

Factly Weekly

Compilation

2024

**For UPSC CSE Prelims
Exam**

1st Week

October 2024

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UPSC Syllabus: Reports and Index

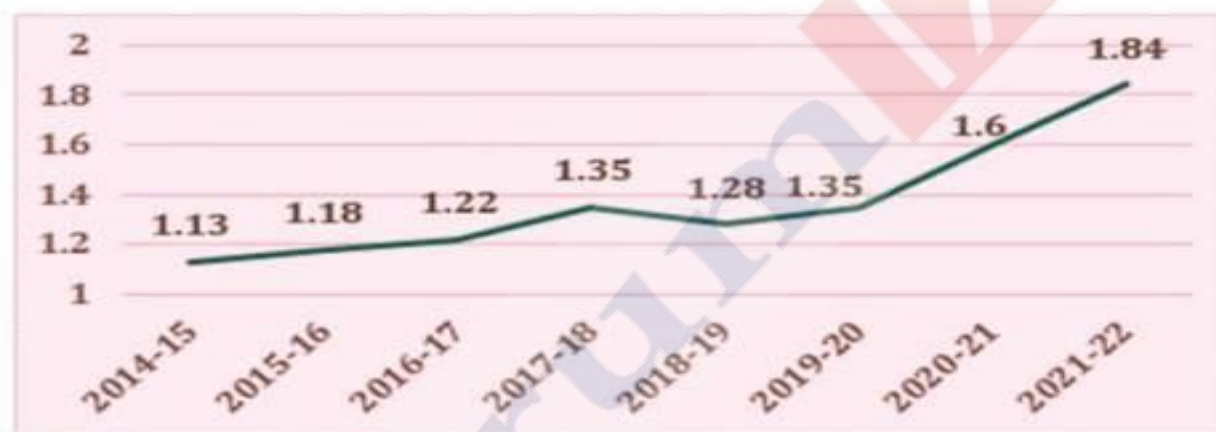
Comprehensive Overview of National Health Account (NHA) Estimates for 2020-21 and 2021-22

Why in the news?

The Ministry of Health and Family Welfare has released the eighth and ninth editions of the National Health Account (NHA) estimates for the fiscal years 2020-21 and 2021-22.

Major findings

Government Health Expenditure (GHE) as % of GDP



Source; PIB

1. Government Health Expenditure (GHE): GHE has steadily increased. GHE as a percentage of GDP rose from 1.13% in 2014-15 to 1.84% in 2021-22. The share of GHE in General Government Expenditure (GGE) also increased.

2. Decline in Out-of-Pocket Expenditure (OOPE): The share of Out-of-Pocket Expenditure (OOPE) in the Total Health Expenditure (THE) dropped significantly, from 62.6% in 2014-15 to 39.4% in 2021-22. This reduction highlights the success of government measures aimed at expanding healthcare access and reducing financial burdens on households.

3. Increased Government Share in Total Health Expenditure (THE): The government's contribution to THE increased from 29% in 2014-15 to 48% in 2021-22. This rise points to greater reliance on public health services and a reduced financial burden on citizens. The growth in GHE aligns with government efforts to improve healthcare infrastructure and enhance financial protection.

4. Growth in Social Security Expenditure (SSE) on Health: Social Security Expenditure (SSE), which includes government-funded health insurance and medical reimbursements, increased from 5.7% of THE in 2014-15 to 8.7% in 2021-22. The increase in SSE is key to reducing out-of-pocket expenses and ensuring that healthcare access does not lead to financial hardship or poverty.

5. Distribution of Current Health Expenditure (CHE): In 2020-21, the Union Government contributed Rs. 81,772 crores (12.33% of CHE), and state governments contributed Rs. 1,38,944 crores (20.94%). Contributions from enterprises, NGOs, and external donors also played a crucial role in supporting India's healthcare system during this period.

Travel & Tourism Development Index (TTDI) 2024

Why in the News?

Recently, the Travel and Tourism Development Index (TTDI) 2024 was released.

About Travel and Tourism Development Index (TTDI) 2024



Figure 1. Source: PIB

1. Published by: The World Economic Forum

2. India's Position: India has secured the 39th position among 119 countries in the TTDI 2024.

3. Improved Areas for India: India has shown significant improvements in the following areas: Prioritisation of Travel & Tourism, Safety & Security and Health & Hygiene

4. Government of India's Initiatives: The Indian government is promoting tourism as a means of social inclusion, employment generation, and economic growth. Tourism is seen as a key sector in driving India's goal to become a developed nation by 2047.

5. Measures to Boost FTAs: Key initiatives to increase FTAs include promotion of adventure and niche tourism, simplification of e-visa availability, introduction of a 24x7 multilingual tourist helpline, launch of 'Paryatan Didi' and 'Paryatan Mitra' on World Tourism Day 2024

to ensure a hospitable tourist experience.

6. Government Initiatives: Several initiatives have been undertaken to promote domestic tourism, such as Dekho Apna Desh, PRASHAD Scheme, Vibrant Village Programme, SWADESH 2.0 and Regional Connectivity Scheme (Udaan).

India's Decline on the Academic Freedom Index

Why in news?

India's Academic Freedom Index rankings have significantly declined over the past decade.

About Academic Freedom Index (AFI)

About: The Academic Freedom Index (AFI) offers a distinct approach to understanding and evaluating academic freedom globally.

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Released by: Global Public Policy Institute (GPPi) in collaboration with Scholars at Risk (SAR) and V-Dem Institute (Varieties of Democracy)

Indicators: It measures actual levels of academic freedom using five key indicators: the freedom to conduct research and teach; the freedom of academic exchange and dissemination; institutional autonomy; campus integrity; and the freedom of academic and cultural expression.

Score Range: From 0 (indicating complete repression) to 1 (indicating full academic freedom). Scores are derived from expert surveys and institutional data.

Annual report: The annual report, published as part of the “Free to Think” series by Scholars at Risk.

