



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

SOUTHERN OCEAN

The Southern Ocean plays a critical role in regulating global climate and ocean circulation patterns.

08 APR - 13 APR 2024

WEEKLY CURRENT AFFAIRS

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GENERAL STUDIES – 1

Topics: Salient features of Indian Society, Diversity of India.

1. IMPACT OF CLIMATE CRISIS ON WOMEN AND GIRLS

Context:

The climate crisis affects everyone differently, with **women and girls** facing disproportionate risks due to existing roles, responsibilities, and cultural norms.



Impact of Climate Crisis on Women and Girls:

Aspect	Impact
Health	Women bear the brunt of climate-related health risks due to caregiving roles, facing challenges from heat waves, extreme weather, and vector-borne diseases.
	Pregnant women and new mothers are vulnerable to malnutrition, childbirth complications, and limited access to maternal healthcare after disasters.
	Additionally, health issues resulting from climate change can exacerbate social issues and strain social support systems
Livelihoods and Income	Women in rural areas rely heavily on climate-sensitive sectors like agriculture, facing income loss and food insecurity from climate-induced factors such as unpredictable weather and soil degradation.
Education and Literacy	Climate disasters disrupt education, with girls more likely to be withdrawn from school due to safety concerns or increased caregiving duties.
Water and Sanitation	Women’s responsibility for water management makes them vulnerable to climate-induced water scarcity and contamination , limiting opportunities for education, income, and community involvement.
	Inadequate access to clean water and sanitation facilities affects women’s health and hygiene , leading to higher rates of waterborne diseases and maternal mortality.
Gender-Based Violence	Interpersonal tensions often escalate during climate-related disasters due to competition for scarce resources like food and shelter. This can lead to increased domestic violence within households.
Prolonged Heat Waves	Prolonged heat poses risks to pregnant women and exposes women and unborn children to pollutants , impacting respiratory and cardiovascular health.
Child Marriage	Climate-induced disasters can lead to child marriage as a coping mechanism , setting back gender equality progress and community resilience.
Disproportionate deaths	Women and children are 14 times more likely than men to die in disasters, according to the UNDP

Rural to Urban Migration	Men’s migration due to extreme weather events leaves women with increased responsibilities, decreased income , and limited access to land and resources, increasing vulnerability to climate impacts.
Decreased Adaptive Capacity	Women’s integration into the informal economy affects their decision-making power and adaptive capacity, leading to greater risks during climate disasters.
Biased Social norms	Lack of access to resources and discriminatory practices restrict women’s ability to adapt to climate change.

Role of Rural women in the fight against climate change

Aspect	Examples of Women’s Contributions to Climate Resilience
Agriculture	In Odisha, women resurrect traditional crops that withstand frequent floods and droughts. Self-Employed Women’s Association (SEWA) teaches women farmers how to respond to shifting climate patterns to support themselves better financially.
Reducing domestic pollution	E.g., Charlot Magayi helps Kenyan women transition from dirty cook stoves to clean ones, improving community health and reducing greenhouse gas emissions. The African program Solar Sister , led by women, helps communities establish small-scale solar systems for energy independence, reducing greenhouse gas emissions and air pollution.
Watershed Management	Women collectives in Nagpur use indigenous techniques to turn parched lands into fertile areas.
Seed Preservation	Rural women in Telangana act as seed guardians , safeguarding native seeds against climate uncertainties.
Sustainable Fishing	Fisherwomen cooperatives in coastal Karnataka advocate for regulated fishing practices and marine life sustainability .
Waste Management	Rural women in coastal Karnataka lead circularity efforts , transforming kitchen waste into compost and promoting waste segregation and recycling.
Agroforestry	Women farmers in the Malnad region practice agroforestry , intercropping native trees with traditional crops to combat erratic rainfall patterns and enhance soil fertility.
Community Influence	Rural women actively participate in community decisions and drive movements, using their vote and voice as agents of change.

Constitutional Rights for safeguarding Vulnerable groups against Climate Change/Disasters:

- Right to Life and Personal Liberty (Article 21):** The Constitution guarantees the right to life and personal liberty, which includes the right to live in a safe environment free from the adverse effects of climate change and disasters (Read the [recent SC ruling here](#))
- Right to Equality (Article 14):** Women and girls are entitled to equal protection under the law, ensuring that they receive equitable treatment and opportunities in climate change adaptation and disaster response measures.
- Right to Health (Article 21):** The Constitution recognizes the right to health as an integral part of the right to life, ensuring access to healthcare services to mitigate health risks posed by climate change and disasters, particularly for pregnant women and children.
- Directive Principles of State Policy (Article 39):** The Directive Principles of State Policy mandate the state to ensure that women are not subject to discrimination and have equal rights to livelihood opportunities.
- Fundamental Duties (Article 51A):** Citizens have a duty to protect and improve the natural environment, including forests, lakes, rivers, and wildlife, which are essential for climate resilience and disaster mitigation efforts that benefit women and girls.
- Protection Against Exploitation (Article 23):** The Constitution prohibits trafficking, forced labour, and other forms of exploitation, safeguarding women and girls from vulnerabilities exacerbated by climate change-induced displacement and migration.
- Special Provisions for Women and Children (Article 15):** The Constitution allows the state to make special provisions for the advancement of women and children, including measures to enhance their resilience and adaptive capacity to climate change and disasters.
- Protection of Tribal Rights (Article 244):** Indigenous women and girls have constitutionally protected rights

to their traditional lands and resources, which are essential for their resilience to climate change impacts.

Steps to Make Climate Crisis Gender Neutral:

1. **Implement social protection programs** providing access to healthcare, education, clean water, and sanitation. This includes **cash transfers, food security initiatives, and insurance schemes** for women and girls affected by climate events.
2. **Support sustainable livelihoods** through poverty alleviation, inclusive economic growth, and sustainable agriculture practices.
3. **Empower women by providing equal access to resources**, which can enhance agricultural yields and promote local solutions, particularly in rural areas.
4. **Gather sex-disaggregated data** to better understand women's diverse roles and experiences as agents of change.
5. **Reduce the impact of prolonged heat waves on vulnerable groups** through heat wave warnings, adjusted work and school timings, and cooling facilities.
6. **Involve urban local bodies and municipalities** in climate action planning and urban design to mitigate heat and improve resilience.
7. **Map key water resources** and develop local plans to improve water access and management for women
8. **Reform State-action plans on climate change** to apply a **gender lens** and implement **gender-transformative strategies**, recognizing the vulnerabilities of all genders.

Conclusion:

To address climate change effectively, **it's crucial to recognize all genders' vulnerabilities and implement gender-transformative strategies** for comprehensive and equitable adaptation. Women shouldn't be viewed solely as victims but as leaders in climate action. State-action plans on climate change must incorporate a gender lens, and legislation and policies should support women's meaningful participation in decision-making processes.

Insta Link:

- [SC: Right against adverse Climate Impacts as integral to Right to Life and Equality](#)

Mains Link:

Q. 'Climate Change' is a global problem. How will India be affected by climate change? How Himalayan and coastal states of India will be affected by climate change? (2017)

Q.1 Which of the following best describes/describe the aim of 'Green India Mission' of the Government of India? (UPSC 2016)

1. Incorporating environmental benefits and costs into the Union and State Budgets thereby implementing the 'green accounting'.
2. Launching the second green revolution to enhance agricultural output so as to ensure food security to one and all in the future.
3. Restoring and enhancing forest cover and responding to climate change by a combination of adaptation and mitigation measures.

Select the correct answer using the code given below.

- (a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

Ans: C

Q.2 With reference to 'Global Climate Change Alliance', which of the following statements is/are correct? (UPSC 2017)

1. It is an initiative of the European Union.
2. It provides technical and financial support to targeted developing countries to integrate climate change into their development policies and budgets.
3. It is coordinated by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Select the correct answer using the code given below:

- (a) 1 and 2 only
(b) 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Ans: A

[Topics: Population and associated issues, poverty and developmental issues.](#)

2. INDIA'S DECLINING FERTILITY RATE: OPPORTUNITIES AND CHALLENGES AHEAD

Context:

India's declining fertility rate, recently **projected by The Lancet**, suggests a **demographic transition with potential economic benefits**.

Status of total fertility rate (TFR):

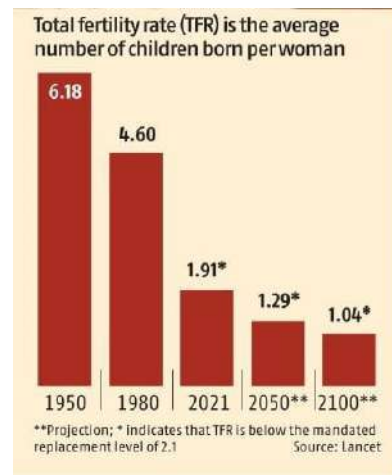
TFR in India has **drastically decreased from 6.2 in 1950 to below 2 in 2021**. It is projected to further decline to **1.29 by 2050** and a concerning level of **1.04** by 2100. This decline is part of a global trend, with the global fertility rate **dropping nearly 50% in the past 70 years**. The United Nations predicts global population growth to

reach **10.9 billion by 2100**, with TFR converging to near replacement level.

The Total Fertility Rate (TFR) of 2.0 in India signifies stable long-term population trends, with two parents replaced by two children, indicating that the country may not experience population decline for 30-40 years due to a substantial youth population.

About TFR:

The Total Fertility Rate (TFR) represents the average number of children a woman would have in her lifetime given current fertility rates. A TFR of **2.1** signifies **replacement-level fertility**, where each generation replaces itself. **TFR below 2.1** suggests a declining population over time as each generation produces fewer children than its predecessor.



Factors contributing to fertility decline include:

Aspect	Progress/Initiative
Family Planning	An increase in the use of modern contraceptive methods contributes to a rise in contraceptive prevalence rate.
Higher Age of Marriage	The introduction of a higher age of marriage, reversible spacing (gaps between children) methods , wage compensation systems to undergo sterilisation, and the promotion of small family norms also worked well over the years.
Women’s Empowerment	Improved women’s empowerment indicators also correlate with reduced fertility rates.
Government Initiatives	Sustained efforts by the Indian government, including national-level family planning programs, have driven progress.
	Mission Parivar Vikas (2017): Launched to enhance access to contraceptives and family planning services in 146 high fertility districts.
	National Family Planning Indemnity Scheme (NFPIS): Initiated in 2005, provides insurance coverage for sterilization-related complications.
	Compensation Scheme for Sterilization Acceptors: Started in 2014, provides wage compensation to beneficiaries and service providers for sterilization procedures.
	Prime Minister’s Appeal (2019): The PM emphasized population control as a patriotic duty during the Independence Day speech.

Negative Implications of Declining Fertility Rate in India:

- The decline in working-age population:** In the next four years, both **Tamil Nadu** and **Kerala** will see the first absolute declines in their working-age populations in their histories.
- Skewed sex ratio:** It remains a danger. **NFHS:** families with at least one son are less likely to want more children than families with just one daughter.
- Geographical divide:** The stark differences between northern and southern States, in terms of basic literacy as well as enrollment in higher education, including in technical fields.
- Economic Dependence of Elderly:** The economic dependence of the female elderly is a significant concern; as fewer working-age people will need to support a growing elderly population.
 - Need for pension schemes, long-term care facilities, and healthcare programs for age-related ailments
- High Gender disparities may get aggravated** in the Indian workforce

Positive Implications of Declining Fertility Rate in India:

Aspect	Description
Positive Economic Impact	Changes in age structure with fewer children and more working-age adults. Surplus income from a larger working-age population can boost economic development.
Lower Dependency Ratio	Declining TFR leads to a lower dependency ratio (dependents to working-age population) , allowing for more economic productivity and resource allocation.

Labour Market Dynamics	The larger working-age population may lead to an increased labour supply , potentially lowering wages in some sectors.
	Industries with labour shortages may need to offer higher wages to attract workers
Social Welfare and Healthcare	The ageing population due to declining fertility rates and increased life expectancy demands social welfare and healthcare services for the elderly.
Education and Human Capital	Fewer children may decrease demand for primary and secondary educational infrastructure .
	Investments in higher education and skill development become crucial to prepare a smaller cohort of young adults for a competitive workforce.
Capital Accumulation and Investment	Declining fertility leads to increased household investment in education and fewer children's well-being. Higher savings rates contribute to capital formation , driving economic growth through investments in infrastructure and human capital.
Regional Development and Urbanisation	Declining fertility often accompanies urbanization and regional development . Urban centres become economic hubs, attracting investment, talent, and innovation, promoting infrastructure and enhancing competitiveness.
International Competitiveness	Lower fertility rates result in a younger, more educated workforce, enhancing global competitiveness . A favourable demographic profile improves creditworthiness, investor confidence, and economic stability, attracting foreign investment.

Way forward

- Providing skills:** There is a need for much focus on the betterment of the living standard of living by providing skills to the youth and bridging the gap between the workforce.
- Harnessing demographic dividend:** The focus of one should be on the various dimensions of population like harnessing the potential of demographic dividend.
- Investing in health, and education and employing elderly people** will help societies adapt to inverted population pyramids.
- Behaviour-Change Communication Strategy:** The Government must adopt a targeted social and behaviour-change communication strategy to ensure smooth demographic transition

Conclusion

In navigating these demographic complexities, India has the opportunity to leverage its demographic dividend by investing in education, healthcare, and policies that support a balanced and sustainable population structure.

Insta Links

- [Fertility rate below replacement level](#)

Mains Link:

Q. Discuss the main objectives of Population Education and point out the measures to achieve them in India in detail. (UPSC 2021)

GENERAL STUDIES - 2

Topics: Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure; Comparison of the Indian constitutional scheme with that of other countries.

1. SC: RIGHT AGAINST ADVERSE CLIMATE IMPACTS AS INTEGRAL TO RIGHT TO LIFE AND EQUALITY

Context:

The Supreme Court has for the first time recognized the right against adverse climate impacts as integral to the right to life and equality.

What is the background of the case?

The recent judgment stemmed from a **petition by wildlife activists aiming to safeguard the critically endangered**

Great Indian Bustard (GIB), found only in Rajasthan and Gujarat.

In April 2021, the Supreme Court issued an order **imposing restrictions on overhead transmission lines** within a vast area, proposing their conversion into underground power lines.

