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1st October 2024

WHY A'SUICIDE POD'IS UNDER LEGAL SCRUTINY IN SWITZERLAND-Indian Express Explained

International relations

Easy Explanation

The Sarcopod, a 3D-printed suicide pod designed by Australian physician Philip Nitschke, is under legal scrutiny in Switzerland following the death of a 64-year-old American woman. The pod allows individuals to end their life by releasing nitrogen gas inside the capsule, resulting in unconsciousness and death within minutes. While assisted suicide is legal in Switzerland, the law requires that individuals take their own life without external help. Critics argue that the Sarcopod exploits a legal loophole, as it involves using a machine. Swiss authorities are investigating the device for potential violations of safety and chemical laws.

Key Takeaways:

1. **Sarcopod**: A 3D-printed suicide pod designed by Philip Nitschke, allowing people to end their life by releasing nitrogen gas.
2. **Assisted Suicide in Switzerland**: Legal if the person ends their life without external help or any self-benefit motive from others.
3. **Legal Scrutiny**: Swiss authorities are investigating after the death of a 64-year-old woman in the Sarcopod, questioning its legality.
4. **Criticism**: The Sarcopod may exploit legal loopholes and does not meet product safety or chemical laws.
5. **Euthanasia vs. Assisted Dying**: Euthanasia involves a doctor giving a lethal drug, while assisted dying requires the person to take it themselves.

EARTH MAY SURVIVE THE DEATH OF SUN:WHAT NEW STUDY SAYS-Indian Express Explained

Science

Easy Explanation

A new study suggests that Earth may survive the Sun's eventual death, though it would become a cold, desolate world. This conclusion is based on the discovery of a rocky planet orbiting a white dwarf star, located 4,200 light-years from our solar system. The observed planet, 1.9 times the mass of Earth, once orbited in its star's habitable zone but now experiences freezing conditions after the star's collapse. The Sun is expected to become a white dwarf after expanding into a red giant and shedding its outer layers. The study indicates Earth may not be engulfed during this process, contrary to previous theories.

Key Takeaways:

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1. **Discovery**: A rocky planet orbiting a white dwarf gives insights into Earth's potential survival after the Sun's death.
2. **White Dwarf**: The planet orbits a star that used to be similar to the Sun and now is a small, compact remnant.
3. **Sun's Future**: The Sun will expand into a red giant, shed its layers, and become a white dwarf.
4. **Earth's Survival**: This new study suggests Earth might survive the Sun's red giant phase, though it will be cold and lifeless.
5. **Orbit Expansion**: As the Sun loses mass, Earth's orbit will expand, potentially increasing its chances of avoiding destruction.

Export ban on non-basmati white rice lifted:why,what are the likely impacts-Indian express Explained

Economy

Easy Explanation

India has lifted its ban on exporting non-basmati white rice while imposing a minimum export price of $490 per tonne. The ban was initially placed due to concerns about lower production and an unpredictable monsoon. However, with higher rice production and surplus stocks, the government has decided to ease export restrictions. This move benefits traders and farmers but may cause retail rice prices to rise domestically. India, the world's largest rice exporter, plays a significant role in global rice exports, competing with Thailand and Vietnam. The lifting of the ban will help meet international demand and boost exports, especially for premium varieties like Sona Masoori.

Key Takeaways:

1. **Ban Lifted**: India has lifted the ban on non-basmati white rice exports and set a minimum export price of $490 per tonne.
2. **Higher Rice Production**: Increased sowing and record production due to good monsoons have led to surplus stock, influencing the decision.
3. **Impact**: This benefits rice traders and farmers but may lead to higher retail rice prices domestically.
4. **India's Global Role**: India is the world's largest rice exporter, contributing 33% of global rice exports in 2023.
5. **International Trade**: The lifting of the ban will boost exports, benefiting countries like Kenya, Mozambique, and Vietnam.

Analysis to action: should climate scientists engage in activism?-The Hindu Science

Environment

Easy Explanation

The debate over whether climate scientists should engage in activism is growing amid the climate emergency. Some argue that scientists should focus solely on research, while others believe scientists should take a more active role in advocacy to push for climate action. Advocates for activism, like Karthik Ganesan and Roxy Mathew Koll, argue that scientists have a responsibility to engage with the public and policymakers, as their unique understanding of climate data can help shape effective solutions. Others, like Raghu Murtugudde,

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caution against activism, believing it may distract scientists from their primary role of research. There is no consensus, but many agree that scientists should at least ensure their findings reach the public in a way that drives understanding and action.

Key Takeaways:

1. **The Debate**: Some argue scientists should remain impartial, while others believe activism is necessary to drive climate action.
2. **Role of Scientists**: Scientists like Roxy Mathew Koll advocate for sharing climate data to inform the public and policymakers, even without extreme activism.
3. **Importance of Advocacy**: Advocates like Karthik Ganesan see activism as crucial to counter entrenched interests that resist climate action.
4. **Concerns**: Critics like Raghu Murtugudde caution that activism may distract scientists from research and mislead the public.
5. **Diverse Approaches**: Scientists should choose their level of involvement based on their skills, balancing education, communication, and activism to address the climate crisis effectively.

Frigid planet offers glimpse of earth's final fate-The Hindu Science

Geography

Easy Explanation

Astronomers have discovered a rocky planet orbiting a white dwarf star, offering a glimpse into Earth's potential future after the Sun's death. The planet, located 4,200 light-years away, is 1.9 times the mass of Earth and now orbits its dead star at 2.1 times the distance Earth is from the Sun. The star, once similar to the Sun, expanded into a red giant before shedding its outer layers to become a white dwarf. This discovery raises questions about whether Earth will survive the Sun's red giant phase, estimated to occur in seven billion years. The planet's current frozen state suggests that while Earth may survive, it could become a cold, desolate world after the Sun's demise.

