms**.

ii) This malware repackages apps to **avoid detection of accessibility features** that can extract sensitive information like login credentials and gain remote access to the app.

iii) Snowblind exploits a feature called **'seccomp'**, which stands for 'secure computing' and is part of the Linux kernel and Android OS.

iv) It injects code that loads before **seccomp initializes anti-tampering measures**, allowing the malware to bypass security mechanisms and utilize accessibility services.

v) Snowblind can remotely view the victim's screen by using accessibility services.

vi) It can disable biometric and two-factor authentication, which are commonly used security features in banking apps to prevent unauthorized access.

vii) Snowblind typically infects users who install apps from untrusted sources.

viii) The malware is mostly active in Southeast Asia, although the exact number of affected devices is unknown.

3. Security Implications Snowblind poses a significant threat to banking app users by circumventing advanced security measures.

4. Users are advised to **avoid installing apps from untrusted sources** and to remain vigilant about app permissions and behaviors.

UPSC Syllabus: Science and technology

Global IndiaAI Summit 2024

Why in the news?

The Ministry of Electronics and Information Technology is organizing the 'Global IndiaAI Summit'. This summit highlights India's commitment to the **ethical and inclusive growth** of AI technologies.

About Global IndiaAI Summit 2024

1. Hosted by: The Global IndiaAI Summit 2024 hosted by the **Ministry of Electronics and Information Technology**.

2. Duration: It will take place on July 3rd and 4th in New Delhi.

3. Key Objectives

i) Foster Collaboration: Bringing together **global AI experts from various fields** including science, industry, civil society, governments, international organizations, and academia.

ii) Knowledge Exchange: Sharing insights on key AI issues and challenges.

iii) Promote Ethical AI: Emphasizing **responsible AI development** and deployment.

4. India's Role: India will host member countries and experts from the **Global Partnership on Artificial Intelligence** (GPAI) to promote safe, secure, and trustworthy AI.

5. IndiaAI Pillars and Focus Areas: The IndiaAI Mission aims to build a robust AI ecosystem in India, focusing on seven key pillars:

i) IndiaAI Compute Capacity: This pillar focuses on establishing a **scalable AI computing ecosystem with over 10,000 GPUs** through public-private partnerships. An AI marketplace will provide AI as a service and pre-trained models, acting as a central hub for essential AI resources.

ii) IndiaAI Innovation Centre: Dedicated to **developing and deploying indigenous large multimodal models** (LMMS) and domain-specific foundational models, this center aims to cater to the unique needs of India's diverse industries and sectors.

iii) IndiaAI Datasets Platform: This platform aims to streamline access to **high-quality non-personal datasets for AI innovation**. A unified data platform will provide seamless access for Indian startups and researchers, aiding in the development of robust AI models.

iv) IndiaAI Application Development Initiative: This initiative promotes AI applications in critical sectors by addressing problem statements from Central Ministries, State Departments, and other institutions. It focuses on developing impactful AI solutions for large-scale socio-economic transformation.

v) **IndiaAI FutureSkills:** By reducing barriers to AI education, **this pillar aims to increase AI courses at various academic levels and establish Data and AI Labs** in Tier 2 and 3 cities, ensuring a steady pipeline of skilled AI professionals nationwide.

vi) **IndiaAI Startup Financing:** This pillar supports **deep-tech AI startups** with streamlined access to funding. By providing risk capital and financial support, the mission aims to nurture a vibrant ecosystem of AI startups driving technological advancements and economic growth.

vii) **Safe & Trusted AI:** This pillar ensures **responsible AI development** by implementing Responsible AI projects, developing indigenous tools and frameworks, and establishing guidelines for ethical, transparent, and trustworthy AI technologies.

World's first brain implant

Why in the news?

Recently, a **UK-based teenager became the first person to receive a brain implant** designed to control epileptic seizures.

How Does the Brain Implant Work?