India’s Performance:

1. India’s score dropped from 0.6 to 0.2 between 2013 and 2023, marking the lowest score since the mid-1940s.
2. Scholars at Risk is a network of 665 universities worldwide, which monitors global threats to academic freedom.
3. The report states that the BJP-led Union government has been exerting political control over universities, often pushing a Hindu nationalist agenda.
4. Policies restricting student protests have been implemented, particularly at Jawaharlal Nehru University (JNU) and South Asian University (SAU).

UPSC Syllabus: Science and technology

European Organization for Nuclear Research (CERN)

Why in the News?

Recently, CERN celebrated its 70th anniversary.

About the European Organization for Nuclear Research (CERN)



Figure 2. Source: ESO

1. About: The European Organization for Nuclear Research (CERN) was established in 1954. It is one of the world’s largest and most respected centres for scientific research in particle physics.

2. Location: It is located near Geneva, Switzerland, on the border between Switzerland and France.

3. Mission: CERN’s primary mission is to explore the fundamental properties of the universe through advanced particle physics research.

4. Aim: CERN aims to explore dark matter, dark energy, and physics beyond the Standard Model, with upgrades to the LHC and plans for the Future Circular Collider (FCC).

Key Functions of CERN:

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- 1. Particle Physics Research:** CERN explores fundamental questions about the universe, including the nature of matter, antimatter, and the origins of the universe.
- 2. Particle Accelerators:** It operates the Large Hadron Collider (LHC), the world's largest accelerator, to study particles by recreating conditions similar to the Big Bang.
- 3. Higgs Boson Discovery:** CERN confirmed the existence of the Higgs boson in 2012, validating the Standard Model of particle physics.
- 4. International Collaboration:** With 23 member states and global partners, CERN fosters collaboration among thousands of scientists.
- 5. Technological Innovation:** CERN has driven breakthroughs like the World Wide Web and continues to lead in computing and data storage technologies.
- 6. Educational Outreach:** It supports science education through fellowships, internships, and training to inspire future physicists.

Sarco Suicide Pod

Why in the News?

Recently, Switzerland police arrested four individuals linked to the death of a 64-year-old American woman on September 23, 2024. The woman, who had an autoimmune condition, reportedly used a 'suicide pod' called Sarco to end her life.

What is Euthanasia and Assisted Dying?

Euthanasia involves a physician administering a lethal drug to a person. It can be voluntary (with patient consent) or involuntary (without patient consent, such as when the patient is in a coma).

Assisted Dying: The individual self-administers a lethal substance, with medical assistance limited to providing the drug. It does not require the person to be terminally ill.

About the Sarco Pod

1. The Sarco Pod is a euthanasia device designed to facilitate assisted suicide in a peaceful and controlled manner.
2. It was created by Dr. Philip Nitschke, an Australian physician and founder of the pro-euthanasia group Exit International.
3. The Sarco Pod aligns with the concept of "death with dignity," although its legal status varies depending on the country or region.
4. The pod is designed to be transportable, allowing individuals to end their lives autonomously and in a dignified manner without needing medical assistance.

Key Features of the Sarco Pod:

1. It is a 3D-printed, capsule-shaped pod that can be activated by the user from inside.

2. Mechanism: The device works by filling the pod with nitrogen, which reduces the oxygen levels rapidly. This leads to loss of consciousness within a few seconds, followed by a peaceful death due to hypoxia (lack of oxygen) within minutes.

3. Autonomy: A central aspect of the Sarco Pod is that the individual can activate the process independently, making it a self-administered method of euthanasia.

4. Transportable: It is designed to be mobile, meaning it can be used in different locations, potentially in a setting of the user's choosing, such as a natural outdoor environment.

5. Legal and Ethical Controversies: The Sarco Pod has sparked considerable debate worldwide, with questions about the ethical implications of euthanasia, the legal status of such devices, and concerns about misuse.

UPSC Syllabus: Art and culture

Mahakaleshwar Temple

Why in the News?

Due to heavy rainfall, it has recently caused the collapse of a boundary wall near the Mahakal Temple in Ujjain, Madhya Pradesh, killing two people.

About Mahakaleshwar Temple



1. Location: The Mahakal Temple is located in Ujjain, Madhya Pradesh. It is situated on the banks of the holy river, Shipra.

2. Dedicated to: It is dedicated to Lord Shiva. It is one of the twelve Jyotirlingas in India, which are considered the most sacred abodes of Shiva.

3. Distinctive feature: The temple's importance lies in its unique representation of Shiva in the form of the Mahakaleshwar Jyotirlinga which is believed to be a Swayambhu (self-manifested)

linga, emerging naturally from the earth.

4. Architecture and Structure:

1. The Mahakal Temple is an architectural marvel, blending intricate design elements that showcase the rich cultural heritage of India.

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2. The temple complex is expansive, with multiple shrines dedicated to various gods and goddesses, including Omkareshwara, Ganesh and Parvati.

3. The main sanctum houses the Mahakaleshwar Jyotirlinga, and the temple's towering Shikhar (spire) dominates the skyline of Ujjain.

4. One unique feature of the temple is the Bhasma Aarti, a ritual performed every morning during which the linga is bathed in sacred ash (bhasma). This ritual is carried out in the early hours and symbolizes the concept of life, death, and rebirth.

5. Spiritual Significance:

The Mahakal Temple holds a special place in Hindu cosmology and mythology.

It is mentioned in several ancient scriptures, including the Puranas where Ujjain (referred to as Avantika) is depicted as a major center for spiritual and scholarly pursuits.

The temple is believed to be the place where time itself is under the control of Mahakala, or Shiva, who is the lord of time and death.

6. Festivals and Celebrations:

The temple is particularly vibrant during Mahashivratri which is an annual festival dedicated to Lord Shiva.

Another important celebration is the Nag Panchami during which special offerings are made to the serpent gods, considered companions of Lord Shiva.

The temple also plays a key role in the Simhastha Kumbh Mela held in Ujjain every twelve years.

Classical Language Status Granted to Five New Languages

Why in the News?

The Union Cabinet has approved classical language status for five new languages: Marathi, Bengali, Assamese, Pali and Prakrit.