However, the government, citing concerns about hindering India’s global commitments to reduce carbon emissions, requested a modification of the directives.

In March 2024, the Supreme Court revisited the ruling, acknowledging practical challenges such as technical complexities and high costs. Consequently, the court modified its order, **emphasizing the importance of balancing GIB conservation with promoting renewable energy and environmental preservation**.

Key highlights of the Supreme Court judgment include:

1. **Recognition of Constitutional Rights:** **Articles 14 (Right to Equality) and Article 21 (Right to Life and Personal Liberty)** are highlighted as important sources of the right to a clean environment and the right against adverse effects of climate change.
 - a. SC emphasized constitutional provisions, **including Articles 48A** (to protect the environment and to safeguard the forests and wildlife), **51A(g)** (to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures)
2. **Expansion of Fundamental Rights:** The scope of fundamental rights is expanded to include the **right against adverse effects of climate change**, with failure to ensure a stable, clean environment impacting the right to life, health, and equality.
3. **The intersection of Climate Change and Human Rights:** The court emphasizes the intersection between climate change and human rights, underscoring the imperative for **states to address climate impacts through the lens of rights**.
4. **Technical Challenges in Implementation:** The court pointed out technical challenges in implementing the April 2021 order, including limitations of underground power transmission cables and lack of provisions in the Electricity Act for land acquisition.
5. **Formation of Committee:** A nine-member committee of experts was formed to assess the **feasibility of undergrounding power lines in specific areas**, with a deadline to submit a report by July 31, 2024.
6. **India’s Commitment to Renewable Energy:**

The court highlighted India’s commitment to renewable energy, **aiming for 175 GW by 2022 and 450 GW by 2030**, viewing the transition to non-fossil fuels as a fundamental necessity for environmental preservation.

7. **Benefits of Renewable Energy Promotion:** The promotion of renewable energy sources is seen as crucial for **promoting social equity, poverty alleviation, enhancing quality of life, and fostering inclusive growth** and development.

Referral to important Supreme Court judgments:

1. **M.C. Mehta v. Kamal Nath (1996):** Acknowledgment that any disturbance of basic environmental elements is hazardous to “life” within the meaning of Article 21.
2. **Virender Gaur v. State of Haryana (1994):** Recognition that the **right to a clean environment** is an integral facet of the right to a healthy life.

Impact of Climate Change on Human Rights:

Human Rights	Examples of Impact of Climate Change
Right to Life	Cyclones, floods, and heatwaves cause casualties. Spread of diseases like dengue and malaria due to changing climate.
Right to Health	Poor air quality in cities like Delhi affects respiratory health. Erratic rainfall affects agricultural productivity and food security.
Right to Water	Rising sea levels contaminate freshwater sources with saltwater intrusion. Water scarcity in regions dependent on monsoon rains.
Right to Livelihood	Farmers face crop failures and income loss due to droughts or floods . Fisherfolk losing access to fishing grounds due to sea level rise.
Right to Shelter	Communities in low-lying coastal areas face displacement due to sea level rise and storm surges. Urban slum dwellers are at risk of losing homes during floods.
Right to Security	Climate change threatens human security by causing resource scarcity, livelihood disruption, cultural erosion , displacement, and migration

Effects of Mitigation and Adaptation Measures on Human Rights:

1. **Mitigation:**
 - a. **Hydroelectric projects** can displace local communities, destroy ecosystems, and harm downstream populations.

- b. **Biofuel policies** may lead to food shortages, water scarcity, deforestation, and displacement of indigenous peoples and farmers.
- 2. **Adaptation:**
 - a. **Some adaptation measures may benefit certain groups** while disadvantaging others, such as coastal fortifications.
 - b. **Relocation and resettlement programs** can pose risks of human rights violations for affected communities.

Measures Taken by India and the World to Protect Human Rights Against Climate Change:

- 1. **India:**
 - a. Implementation of the **National Action Plan on Climate Change (NAPCC)**, which includes various missions targeting climate change mitigation and adaptation.
 - b. Adoption of renewable energy initiatives like the **National Solar Mission and promotion of clean energy sources**.
 - c. **Integration of climate change considerations** into national policies and programs, including water resource management and disaster preparedness.
 - d. **Promotion of sustainable agriculture practices** to enhance resilience to climate change impacts.
 - e. **Implementation of the Afforestation and Reforestation programs** to combat deforestation and enhance carbon sequestration.
- 2. **World:**
 - a. The United Nations (through a resolution in 2022) declared **access to a clean, healthy environment** as a **universal human right**.
 - b. Establishment of frameworks for **climate finance, such as the Green Climate Fund**, to support developing countries in their climate change adaptation and mitigation efforts.
 - c. **Promotion of climate-resilient infrastructure and urban planning** to enhance resilience to extreme weather events and sea-level rise.
 - d. **Support for capacity-building initiatives** to enhance the ability of vulnerable communities to adapt to climate change impacts.

UNEP recommendations:

- 1. **International Cooperation:** Recognize the link between climate change and human rights in the Paris Agreement.

- 2. **Ensure climate funds' safeguards** fully consider human rights.
- 3. **Increase financial assistance to developing countries**, especially for adaptation measures.
- 4. **Pursue domestic GHG reductions** and align adaptation objectives with human rights.
- 5. **Incorporate human rights norms** into domestic legal frameworks, including climate change laws.
- 6. **Local Governments and Private Actors:** Local governments should reduce GHG emissions and pursue adaptation objectives. Private actors should adopt policies in line with the **UN Guiding Principles on Business and Human Rights**.

Conclusion:

Climate change and its responses will significantly impact human rights worldwide, affecting both individuals and ecosystems. States must fulfil their obligations to mitigate GHG emissions, protect citizens from climate change, and ensure responses do not violate human rights. More ambitious actions and global cooperation are needed to safeguard human rights effectively.

Mains Link:

Q. Though the Human Rights Commissions have contributed immensely to the protection of human rights in India, yet they have failed to assert themselves against the mighty and powerful. Analysing their structural and practical limitations, suggest remedial measures. (UPSC 2021)

Prelims Link:

Q. Other than the Fundamental Rights, which of the following parts of the Constitution of India reflect/reflects the principles and provisions of the Universal Declaration of Human Rights (1948)? (UPSC 2020)

- 1. Preamble
- 2. Directive Principles of State Policy
- 3. Fundamental Duties

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: D

Topics: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

2. LIQUOR POLICY: ISSUES IN THE LIQUOR INDUSTRY

Context: High taxes and excessive licensing in the liquor industry contribute to corruption and financial burdens on consumers.

Indian Constitution views alcohol as an undesirable evil to be regulated. The **Directive Principles of State Policy (Article 47)** encourage the prohibition of alcohol consumption, except for medicinal purposes, aiming to protect citizens' health. While not legally enforceable, these principles guide state action. Additionally, alcohol regulation falls under the **authority of state legislatures according to the Seventh Schedule**, allowing for varying laws across states, from prohibition to private sale.

Distribution of Power on Liquor Control in India:

1. **Central Government:**
 - i. Sets guidelines for **import duties on foreign liquor**.
 - ii. **Formulates national-level policies** regarding alcohol advertising and marketing.
2. **State Governments:**
 - i. **Liquor falls under the State List (List II) of the Seventh Schedule**
 - ii. Impose state-specific excise duties and taxes on liquor sales.
 - iii. Issue licenses for liquor sales and distribution within the state.
 - iv. Set regulations on liquor sales, including permitted **operating hours for liquor stores and bars**.
 - v. Introduce prohibition laws in certain states (e.g., Gujarat and Bihar).
 - vi. Allow liquor sales through government-owned outlets (e.g., TASMAL in Tamil Nadu).
 - vii. Implement online liquor sales and home delivery services (e.g., Maharashtra and Delhi).

Approaches to alcohol policy vary across states:

1. **Revenue-Driven Policies:** States like Haryana and Delhi prioritize revenue from alcohol sales, leading to the widespread availability of liquor outlets.
2. **Socio-cultural Factors:** Gujarat maintains prohibition due to cultural and historical reasons while Bihar has prohibition due to socio-economic factors.
3. **Government Control for Safety:** Tamil Nadu regulates alcohol sales through its State Marketing Corporation to enhance safety, particularly in response to past hooch tragedies.

What is the Delhi liquor policy scam?

The Delhi Liquor Scam involves **allegations of corruption and favouritism** in the implementation of **Delhi's Excise Policy from 2021 to 2022**. The policy aimed to reform the liquor sector by **introducing private firms**, but accusations claim it favoured certain companies with waivers, fee reductions, and multiple licenses. The AAP government denies any wrongdoing, citing increased rev-

enue similar to policies in Punjab. However, the policy faced obstacles, including **resistance from bureaucrats and the LG's directive to halt implementation, leading to its withdrawal**.

Issues with Alcohol Policies in India:

Issues	Examples
Revenue vs. Health Priorities	Revenue focus overshadows health concerns. Kerala's rollback of partial prohibition (2018) for financial reasons highlights conflict
Dependence of States on revenue from liquor sales	According to reports, it has been found that, in most states, around 15 to 30 per cent of the revenue comes from liquor . E.g., Karnataka, Uttar Pradesh, Punjab, and West Bengal heavily depend on excise duty from alcohol, contributing over 20% to their own tax revenue .
Inconsistent State Policies	Haryana's attempts at prohibition failed due to difficulties in controlling illegal distillation and bootlegging , leading to fatalities. Currently, there are five states (Bihar, Gujarat, Lakshadweep, Nagaland, and Mizoram) with total prohibition and some more with partial prohibition
Weak Enforcement of Regulations	For, Alcohol firms flout advertising bans with little government intervention, like during major events such as the cricket World Cup.
Exclusion from GST	States are reluctant to include alcohol in GST due to revenue concerns, preferring individual control over policies. Inclusion could simplify taxation and align it with other products.
Excessive Taxation	High domestic and customs duties exceeding 200% and 150% , respectively, burden consumers financially.
Impact on Health	Consumers opt for cheaper, lower-quality alcohol due to high taxes, increasing health risks, especially among lower-income groups. Hooch tragedies , where illicitly brewed alcohol leads to deaths or illness, occur periodically.
Government Monopoly in Sales	Current policies lead to government monopolies in liquor sales, potentially fostering corruption and hindering private businesses.

Actionable steps to address alcohol policy issues:

- 1. Include Liquor in GST:** Simplify taxation by bringing liquor under GST, similar to cigarettes, for a streamlined tax process.
- 2. Encourage Private Distribution:** Transition from government monopolies to private liquor distribution, regulated for safety and age restrictions, to reduce corruption and promote business diversity.
- 3. Reform Licensing Policies:** Simplify licensing procedures for liquor sales in public spaces to reduce bureaucratic obstacles and foster a healthier business environment.
- 4. National Health-Focused Policy:** Develop a national alcohol policy prioritizing public health over revenue, aligned with the WHO’s recommendation of minimizing alcohol consumption.
- 5. Legislative Action on Advertising:** Enforce stricter regulations to ban alcohol advertising and control surrogate advertising by liquor companies.
- 6. Balance Revenue and Health:** Find a balanced approach to alcohol policy that considers both revenue generation and public health impact without compromising either.
- 7. Open Discussion:** Promote open, non-judgmental discussions about alcohol use, challenging traditional views and addressing religious perspectives to foster informed decision-making.

Ethical aspects of Alcohol use in India:

Ethical aspects of alcohol use include promoting responsible consumption to mitigate social harm, respecting cultural sensitivities, addressing health risks, minimizing environmental impact, ensuring economic equity, and complying with regulations.

Indian attitudes towards alcohol vary across different dimensions:

- 1. Cultural Views:** Alcohol is perceived differently across Indian cultures. While some communities, particularly upper castes, view it negatively, associating it with “tamasic” qualities, others, like many tribal societies, accept it openly.
- 2. Gender Dynamics:** Alcohol consumption by men often negatively impacts women, leading to social protests led by women against alcohol consumption in many communities.
- 3. Alcohol and Religion:** Various religions in India have differing stances on alcohol. Islam forbids it, Christianity tends to be more permissive, and Hinduism does not explicitly prohibit it but emphasizes moderation.
- 4. Medical View:** From a medical perspective, alcohol is recognized as harmful in India. It is

associated with an increased risk of heart disease and can adversely affect liver health.

Thinker’s View on Alcohol Use:

Ethical Thinker	View on Alcohol Use
Mahatma Gandhi	Strongly advocated for <u>prohibition of alcohol</u> , viewing it as harmful to individuals and society.
B.R. Ambedkar	Supported <u>regulation and control of alcohol</u> , emphasizing the need to address social and health issues.
Swami Vivekananda	<u>Condemned excessive alcohol consumption</u> , promoting spiritual and moral development as alternatives.
Mother Teresa	<u>Opposed alcohol use</u> due to its detrimental effects on individuals and families, advocating for sobriety.
Plato	<u>Generally opposed to excessive drinking</u> , seeing it as a threat to reason and self-control in society.
Aristotle	<u>Acknowledged moderate alcohol consumption</u> but warned against excess, emphasizing virtue and balance.

For [Why do some Indian states ban alcohol and its impacts?: Click Here](#)

Geographical aspects of Liquor in India: How Liquor is Made:

- 1. Distillation:** Most liquors are made through the process of distillation, where fermented grains, fruits, or vegetables are heated to vaporize the alcohol, which is then condensed back into liquid form.
- 2. Fermentation:** Initially, raw materials like grains (for whiskey), grapes (for wine), or sugarcane (for rum) are fermented using yeast, which converts sugars into alcohol and carbon dioxide.
- 3. Ageing:** Some liquors, like whiskey and brandy, are aged in wooden barrels to develop flavour and character. This ageing process can take several years, during which the liquor absorbs flavours from the wood.

Types of Liquor:

- 1. Whiskey:** Made from fermented grains like barley, corn, rye, or wheat.
- 2. Vodka:** Typically made from grains or potatoes and distilled to a high level of purity.
- 3. Rum:** Made from sugarcane or molasses and aged in wooden barrels.
- 4. Gin:** Distilled from grain and flavoured with botani-

cals like juniper berries, coriander, and citrus peels.

- Tequila:** Produced from the blue agave plant, primarily in Mexico.

Climate Conditions:

The climate conditions required for liquor production depend on the specific type of liquor being produced. For example, grapes used in wine **production thrive in temperate climates with well-defined seasons**, while sugarcane, used in rum production, grows in tropical climates.