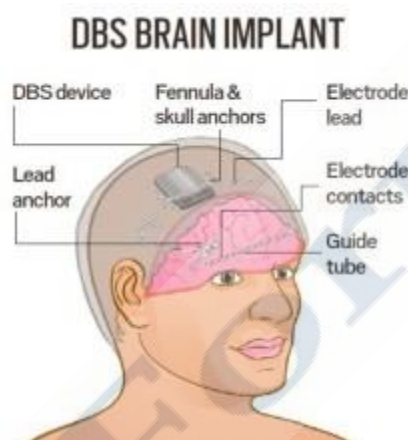


Figure 1. Source: IE

EXPRESS
explained.
HEALTH

1. A **neurostimulator** is used which is an **implantable device** that delivers mild electrical pulses to nerves.

2. This **neurostimulator delivers constant electrical impulses** to the brain to disrupt or block abnormal seizure-causing signals. It is surgically implanted in the skull.

3. Two electrodes are **inserted deep into the brain to reach the thalamus**, connected to the neurostimulator. The device can be recharged wirelessly.

About Deep Brain Stimulation

(DBS)

- 1) Deep brain stimulation (DBS) involves **implanting electrodes within areas of the brain**.
- 2) DBS is used for movement disorders like **Parkinson's disease** and other neurological conditions.
- 3) It has been used for nearly a decade in **treating epilepsy**. Traditionally such devices were placed in the chest with wires running to the brain.

Treatment for Epilepsy

1) First Line of Treatment: Doctors initially use **anti-seizure medications and a ketogenic diet**, which is high in fats and low in carbohydrates, known to reduce seizures.

2) Surgical Options: If medications and diet do not work, **brain surgery may be performed** to remove the seizure-originating part of the brain.

3) Corpus callosotomy: It is a surgery to remove the part connecting both brain halves. This may be suggested for children to **prevent abnormal electrical signals** from spreading.

Comparison of Surgery vs. DBS Device

1. Surgery is preferred over DBS devices as it **can reduce seizures by nearly 90%**, compared to about 40% reduction by DBS devices.

2. DBS is recommended for patients with seizures originating from multiple brain parts or when other treatments fail.

About Epilepsy

1) Epilepsy is a condition that leads to recurring seizures.

2) Caused by: It is caused by **abnormal electrical activity** in the brain.

3) Symptoms: It include jerking of arms and legs, temporary confusion, staring spells, or stiff muscles.

4) Causes: Approximately **50% of epilepsy cases have no identifiable cause**. Possible causes include head trauma, brain tumors, infections like meningitis, and genetic factors. Epilepsy can increase the risk of accidents, drownings, and falls.

Advanced Medium Combat Aircraft (AMCA)

Why in the news?

The development of India's indigenous fifth-generation fighter aircraft, known as the Advanced Medium Combat Aircraft (AMCA) is making significant progress. It is expected to be ready by 2028-29.

About Advanced Medium Combat Aircraft (AMCA) prototype



Figure 2. Source: Blogspot

1. Led by: The project is led by the Defence Research and Development Organisation (DRDO) and Hindustan Aeronautics Limited (HAL). It is set to revolutionize India's defense capabilities.

2. The first prototype is anticipated to be ready by 2028-29, with production expected to commence by 2032-33, and induction into the Indian Air

Force planned for 2034.

3. Aim: The AMCA aims to

establish India's prowess in aerospace technology and enhance its self-reliance in defense manufacturing.

4. Importance:

i) The AMCA is a critical project for India's defense strategy, especially as global powers like China advance their own fifth-generation fighter aircraft programs.

ii) **Strategic Importance:** The AMCA project is vital for India as it represents the country's only indigenous fifth-generation fighter aircraft development.

iii) As global adversaries like China continue to deploy advanced aircraft such as the J-20 FGFA, the AMCA is crucial for maintaining strategic parity and bolstering national defense.

iv) By 2034, the AMCA is expected to be fully operational, enhancing the Indian Air Force's capabilities and reinforcing India's position as a major player in the global defense arena.

v) This ambitious project underscores India's commitment to advancing its technological and defense infrastructure, ensuring readiness to meet future security challenges.