India's Classical Languages

Prior to this decision, India had six classical languages: Tamil, Telugu, Malayalam, Kannada, Sanskrit and Odia.

Tamil was the first to receive classical status in 2004, followed by Sanskrit in 2005.

Current criteria for Declaring a Language as Classical

- i) **Antiquity:** The language must have early texts or recorded history spanning 1500-2000 years.
- ii) **Literary Heritage:** The language should have a body of ancient literature or texts considered valuable heritage by generations of speakers.
- iii) **Original Literary Tradition:** The literary tradition should be original and not borrowed from another speech community.
- iv) **Distinctiveness:** The classical language and its literature should be distinct from the modern form, and there may be a discontinuity between the classical language and its later forms or offshoots.

Languages with Classical Status: Tamil declared in 2004, Sanskrit declared in 2005, Kannada declared in 2008, Telugu declared in 2008, Malayalam declared in 2013 and Odia declared in 2014.

Benefits of Classical Language Status

- i) **Awards:** Two major annual international awards for scholars of eminence in classical Indian languages.
- ii) **Centres of Excellence:** Establishment of a Centre of Excellence for studies in Classical Languages.
- iii) **Academic Support:** The University Grants Commission is requested to create a certain number of Professional Chairs for the Classical Languages, at least in the Central Universities.

Employment and Cultural Opportunities

1. The inclusion of new classical languages is expected to create employment opportunities in academia, research and related fields.
2. Preservation and digitisation of ancient texts will also generate jobs in archiving, translation, publishing and digital media.

UPSC Syllabus: Tribes in news

Chenchu Tribe

Why in the News?

The Chenchus of Penukumadugu who are long residents of the dense Nallamala forests face dwindling employment opportunities under MGNREGA.

About Chenchu Tribe



Figure 3. Copyrights not intended

1. About: The Chenchus are an aboriginal tribe residing in the Nallamala Hills, part of the Nagarjuna Sagar Tiger Sanctuary in Andhra Pradesh. They are recognised as a Scheduled Tribe in Andhra Pradesh.

2. The tribe's origin is linked to Lord Malikarjuna of the Srisailam temple. They also have smaller populations in Tamil Nadu and Odisha.

3. Social Structure and Living Pattern: The Chenchus live in small villages known as "Penta," consisting of several huts grouped based on kinship patterns. Villages

are overseen by a village elder called “Peddamanishi,” whose word holds the highest social authority.

4. Occupation: Traditionally, the Chenchus rely on hunting for their livelihood. They hunt animals such as deer, wild boar, rabbits, wild cock, and birds, using bows and arrows. Jungle products like roots, tubers, fruits, beedi leaves, mahua flowers, honey, gum, tamarind, and green leaves are collected and sold to traders and government cooperatives.

5. Livelihood: They also craft leaf cups and plates from tobacco leaves and sell items like tamarind and mahua flowers in local markets, which are in high demand. Honey is especially favored among the Chenchus and forms a significant part of their diet.

6. Marriage: The Chenchu society is divided into clans, with 26 gotras found within their community. Marriages within the same gotra are prohibited. Marriage is known as “Pelli”. It is often arranged by elders or chosen by the youth. The maternal uncle performs the ‘sampradaan’ ceremony (handing over of the bride).

7. Religion and Beliefs: The Chenchus worship Bhagwan Taru, a sky god who oversees their well-being, and Garelamai Sama, the goddess of the forest who protects them from danger. Other deities worshipped include Lord Shiva, Hanuman, and the Goddess of Fire.

8. Language: They speak Chenchu language variants such as Chenchucoolam, Chenchwar, Chenswar, and Choncharu, which have a Telugu accent.

UPSC Syllabus: Indian Economy

Key Insights from RBI Working Papers on Farmer's earning

Why in the News?

Recently, RBI released a working paper titled “Price Dynamics and Value Chain of Fruits in India”. The insight of this paper underscores the disparity in the share of the consumer rupee farmers receive, with significantly higher returns in dairy, poultry, and pulses compared to fruits and vegetables.

Key insights

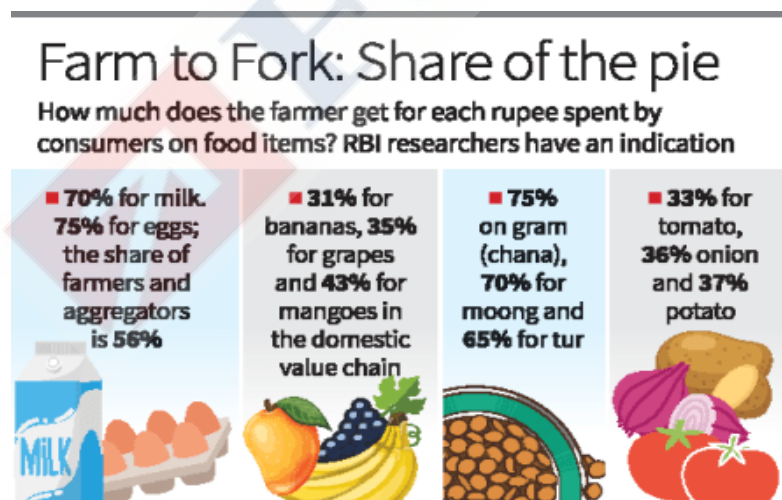


Figure 4. Source: TH

1. Middlemen and Retailers Profiteering in Fruits and Vegetables:

During periods of high inflation, middlemen and retailers have captured a significant portion of the price paid by consumers for fruits and vegetables.

This results in lower earnings for farmers, who earn less than 40% of the consumer rupee in these cases.

2. Farmers' Share in Dairy and Poultry:

In contrast, dairy and poultry farmers receive a much higher share of the consumer rupee.

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i) Milk: Farmers earn 70% of the consumer rupee.

ii) Eggs: Farmers earn 75% of the consumer rupee.

iii) Poultry Meat: Farmers and aggregators together receive 56% of the consumer rupee.