States in India Ahead in Liquor Production: Maharashtra, Karnataka, Tamil Nadu, Punjab, and Kerala. Maharashtra is the leading state for wine production in India

Karnataka is the largest-selling state for liquor. India is the third largest market for alcoholic beverages in the world, after China and Russia.

Insta Links:

- [Alcohol Prohibition](#)

GENERAL STUDIES – 3

Topics: [Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.](#)

1. DISINVESTMENT IN INDIA: A KEY AGENDA FOR THE NEXT GOVERNMENT

Context:

The Union Finance Minister recently reaffirmed the **government’s commitment to the privatisation policy**. The policy, part of the Aatmanirbhar Bharat package, aims for **disinvestment in both strategic and non-strategic sectors**, with a plan to maintain minimal presence of central public-sector enterprises (CPSEs).

What is Disinvestment?

Disinvestment is the process of **reducing or liquidating government ownership in a company or asset**, typically through the sale of shares or assets to private or public investors. It is often undertaken to raise capital, improve efficiency, or reduce government intervention in the economy.

Process of Disinvestment in India:

In India, the disinvestment process is overseen by **the Department of Investment and Public Asset Management (DIPAM)**, operating under the Ministry of Finance. DIPAM’s main goal is to **manage the government’s investments in public sector** enterprises and supervise the disinvestment of government equity in these enterprises. Additionally, in 2005, the government established

the **National Investment Fund (NIF)** to serve as a channel for the proceeds generated from the **disinvestment of Central Public Sector Enterprises**. The creation of NIF aimed to ensure transparent and efficient utilization of these funds for various developmental purposes.

Approaches:

- Minority Disinvestment:** Govt. retains >51%, ensuring control.
- Majority Divestment:** Govt. hands control but retains some stake.
- Complete Privatisation:** 100% control transferred (full privatisation)

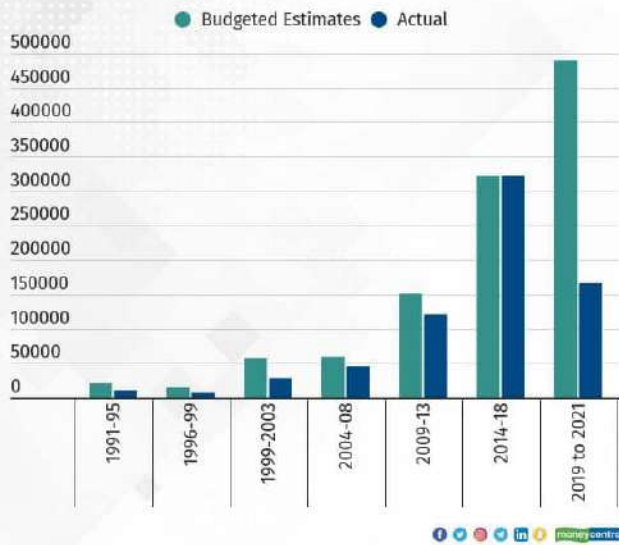
Methods of Disinvestment:

Methods	Description
Initial Public Offering (IPO)	Offer of shares by an unlisted Public Sector Enterprise (PSE) or the Government to the public for subscription for the first time.
Further Public Offering (FPO)	Offer of shares by a listed Public Sector Enterprise (PSE) or the Government to the public for subscription.
Offer for Sale (OFS)	Auction of shares by promoters through the Stock Exchange platform. This method has been extensively used by the Government since 2012.
Strategic Sale	Sale of a substantial portion of Government shareholding (up to 50% or as determined) of a PSE along with transfer of management control.
Institutional Placement Program (IPP)	Offering where only Qualified Institutional Buyers can participate. These buyers are perceived to possess the expertise to invest in capital markets.
CPSE Exchange Traded Fund (ETF)	Disinvestment through the ETF route allows the simultaneous sale of the Government’s stake in various PSEs across diverse sectors through a single offering.

Trends of Disinvestment in India:

The trend of disinvestment in India has evolved significantly since 1991. **Initially slow** due to political constraints, it **gained momentum in the late 1990s** and early 2000s, with significant earnings between 1999 and 2004. However, between 2004 and 2009, disinvestment slowed again due to political pressures. **From 2009 to 2014, there was a resurgence, with earnings rising to INR 1.2 lakh crore**. Since 2014, there has been a rapid increase in disinvestment revenues, totalling **INR 4.48 lakh crore by 2020**. Recent initiatives like the **Aatmanirbhar Bharat package and the National Monetisation Pipeline** aim to further enhance private sector participation and unlock the value of public assets.

DISINVESTMENTS UNDER VARIOUS GOVERNMENTS



In recent years, the government has **largely met or exceeded its disinvestment targets**, notably surpassing goals in 2017-18 and 2018-19. In the **fiscal year 2023-24**, the revised estimate for disinvestment revenue was **Rs 30,000 crore**, lower than the initially budgeted **Rs 51,000 crore**.

Recent examples of disinvestment in India:

1. IPO of **3.5% LIC shares**
2. Privatisation of **Air India**
3. **Sale of minority holdings in CPSEs** including IDBI Bank, SCI, Concor, and others

Latest Disinvestment Policy

The latest disinvestment policy **classifies the public sector into strategic and non-strategic sectors**.

1. **In non-strategic sectors**, the government will exit all businesses except for a **'bare minimum'** presence in four key strategic sectors:
 - i. Atomic energy, space and defence
 - ii. Transport and telecommunications
 - iii. Power, petroleum, coal, and other minerals
 - iv. Banking, insurance, and financial services
2. States will be **incentivized for disinvestment** in their public sector companies.

This policy marks a **departure from past approaches**, providing a framework for deciding the **ownership pattern of 439 CPSEs**. It also includes the monetization of surplus land and the creation of the National Land Monetization Corporation.

Challenges related to Disinvestment in India:

Challenges	Description
Political Sensitivity	Disinvestment is a politically sensitive issue in India , with opposition from various political parties and trade unions.
Valuation Complexity	Valuing public sector enterprises can be challenging due to their unique structures and market conditions, leading to potential discrepancies.
Labour Concerns	Disinvestment often raises fears among employees regarding job security and wage cuts, leading to potential resistance and labour unrest.
Investor Appetite	Finding suitable buyers for shares in public sector enterprises (e.g., in the case of Air India), especially those with poor financial performance, can be difficult.
Regulatory Hurdles	Disinvestment processes are subject to complex regulatory frameworks, including approval requirements and compliance standards.
Legal Risks	Disinvestment decisions and processes can face legal challenges , including disputes over valuation, terms, and adherence to regulations.
Bureaucratic Delays	Bureaucratic procedures and decision-making processes can slow down the disinvestment process, leading to inefficiencies and delays.
Economic Impact	Disinvestment proceeds may impact government revenue streams and fiscal deficits , requiring careful management and planning for economic stability.
Private monopoly	Complete privatization can lead to public monopolies transforming into private monopolies , which may exploit their dominant position to raise service costs and maximize profits.

Way Forward:

1. NITI Aayog recommends:

- i. Direct submission of disinvestment proposals to CCEA for faster processing.

- a. **Appointment of advisors and asset valuers** to expedite disinvestment.
 - b. **Establishment of an independent professional agency** to accelerate the Asset Monetization Program.
2. **Increase operational autonomy and governance measures** for PSEs, such as listing on stock exchanges, to enhance transparency and performance.
 3. **Provide fair valuation of government entities** to boost bidder confidence in the disinvestment process.
 4. **Reduce government involvement in the management and operations of PSEs** by reforming boards and organizational structures to attract more buyers and achieve better valuations.
 5. **Communicate the economic benefits of disinvestment** to counter political resistance and public scepticism.
 6. **Focus on selling assets based on market appeal** rather than solely unloading underperforming ones, including profitable enterprises.

Conclusion:

Disinvestment is vital for **India's economic growth**. Experts note that transferring ownership of PSEs to private entities through disinvestment enhances economic efficiency. They also suggest that the **size of disinvestment alone doesn't significantly improve PSU performance**; rather, changes in leadership and market factors like innovation and technology drive economic efficiency.

Insta Links:

- [Disinvestment of Public Sector Units \(PSUs\)](#)

Prelims Links:

Q1. In the context of governance, consider the following: (UPSC 2010)

1. Encouraging Foreign Direct Investment inflows
2. Privatization of higher educational Institutions
3. Down-sizing of bureaucracy
4. Selling/offloading the shares of Public Sector Undertakings

Which of the above can be used as measures to control the fiscal deficit in India?

- (a) 1, 2 and 3
- (b) 2, 3 and 4
- (c) 1, 2 and 4
- (d) 3 and 4 only

Ans: D

Q2. Why is the Government of India disinvesting its equity in the Central Public Sector Enterprises (CPSEs)? (UPSC 2011)

1. The Government intends to use the revenue earned from the disinvestment mainly to pay back the exter-

nal debt.

2. The Government no longer intends to retain the management control of the CPSEs.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: D

Topics: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

2. OPPORTUNITIES AND CHALLENGES OF GREEN HYDROGEN IN INDIA

Context:

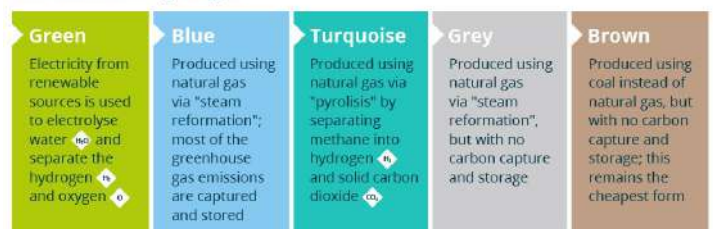
India is making strides in embracing green hydrogen as a promising alternative fuel, evident from the **Ministry of New and Renewable Energy's Rs 496 crore scheme supporting pilot projects**.

Definition of Green Hydrogen:

Green hydrogen is produced through a process called electrolysis, where water is split into hydrogen and oxygen **using renewable energy sources** such as solar or wind power.

In August 2023, the Union Ministry of New & Renewable Energy, Government of India, provided a definition for green hydrogen, specifying it as having a well-to-gate emission (encompassing water treatment, electrolysis, gas purification, drying and compression of hydrogen) **not exceeding 2 kg CO2 equivalent per kg H2**. In contrast, grey hydrogen (produced using fossil fuels), on average, **emits 10 kg of CO2 per kg of H2 produced**.

Five shades of hydrogen



Nodal Agency: The Bureau of Energy Efficiency (BEE) (under the Union Ministry of Power) is the nodal authority responsible for accrediting agencies for monitoring, verifying and certifying green hydrogen production projects.

Initiatives for Green Hydrogen:

1. Oil India Limited (OIL) recently commissioned **India's first 99% pure green hydrogen** plant in

eastern Assam’s Jorhat

2. **NTPC (in Kawas, Surat) has started India’s 1st Green Hydrogen Blending** operation in the Piped Natural gas (PNG) Network.
3. **The Petroleum and Natural Gas Regulatory Board (PNGRB)** has given approval for a 5% blending of green hydrogen with PNG (later to be scaled to 20%)
4. **Pune Municipal Corporation (PMC)** has collaborated with business management consultant
5. **The Green Billions (TGBL)** to manage its waste and generate it into useable green hydrogen (under the waste-to-hydrogen project)
6. **Strategic Clean Energy Partnership (SCEP)** to mobilise finance and speed up green energy development
7. The Union Minister of Petroleum & Natural Gas launched **India’s inaugural Green Hydrogen Fuel Cell Bus** in New Delhi in September 2023.

Significance of Green Hydrogen energy:

- **Emission reduction:** IEA (International Energy Agency) points out, that the method of obtaining **green hydrogen would save the 830 million tonnes of CO2** that are emitted annually when Hydrogen is produced using fossil fuels.
- **Viable alternative:** With green hydrogen, if the **production costs fall by 50 % by 2030**, it could certainly evolve as one of the fuels of the future. Also, hydrogen is **easy to store**, which allows it to be **used subsequently for other purposes** and at times other than immediately after its production.
- **Energy Security and Independence:** As fossil fuels are finite and susceptible to global supply fluctuations, green hydrogen fosters energy independence.
- **Creating New Industries and Jobs:** According to IRENA, the green sector employed 11 million people in 2018, with projections of over 42 million jobs by 2050.
- **Decarbonizing Difficult-to-Decarbonize Sectors:** Sectors like heavy industry and aviation, hard to decarbonize, can benefit from green hydrogen substitution. This helps mitigate their significant carbon emissions.

Applications of Green Hydrogen:

Applications	Details
Agriculture Sector	Green hydrogen can replace traditional fertilizers in agriculture by producing carbon-free ammonia.
	Ammonia production currently relies on fossil fuels, but green ammonia offers improved efficiency and reduced soil acidity.
	Green hydrogen-powered farm machinery , such as tractors and harvesters, can reduce greenhouse gas emissions in agriculture.
Water Management	Green hydrogen can power desalination plants , converting saltwater into freshwater for sustainable water management.
Transport Sector	Hydrogen fuel cells in vehicles produce zero emissions and offer a longer range and faster refuelling compared to battery electric vehicles.
Industrial Sector	Green hydrogen production using excess renewable energy can reduce energy costs and promote sustainable development.
	On-site production and storage make green hydrogen a reliable energy source, reducing dependence on the electricity grid.
	Green hydrogen production from waste materials like municipal solid waste and agricultural waste can reduce waste and promote sustainability.
	Using green hydrogen to power fuel cells increases energy efficiency compared to traditional combustion engines, reducing overall energy consumption.

Challenges in Green Hydrogen Production:

Not Sufficient	Green hydrogen constitutes less than 1 per cent of the world’s hydrogen production and usage (as per the Global Hydrogen Review 2023 by the IEA)
	Green hydrogen production needs to grow significantly to align with Net Zero Emissions goals.
Energy Inefficient	30% of renewable energy is lost while producing hydrogen

Carbon Emissions	Existing methods involve fossil fuels with high carbon emissions.
Low Adoption	Low-emission hydrogen adoption in various sectors is slow.
Economic Sustainability	Low economic sustainability of extracting green hydrogen.
	For transportation fuel cells, hydrogen must be cost-competitive with conventional fuels and technologies on a per-mile basis
Access to Critical Minerals	Access to critical minerals such as nickel, platinum group metals and rare earth metals could hinder scaling up electrolyser manufacturing capability in India
Safety Issues	Green hydrogen is highly flammable , requiring specialized handling and storage. Establishing safety protocols and regulations is essential for ensuring its safe management.