Key Features of the AMCA:

Aspects	Description
Design and Specifications	i) The AMCA is designed as a 25-tonne twin-engine stealth aircraft. ii) It features an internal weapons bay, ensuring reduced radar cross-section. iii) The diverterless supersonic intake (DSI), developed indigenously, enhances the aircraft's stealth and aerodynamic performance. iv) Payload capacity includes 1,500 kg internally and 5,500 kg externally, with an internal fuel capacity of 6,500 kg.
Stealth and Performance	i) The aircraft's stealth capabilities are integral, making it less detectable by enemy radar. ii) The twin-engine configuration is intended to provide superior speed, agility, and combat performance.

What is AI Washing?

Why in the news?

Recently, it has been revealed that some tech companies and startups are falsely marketing themselves as using artificial intelligence (AI), a practice known as "AI washing."

About AI Washing

1. The term AI washing is derived from "greenwashing," where companies exaggerate their environmental friendliness to attract customers.
2. It involves businesses claiming to have integrated sophisticated AI into their products while using much less advanced technology.

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3. It is a deceptive promotional practice where companies exaggerate or falsely claim their products or services use AI.

4. Objective: To capitalize on the growing interest in AI and make their offerings appear more advanced and cutting-edge than they actually are.

5. Examples: A company might claim that their chatbot is “powered by the latest AI technology” when it merely matches keywords with pre-written responses.

Impacts and Problems

1. For Businesses: It can lead to overpaying for technology and services that do not deliver the expected benefits, failing to achieve operational objectives that genuine AI could help with.

2. For Investors: It makes it difficult to identify genuinely innovative companies, potentially leading to misinformed investment decisions.

New Shepard Spacecraft

Why in the news?

Jeff Bezos-led Blue Origin has partnered with the Space Exploration and Research Agency (SERA) to provide common Indian citizens with the opportunity to travel into space aboard the New Shepard spacecraft.

About New Shepard Spacecraft

1. The New Shepard is a suborbital space travel vehicle designed for both scientific research and space tourism. It is named after Alan Shepard who was the first American in space.
2. It features a fully reusable rocket system intended for human spaceflight, consisting of a reusable booster and a pressurized crew capsule that can accommodate six passengers.
3. Each passenger is provided with a window seat to enjoy breathtaking views of Earth through the largest windows ever flown in space.
4. The spacecraft's 11-minute journey takes passengers beyond the Karman line, where they experience several minutes of weightlessness before making a controlled descent back to Earth aided by parachutes.

About the Karman Line

1. The Karman line is an imaginary boundary located at 100 km (62 miles) above sea level, demarcating the Earth's atmosphere from space.
2. It was established in the 1960s by the Fédération Aéronautique Internationale (FAI) and named after aerospace pioneer Theodore von Kármán.
3. This line is recognized by most countries and space organizations as the official boundary between Earth's sky and space.
4. However, some organizations, including the Federal Aviation Administration, NASA, and the U.S. military, place the boundary at 80 km (50 miles) above the Earth's surface.
5. At altitudes above the Karman line, the air is too thin for a propulsion system that relies on lift generated by Earth's atmosphere, necessitating alternative propulsion methods for spacecraft.

Exercise Nomadic Elephant

Why in the news?

India and Mongolia will conduct the bilateral joint military exercise "NOMADIC ELEPHANT-23" in Ulaanbaatar from 17 to 31 July 2023.

About Exercise Nomadic Elephant



Figure 3. Source: PIB

relations.

6. Significance of the exercise:

- i) It is an annual training event alternating between India and Mongolia.
- ii) It enhances defence cooperation and bilateral relations.
- iii) It promotes interoperability and shared military strategies.

1. It is the 15th edition of bilateral joint military exercise.

2. **Date and Location:** It would commence from 03 -16 July 2024 at Umroi, Meghalaya.

2. **Participants:** Indian contingent comprising of 45 personnel is being represented by a Battalion of **SIKKIM SCOUTS** along with personnel from other arms and services. The Mongolian contingent is being represented by personnel from **150 Quick Reaction Force Battalion of the Mangolian Army**.

3. **Aim:** Enhance joint military capability for counter-insurgency operations in a sub-conventional scenario under Chapter VII of the United Nations Mandate

4. **Primary Theme:** Counter-terrorism operations in mountainous terrain under United Nations mandate

5. Focus Areas:

- i) Operations in semi-urban and mountainous terrain.
- ii) Sharing best practices in tactics, techniques, and procedures for joint operations.
- iii) Developing inter-operability, camaraderie, and bonhomie between the two armies.
- iv) Augmenting defence cooperation and bilateral

Exercise MAITREE

Why in the news?