3. Farmers' Earnings from Fruits: The working paper reveals that farmers receive a relatively low share of the consumer rupee for key fruits: Bananas: 31%, Grapes: 35% and Mangoes: 43%

4. Pulses: Higher Farmer Share In the case of pulses, farmers enjoy a larger portion of the consumer rupee: Chana (Gram): 75%, Moong: 70% and Tur (Arhar): 65%

5. Farmers' Share in Vegetables: The working paper outlines the following modest earnings for farmers in essential vegetables: Tomatoes: 33%, Onions: 36% and Potatoes: 37%

SEBI Introduces New Asset Class for High-Risk Investors

Why in the News?

Recently, SEBI has introduced a new regulated asset class aimed at high-risk investors.

About SEBI's new regulated asset class

Objective: The goal is to bridge the gap between mutual funds and portfolio management services, offering more flexibility in asset construction.

Minimum Investment Requirement: Investors are required to invest a minimum of Rs 10 lakh per investor. This investment applies across all investment strategies of the new product within a particular Asset Management Company (AMC).

Key Features of the New Asset Class

1. Systematic Investment Plan (SIP): The product will offer SIP options to investors.

2. Limited Derivatives Exposure: Derivatives exposure will be capped at 25% of Assets Under Management (AUM) for purposes other than hedging and rebalancing.

3. No Leverage: The product will not allow leverage, ensuring more conservative risk management.

4. Restricted Investment in Unlisted Instruments: No investments will be allowed in unlisted or unrated instruments, except for those already permitted for mutual funds.

5. Target Investor Segment is designed for investors with investible funds ranging between Rs 10 lakh and Rs 50 lakh.

6. The higher investment threshold is meant to deter retail investors and attract those seeking more sophisticated investment strategies. It aimed at reducing the influence of unregistered and unauthorised investment schemes that often promise unrealistic high returns.

7. Benefits: SEBI will prevent the new product from being used for speculative purposes, enhancing investor protection. The new product will be referred to as 'Investment Strategies' to distinguish it from traditional mutual funds.

National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds)

Why in the News?

Recently, the Union Cabinet has approved the National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds).

About National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds)



Source: TOI

Aspects	Description
About	<ol style="list-style-type: none">1. It will be implemented over seven years, from 2024-25 to 2030-31.2. The mission will promote awareness of recommended dietary guidelines for edible oils through an Information, Education, and Communication (IEC) campaign.
Aim	It aimed at boosting domestic oilseed production and achieving self-reliance in edible oils.
Key Focus Areas	<ol style="list-style-type: none">1. The mission focuses on enhancing production of key oilseed crops, including: Rapeseed-Mustard, Groundnut, Soybean, Sunflower and Sesamum.2. It also aims to improve extraction from secondary sources such as: Cottonseed, Rice Bran and Tree-Borne Oils (TBOs)
Production Targets	<ol style="list-style-type: none">1. Increase primary oilseed production from 39 million tonnes (2022-23) to 69.7 million tonnes by 2030-31.2. Target a total domestic edible oil production of 25.45 million tonnes, meeting 72% of projected domestic demand by 2030-31.3. The mission aims to expand oilseed cultivation by an additional 40 lakh hectares.

Components of National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds)

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Components	Description
Strategies for Production Enhancement	1. Adoption of high-yielding, high-oil-content seed varieties. 2. Fallow lands from rice and potato crops will be targeted, along with the promotion of intercropping and crop diversification. 3. Utilisation of cutting-edge global technologies, such as genome editing, for seed development.
Seed Supply Infrastructure	1. Introduction of an Online 5-year rolling seed plan through the 'Seed Authentication, Traceability & Holistic Inventory (SATHI)' Portal to ensure timely seed availability. 2. Establishment of 65 new seed hubs and 50 seed storage units in the public sector.
Development of Value Chain Clusters	1. Over 600 Value Chain Clusters will be developed across 347 districts, covering more than 10 lakh hectares annually. 2. These clusters will be managed by Farmer Producer Organizations (FPOs), cooperatives, and public or private entities.
Support for Post-Harvest Units	Assistance will be provided to FPOs, cooperatives, and industries to establish or upgrade post-harvest units for oil extraction from sources such as: Cottonseed, Rice Bran, Corn Oil and Tree-Borne Oils (TBOs)
Environmental and Economic Impact	1. The mission aims to conserve water, improve soil health, and make use of fallow areas for productive farming. 2. It is expected to boost farmers' incomes while reducing dependency on imports, thereby saving foreign exchange.

UPSC Syllabus: Agriculture

National Agriculture Code (NAC)

Why in the News?

Recently, the Bureau of Indian Standards (BIS) has initiated the development of a National Agriculture Code (NAC), similar to the existing National Building Code and National Electrical Code.

About National Agriculture Code (NAC)

1. The Bureau of Indian Standards (BIS) is formulating a National Agriculture Code (NAC).
2. The NAC aims to set standards across the agriculture cycle, covering field preparation, crop selection, irrigation, harvesting, storage, and emerging areas like natural and organic farming.
- 3. Implementation:** BIS has created a strategy and formed working panels for 12-14 specific areas, involving university professors and R&D organisations.
4. The NAC will serve as a guide for farmers, agricultural universities, and officials in the field, ensuring uniformity and best practices.
- 5. Need Of NAC:** BIS currently sets standards for agricultural machinery (tractors, harvesters) and inputs (fertilizers, pesticides). There is no existing standard for critical agricultural practices such as field preparation, micro-irrigation, and water use.

6. Structure of NAC:

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- i) Part 1 includes general principles applicable to all crops.
- ii) Part 2 includes Crop-specific standards for major crops like paddy, wheat, oilseeds, and pulses.

7. Coverage of NAC: NAC will include standards for the entire agricultural cycle, including Crop selection, Land preparation, Sowing/transplanting, Irrigation and drainage, Soil health management, Plant health management, Harvesting/threshing, post-harvest operations, Sustainability practices and Record maintenance.

8. Standards for the use of inputs like chemical fertilizers, pesticides, and crop storage will also be included. It will address new areas such as natural and organic farming and Internet-of-Things (IoT) applications in agriculture.