Government Initiatives for Bio and Green Hydrogen:

Initiative	Key Points
Global Biofuel Alliance	Leading efforts to establish global standards for hydrogen from biomass.
National Hydrogen Mission	Targeting a production increase to 5 million metric tonnes (MMT) by 2030, meeting 40% of domestic requirements.
Production Linked Incentive (PLI) Scheme	Proposing a Rs 15,000-crore PLI scheme for electrolysers.
Green Hydrogen Mission	Development of Green Hydrogen Production Capacity of at least 5 MMT (Million Metric Tonne) per annum; Renewable energy capacity addition of about 125 GW in the country by 2030
	Strategic Interventions for Green Hydrogen Transition (SIGHT): Funding domestic electrolyser manufacturing and green hydrogen production.
	Green Hydrogen Hubs: Identifying and developing states/regions for large-scale hydrogen production/utilization.
	Strategic Hydrogen Innovation Partnership (SHIP): Under this Public-private partnership framework R&D will be facilitated under the mission.
International Collaboration	Actively partnering with other countries, research institutions, and private entities for expertise and technology development.
Renewable Energy Integration	Integrating green hydrogen production with India’s expanding renewable energy capacity for improved efficiency and sustainability.

The Ministry of New and Renewable Energy (MNRE) (In collaboration with the Ministry of Road Transport & Highways) **in India has launched a new pilot project for the production of Green Hydrogen with the following components:**

- Funding Allocation:** Rs 496 crore allocated until 2025-26.
- Pilot Project Support:** Focus on testing green hydrogen as a vehicle fuel.
- Infrastructure Development:** Establishment of hydrogen refuelling stations.
- Project Execution:** Selected company or consortium as executing agency.
- Viability Gap Funding (VGF):** Approval by MNRE based on project appraisal.
- Timeframe:** Completion of pilot projects within two years.

To learn about [Bio-hydrogen Click here](#)

Way forward:

- Reduce Production Cost:** Develop efficient technologies for electrolysis. Integrate green hydrogen production with renewable energy.
- Implement Regulatory Incentives:** Offer tax credits and subsidies to promote adoption.
- Improve Infrastructure:** Establish dedicated infrastructure and supply chains. Develop efficient and cost-effective supply chains.
- Coordinate Among Stakeholders:** Ensure alignment of policies, standards, and regulations.

5. **Raise Awareness and Capacity:** Educate potential users and producers about benefits. Demonstrate safety and feasibility in various sectors.
6. **Develop skills and competencies** for production and utilization.

Insta Links:

[India's green hydrogen challenge](#)

Mains Links:

Q. What are the key features of the National Clean Air Programme (NCAP) initiated by the Government of India? (UPSC 2020)

CONTENT FOR MAINS ENRICHMENT

In news	How to use?
<p>1. UNHRC RESOLUTION ON INTERSEX PEOPLE</p>	<p>Context: The United Nations Human Rights Council recently made a historic decision by adopting a resolution aimed at combating discrimination and harmful practices against intersex people.</p> <p>Who are Intersex people? Intersex people are individuals born with sex characteristics (such as sexual anatomy, reproductive organs, hormonal patterns, and/or chromosomal patterns) that do not align with typical binary notions of male or female bodies. They may have any gender identity or sexual orientation. Experts estimate that up to 1.7% of the population are born with intersex traits. Intersex individuals are distinct from transgender individuals, as the former's physical characteristics do not necessarily match their gender identity. The resolution calls upon member states to address root causes of discrimination, such as stereotypes and misinformation, and to ensure the rights to bodily integrity and autonomy for intersex individuals.</p> <p>The resolution on intersex rights promotes ethical values such as combating discrimination, ensuring the highest attainable standard of physical and mental health, and addressing root causes of human rights violations.</p>
<p>2. RISING ROLE OF WOMEN IN FINANCE AND WORKFORCE</p>	<p>Context: More Indian women are actively participating in financial decision-making, with 98% of urban women involved in long-term family decisions, including household financial investments, according to the recent AMFi-CRISIL report.</p> <ul style="list-style-type: none"> • Female LFPR up to 41.5% (Oct 2023) from 24.6% (2017-18), with rural women showing a faster growth rate • 47% of women make independent financial decisions. Autonomy varies with income, age, and affluence stage <p>Challenges in Women's Financial Autonomy: Socio-cultural: Patriarchy, gender stereotypes., Lower workforce participation, gender pay gap, unpaid domestic work burden</p> <p>Significance of Women's Role in Financial Decision-Making:</p> <ol style="list-style-type: none"> 1. Social Impact: Empowerment, gender equality, reduced conflict, better education, and healthcare. 2. Economic Impact: Financial literacy, wealth management, entrepreneurship, and innovation. <p>Values exhibited:</p> <ol style="list-style-type: none"> 1. Gender equality: Addressing disparities and promoting equal opportunities. 2. Social justice: Reducing gender-based discrimination and fostering inclusivity. 3. Empowerment: Enhancing autonomy and decision-making power. 4. Fairness: Ensuring equitable treatment and opportunities for all genders. 5. Respect: Valuing diverse perspectives and contributions in the workforce.

<p>3. JAPAN'S "WOMENOMICS" REFORMS</p>	<p>'Womenomics' refers to a set of economic policies and reforms aimed at promoting women's participation in the workforce and enhancing gender equality in the economy.</p> <p>The term was popularized in Japan under the administration of Prime Minister Shinzo Abe as part of his broader economic agenda known as 'Abenomics.'</p> <p>The 'womenomics' reforms in Japan included various initiatives:</p> <ol style="list-style-type: none"> Improving access to childcare and early childhood education to enable more women to enter or re-enter the workforce. Enhancing support for work-life balance, including flexible working arrangements and parental leave policies. Promoting women's leadership and career advancement through initiatives such as gender diversity targets and mentorship programs. Increasing efforts to combat gender discrimination and bias in the workplace. Encouraging businesses to create a more inclusive and supportive environment for women employees. <p>'Womenomics' seeks to leverage the untapped potential of women in the workforce to drive economic growth, address demographic challenges, and achieve greater gender equality in society.</p>
<p>4. NTPC'S GIRL EMPOWERMENT MISSION</p>	<p>Context: NTPC launches a new edition of the Girl Empowerment Mission, aligning with the Government of India's Beti Bachao, Beti Padhao initiative. The program aims to tackle gender inequality by nurturing girls' imaginations and offering them opportunities for development.</p> <p>Starting April 2024, nearly 3,000 underprivileged children will benefit from the 1-month workshop across 42 locations, totalling over 10,000 beneficiaries. It will include programmes for empowering girls through leadership development and holistic skill-building in health, hygiene, safety, fitness, sports, and yoga.</p>

FACTS FOR PRELIMS

GS-1

1. IKSHVAKU-ERA

Context:

Recently **around 3,730 lead coins** were unearthed in an **earthen pot at Phanigiri**, a **renowned Buddhist heritage site in Telangana**.

- The coins, bearing an **elephant symbol on the obverse and a Ujjain symbol on the reverse**, are **believed to belong to the Ikshvaku period**.
- Phanigiri is considered an important Buddhist monastery located strategically on the hilltop**, along the ancient trade route connecting the west and east coast of the Deccan.

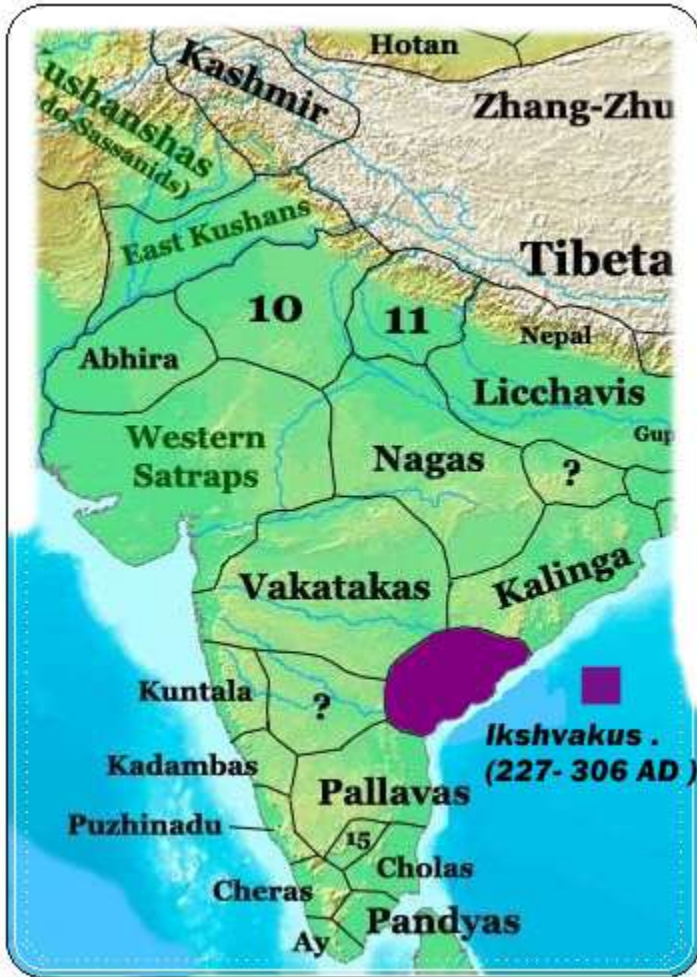
About the Ikshvaku era:

During the **third and fourth centuries CE**, the **Ikshvaku dynasty ruled the eastern Krishna River valley** from their capital at **Vijayapuri (modern Nagarjunakonda in Andhra Pradesh)**.

Also known as **the Andhra Ikshvakus or the Ikshvakus of Vijayapuri**, they were Shaivites following **Vedic rituals**, but **Buddhism flourished during their reign**.

They practised both **Buddhism and Brahminism, evident in their architectural projects**.

The dynasty's reign marked a **period of cultural and religious growth but ended with the rise of Pallava rule**.



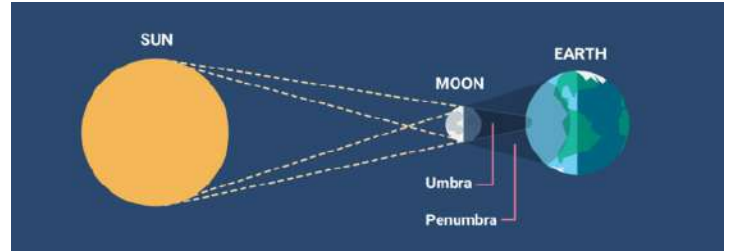
2. TOTAL SOLAR ECLIPSE

Context:

A total solar eclipse will cross North America, passing over Mexico, the United States, and Canada. This type of solar eclipse is a rare event for any particular spot.

- According to Royal Museums Greenwich, once a place on Earth witnesses a total solar eclipse, it will be about 400 years before that part sees the next one.
- A total solar eclipse is a rare event because it occurs when the Moon passes directly between the Earth and the Sun, casting a shadow on the Earth's surface.
- Total solar eclipses are infrequent because the Moon's orbit is tilted with respect to the Earth's orbit around the Sun, causing the Moon's shadow to usually pass above or below the Earth.
- Additionally, the umbra, or the darkest part of the Moon's shadow where a total eclipse is visible, covers only a small portion of the Earth's surface during each event.

Consequently, a specific location on Earth may witness a total solar eclipse only once every 400 years.



3. ARCTIC'S POLAR VORTEX

Context:

In a surprising turn of events, scientists observed the Arctic's polar vortex spinning in the opposite direction, marking one of the six strongest occurrences of its kind since 1979.

- The polar vortex is a massive spinning wheel of freezing cold air that forms high in the atmosphere near the North Pole, held together by a strong west-to-east wind current.
- This wind current, often referred to as the polar night jet, can reach speeds comparable to a Category 5 hurricane.
- The reversal in the vortex's direction was attributed to "Sudden Stratospheric Warming events," which caused an influx of ozone from lower latitudes around the Arctic.

About Polar Vortex:

The polar vortex is a large, persistent circulation of frigid air located in the stratosphere and typically centred near the Earth's poles.

It is characterized by a strong wind current that circulates from west to east, trapping cold air within the polar regions during the winter months.

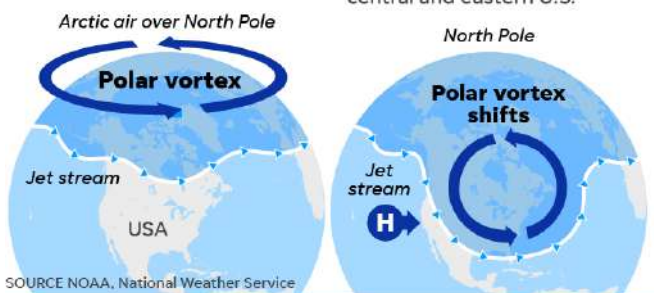
The polar vortex plays a crucial role in maintaining the polar climate and can influence weather patterns in mid-latitude regions.

Occasionally, disruptions in the polar vortex can occur, leading to phenomena such as sudden stratospheric warming events, which can result in shifts in weather patterns and colder temperatures in regions outside of the polar areas.

What is the polar vortex?

The polar vortex is a large area of cold air high up in the atmosphere. It normally spins above the North Pole.

A chunk of the polar vortex sometimes slides down toward the U.S. This helps funnel bitterly cold Arctic air over the central and eastern U.S.