Recently, the Indian Army contingent departed to take part in **India- Thailand joint military Exercise MAITREE**.

About Exercise MAITREE



Source: PIB

Aspects	Description
About	<ol style="list-style-type: none">1. The 13th edition of Exercise MAITREE is scheduled to be conducted from 1st to 15th July 2024 at Fort Vachiraprakan in Tak Province, Thailand.2. The last edition of this exercise was conducted at Umroi, Meghalaya, in September 2019.
Participants	The Indian Army contingent, comprising 76 personnel, is represented mainly by a Battalion of the LADAKH SCOUTS along with personnel from other arms and services.
Aim	The aim of Exercise MAITREE is to foster military cooperation between India and Thailand .
Focus Areas	<ol style="list-style-type: none">1. The exercise will enhance combined capabilities in executing joint counter-insurgency and counter-terrorist operations in jungle and urban environments under Chapter VII of the United Nations Charter.2. The exercise will focus on a high degree of physical fitness, joint planning, and joint tactical drills
Tactical Drills	<ol style="list-style-type: none">1. Tactical drills to be practiced during the exercise will include the creation of a Joint Operation Centre and establishing an Intelligence & Surveillance Centre.

	<p>2. The exercise will involve the employment of drones and counter-drone systems, securing a landing site, and conducting small team insertion and extraction.</p> <p>3. Special heliborne operations, cordon and search operations, room intervention drills, and the demolition of illegal structures will also be part of the training.</p>
Significance	<p>1. Exercise MAITREE will enable the two sides to share their best practices in tactics, techniques, and procedures for conducting joint operations.</p> <p>2. The exercise will facilitate the development of interoperability, bonhomie, and camaraderie between soldiers of both countries.</p>

UPSC Syllabus: Defence

Air Pollution and Mortality in Indian Cities

Why in the news?

A new study analyzed the **health effects of short-term exposure to air pollution**, specifically PM 2.5, in ten Indian cities: Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai, Pune, Shimla, and Varanasi.

Key Findings of the Study

- 1. Higher Death Rates in Cleaner Cities:** **Spikes in air pollution in cities with cleaner air**, such as Bengaluru, **may lead to higher death rates compared to cities with already high pollution levels**, like Delhi. For example, a similar increase in PM 2.5 levels raises death rates more in Bengaluru than in Delhi.
- 2. Annual Deaths Attributable to Air Pollution:** **Delhi experiences approximately 12,000 deaths per year linked to air pollution.** Bengaluru has about 2,102 deaths per year, while Shimla has the lowest number, with 59 deaths per year.
- 3. Fraction of Annual Deaths Due to Air Pollution:** In Delhi, **11.5% of annual deaths are attributable to air pollution.** In Bengaluru, **4.8% of annual deaths are linked to air pollution.** Additionally, Bengaluru's population experiences 30% of the daily air pollution exposure compared to Delhi residents.
- 4. Impact of PM 2.5 Increases:** Nearly 30,000 deaths, or **7.2% of annual deaths in the ten cities**, were due to **short-term PM 2.5 exposure.** The study found that total daily deaths rose by 1.42% for every 10 microgram per cubic metre increase in PM 2.5 exposure over a two-day period.
- 5. Risk of Mortality and PM 2.5 Levels:** The study confirmed that the **risk of mortality rose more quickly at lower PM 2.5 levels and plateaued as levels increased.** A significant mortality risk of 2.65% was observed even on days with PM 2.5 levels below the Indian national air quality standard of 60 microgram per cubic metre.

Comparative Findings:

A 272-city study in China reported a 0.22% increase in death rates per 10 microgram per cubic metre increase in PM 2.5.

In contrast, **higher death rates were observed in countries with lower base pollution levels**: Greece had a 2.54% increase, Japan had a 1.42% increase, and Spain had a 1.96% increase.

Radiation biodosimetry

Why in the News?

Radiation biodosimetry is extremely important in responding to a large-scale radiological event, such as an **Improvised Nuclear Device** or **reactor accident**. It helps in the assessment of the level of radiation and the administration of drugs in accordance with the exposure levels.