Objectives of NAC

1. Comprehensive Code: Develop an implementable national code covering agricultural practices based on agroclimatic zones, crop types, and socio-economic diversity.

2. Quality Culture: Promote quality standards in Indian agriculture, providing references for policymakers and regulators.

3. Decision-Making Guide: Create a reference guide for farmers to make informed decisions about agricultural practices.

4. Integration: Align Indian Standards with recommended agricultural practices.

5. Smart Farming: Address broader agricultural aspects such as smart farming, sustainability, traceability, and documentation.

6. Capacity Building: Support agriculture extension services and civil society organisations in capacity-building initiatives.

UPSC Syllabus: Environment

Key Findings on Indian Elephant Migration and Genetic Diversity

Why in the News?

Recently, Researchers from Bengaluru's National Centre for Biological Sciences (NCBS) and the Indian Institute of Science (IISc) have discovered that Indian elephants migrated southward over millennia, progressively losing genetic diversity with each migration.

Key Findings on Indian Elephant Migration and Genetic Diversity

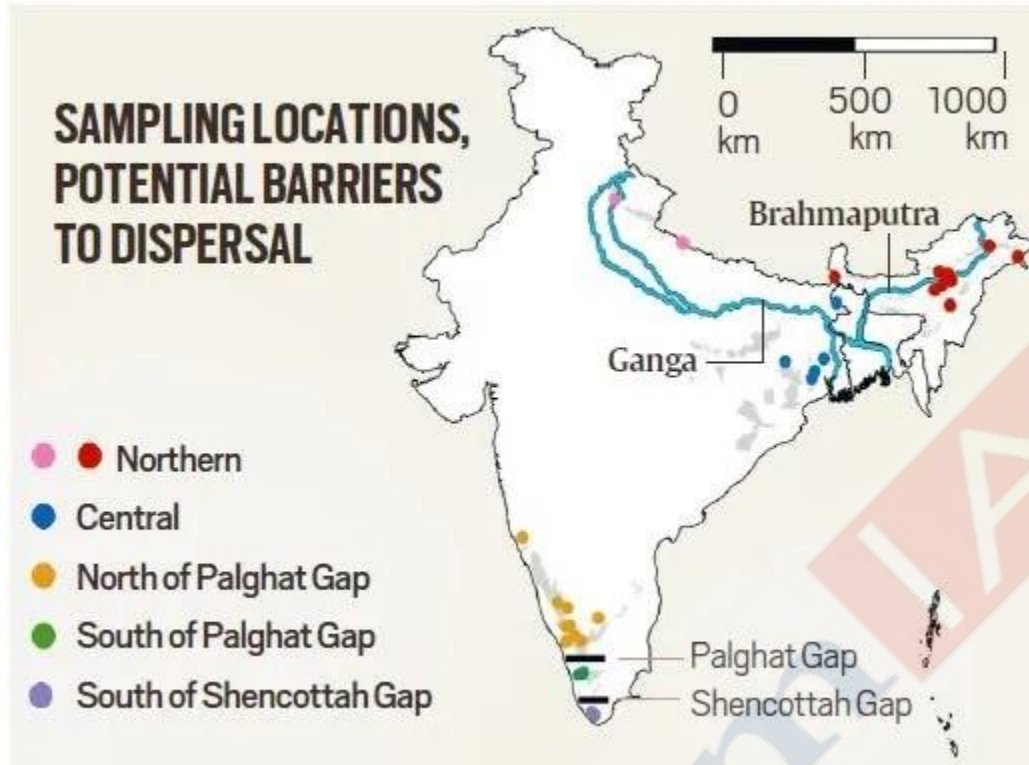


Figure 5. Source: IE

1. Migration from North to South: Indian elephants migrated progressively from the north to the south over several millennia. This movement led to a loss of genetic diversity, with the southern populations showing reduced genetic vigour.

2. Five Genetically Distinct Populations:

Researchers identified five genetically distinct elephant populations across India:

- Northern population along the Himalayan foothills (Northwest to Northeast).
- Central Indian population located in parts of central India.
- Three Southern populations distributed across Tamil Nadu and Kerala, south of the Shencottah Gap.

3. Southernmost Population and Genetic Diversity: The southernmost population, south of the Shencottah Gap, has the lowest genetic diversity, making it highly vulnerable. This isolated population consists of fewer than 150 elephants and faces a higher risk of extinction.

4. Historical Divergence of Populations: The northern population diverged from the others over 70,000 years ago. Central Indian elephants diverged around 50,000 years ago. The three southern populations separated approximately 20,000 years ago.

5. Serial Founder Effect and Inbreeding Risk: As elephants migrated southward, the reduced population sizes led to the serial founder effect. This phenomenon increased the risk of inbreeding depression, where harmful genetic traits are more likely to be passed down.

6. Southern Barrier: The study revealed that the Shencottah Gap acted as a natural barrier, further dividing the southern elephant populations. This was previously unrecognized, with the Palghat Gap thought to be the only barrier in the Western Ghats.

7. Central and Northern Populations: Central Indian elephants are found between southwest West Bengal and eastern Maharashtra, forming a distinct population. Northern elephants, in the Northwest (Uttarakhand,

Uttar Pradesh) and Northeast (Assam, Arunachal Pradesh), are separated by the Ganga and Brahmaputra rivers but were historically connected.

8. Importance of Habitat Connectivity: The study stresses the need to maintain habitat connectivity, especially in the Western Ghats, where infrastructure development has disrupted gene flow between populations.

Coastal Erosion in Brazil

Why in the News?

It has been observed due to climate change, the coastal erosion is taking place in Brazil.