SOURCE NOAA, National Weather Service

4. SOUTHERN OCEAN

Context:

The **Southern Ocean** is known for having the **cleanest air on Earth, a fact previously attributed mainly to minimal human activity.**

- However, recent research has **unveiled that clouds and rain play a significant role in keeping the air pristine.**

Role of clouds:

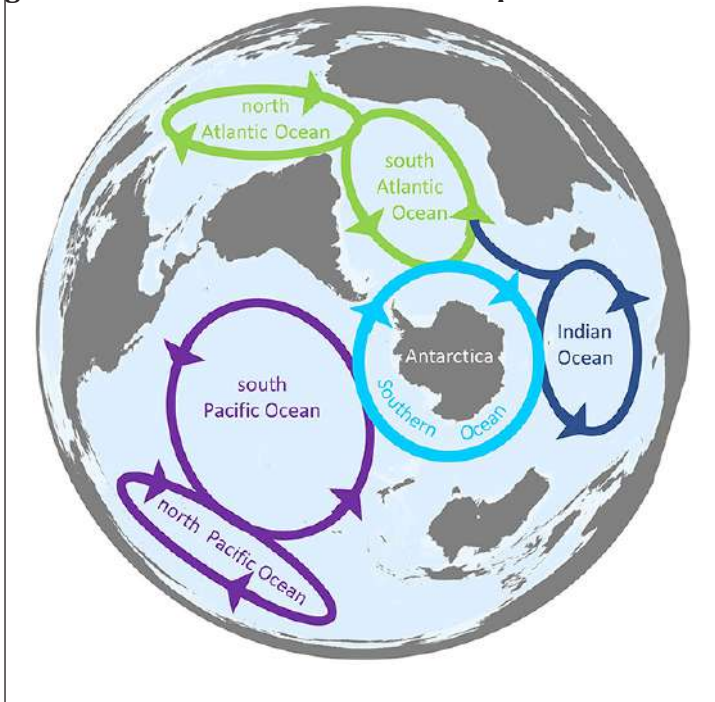
- The Southern Ocean experiences **unique cloud patterns, particularly honeycomb-shaped clouds, which regulate climate by reflecting or allowing sunlight.**
- These clouds **generate sporadic but intense rain showers, effectively washing aerosol particles out of the air.**

About Southern Ocean:

The Southern Ocean is the body of water that **surrounds Antarctica and is bounded by the continents of Antarctica, South America, Africa, and Australia.**

It is the **southernmost ocean on Earth and is characterized by its vast expanse of open water, strong currents, and harsh climate conditions.**

The Southern Ocean plays a **critical role in regulating global climate and ocean circulation patterns.**



GS-2

1. SUVIDHA PORTAL

Context:

Since the announcement of General **Elections 2024,**

over 73,000 applications have been received on the Suvidha Portal, with more than 44,600 requests approved.

- The portal ensures **transparency and a level playing field for political parties and candidates by adhering to the First in First out principle.**
- It caters to a wide range of **permission requests such as organizing rallies, opening temporary party offices, and distributing pamphlets.**
- The data available on the portal aids in **scrutinizing election expenditures, contributing to greater accountability.**

Requests were **highest from Tamil Nadu, West Bengal, and Madhya Pradesh, with minimum requests from Chandigarh, Lakshadweep, and Manipur.**

The Suvidha portal is a **technological solution created by the Election Commission of India (ECI) to facilitate fair and transparent elections.**

2. GULF COOPERATION COUNCIL (GCC)

Context:

The **Gulf Cooperation Council (GCC)** launched its **'Vision for Regional Security' in December 2023,** aiming to establish a **comprehensive framework for regional security.**

Key highlights include:

1. Prioritizing negotiation over conflict
2. Combating terrorism and extremism
3. Supporting non-proliferation efforts
4. Addressing climate change and economic challenges

About GCC:

The Gulf Cooperation Council (GCC) (est. 1981; HQ: Riyadh (Saudi Arabia)) is a **political and economic union** formed by **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.** It aims to promote co-operation among member states. Initially proposed as a **"Gulf Union" for deeper coordination,** its military arm, the **Peninsula Shield Force,** was created in 1984.



3. PALESTINIAN MEMBERSHIP APPLICATION REFERRED TO UN COMMITTEE

Context:

The United Nations Security Council president has referred the Palestinian Authority's application for full UN membership to the committee on new member admissions.

- The committee will assess the application's compliance with U.N. membership requirements before potentially advancing it for a formal Security Council vote

To become a UN member:

- A state submits an application to the Secretary-General, accepting Charter commitments.
- The application is reviewed by the UNSC, needing approval from 9 of 15 members and no vetoes from the 5 permanent members.
- If approved, it goes to the General Assembly, requiring a two-thirds majority vote.
- Membership becomes effective upon the adoption of a resolution.

4. PRINCIPLES FOR HARMONIOUS CONSTRUCTION

Context:

The Supreme Court, while refusing to condone a 5659-day delay in an appeal, outlined eight principles deciding an application for condonation of delay.

These include:

- the public policy basis of limitation laws,
- the strict interpretation of Section 3 and liberal interpretation of Section 5 of the Limitation Act,
- the balance between substantial justice and adherence to limitation laws,
- discretionary power of courts to condone delays,
- lack of entitlement based on others' relief,
- non-necessity to consider case merits in delay condonation,
- and adherence to statutory provisions in deciding delay condonation applications.

The Doctrine of Harmonious Construction is a legal principle used to interpret statutes and resolve conflicts between laws or different parts of the same law.

When there's inconsistency between statutes or provisions, the doctrine requires interpreting them in a way that harmonizes their application.

This ensures that all provisions are given effect and the statute is understood as a whole.

The principle assumes that Parliament intends for all provisions to work together without contradiction.

5. BILATERAL INVESTMENT TREATY

Context:

The Prime Minister's Office (PMO) has directed the commerce ministry to review the model text of bilateral investment treaties (BITs) and propose enhancements to facilitate business operations.

- This move is prompted by India's previous losses in international arbitration cases against companies like Vodafone and Cairn Energy over retrospective tax imposition.
- Model text of BIT: Union Cabinet adopted new Model BIT text in 2015, which replaced Indian Model BIT, 1993.

BITs are crucial for protecting and promoting investments between nations, and they are a focal point in India's negotiations with countries like the UK and the European Free Trade Association (EFTA).

6. PEACE CLAUSE IN WTO

Context: India has invoked the peace clause at the WTO for the fifth consecutive time for the marketing year 2022-23, as it breached the prescribed subsidy limit for rice.

- Despite breaching the 10% domestic support ceiling, there are no immediate repercussions due to the peace clause, which provides immunity until a permanent solution is found.
- India justifies its actions as necessary to meet domestic food security needs.

The peace clause in the World Trade Organization (WTO) refers to an agreement that temporarily shields developing countries from legal challenges for breaching the domestic support limits on agricultural subsidies.

It was established during the WTO's Bali Ministerial Conference in 2013.

This clause allows developing countries to provide subsidies beyond the prescribed limits for certain agricultural products, such as rice and wheat, without facing immediate repercussions.

The peace clause provides immunity until a permanent solution is found, allowing developing countries to support their domestic agricultural sectors while negotiations continue on more permanent subsidy rules.

7. CANDIDATES' RIGHT TO PRIVACY FROM VOTERS

Context: The Supreme Court ruled that candidates have a right to privacy from voters and are not required to disclose every aspect of their personal life and possessions.

The judgment came in a case where an MLA's election was challenged for not declaring vehicles as assets. The Court ruled in favour of the MLA, stating that once sold, vehicles cannot be considered assets.

Statutory provisions regarding declarations by Election candidates as per RPA 1951:

1. **Section 33 of the Representation of People's Act (RPA), 1951**, governs nominations for election candidates and requires valid information presentation.
2. **Section 36 of the RPA, 1951**, allows scrutiny of nominations by returning officers, who can reject nominations for defects of a '**substantial character**'

What did SC say?

1. Supreme Court ruled that **voters' right to know is not absolute**.
2. A candidate's privacy on **matters irrelevant to their candidature** is not a corrupt practice under Section 123 of the RPA, 1951.
3. **Non-disclosure of certain personal items** is not a substantial defect under Section 36 of the [RPA, 1951](#).
4. Candidates are **not obligated to disclose every item** of movable property they own.
5. **Suppressing information about expensive items** like watches can be a substantial defect. Ownership of simple items may not constitute a defect in disclosure.

Voters in India have certain rights protected by the Election Commission of India (ECI) and the Constitution:

1. **Right to Know:** Voters have the right to know about candidates' criminal records, financial status, manifesto, etc.
2. **Voting rights of NRIs:** Non-resident Indians (NRIs) can vote in Indian elections.
3. **Voting rights of Prisoners:** Prisoners are not permitted to vote.
4. **NOTA (Right Not to Vote):** Voters can choose NOTA if they feel none of the candidates are suitable.
5. **Tendered Voting Rights:** Voters can vote separately if someone else has wrongly voted on their behalf.
6. **Voting rights of Disabled or Infirm Citizens:** The ECI assists disabled or infirm citizens in casting their votes.

8. CURATIVE PETITION

Context: The Supreme Court's decision to **allow a curative writ petition in the DMRC case** signifies an **expansion**

of its powers beyond constitutionally prescribed processes.

- The **curative writ, a sparingly used judicial innovation**, aims to **correct grave miscarriages of justice**, as **established in the 2002 Rupa Hurra v Ashok Hurra case**.
- However, the exercise of **curative jurisdiction in a commercial case raises questions about the finality of the Supreme Court's rulings** and the **principle of minimum judicial interference**.

Curative petition is entitled, if petitioner establishes

- Violation of **principles of natural justice**; Judge failed to **disclose his connection with the subject matter** or there is an **apprehension of bias and judgement adversely affects petitioner**.

9. REPRESENTATION OF THE PEOPLE ACT, 1951

Context:

The **Election Commission (EC)** has issued a **directive to crackdown on anonymous political hoardings**, requiring the **disclosure of the names of their publishers and printers for traceability and accountability**.

- This move aims to **regulate campaign financing and ensure accountability** if the content **violates the Model Code of Conduct or statutory provisions**.
- This decision follows representations **received by the EC regarding hoardings lacking identification of printers or publishers**.
- **Section 127A of the Representation of the People Act, 1951**, mandates the **prominent display of the name and address of the printer and publisher on election-related material**.

This directive **holds printers, publishers, and licensees/contractors of urban local bodies accountable for political advertisements published on outdoor media**.

10. MISLEADING ADVERTISEMENTS

Context:

The Supreme Court declined a second apology from **Baba Ramdev and Patanjali** in a contempt case over **misleading advertisements**.

What are Misleading Advertisements?

Misleading advertisements are **promotional messages or claims that deceive or mislead consumers about the characteristics, benefits, or efficacy** of a product or service. These ads may contain false or exaggerated information, leading consumers to make purchasing decisions based on inaccurate perceptions

The Supreme Court criticized the **deliberate violations**

of the Drugs and Magic Remedies Act.

The Drugs and Magic Remedies (Objectionable Advertisements) Act of 1954 prohibits misleading claims about drugs and magic remedies. **Section 4 prohibits false impressions** about a drug’s true character, while Section 5 bans the advertisement of magic remedies for treatment, defining them as items alleged to have miraculous powers for diagnosis, cure, or mitigation.

11. REPORTS IN NEWS

Reports	Descriptions
IMF’s Global Financial Stability Report 2024	Key findings: The IMF warns of rising cyber threats endangering macro-financial stability, with extreme losses reaching \$2.5 billion . Cyberattacks have nearly doubled since the pandemic, with financial firms, especially banks, facing the brunt.
	India ranks 10th in cybercrime , with advance fee payment frauds being the most common, according to the World Cybercrime Index developed by the University of Oxford and UNSW Canberra
Plastic Overshoot Day 2024 Report	Released by Earth Action
	Key Findings: In 2024, it’s projected for September 5th globally and April 23rd in India . There has been over 7% rise in global plastic waste since 2021, with 12 countries responsible for 60% of mismanaged plastic waste, including China, India, and Russia.
	India is categorized as a Low-Waste-Producing Polluter with a high Mismanaged Waste Index (MWI)
	Plastic Overshoot Day (similar to Earth Overshoot Day) marks when global plastic waste surpasses the world’s capacity to manage it, leading to pollution.
Global hepatitis report 2024	Released by WHO
	India accounted for over 11% of the global burden of hepatitis B & C cases , ranking second after China.
	Hepatitis is liver inflammation caused by various factors, such as drugs, alcohol, and autoimmune disorders. Symptoms can range from jaundice and fever to chronic illness. The five main strains are A, B, C, D, and E, with B and C leading to chronic disease, liver cirrhosis, cancer, and death. While a vaccine exists for type B , none is available for type C.
	World Hepatitis Day, observed on July 28 each year , aims to raise awareness about viral hepatitis and its global impact.
	Government initiatives to tackle hepatitis include: the National Viral Hepatitis Control Program (aiming to eliminate viral hepatitis as a public health threat by 2030 in India); Universal Immunization Programme (UIP) (provides free vaccination against hepatitis B and other vaccine-preventable diseases, including tuberculosis, polio, pneumonia, and measles, among others)
Financing for Sustainable Development Report 2024	Released by United Nations Department of Economic and Social Affairs (UNDESA)
	Key findings: Developing countries face a significant financing gap for achieving Sustainable Development Goals (SDGs), estimated between \$2.5 trillion and \$4 trillion annually . Systemic risks like the COVID-19 pandemic and more frequent disasters strain national financing frameworks
	Recommendations: Enhance tax capacity to boost tax revenue for SDGs.
	UN DESA (HQ: New York City; est.1948) , supports countries in making informed decisions by offering information via publications, databases, and international discussions at forums like the UN General Assembly and ECOSOC . It releases report the World Social Report (since 1997)

12. INDIA-MAURITIUS TAX TREATY

Context:

India and Mauritius amended their **double taxation avoidance agreement (DTAA)** to include a **principal purpose test (PPT) aimed at curbing tax avoidance.**

- However, the **amended protocol has not been ratified or notified by the Income Tax Department.**
- There were concerns that **investments through Mauritius might face increased scrutiny by tax authorities, potentially affecting past investments as well.**

Double taxation occurs when the **same income is taxed twice in two different jurisdictions before it becomes net income.**

To address this issue and encourage international economic activities, **countries sign Double Taxation Avoidance Agreements (DTAAs).**

These agreements establish **agreed-upon tax rates and jurisdictions for specific types of income received by tax residents of one country from another country.**

DTAA aims to prevent **international double taxation and promote capital investment, trade, and economic activities between the signatory nations.**

The agreements may cover various categories of **income, depending on the types of businesses and holdings citizens have in each other's countries.**

13. FINANCIAL SERVICES INSTITUTIONS BUREAU (FSIB)

Context:

The **Financial Services Institutions Bureau (FSIB)** has recommended **Manoj Mittal**, currently the **Managing Director of IFCL, as the new Chairman and Managing Director of the Small Industries Development Bank of India (SIDBI).**