What is biodosimetry?

Biodosimetry- Biodosimetry is the **determination of the amount of radiation** to which an individual was exposed to, **based on changes in blood, urine, or hair**. It is particularly useful in a radiological event, where the exposed individuals do not carry any personal radiation monitoring devices.

What are the different methods employed in biodosimetry?

1. Gold standard biodosimetry assay/Dicentric Chromosome Assay (DCA) – It involves the **measurement of chromosome aberrations**, in white blood cells.

Process- In this process when the DNA of a person who is exposed to radiation is irradiated, there is formation of **Dicentric Chromosome (DC)**. These Dicentric Chromosome (DCs) are counted to assess the exposure levels. Higher the DCs, higher is the exposure level.

Advantage and Disadvantage

The Dicentric Chromosome Assay (DCA) has been **successfully employed** in many radiation accidents, **where the number of exposed people is small**.

However, when the number of persons exposed to radiation are large, this process is not very useful as **it is too labour intensive** and **has very less output of approximately 10 samples per day**.

2. Cytokinesis Block Micronucleus Assay (CBMN)- In this process the white blood cells are made to divide, but arrested before division is complete. Following radiation exposure, **some DNA is ejected during division** forming a '**micronucleus**'. This '**micronucleus**' helps in determining the exposure to radiation.

Advantage and Disadvantage- This assay is slightly simpler to perform and score. However, the overall time to confirm the exposure level is longer (~3 days), as it requires longer culturing of the cells.

As seen above, the present methods of biodosimetry (DCA and CBMN assays) suffers from the challenge of low scalability and low speed of radiation detection. **Center for Radiological Research at Columbia University** has established **several commercial High Throughput Screening (HTS) platforms**, which would significantly increase the radiation detection rates

Scientists discover ants have evolved effective wound treatment through amputation

Why in the news?

Scientists found that **Florida carpenter ants** perform amputations on their injured nest mates as a form of wound treatment.

Key Findings of the study

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1. Amputations are performed only on certain leg injuries, suggesting methodical and targeted surgical practices. This is the first known instance of an ant species using amputation to treat an injury.
2. Amputations significantly improve survival rates, with ants surviving 90% of the time after amputation of limbs.
3. **Consensual Amputations:** The procedure appears consensual, with injured ants presenting their leg to another ant for amputation. After the leg is amputated, the wounded ant cleans the wound itself, followed by another ant finishing the cleaning process.
4. **Selective Amputations:** Amputations are only performed on ants with thigh injuries, not on lower leg injuries.
5. Researchers tracked amputees and found that survival rates of those with lower leg injuries were only 20%. Scans revealed multiple muscles in the ants' thighs that help in hemolymph regulation, making thigh injuries less fatal.
6. It has been found that thigh injuries result in rapid infection spread if not amputated, leading to the evolution of this behavior in ants. The behavior indicates a complex level of social organization and understanding among ants.
7. This finding might suggest similar behaviors in other species and provides insight into ant social dynamics and medical behavior.

Junk DNA

Why in the news?

Researchers using artificial intelligence have discovered potential cancer drivers hidden within so-called 'junk' regions of DNA.

About Junk DNA



Figure 4. Source: National Institutes of Health (NIH)

1. In genetics, junk DNA refers to regions of DNA that are noncoding. While DNA contains instructions (coding) for creating proteins in cells, not all genetic sequences within a DNA molecule code for proteins.
2. DNA can be a coding DNA which uses instructions to create proteins and noncoding DNA which are sequences that do not code for proteins.
3. **Types of Noncoding DNA:** Some noncoding DNA is used to produce non-coding RNA components, such as Transfer RNA (tRNA), regulatory RNA and ribosomal RNA (rRNA).
4. **Junk DNA:** Other regions of noncoding DNA are not transcribed into proteins or

used to produce RNA molecules, and their function is unknown. These are referred to as junk regions of DNA.

5. Proportion of Coding vs. Noncoding DNA: The proportion of coding versus noncoding DNA varies significantly between species:

- i) Humans have about 98% of the DNA is noncoding.
- ii) Bacteria have only about 2% of the genetic material is noncoding.