Reasons for Climate Change on Brazil's Coastline

1. **Rising Global Temperatures:** Melting ice caps and glaciers due to global warming have led to rising sea levels, significantly affecting Brazil's coastline.
2. **Loss of Natural Barriers:** Deforestation and the destruction of mangroves have reduced natural coastal defences, increasing vulnerability to erosion and flooding.
3. **Poor Urban Planning:** Coastal cities were built without climate change considerations, leaving them unprepared for rising seas and extreme weather events.
4. **Extreme Weather:** Increased storms and heavy rainfall, driven by climate change, have worsened coastal erosion and infrastructure damage.
5. **River Silting:** Human activities and droughts have reduced river flow, decreasing beach replenishment and increasing saltwater intrusion.

Impact of Climate Change on Brazil's Coastline

1. **Coastal Erosion:** Rising seas have led to significant erosion, destroying homes and infrastructure in towns like Atafona.
2. **Community Displacement:** Coastal destruction is forcing people to migrate, particularly affecting fishing communities.
3. **Biodiversity Loss:** Saltwater intrusion in freshwater systems is killing species and disrupting ecosystems.
4. **Economic Losses:** Tourism and fisheries are suffering due to shrinking beaches and declining fish populations.
5. **Costly Adaptation:** Governments are spending heavily on temporary solutions, but long-term infrastructure and displacement costs are mounting.
6. **Social Challenge:** Displacement, poverty, and health risks from poor sanitation are increasing in affected areas.

UPSC Syllabus: International Organisation

International Day of Non-Violence 2024

Why in the News?

Recently, International Day of Non-Violence 2024 was observed on 2nd October.

About International Day of Non-Violence 2024



Figure 6. Source: PIB

1. About: October 2 is celebrated as the International Day of Non-Violence annually.

2. It was proclaimed by the United Nations in 2007 to honour the birth anniversary of Mahatma Gandhi.

3. **Purpose:** International Day of Non-Violence celebrates Gandhi's philosophy of peace and non-violence. It is a reminder of the enduring power of non-violence in shaping societies worldwide.

Global Influence

Gandhi's non-violent philosophy inspired global movements, including Martin Luther King Jr.'s civil rights campaign in the U.S. and Nelson Mandela's fight against apartheid in South Africa.

His ideas continue to influence leaders worldwide, emphasizing non-violence as a powerful instrument for change and reform.

Modern Relevance of his Thought

In today's world, characterized by political conflicts, social unrest, and environmental crises, Gandhi's principles of non-violence are seen as more crucial than ever.

Gandhi's philosophy offers solutions to issues like terrorism, inequality, and climate change.

His belief in humanity's intrinsic goodness provides a path to resolve modern challenges, such as poverty and pandemics through peaceful means.

Global Framework on Chemicals (GFC)

Why in news?

The Global Framework on Chemicals has recently launched its first call for projects targeting the safe and sustainable management of chemicals and waste.

About Global Framework on Chemicals (GFC):

1. About: The Global Framework on Chemicals (GFC) is an international initiative designed to address the safe management of chemicals and hazardous substances on a global scale.

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2. Stakeholders: The Framework is a unique agreement involving diverse stakeholders such as government representatives, private sector entities, non-governmental and intergovernmental organizations, youth, and academia.

3. Adoption: It was adopted in September 2023 during the fifth International Conference on Chemicals Management (ICCM5), the Framework provides a roadmap to address the environmental and health impacts of chemicals and waste.

4. Aim: The framework aims to mitigate the risks associated with chemicals throughout their lifecycle, from production to disposal, to protect human health and the environment.

5. Objective: The GFC outlines five strategic objectives and sets 28 targets to help countries and stakeholders manage chemicals throughout their entire lifecycle, including products and waste management.

6. Alignment: It aligns with global sustainability goals, particularly the United Nations' Sustainable Development Goals (SDGs), specifically Goal 12 on responsible consumption and production, and Goal 3 on good health and well-being.

Key components of the Global Framework for Chemicals (GFC)

1. Strategic Approach to International Chemicals Management (SAICM): It aims to achieve safe chemical management aligned with the 2030 Agenda. Focuses on minimizing adverse health and environmental impacts, fostering international cooperation, and building capacity.

2. Multilateral Environmental Agreements (MEAs): It includes the Stockholm, Basel, and Rotterdam Conventions, which set international legal standards for regulating and phasing out hazardous chemicals and managing chemical waste.

3. Globally Harmonized System (GHS): It provides a unified approach to classifying chemicals and sharing hazard information, enhancing global consistency and transparency.

4. Capacity Building and Technical Assistance: It emphasizes support for developing countries through technical assistance, funding, and training to improve chemical safety frameworks.

5. Pollution Prevention and Control: It encourages best practices in industries for pollution control, promoting safer alternatives, green chemistry, and sustainable production.

6. Chemical Safety in Consumer Products: It focuses on regulating chemicals in consumer products to protect health, along with developing monitoring systems to track chemical exposure.

7. Research and Information Sharing: It supports data collection on chemical risks and promotes global information sharing to improve risk assessment and policy-making.

8. Private Sector and Stakeholder Engagement: It involves industries, NGOs, and academia to innovate in safer chemicals, advocate for stronger regulations, and raise awareness on chemical safety.

UPSC Syllabus: Polity and nation

Supreme Court's Ruling on Caste Bias and Prison Segregation

Why in the News?

Recently, Supreme Court's gave a ruling on Caste Bias and Prison Segregation.

About the Supreme Court Judgement

Removing bias

The Bench says "everyone is born equal" and cannot suffer lifelong due to stigma attached to their caste.

The directions include:

- States and UTs should revise their Prison Manuals/Rules in three months
- Centre should address caste-based discrimination in the Model Prison Manual 2016 and the Model Prisons and Correctional Services Act 2023 in three months
- "Caste columns" and references to caste in prisoners' registers should be removed



Source: TH

1. Caste-Based Discrimination in Prisons: The Supreme Court declared that caste-based discrimination of prisoners, including segregation of work based on caste, is a violation of human dignity.

2. Caste Stigma and Equality: The judgment underscored that every person is born equal, and no stigma should be attached to anyone's existence based on caste. It criticized the persistence of caste discrimination even after 75 years of India's independence.

3. No "Scavenger Class" in Modern Society: The court stated that no social group should be classified as a "scavenger class" and condemned manuals that assign such roles based on caste. It invoked the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, asserting its applicability in prisons.