- Additionally, **Sanjay Shukla has been selected as the Managing Director of the National Housing Bank (NHB)**

About FSIB:

Constituted in 2022 **under Department of Financial Services (Ministry of Finance), by Central Government replacing Bank Board Bureau.**

The **Financial Services Institutions Bureau (FSIB)** is an organization responsible for selecting directors for **state-owned banks and financial institutions in India.**

It acts as a **head-hunter, identifying and recommending suitable candidates** for leadership positions within **the financial sector.**

14. HOMOEOPATHY SYMPOSIUM

Context:

The Homoeopathy Symposium concluded with **a call for global collaboration to enhance the efficacy and acceptance of Homoeopathy worldwide.**

- The event, attended by **over 6,000 participants including President of India**, and seven Padma awardees, focused on **research, clinical practice, and market insights in Homoeopathy.**

Homoeopathy is a system of **alternative medicine based on the concept of "like cures like."**

Developed in the **late 18th century by German physician Samuel Hahnemann**, homoeopathy operates on the **principle of using highly diluted substances to stimulate the body's natural healing processes.**

According to homoeopathic theory, **illnesses can be treated by administering extremely small doses of substances that, in larger amounts, would produce symptoms similar to those of the illness itself.**

GS-3

1. REPORTS IN NEWS:

Study	Details
<p>Lancet Study on Global Life Expectancy</p>	<p>A recent Lancet study spanning from 1990 to 2021 revealed a global increase in life expectancy by 6.2 years, attributed to reduced deaths from enteric infections (food and waterborne illnesses caused by bacteria, parasites, and viruses), lower respiratory infections, ischemic heart disease, and strokes. Enteric diseases, notably typhoid and diarrhoea, led to the highest reduction in deaths. Lower respiratory infections and measles also played significant roles.</p> <p>However, COVID-19 emerged as the second leading cause of age-standardized deaths in 2021, with varying impacts across regions, emphasizing the need for effective disease mitigation programs.</p> <p>About The Lancet: It was established in England in 1823, and is a prestigious weekly peer-reviewed medical journal known for its high impact. Owned by Elsevier since 1991, it publishes original research articles, reviews, editorials, and more.</p>
<p>Measuring the Emissions and Energy Footprint of the ICT Sector Report</p>	<p>Jointly released by the International Telecommunication Union (ITU) and the World Bank</p> <p>Key Highlights: Rapid digitalization expansion increases energy consumption and greenhouse gas emissions. The ICT sector accounts for 1.7% of global emissions. 60% of renewable power purchases in 2021 were from the ICT sector. France is the only country compiling telecommunications sector emissions.</p> <p>Key Recommendations: Data-driven approach is needed for informed policy decisions and emission reduction targets. Technology transitions in the ICT sector can reduce emissions with careful planning for inclusivity. Regulatory modifications, incentives, and collaboration between ICT and energy sectors can promote sustainable energy access.</p> <p>About ITU: The International Telecommunication Union (ITU) (HQ: Geneva, Switzerland) is the oldest UN agency, founded in 1865 as the International Telegraph Union. It promotes the global use of radio spectrum, assigns satellite orbits, sets technical standards, and improves telecom infrastructure. ITU has 193 member countries (including India) and numerous businesses, academic institutions, and organizations.</p>
<p>“Economic and Social Survey of Asia and the Pacific 2024” was released by UNESCAP</p>	<p>Key findings from the 2024 survey highlight the challenges facing developing countries in balancing debt servicing with investments in critical sectors like education and health. Despite steady economic performance in Asia-Pacific, issues like weaker purchasing power, limited job opportunities, and income inequality persist</p> <p>Key recommendations Include:</p> <ol style="list-style-type: none"> 1. Prioritize macroeconomic stability and fiscal discipline to keep government borrowing costs low. 2. Implement policy measures to improve revenue collection and boost domestic savings. 3. Shift international development cooperation towards affordable, long-term financing. 4. Enhance the roles of multilateral development banks and credit rating agencies. 5. Address fiscal implications of global megatrends like demographic shifts and climate change. <p>About UNESCAP: The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (est. 1947; HQ: Bangkok) serves as a pivotal forum for governments across the region to convene and deliberate on matters pertaining to economic and social development. Currently, it comprises 53 member countries and 9 associate members, with India being one of its prominent members.</p>

Report Title	Description
Towards Specific Commitments and Action in Response to AMR	<p>Report Released by Global Leaders Group (GLG) on Antimicrobial Resistance (AMR)</p> <p>The report aims to inform the 2024 United Nations General Assembly High-level Meeting on AMR</p> <p>Recommendations: It includes convening an independent panel on AMR action by 2025, expanding financing instruments, updating the 2015 Global Action Plan by Quadrupartite organizations (FAO, UNEP, WHO, WOAH), and ensuring quality-assured surveillance data through global surveillance systems (GLASS, ANIMUSE and InFARM).</p> <p>Target: Targets for 2030 include reducing bacterial AMR deaths by 10% and decreasing antimicrobial use in agri-food systems</p>
Space: The \$1.8 Trillion Opportunity for Global Economic Growth	<p>The report has been released by the World Economic Forum (WEF)</p> <p>Key findings reveal the space economy’s projected growth to \$1.8 trillion by 2035 from \$630 billion in 2023. Five industries will drive over 60% of this growth, including supply chain, food and beverage, defence, retail, and digital communications. Decreasing launch costs (fell by over 10-fold over the last 20 years), commercial innovation and diversified investments are driving space prevalence.</p> <p>Recommendations include partnering with tech innovators, exploring a “space for non-space” approach, and enacting policies to foster collaboration across state-sponsored agencies.</p> <p>India’s space economy is currently valued at approximately \$8.4 billion, comprising 2-3% of the global space economy. The target is to reach \$44 billion by 2033, with 100% FDI allowed.</p> <p>Recent initiatives include Indian Space Policy 2023, Indian National Space Promotion and Authorization Centre (IN-SPACe); creation of New Space India Limited to facilitate private sector participation.</p>
Global Unicorn Index 2024	<p>Report released by Hurun Research Institute</p> <p>Findings: In 2023, India had 67 unicorn startups (68 in 2022), ranking third globally behind the USA and China. Indian founders have produced more offshore unicorns than any other country. India lacks unicorns in the Aerospace or SpaceTech sector. Factors behind the decline include a slowdown in India’s startup ecosystem due to insufficient investment.</p> <p>Unicorns are privately held, venture-capital-backed startups valued at \$1 billion or more. The term was coined by venture capitalist Aileen Lee in 2013</p>
EIA’s report titled ‘More Chilling Than Ever’	<p>The Environmental Investigation Agency (EIA) found that illegal trade in HFCs in Europe is driven by high profits and ongoing demand.</p> <p>HFCs, or Hydrofluorocarbons, are colourless and odourless gases composed of carbon, fluorine, and hydrogen. They are entirely human-made and primarily used in refrigeration, air-conditioning, insulating foams, and aerosol propellants. HFCs were developed as alternatives to ozone-depleting substances like chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). While they do not deplete the ozone layer, HFCs contribute to global greenhouse gas emissions and exacerbate climate change.</p>

2. INDIA HAS ELIMINATED KALA-AZAR

Context:

India has successfully achieved its target to **eliminate visceral leishmaniasis**, commonly known as kala-azar, according to data from the **National Centre for Vector Borne Diseases Control (NCVBDC)**

About Kala-azar:

It is a disease caused by the protozoan parasite Leishmania (transmitted by sandfly bites). It progresses slowly and primarily affects organs like the **spleen, liver, and bone marrow**. In India, it’s caused by **Leishmania donovani**, with the term “kala-azar” meaning “black disease” due to skin discoloration. **Post-Kala-azar Dermal Leishmaniasis**

(PKDL) occurs when the parasite affects skin cells, resulting in dermal lesions.

Despite persistent challenges, India met its **elimination goal, initially set for 2010 but extended until 2023**. Kala-azar has long been a health concern in states like Bihar, Jharkhand, West Bengal, and Uttar Pradesh. In 2023, India reported only 520 cases of kala-azar, meeting the elimination criteria defined by the World Health Organization (WHO).

The National Vector Borne Disease Control Programme (NVBDCP) started in 2003-04 to prevent and control diseases like **Japanese Encephalitis (JE), Dengue, Kala-azar, Lymphatic Filariasis, Malaria, and Chikungunya**

3. CRIOLLO

Context:

A recent research **on Criollo cattle, a breed developed in the New World from Iberian ancestors** suggested that **Criollo cattle possess various climate-adaptive traits**, making them **well-suited to survive and thrive in a warming world**.

- These traits include a **short, slick-hair coat for improved thermotolerance**, as well as genes **associated with reproduction, fertility, and disease immunity**.
- Criollo cattle's ability to withstand **hot weather leads to improved body weight, more efficient food production, and better animal welfare**.

4. VENOMOUS JELLYFISH BLOOMS

Context:

An unusual occurrence of **venomous jellyfish blooms**, particularly **Pelagia noctiluca**, was reported along the **Visakhapatnam coast in Andhra Pradesh recently**.

- **Pelagia noctiluca, rarely seen on the East coast of India**, is known for **causing various illnesses including diarrhoea, vomiting, extreme pain, and anaphylactic shock**.
- The blooms are attributed to **rising ocean temperatures, posing risks to both fishing industries and tourism**.

Pelagia noctiluca, also known as the **mauve stinger**, is a jellyfish that **can glow in the dark**. Its name in German means **"night light", referring to its reddish colouring and bioluminescence**. The jellyfish is also known as the **"mauve jelly" and the "oceanic jelly"**



5. ARTIFICIAL REEFS

Context:

In a pioneering initiative in **Maharashtra, Mumbai** is preparing for the **installation of 210 artificial reefs near Worli Koliwada**.

- The artificial reefs, **composed of recycled cement and steel**, will **increase the sea surface area by 50-60 square feet per module**.
- They are expected to **attract small and large native species, acting as a habitat and breeding ground**.

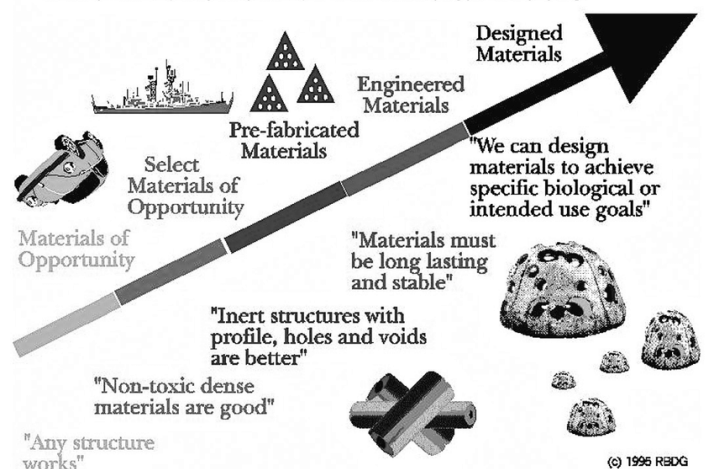
An **artificial reef** is a **human-made structure** designed to **replicate some characteristics of natural reefs**. These structures include **submerged shipwrecks, oil and gas platforms, bridges, and other offshore installations**.

Materials used in their **construction range from rocks and cinder blocks to limestone, steel, and concrete**.

Artificial reefs **enhance habitat for reef organisms like corals, fishes, and invertebrates**.

They attract **marine life, making them popular destinations for fishing, diving, and snorkelling, thus offering economic benefits to local communities**.

The Evolution of Artificial Reefs



6. 'AKASHTER COMMAND AND CONTROL SYSTEMS'

Context:

The 'Akashter Command and Control Systems' is a **new initiative by the Indian Army, developed by Bharat Electronics Limited (BEL)** as part of the 'Atmanirbhar Bharat' initiative.

About the project:

Project Akashter, **developed by Bharat Electronics Limited (BEL)**, is a state-of-the-art initiative enabling the monitoring of **low-level airspace in Indian Army battle areas, and automation of India's air defence system**. It effectively controls Ground-Based Air Defence Weapon Systems, empowering integrated operations for Air Defence units.

Significance: It will significantly bolster India's air defence capabilities by **improving efficiency, situational awareness, and automation**, thus ensuring a safer and more secure future for the country.

To keep pace with the new era of modernization, the **Army has declared the year 2024 as the 'Year of Technological Absorption'**. The Indian Army is accelerating the induction of specific technologies and systems.

7. FOREVER CHEMICALS

Context:

A recent study by **IIT Madras** has uncovered the presence of **'forever chemicals' known as pre- and polyfluoroalkyl substances (PFAS)** in Chennai's **Buckingham Canal, Adyar River, and Chembarambakkam Lake**.

- PFAS are **synthetic chemicals** found in everyday products and are known to **persist in the environment**, posing health risks including **liver damage, hormonal imbalance, fertility issues, and cancer**.
- PFAS are called "forever chemicals" because **they do not easily break down in the environment and can persist for long periods of time**.

8. SPOTTED DEER

Context:

The introduction of **chital, or spotted deer**, to the **Andaman and Nicobar Islands** in the early **1900s for game hunting by the British** has resulted in a **population explosion that now poses a significant problem for authorities**.

- But now the **chital population exceeding the carrying capacity of Netaji Subhash Chandra Bose Island**.

Spotted deer, also known as chital or axis deer, are a species of deer native to the Indian subcontinent. They are characterized by **their reddish-brown coat with white spots**, which gives them their name. Spotted deer are **medium-sized herbivores, typically weighing between 50 to 100 kilograms**. They inhabit a variety of **forested habitats, including deciduous forests, grasslands, and scrublands**.

9. ESZ AROUND SUKHNA WILDLIFE SANCTUARY

Context:

The Union Ministry of Environment, Forest and Climate Change (MoEFCC) has issued a **draft notification demarcating an eco-sensitive zone (ESZ)** around the Sukhna Wildlife Sanctuary on the Haryana side.

Rejecting Haryana's proposal **for only a 1,000-meter ESZ**, the draft delineates an area of 1 km up to **2.035 km** around Haryana's side of the sanctuary. The sanctuary is ecologically sensitive and home to several endangered species. The draft seeks objections from stakeholders within 60 days.

About ESZ:

Ecologically Sensitive Zones (ESZ) are vital areas surrounding protected regions, designated by the central government under the Environment (Protection) Act, 1986. These zones categorize activities into prohibited (e.g., commercial mining), regulated (e.g., felling of trees), and permitted (e.g., local agriculture) to safeguard the fragile ecosystem.