6. Functional Activity in Junk DNA: Despite being labeled as junk, researchers have found evidence suggesting that junk DNA may have some functional activity. For instance, fragments of what were originally non-functional DNA might have acquired a function through a process called **exaptation**.

Note: Exaptation refers to the acquisition of a function through means other than natural selection, indicating that these noncoding regions might have roles that are not yet fully understood.

UPSC Syllabus: Schemes and Programmes

Sampoornata Abhiyan

Why in the news?

NITI Aayog will launch 'Sampoornata Abhiyan' which is a 3-month campaign to achieve saturation of 6 key indicators in Aspirational Districts and 6 key indicators in Aspirational Blocks across the country.

About Sampoornata Abhiyan



Figure 5. Source: PIB

electricity at the secondary level

- iii) Percentage of children fully immunized (9-11 months) (BCG+DPT3+OPV3+Measles 1)
- iv) Percentage of pregnant women registered for Antenatal Care (ANC) within the first trimester
- v) Percentage of pregnant women taking Supplementary Nutrition under the ICDS Programme regularly
- vi) Percentage of schools providing textbooks to children within 1 month of the start of the academic session

1. About: It is a 3-month campaign initiated by NITI Aayog.

2. Objective: To achieve saturation of 6 key indicators in Aspirational Districts and 6 key indicators in Aspirational Blocks.

3. Programs Involved: Aspirational Districts Programme (ADP) which targets 112 Aspirational Districts and Aspirational Blocks Programme (ABP) which targets 500 Aspirational Blocks.

4. Key Indicators for Aspirational Districts:

- i) Number of Soil Health Cards distributed
- ii) Percentage of schools with functional

5. Key Indicators for Aspirational Blocks:

- i) Percentage of persons screened for Diabetes against the targeted population
- ii) Percentage of persons screened for Hypertension against the targeted population
- iii) Percentage of pregnant women registered for Antenatal Care (ANC) within the first trimester
- iv) Percentage of pregnant women taking Supplementary Nutrition under the ICDS Programme regularly
- v) Percentage of Soil Health Cards generated against the soil sample collection target
- vi) Percentage of Self-Help Groups (SHGs) that have received a Revolving Fund against the total SHGs in the block

About Aspirational Districts and Aspirational Blocks Programme

Aspirational Districts Programme	Aspirational Blocks Programme
It was launched in 2018 under NITI Aayog.	It was launched in 2023 under NITI Aayog.
Aims: To quickly and effectively transform 112 districts across the country.	Aims: It aims for saturation of essential government services in 500 Blocks(329 Districts) across the country
Focuses on five themes: Health & Nutrition Education Agriculture & Water Resources Financial Inclusion & Skill Development Infrastructure	Focuses on five themes: Health & Nutrition Education Agriculture and Allied Services Basic Infrastructure Social Development
The progress is measured on 81 indicators of development.	The progress is measured on 40 indicators of development.

UPSC Syllabus: International organization

Codex Alimentarius Commission

Why in the news?

Recently, India participated in the **86th session of the Executive Committee of Codex Alimentarius Commission.**

About the 86th Session of the Executive Committee of Codex Alimentarius Commission

1. India is actively participating in the 86th session of the Executive Committee (CCEXEC) of the Codex Alimentarius Commission (CAC), **which is being held from 1st to 5th July 2024 at the FAO Headquarters in Rome.**

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2. Shri G Kamala Vardhana Rao, the CEO of the Food Safety and Standards Authority of India (FSSAI), is representing India at this important session.

3. India's Contributions:

i) India **strongly supported the advancement of standards development for various spices**, including small cardamom, turmeric, and vanilla. This initiative is particularly significant for India, a major producer and exporter of these spices, as it will facilitate smoother international trade.

ii) Additionally, India backed the **progression of standards for named vegetable oils**, guidelines for **controlling Shiga Toxin-Producing Escherichia coli**, and the **safe use and reuse of water in food production and processing**.

iii) India also championed the proposal for developing Codex guidance on food safety considerations related to the **use of recycled materials in food packaging**. This initiative is crucial for addressing global challenges such as climate change, environmental protection, and sustainability.

iv) India's participation as a member elected on a geographic basis (Asia) **underscores its dedication to establishing robust food safety standards and promoting fair practices** in the global food trade.