Supreme court observation

1. Violation of Constitutional Rights: Article 15(1) of the Constitution was cited which prohibits discrimination. He noted that caste-based discrimination within the state apparatus, including prisons, is the "highest form" of such violation.

2. The Bench also referenced Article 17, which forbids untouchability, and Article 23, which prohibits forced labor.

3. Forced Labor Based on Caste: The court found that forcing prisoners from marginalized castes to perform menial tasks, such as cleaning latrines, purely on the basis of their caste, constitutes coercion. It highlighted that prison work assignments must not be dictated by caste-based notions of purity and pollution.

Supreme court direction

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- 1. Revision of Prison Manuals:** All prison manuals and laws must be revised within three months to remove any provisions that sanction caste-based discrimination.
- 2. Deletion of Caste Column:** The 'caste column' and any references to caste in the registers of undertrials and convicts maintained in prisons must be deleted.
- 3. No Arbitrary Arrest of Denotified Tribes:** Members of denotified tribes must not be subjected to arbitrary arrest or treated as 'habitual offenders' without proper statutory backing.
- 4. Abolition of Caste-Based Work Segregation:** Any segregation of prisoners based on caste, especially in relation to work duties like cleaning latrines or sweeping, must cease.
- 5. Constitutional Compliance in Work Assignment:** Work assignments in prisons must be based on objective criteria like aptitude, health, and psychological needs, rather than caste.
- 6. Enforcement of Anti-Manual Scavenging Act in Prisons:** The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 must be enforced in prisons to stop caste-based labor assignments.
- 7. Changes to Modern Prison Manual and Model Act:** The Union government must revise the Modern Prison Manual of 2016 and the Model Prisons and Correctional Services Act of 2023 to eliminate caste-based discrimination and forced labor practices within three months.
- 8. Abolition of Caste-Based Privileges:** Any caste-based privileges or segregation practices, such as separating prisoners by caste or religion in barracks, must be abolished.

UPSC Syllabus: Schemes and Programme

Ministry of Environment, Forest and Climate Change Notifies Ecomark Rules under the LiFE Initiative

Why in the news?

The Ministry of Environment, Forest and Climate Change notified the new Ecomark Rules on 26th September 2024. The scheme aligns with the 'LiFE' (Lifestyle for Environment) Mission. This new scheme replaces the previous Ecomark scheme of 1991.

About Ecomark Scheme

1. About: The Ecomark Scheme provides accreditation and labelling for household and consumer products that meet specific environmental criteria while maintaining quality standards as per Indian norms.

2. Key Objectives of the Ecomark Scheme:

i) Promoting Sustainable Consumption: The scheme encourages the demand for environment-friendly products by fostering consumer awareness of eco-conscious choices.

ii) Enhancing Production Practices: It motivates manufacturers to adopt environmentally friendly production methods, aligning with sustainable development goals.

iii) Ensuring Accurate Labelling: The scheme ensures that products carry accurate environmental labels and eliminates misleading information.

iv) Resource Efficiency and Circular Economy: It promotes lower energy consumption and resource efficiency, contributing to a circular economy.

3. Implementation Partners: The scheme will be implemented by the Central Pollution Control Board (CPCB). The Bureau of Indian Standards (BIS) will collaborate in ensuring strict environmental standards for accredited products.

4. Impact on Environmental and Consumer Awareness:

Minimal Environmental Impact: Products certified under the Ecomark scheme will adhere to specific environmental criteria to reduce ecological footprints.

Building Consumer Awareness: The scheme aims to increase consumer understanding of environmental issues and the benefits of sustainable consumption.

5. Alignment with Global and National Goals:

The Ecomark scheme supports India's commitment to environmental conservation and protection.

It aligns with global sustainability goals and encourages both individual and collective decision-making towards a more sustainable future.

UPSC Syllabus: Science and technology (Defence)

Early Warning Aircraft Acquisition

Why in the News?

Recently, the Indian Air Force (IAF) has been working towards bolstering its Airborne Early Warning and Control (AEW&C) aircraft fleet, recognising the need for these crucial force multipliers.

Procurement of 12 AEW&C Aircraft

1. The IAF is considering two separate programs to procure 12 AEW&C aircraft.
2. **Purpose:** Address the shortage of AEW&C aircraft, highlighted during the aerial engagement with the Pakistan Air Force following the Balakot air strike in 2019.
3. **Existing AEW&C and AWACS Systems:** The IAF operates three Phalcon AWACS on IL-76 aircraft (360-degree coverage) and three Netra AEW&C systems (240-degree coverage).

First Program: Embraer-Based AEW&C Mk1A

1. The IAF currently operates three Netra AEW&C systems based on Embraer aircraft.
2. There are plans to acquire six additional AEW&C systems, known as Mk1A, with minor equipment modifications.

3. Embraer will provide the aircraft, and modifications will be carried out by DRDO's Centre for Airborne Systems (CABS). The Defence Acquisition Council is expected to approve this plan shortly.

Second Program: Airbus-Based AEW&C Mk2

1. The IAF is also in the process of acquiring six AEW&C systems that will be mounted on Airbus A-321 aircraft.
2. Airbus will modify the aircraft, while DRDO will develop the onboard equipment.
3. Contract negotiations with Airbus are ongoing to finalize the configurations and pricing. Six passenger aircraft were transferred from Air India to the IAF and are awaiting modification.

Hereditary cancer

Why in news?

Recently, the International Agency for Research on Cancer estimates that one in five people worldwide has a lifetime risk of developing cancer, based on data covering 36 types of cancer across 185 countries.

About hereditary cancer

1. Definition: Hereditary cancers are those caused by inherited genetic mutations passed from parent to child. These mutations increase an individual's predisposition to developing certain types of cancer.

Inheritance Pattern: Hereditary cancer syndromes are most often inherited in an **autosomal dominant** manner, meaning that an individual only needs one copy of the mutated gene from either parent to have an increased risk of cancer.