About the Sukhna Wildlife Sanctuary:

It is situated in the Chandigarh Union Territory and encompasses the Shivalik Hills' Sukhna Lake catchment area. It hosts diverse fauna including Sambar deer, Barking deer, and wild boar, alongside various bird, reptile, and amphibian species. The sanctuary features a blend of forests, grasslands, and wetlands, **with Sukhna Lake playing a vital role in its ecosystem**.

10. CREDIT-DEPOSIT RATIO

Context:

Banks in India are facing challenges in **attracting deposits during the financial year 2023-24**.

- According to data from the RBI, the **credit-deposit ratio, indicating the proportion of a bank's deposit base used for loans, has reached its highest level in at least 20 years** due to **increased loan uptake, particularly in categories like home loans and other consumption loans**.

- Currently **standing at 80%, the credit-deposit ratio is at its highest since 2015.**
- Customers are opting for **high-return, equity-linked products, reducing the funds available for deposits in banks.**

In FY24, while deposits **grew by 13.5% to ₹204.8 trillion, non-food credit grew by 20.2% to ₹164.1 trillion,** outpacing deposit growth.

This contrasts with FY23, **where deposits grew by 9.6% and credit by 15.4%.**

About Credit- deposit ratio:

The **credit-deposit ratio** is a **financial metric** used to assess the **relationship between a bank's lending activities (credit) and its deposit base.**

It is calculated by **dividing the total loans extended by the bank by its total deposits.** The ratio indicates how much of a **bank's deposits are being used to provide loans.**

A higher credit-deposit ratio suggests that a **larger portion of the deposits is being lent out as credit,** while a **lower ratio indicates that more deposits are being held in reserve or invested in other assets.**

It is an important measure of a **bank's liquidity and lending capacity.**

11. AIR-BREATHING MAGNESIUM-COPPER / CUPRIC OXIDE FUEL CELL

Context:

Researchers at the **University of Kerala** have developed an **eco-friendly fuel cell that primarily utilizes air and seawater to generate power.**

- The **'Air-breathing Magnesium - Copper / Cupric Oxide Fuel Cell'** is highlighted in the **'Journal of Engineering and Applied Science.'**
- The technology is anticipated to **outperform lithium-ion batteries in power output.**
- Unlike traditional fuel cells that use hydrogen, **this cell relies on magnesium and sodium chloride from seawater.**
- By employing **cupric oxide over copper substrate,** the cell becomes **cost-effective compared to platinum-based alternatives**

The **Magnesium-Copper / Cupric Oxide Fuel Cell** is an eco-friendly technology developed to **generate power primarily using air and seawater.**

This innovative fuel cell produces **electricity and heat during operation while emitting water, making it environmentally clean.**

It employs **cupric oxide grown over a copper substrate in a magnesium-sodium chloride-based system.**

Compared to traditional fuel cells, it offers **cost-effectiveness by utilizing semiconductor material instead of platinum for air cathode systems.**

12. PETER HIGGS (HIGGS THEORY)

Context:

Peter Higgs, the physicist credited with theorizing the **Higgs boson** particle, has passed away at 94.

His contributions:

Contribution	Description
Higgs Mechanism	In the 1960s, Higgs proposed the Higgs mechanism, along with other physicists, to explain why elementary particles have mass. This theory predicts the existence of a new particle, the Higgs boson, which was later discovered at CERN's Large Hadron Collider in 2012. The Higgs mechanism is a crucial component of the Standard Model of particle physics, providing an explanation for the origin of mass for particles like the W and Z bosons.
Development of Higgs Field Theory	Developed the concept of the Higgs field, which permeates space and gives mass to elementary subatomic particles that interact with it. This field theory proposed by Higgs helps explain how particles acquire mass shortly after the universe began.
Higgs Boson	Authored papers on the Higgs boson. His papers contributed to the eventual discovery and understanding of the Higgs boson. The Higgs boson is a subatomic particle that gives other particles mass. The strength of a particle's interaction with the Higgs boson determines its mass.
Nobel Prize in Physics	Awarded the Nobel Prize in Physics in 2013, shared with François Englert, for their theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, which was confirmed by the discovery of the Higgs boson.
Significant Awards and Honors	Received numerous awards for his groundbreaking work, including the Hughes Medal, Rutherford Medal, Dirac Medal and Prize, Wolf Prize in Physics, J. J. Sakurai Prize for Theoretical Particle Physics, and the Copley Medal. Honoured with a unique Higgs Medal from the Royal Society of Edinburgh.

Values:

Higgs demonstrated **humility, integrity, and dedication throughout his** life, embodying ethical values such as **honesty, modesty, and a commitment to scientific advancement**. Despite his fame, he remained modest, focusing on science rather than personal recognition. His legacy profoundly **impacted our understanding of the universe**.

13. C-DOME DEFENCE SYSTEM

Context:

The C-Dome is the naval version of **Israel's Iron Dome missile defence system**.

- It was deployed for the **first time as a response to a "hostile aircraft" entering Israeli airspace near Eilat**.
- Similar to the Iron Dome, which intercepts rockets fired from Gaza, **the C-Dome uses radar to detect incoming threats and destroys them with its own missiles**.
- Unlike the Iron Dome, **the C-Dome is mounted on ships and integrated into the ship's radar system**. It **provides full-circular protection against maritime and coastal threats**.
- The system was **tested on Sa'ar 6-class corvettes, German-made warships used by the Israeli Navy, and was declared operational in November 2022**.
- The C-Dome employs TAMIR interceptors, **a modular Vertical-Launch Unit (VLU), and a Command & Control (C2) component** to detect and track threats at sea.

14. DARK ENERGY SPECTROSCOPIC INSTRUMENT (DESI)

Context:

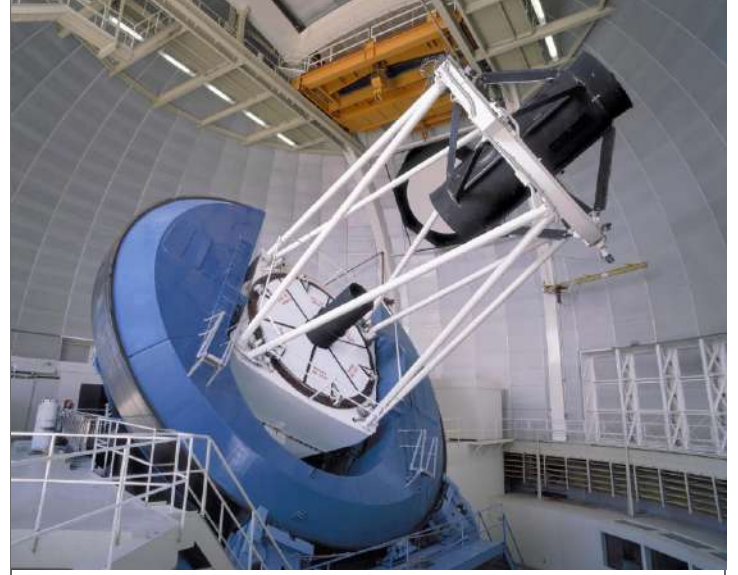
DESI's groundbreaking **project harnesses 5,000 robots to peer 11 billion years into the past**, revealing unprecedented insights into **our expanding universe**.

It found the most precise measurement of the universe expansion rate at a rate of **68.5 (± 0.6) kilometres per second per megaparsec** (a million parsec; 1 parsec equals **3.2616** light years).

DESI made a huge 3D map to study dark energy's impact over 11 billion years. In the Lambda CDM model, matter and dark energy affect the universe's expansion differently: matter slows it, while dark energy speeds it up. Both **dark energy and dark matter** dominate the universe, comprising about 95% of it.

What is DESI?

DESI is a project aimed at **mapping the universe to study dark energy's effects** over billions of years. It is the product of an international collaboration that brings together **researchers from more than 70 institutions (including from India)**. It is a **ground-based dark energy experiment**, located on **the Mayall 4-meter telescope at Kitt Peak National Observatory (USA)**.



15. TSAT-1A

Context:

Tata Advanced Systems Limited (TASL) announced the successful deployment of its **sub-metre optical satellite, TSAT-1A, into space**.

- The satellite, **assembled and tested in India**, was launched aboard **SpaceX's Falcon 9 rocket from the Kennedy Space Center in Florida**.
- **TSAT-1A will provide high-resolution optical satellite images** with enhanced collection capacity and dynamic range through its **multispectral and hyperspectral capabilities**.

16. GUJCOST

Context:

The **Gujarat Council on Science and Technology (GUJCOST)** has been appointed as the **Nodal Centre for the Indian Space Research Organisation's (ISRO) 'Space Science and Technology Awareness Training (START) programme**.

- This initiative, conceived by ISRO, **aims to provide introductory-level online training** in various areas of space **science research, such as planetary exploration, astronomy, and atmospheric science**.

The **Space Science and Technology Awareness Training (START)** is a **free, introductory online training program** for **undergraduate and postgraduate students** in India interested in space science and technology.

17. CDP-SURAKSHA

Context:

The **CDP-SURAKSHA** is a digital platform was launched recently to disburse subsidies to **horticulture farmers under the Cluster Development Programme (CDP)**.

- It aims to **promote the growth of India's horticulture sector** by facilitating instant **subsidy disbursement to farmers' bank accounts using e-RUPI vouchers**.
- The platform integrates various features such as **database integration, cloud-based server space, UIDAI validation, and e-RUPI integration**.
- Farmers can access the platform to order **planting material, contribute their share of the cost, and receive government subsidies upfront**.
- The system ensures **transparency and accountability** by requiring farmers to verify the delivery of **planting material through geo-tagged photos and videos**.
- Unlike the old system, where farmers had to purchase materials themselves and then seek subsidy release, **CDP-SURAKSHA provides subsidies upfront at the time of purchase**.

The Cluster Development Program (CDP) aims to **develop horticulture clusters and attract private investment, covering 55 clusters and an estimated 10 lakh farmers across India**.

18. MICROBIAL FORMULATIONS TO IMPROVE AGRICULTURAL PRODUCTIVITY

Context:

The **Indian Institute of Spices Research (IISR) in Kozhikode** has developed **three new microbial formulations aimed at enhancing agricultural productivity for farmers**.

- These formulations, named **Bactolime, Bactogypsum, and Trichogypsum**, utilize **granular lime and gypsum and have been developed using IISR's patented technology**.

How it works?

- Bactolime **combines beneficial bacteria with liming material to address soil pH issues and deliver microorganisms essential for plant growth**.
- **Bactogypsum and Trichogypsum**, the other two formulations, **work to buffer soil pH to a neutral level, facilitating the establishment of beneficial microbes**, thereby improving soil quality and nutrient availability.

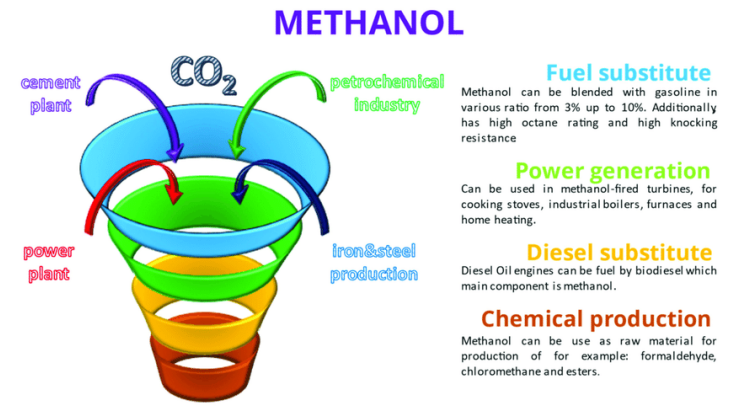
19. METHANOL IN HAND SANITIZERS

Context: **Health officials in the United States** have recalled several lots of **hand sanitizers and aloe gels due**

to the risk of methanol exposure.

- Methanol exposure can lead to **various severe health issues such as nausea, vomiting, headache, blurred vision, coma, seizures, permanent blindness, permanent damage to the central nervous system, or even death**.

Methanol, also known as **methyl alcohol** and wood alcohol, is a colorless, flammable, and poisonous liquid with a strong odor. It has a chemical formula of CH_3OH .



20. PIEZOELECTRIC BONE CONDUCTION HEARING IMPLANTS

Context:

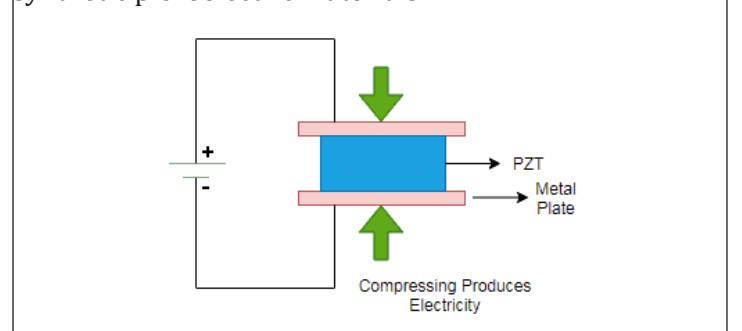
The **ENT department** at Command Hospital in Pune successfully **conducted two piezoelectric Bone Conduction Hearing Implants (BCI)**, making it the **first government hospital in India to achieve this milestone**.

- The piezoelectric BCI system is an **implantable device for hearing-impaired patients with conductive loss, mixed hearing loss, and single-sided deafness**.
- This achievement is significant as it **addresses the needs of patients who are not candidates for cochlear implants or do not benefit from hearing aids or middle-ear surgery**.

Piezoelectricity is the **electric charge that builds up in certain materials** when **mechanical stress is applied to them**.

Piezoelectric materials can be **found in nature and in synthetic materials**.

Quartz is a well-known natural piezoelectric material, while ferroelectric ceramics are the most widely used synthetic piezoelectric materials.



21. PARIVARTAN CHINTAN

Context:

The **Tri-service Conference**, named '**Parivartan Chintan**,' took place recently, aimed at **fostering Jointness and Integration in the Armed Forces**.