About Codex Alimentarius Commission (CAC)

1. About: The Codex Alimentarius Commission (CAC) is an **international food standards body** jointly established by the **Food and Agriculture Organization (FAO)** and the **World Health Organization (WHO)** in May 1963.

2. Mission: Its mission is to **develop and harmonize food standards at the global level**.

3. Membership: The CAC has **189 Codex Members**, including 188 Member Countries and 1 Member Organization (The European Union). **India became a member in 1964**.

4. Objectives:

i) Develop and adopt international food standards (Codex Standards).

ii) Ensure food safety and quality.

iii) Facilitate fair trade practices in food products.

iv) Protect consumer health.

5. Executive Committee (CCEXEC): This **executive body** assists in shaping international food standards. India, as the Regional Coordinator for the FAO/WHO Regional Coordinating Committee for Asia (CCASIA), is a member of the CCEXEC.

6. Composition of CCEXEC: It involves **chair, Three Vice Chairs, six Regional Coordinators and seven Elected Representatives** from different geographical regions of Codex.

7. The CAC meets annually, alternating between Geneva and Rome, and **works in the six United Nations official languages**.

8. Its **provisions cover various aspects of food safety**, including hygiene, additives, contaminants, labeling, and risk analysis.

UPSC Syllabus: Environment

Nightjars

Why in the news?

Recently, scientists have described a **new species of nightjar**, named **Caprimulgus ritae**, found in the tropical forests of Timor and Wetar in the Lesser Sunda Islands.

About Nightjars



Source: Birdfact

Aspects	Description
About	<ol style="list-style-type: none">1. Nightjars are medium-sized, nocturnal, insectivorous birds belonging to the family Caprimulgidae and the order Caprimulgiformes.2. Nightjars are among the most difficult bird species to study due to their unobtrusive and nocturnal behavior, as well as their cryptic plumage.
Features	<ol style="list-style-type: none">1. Physical Characteristics: Nightjars have long wings, short legs, and very short bills.2. Diet: They feed on flying insects, catching them on the wing at night.3. Camouflage: Their grey-brown, mottled, streaked, and stripey plumage provides excellent camouflage during the daytime.4. Daytime Behavior: During the day, they sleep on the ground or perch lengthwise on a branch.
Distribution	Nightjars are found worldwide, except in Antarctica and certain island groups such as the Seychelles .

Diet	Nightjars eat a variety of flying insects , including moths and beetles. They hunt their prey in flight, which is an impressive feat in low light.
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About the Lesser Sunda Islands

- 1. Location:** The Lesser Sunda Islands are an archipelago in maritime Southeast Asia, located to the immediate east of Java and to the north of Western Australia.
- 2. Major Islands:** The group includes **Bali, Lombok, Sumbawa**, Flores, Sumba, and Timor.
- 3. Geological Formation:** The islands are part of the Sunda Arc, a volcanic arc formed by subduction along the Sunda Trench in the Java Sea. Together with the Greater Sunda Islands to the west, they make up the Sunda Islands.

Global Conclave on Plastic Recycling and Sustainability (GCPRS)

Why in the news?

The Global Conclave on Plastic Recycling and Sustainability (GCPRS) is currently underway at the Bharat Mandapam, Pragati Maidan in Delhi.

About the event

- 1. About:** It is a four-day event that brings together experts from India and abroad to address pressing concerns related to plastic waste management, recycling, and sustainability.
- 2. Aim:** The conference aims to promote circularity and discuss innovative solutions for a more sustainable future.
- 3. Key themes:** Topics covered include advances in biodegradable plastics, circular economy principles in waste management, and policy frameworks affecting plastics use and recycling.