2. Prevalence: Around 10% of all cancer cases are believed to result from inherited mutations. The prevalence is higher for certain cancers, such as ovarian (20%) and breast, colorectal, lung, and prostate cancers (10%).

3. Genetic Syndromes: Over 50 genetic syndromes are known to predispose individuals to cancer. These syndromes are collections of specific symptoms caused by inherited genetic variants.

4. BRCA Genes: Mutations in BRCA1 and BRCA2 are linked to a higher risk of breast and ovarian cancers. In men, BRCA mutations increase the risk of prostate and male breast cancer. They can also lead to other cancers like pancreatic, colorectal, and uterine cancers.

5. Founder Effects: Certain populations, like Ashkenazi Jews, have a higher prevalence of specific BRCA mutations due to genetic bottlenecks and founder effects, where small gene pools lead to a higher frequency of certain mutations.

6. Screening and Prevention: Genetic testing for BRCA and other relevant mutations helps identify individuals at higher risk. This allows for preventive strategies, such as increased surveillance, lifestyle changes, preventive surgeries, or targeted therapies.

7. Targeted Therapies: Therapies such as PARP inhibitors are specifically designed for cancers with BRCA mutations, as they disrupt DNA repair mechanisms that these cancers rely on. New therapies continue to emerge based on further genetic research.

8. Role of CRISPR Technology: CRISPR screens allow researchers to create specific mutations in genes like BRCA to study their effects on DNA repair and cancer progression. These tools also help identify resistance to therapies.

9. Saturation Genome Editing: This technique enables detailed analysis of genetic variants within specific genes, as seen in recent studies on the RAD51C gene. Such research expands the understanding of cancer risk and informs the development of new treatments.

10. Early Detection and Public Health: Population prevalence studies highlight hereditary cancer risks within specific communities. Regular genetic screening can aid in early detection, leading to timely intervention and more effective treatment.

UPSC Syllabus: Miscellaneous

Nobel Prize in Medicine 2024

Why in news?

Recently, Nobel Prize in Medicine 2024 awarded to Victor Ambros and Gary Ruvkun.

About the prize

1. The Nobel Prize in Physiology or Medicine for 2024 was awarded to Victor Ambros and Gary Ruvkun.
2. They were recognized for their groundbreaking discovery of microRNA and its role in regulating gene activity post-transcriptionally.
- 3. Importance of microRNA Discovery:** MicroRNA is a small non-coding RNA molecule that plays a crucial role in gene regulation. This discovery provides a fundamental understanding of how gene activity is controlled within cells. The Nobel Assembly emphasized that this discovery is “fundamentally important for how organisms develop and function.”
- 4. Nobel Prize Announcements:** The Nobel Prize in Medicine traditionally marks the first announcement in a series of Nobel categories each year. Additional Nobel Prizes across various fields will be revealed in the coming days.

UPSC Syllabus: World geography

Negro River

Why in the News?

Recently, the Negro River at the port of Manaus measured 12.66 meters, significantly below the typical level of around 21 meters. A severe drought has caused this tributary to reach its lowest level in 122 years.

About Negro River

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Figure 7. Source: Wikimedia Commons

1. The Negro River, or Rio Negro is one of the major tributaries of the Amazon River and the largest blackwater river in the world.

2. It flows primarily through Colombia, Venezuela, and Brazil.

3. **Source:** The Negro River originates from the **highlands of Colombia and Venezuela**. It begins as the Guainía River in Colombia and flows eastward into Brazil, where it becomes known as the Negro River.

4. It is approximately 2,250 kilometers (1,400 miles) long, making it one of the longest tributaries of the Amazon.

5. The water in the Negro River is **dark due to the high concentration of organic matter from decaying vegetation**, which leaches tannins into the water, giving it a tea-like color.

6. The Negro River meets the Amazon River near the Brazilian city of Manaus. This confluence creates the famous Meeting of Waters, where the dark waters of the Negro and the sandy-colored waters of the Amazon flow side by side for several kilometers before eventually mixing.

7. **Biodiversity:** The Negro River basin is home to a rich variety of plant and animal species, including pink river dolphins, giant otters, and numerous species of fish, many of which are found only in this ecosystem.

8. **Human Settlements:** Indigenous communities have lived along the Negro River for thousands of years. Today, cities such as Manaus are significant urban centers on its banks.

UPSC Syllabus: Species in news

Halari donkey

Why in news?

Recently, it has been observed that the endangered Halari donkeys is an intelligent animal which work closely with human beings.

About Halari donkey



Source:IE

Aspects	Description
About	<p>IUCN Status: Endangered</p> <p>i) The Halari donkey is native to the Saurashtra region of Gujarat, India.</p> <p>ii) It is a unique and rare breed known for its distinctive physical characteristics and historical significance.</p> <p>iii) The Halari donkey's milk is one of the most expensive in the world which can go upto Rs 1000 for its medicinal values.</p>
Characteristics	<p>i) Appearance: Halari donkeys are typically white or light gray in colour and have a strong, muscular build. They are relatively small to medium in size.</p> <p>ii) Adaptability: This breed is well-adapted to the arid and semi-arid conditions of the region, with high endurance levels that make them suitable for working in harsh climates.</p> <p>iii) Diet: Halari donkeys can survive on minimal food and water, making them ideal for regions with limited resources.</p>
Uses	<p>i) Agricultural Work: Traditionally, Halari donkeys have been used for transportation and agricultural tasks, such as carrying loads and assisting farmers.</p> <p>ii) Medicinal Value: The milk of Halari donkeys is considered to have medicinal properties, and there is a growing market for it due to its perceived health benefits, including boosting immunity and treating respiratory ailments.</p>
Conservation Status	<p>i) The Halari donkey population has been declining due to mechanization, reduced dependence on animal labour, and a lack of awareness about its value.</p> <p>ii) Halari Donkey is currently in a threatened state and requires immediate steps towards conservation to reverse the declining trend in the population.</p> <p>iii) Conservationists emphasize the importance of maintaining genetic diversity and protecting the cultural heritage associated with traditional breeds like the Halari donkey.</p>