- It emphasises the importance of developing a **Joint Culture for the Armed Forces, blending the strengths of each service while maintaining their uniqueness.**
- It helps in **enhancing efficiency, warfighting ability, and interoperability.**

Jointness implies that the **three services are integrated at different levels and placed under one commander for the execution of operational plans.**

The capability of the **joint force is understood to be synergistic, with the sum greater than its parts (the capability of individual components).**

22. INTERNATIONAL NARCOTICS CONTROL BOARD

Context:

India's nominee, **Jagjit Pavadia**, has been re-elected for a **third term to the International Narcotics Control Board (INCB)** after securing the highest number of votes.

- Additionally, India was elected to **several key bodies at the United Nations**, including the **Commission on the Status of Women, the Executive Board of the United Nations Children's Fund, and the Executive Board of the United Nations Development Programme.**

The **INCB, established in 1968**, monitors the **implementation of international drug control conventions** and aims to **ensure adequate drug supplies for medical and scientific uses** while preventing diversion to illicit channels.

23. WEB3

Context:

India's share of **Web3** developers globally has **surged from 3% in 2018 to 12% in 2023**, leading among emerging markets, states a report by Hashed Emergent.

The ecosystem is young, with over 50% of developers joining in the past two years, and **female participation has risen from 3% to 14% in five years.** The country has a thriving **Web3** sector with 1,000 startups and received \$250 million in investment in 2023, mainly in finance, entertainment, and infrastructure subsectors.

Web 3.0

Web 3.0: It is decentralised, privacy-oriented, blockchain-driven and crypto-asset friendly. It is also known as the "Semantic Web". It allows for more intelligent, context-aware, and personalized interactions between humans and computers. It advocates decentralized data storage systems.



Semantic web allows combining information from various websites to create new and authentic knowledge resources.

Comparison of Web 1.0, Web 2.0, and Web 3.0:

	Web 1.0	Web 2.0	Web 3.0
Period	1989-2005	1999-2012	2006-ongoing
Focus	Content Publishing	User Interaction and Participation	Intelligent Web
User Role	Passive Consumer	Active Participant and Co-Creator	Co-Creator and User of Intelligent Content
Data Access	Read-Only	Read and Write Access	Read, Write and personalized
Technology	HTML	Ajax, RSS, and JavaScript Frameworks	Artificial Intelligence, Machine Learning, NLP, Ontology
Design	Basic, Static Pages	Interactive, Dynamic Pages	Customizable, User-Centric Pages
Examples	Early websites	Social Media, Blogs, Wikis, Online Collaboration	Virtual Reality, Personalized Search, Intelligent Agents

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24. BRIGHTEST-EVER COSMIC EXPLOSION

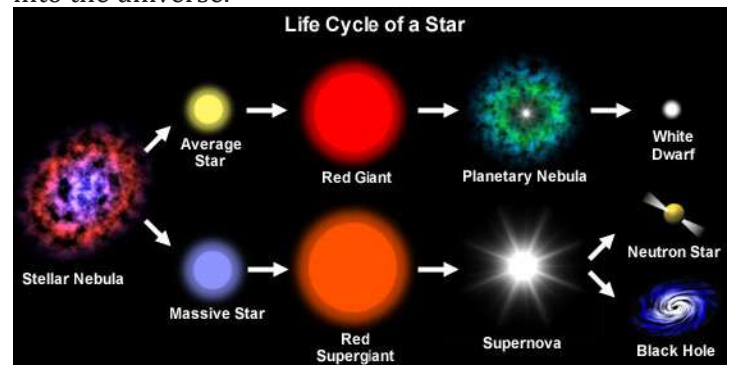
Context:

A significant **astronomical discovery regarding the brightest burst of light** ever recorded, **occurred in 2022.**

Researchers found that the **burst originated from an exploding star**, known as a **supernova**, located in a distant galaxy. However, the intensity of the burst surpassed expectations, leading to questions about its cause and implications. The burst's extraordinary brightness, labelled as the **"Brightest Of All Time" (B.O.A.T.)**, puzzled astronomers.

What are Supernovas?

They are **massive stellar explosions** that occur at the end of a **star's life cycle**. They produce and eject vast amounts of energy and material into space. These explosions are responsible for creating and dispersing heavy elements such as **gold, platinum, lead, and uranium** into the universe.



While supernovas are known to produce heavy elements like gold, the researchers found no evidence of such elements in this particular explosion. This discovery challenges existing theories about the origin of heavy elements in the universe and raises doubts about the role of supernovas in their production.

25. MERCENARY SPYWARE

Context:

Apple issued threat notifications to **iPhone users in India and 91 other countries**, warning of **potential attacks by mercenary spyware**, including Israel's Pegasus spyware.

- The notifications, sent via **email**, **highlighted the possibility of specific targeting due to the user's identity or activities.**
- While Apple didn't attribute the attack to any entity, it **emphasized the seriousness of the warning and the rarity and sophistication of mercenary spyware attacks.**

About Mercenary Spyware:

Mercenary spyware refers to **sophisticated surveillance software developed and sold by private companies to governments and other entities.**

Unlike **traditional cybercriminal activities**, mercenary spyware is often used for **targeted surveillance, intelligence gathering, and espionage purposes.**

This type of spyware can infiltrate devices such as **smartphones and computers**, allowing the **attacker to monitor communications, track location, access files, and gather sensitive information remotely.**

Mercenary spyware attacks are typically highly advanced and difficult to detect, **posing significant threats to individual privacy, security, and human rights.**


Examples of mercenary spyware include **Pegasus, developed by the NSO Group in Israel**, which has been implicated in **various surveillance scandals targeting journalists, activists, politicians, and other high-profile individuals worldwide.**

26. EURASIAN OTTER

Context: The **first Eurasian otter** in India was **radio-tagged in the Satpura Tiger Reserve (STR) in Madhya Pradesh.**

- The **Eurasian otter was first photographed in the STR in 2016**, expanding its known range to central India.

Previous News about Eurasian Otters (17th March 2023):




Eurasian otters

Context: Scientists from the University of Jammu's Institute of Mountain Environment have camera-trapped three Eurasian otters in the **Neeru stream of the Chenab catchment** in Jammu and Kashmir

About: Eurasian Otter (Lutra lutra)

- It is an **elusive, solitary otter species** that is found in parts of three continents: Europe, Asia and Africa.
- **Range in India:** Northern, northeast and southern India (mostly in cold hills and mountain streams)
- **IUCN:** Near Threatened
- **CITES:** Appendix I
- **Indian Wildlife Protection Act, 1972:** Schedule II



Neeru is a tributary of the Chenab River that originates in the Kailash Lake

Threats: The species is persecuted in some countries, and its populations in Europe and Asia have declined in recent years due to hunting, habitat loss, pollution, and climate change.

Significance of spotting Eurasian Otters: Eurasian otters are regarded as a **flagship species and indicator of high-quality aquatic habitats.** Its presence is encouraging for the health (pollution free) of the Neeru stream.


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27. BAOBAB TREES

Context:

The **Global Society for the Preservation of Baobabs and Mangroves (GSPBM)** has launched a pioneering initiative to **revive Madagascar's iconic baobab trees.**

Previous News about Baobab Trees:



Baobab trees

Context: The Madhya Pradesh government has decided that the forest department cannot grant permission for the translocation of Baobab trees in Dhar, after the protest from Bhil tribes.

Under the Biodiversity Act, any commercial use of the trees will require permission from the state biodiversity board

Baobab Trees	
Baobab trees are deciduous trees found in mainland Africa, Madagascar, and Australia. They have barrel-like trunks (5 to 20m in height), can live up to 2,000 years , and are known for their extraordinary longevity.	
Tree of Life	Baobabs are succulent trees that store water in their trunk , allowing them to produce nutrient-dense fruit in dry seasons; it has pendulous flowers pollinated by bats and bush babies
Uses	Provide food, livestock fodder, medicinal compounds, and raw materials.
Threat	Since 2005, 9 of the 13 oldest African baobab specimens and 5 of the 6 largest trees have died or suffered a collapse , possibly due to climate change.
IUCN Status	Endangered
GI Tag	Madhya Pradesh government has applied for a GI tag for Baobabs.
About Bhil Tribe	Bhil are one of the largest tribal groups , living in Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh and Rajasthan. The name is derived from the word ' billu ', which means bow . They are skilled in archery and has deep knowledge of their local geography. Traditionally experts in guerrilla warfare, they are now primarily farmers and sculptors.

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SPORTS CORNER

1. DOPING IN SPORTS

Context:

India maintains its **unfortunate status as one of the top countries for doping cases**, with **3.2%** of samples testing positive according to WADA's 2022 statistics.

India has the highest percentage of positive results for **both 2000-plus and 1000-plus samples**. Certain sports like wrestling, where India has Olympic success, contribute to this trend, with over 6% positive results from 285 samples.

What is Doping?

Doping refers to the use of **prohibited substances or methods to enhance athletic performance**.

Reasons for doping include seeking publicity, recovering from injury, technological advancements, and a win-at-all-costs mindset.

Doping undermines fair play, compromises the spirit of sport, and contradicts the pursuit of excellence. It goes against values like **perseverance and courage, hampers moral values in sports**, and rewards wrongdoers.

To learn about the Anti-Doping Bill: [Click Here](#)

National Anti-Doping Agency (NADA):

It was set up as a **registered society under the Societies Registration Act of 1860** on 24th November 2005 with a mandate for Dope-free sports in India. The primary objectives are to **implement anti-doping rules as per the WADA** (World Anti-Doping Agency) code, regulate dope control programmes, promote education and research and create awareness about doping and its ill effects.

World Anti-Doping Agency (WADA):

It was set up in **November 1999 and was set up under the International Olympic Committee**. WADA is recognised by the UNESCO International Convention against Doping in Sport (2005). WADA's primary role is to **develop, harmonize, and coordinate anti-doping regulations** across all sports and countries. It does so by ensuring proper **implementation of the World Anti-Doping Code (WADA Code)** and its standards, conducting investigations into doping incidents, conducting research on doping, and educating sportspersons and related personnel on anti-doping regulations.

MAPPING

INTERNATIONAL

2. SITTWE PORT (MYANMAR)

Context:

India has **secured the rights to operate the Sittwe port in Myanmar**, marking its **second overseas port** endeavour **after Chabahar**. The Ministry of External Affairs approved a proposal for **India Ports Global (IPGL)**, wholly owned by the Ministry of Ports, Shipping, and Waterways, to manage the port on the **Kaladan River**.

About Sittwe Port:

It is a deepwater port situated at the Kaladan River's estuary in Myanmar's Rakhine State. It is a crucial component of the **Kaladan Multi-Modal Transit Transport Project** (KMTTP), funded through grants-in-aid assistance from the Government of India. The port holds significant importance as it will create new trade and transit **opportunities for India's Northeast region**, as well as enhance trade and commerce between India and Myanmar.

Table 1: The Kaladan Multimodal Transit Transport Project

Stretch	Mode	Distance
Kolkata to Sittwe port in Myanmar	Shipping	539 km
Sittwe to Paletwa (River Kaladan)	Inland Water Transport (IWT)	158 km
Paletwa to Indo-Myanmar Border (in Myanmar)	Road	110 km
Border to NH.54 (Lawngtlai) (in India)	Road	100 km



3. ZAPORIZHZHIA NUCLEAR POWER PLANT (UKRAINE)

Context:

A drone attack damaged the [Zaporizhzhia Nuclear Power Plant in Ukraine](#), with three hits on the main reactor containment.

The International Atomic Energy Agency **confirmed the damage but stated that nuclear safety remains intact.**

Zaporizhzhia, the largest nuclear plant in Europe, is located in southeast Ukraine, on the banks of the Dniipro or Dnieper River (which drains into the Black Sea). It is currently under the control of the Russian forces.

The Zaporizhzhya Nuclear Power Plant in Ukraine faces several risks to its safety and operation. The **plant has VVER-1000 reactors** and incorporates safety enhancements implemented after the Chernobyl and Fukushima accidents.

Ukraine is a country in Eastern Europe. It is the **second-largest European country** after Russia. It is also

bordered by Belarus to the north; Poland, Slovakia, and Hungary to the west; and by Romania and Moldova to the southwest; with a coastline along the Black Sea and the Sea of Azov to the south and southeast



4. BOTSWANA

Context:

Botswana’s President recently **made headlines by threatening to export 20,000 elephants to Germany** in response to Germany’s proposal for stricter limits on the import of hunting trophies.

Botswana boasts the world’s largest elephant population due to its stable government, sparse human population, and strict conservation policies. Conflict-driven poaching in neighbouring countries redirected elephants to Botswana’s safer territory. However, this abundance of elephants has led to rising **human-animal conflicts.**

Botswana has responded by **donating elephants to other countries, lifting the ban on trophy hunting,** and capitalizing on hunting revenue.

What is Trophy Hunting?

Trophy hunting involves killing wild animals for their trophies, such as heads, hides, or other body parts, which are then **kept as souvenirs or displays.**

In India, **trophy hunting is banned.** The **Wildlife Protection Act of 1972** prohibits the hunting of wild animals, including for trophies.

About Botswana:

It is a landlocked country in Southern Africa, predominantly inhabited by the **Tswana ethnic group.** It borders South Africa, Namibia, and Zimbabwe, and is connected to Zambia via the **Kazungula Bridge.** It is one of the **world’s most sparsely populated countries.** Botswana is known for its diamond industry, high standard of living, and impressive Human Development Index

Its landscape is **defined by the Kalahari Desert and the**

Okavango Delta, which becomes a lush animal habitat during the seasonal floods. The **massive Central Kalahari Game Reserve**, with its **fossilized river valleys** and undulating grasslands, is home to numerous animals including giraffes, cheetahs, hyenas and wild dogs.



INDIAN

5. KHAVDA SOLAR PARK (GUJARAT'S KUTCH)

Context:

Khavda Solar Park in Gujarat's Kutch, is the world's largest renewable energy park (5 times the size of Paris City). It **boasts of 2 GW of commissioned capacity** with plans to add 4 GW in the current fiscal year and 5 GW annually thereafter.

The **Khavda Solar Park** is near **Vighakot village in Gujarat's Kutch district**. Situated near the Pakistan border, **it aims to generate 30 gigawatts of electricity** from solar panels and wind turbines across 72,600 hectares of land when fully operational.

Khavda was chosen for its ideal conditions for renewable energy generation, including **abundant sunlight and strong wind speeds**. Additionally, its remote location and barren land minimize land use conflicts and maximize the potential for large-scale energy production