About Global Conclave on Plastics Recycling and Sustainability (GCPRS)

- 1. About:** The Global Conclave on Plastics Recycling and Sustainability (GCPRS) is a trade exhibition under the All-India Plastics Manufacturers' Association (AIPMA).
- 2.** GCPRS aims to bring together the entire network of players in the plastics recycling industry, from collection to post-consumer phases.
- 3. Focus:** It focused on addressing critical issues related to plastic use, its environmental impact, and innovative solutions for a sustainable future.
- 4. Event Focus:**
 - i) Network Collaboration:** This event showcase business opportunities and the latest trends in plastic recycling and sustainable practices, offering numerous prospects for trade across various sectors.
 - ii) Innovative Technologies:** Showcasing innovative recycling technologies, sustainable alternatives like biodegradable and compostable plastics, and efficient waste management solutions.
 - iii) Platform for Stakeholders:** It is venue for industry leaders, startups, and environmental experts to display advancements and share insights on sustainability in the plastics industry.

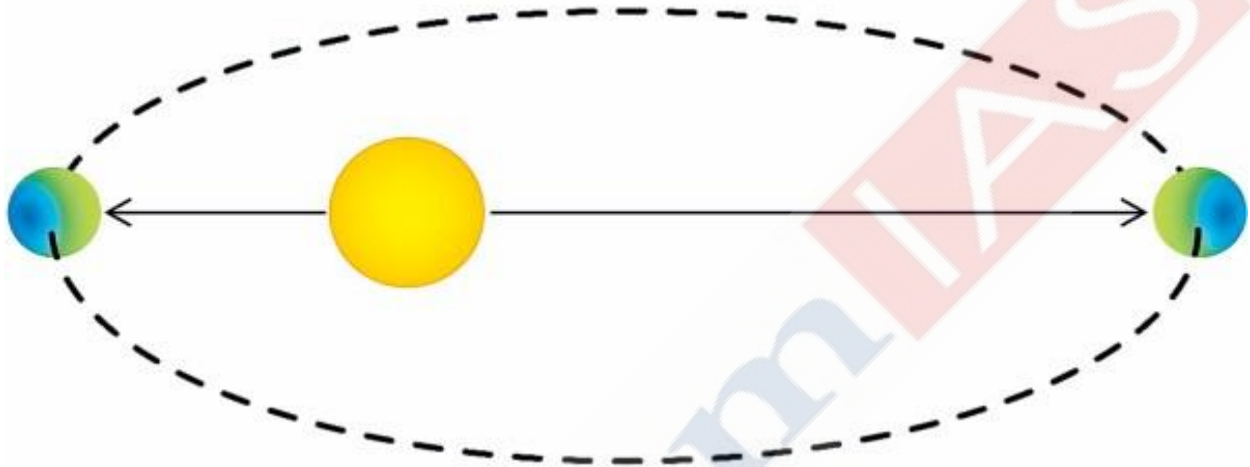
UPSC Syllabus: Geography

Aphelion Point

Why in the news?

Recently, Earth has reached aphelion.

About Aphelion



Source: Indian Express

1. Aphelion is the **point in Earth's orbit** where it is the **farthest from the Sun**. The Earth's path around the Sun is a slightly stretched-out circle or oval. This path is called an **elliptical orbit**.
2. Because of this shape, sometimes Earth is closer to the Sun, and sometimes it's farther away. **The point where Earth is farthest from the Sun is called aphelion.**

How Far is Earth at Aphelion?

1. At aphelion, Earth is about **152.1 million kilometers away** from the Sun.
2. This happens **every year in early July**. Six months later, in early January, Earth reaches the closest point to the Sun, called **perihelion**, when it is about 147.1 million kilometers away.
3. So, the distance changes by **about 5 million kilometers** between these two points.

Does Aphelion Affect Seasons?

1. Earth gets about **7% less sunlight at aphelion compared to perihelion**.
2. Instead, the tilt of the **Earth's axis is the main reason** of having seasons.
3. Depending on where Earth is in its orbit, either the Northern or Southern Hemisphere tilts towards or away from the Sun, creating the seasons.

What Would Happen if Earth's Orbit Changed?

1. If **Earth's orbit were a perfect circle**, the **lengths of the seasons would be the same**.
2. Spring and summer are a bit longer than fall and winter in the Northern Hemisphere because of elliptical orbit.

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3. If the orbit became more circular, it wouldn't cause major changes. However, if the orbit became more stretched out (more elliptical), it could make the seasons much more extreme.
4. Summers could become very hot, and winters very cold which could be harmful to life on Earth.