Key Takeaways:

1. **Rocky Planet Discovery**: Astronomers found a planet orbiting a white dwarf, providing insights into Earth's possible fate.
2. **White Dwarf**: The white dwarf, once a star like the Sun, shrank after shedding its outer layers, leaving behind a hot core.
3. **Earth's Future**: The Sun will become a red giant in about seven billion years, and scientists are debating whether Earth will be engulfed or survive.
4. **Cold World**: If Earth survives, it may end up as a freezing, desolate planet, much like the one discovered orbiting the white dwarf.
5. **Habitable Zone Shift**: As the Sun heats up, Earth's habitable zone will shift outward, making it uninhabitable within a billion years.

Having private participation in India's nuclear energy-The Hindu Editorial

Economy

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Easy Explanation

India's Union Budget for 2024-25 announced plans to expand its nuclear energy sector by partnering with private companies to develop Bharat Small Reactors (BSR) and Bharat Small Modular Reactors (BSMR). This move aligns with India's decarbonization goals and aims to achieve 500 Gigawatts of non-fossil fuel energy generation by 2030. However, existing laws, particularly the Atomic Energy Act (AEA) of 1962, restrict private sector involvement, granting the central government sole control over nuclear activities. Additionally, ongoing legal challenges regarding the Civil Liability for Nuclear Damage Act (CLNDA) and concerns over regulatory frameworks create uncertainty for private investors. Public-private partnerships may offer a way forward, but significant legislative and policy changes are necessary to meet India's ambitious nuclear energy targets.

Key Takeaways:

1. **Government's Announcement**: India is expanding nuclear energy with private sector participation, aiming for decarbonization and energy goals by 2030.
2. **Legal Restrictions**: The Atomic Energy Act (AEA) currently limits private sector involvement in nuclear activities, only allowing government control.
3. **Private Sector Role**: Private companies have so far been involved in infrastructure development, but not in research and development (R&D) due to legal restrictions.
4. **Legal Uncertainty**: Ongoing challenges to the constitutionality of the Civil Liability for Nuclear Damage Act (CLNDA) add to regulatory uncertainty.
5. **Proposed Solutions**: Public-private partnerships with majority government ownership could enable private investment while maintaining accountability.

India's 'silver dividend', challenge to opportunity-The Hindu Editorial

Economy

Easy Explanation

India is facing a growing elderly population, but instead of seeing it as a challenge, there is an opportunity to transform this into a "silver dividend." The rising healthcare costs and economic insecurities of the elderly need reform, which should include multi-sectoral approaches such as improving healthcare access, expanding teleconsultation services, and addressing mental health needs. Financial security measures, such as better insurance and legal safeguards, are also critical. Additionally, digital inclusion for the elderly remains essential as the digital age advances. The elderly also represent a growing market, the "silver economy," expected to expand significantly, providing opportunities for businesses catering to senior citizens' healthcare and wellness needs. Government initiatives like SACRED and SAGE are designed to help seniors find employment and promote senior care products, respectively.

Key Takeaways:

1. **Rising Elderly Population**: India's elderly population is growing, posing healthcare and economic challenges.
2. **Healthcare Reform**: Improving healthcare for seniors through better infrastructure, teleconsultation, and preventive services is key.

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3. **Financial Insecurities**: Innovative insurance and financial support schemes are needed to reduce healthcare costs for the elderly.
4. **Digital Inclusion**: Ensuring digital literacy for seniors is vital for accessing government schemes and care services.
5. **Silver Economy**: The elderly represent a growing market segment, providing opportunities for businesses focused on healthcare and wellness.

2nd October 2024

Preparing for the next pandemic: what NITI Aayog report says-Indian Express Explained

Science

Easy Explanation

A NITI Aayog expert group formed in June 2023, published a report on pandemic preparedness, drawing lessons from COVID-19 and past public health crises. It suggests enacting a new Public Health Emergency Management Act (PHEMA) to empower governments for a faster and more efficient response to future pandemics or health emergencies within the first 100 days. The report highlights the need for stronger laws than the outdated Epidemic Diseases Act and the National Disaster Management Act. Key recommendations include setting up an empowered group of secretaries to oversee emergency response, improving surveillance of diseases, establishing an emergency vaccine bank, and creating an early warning network for disease outbreaks.

Key Takeaways

1. **New Law**: PHEMA is proposed to handle public health emergencies better than existing laws.
2. **Empowered Group**: A committee of officials will prepare and monitor pandemic preparedness.
3. **Surveillance**: Strengthen disease surveillance, especially at human-bat interfaces.
4. **Vaccine Bank**: Establish an emergency vaccine bank.
5. **Research Networks**: Build networks for early warning and research on priority pathogens.
6. **Independent Drug Regulator**: The Central Drugs Standards Control Organisation (CDSCO) needs independence and special powers to ensure speedy response.

Near by river contributes to the rise of Mount Everest,says new study-Indian Express Explained

Geography

Easy Explanation

A recent study published in Nature Geoscience reveals that Mount Everest, which is about 8,849 meters tall, has been rising unexpectedly over the past 89,000 years due to geological processes influenced by the nearby Arun River. The erosion caused by the river in its basin, which stretches across Nepal and Tibet, has been enhancing the height of Everest by up to 2mm per year. This phenomenon is attributed to 'isostatic rebound'—a geological process where the Earth's crust adjusts and rises when the weight on it is reduced, much like a floating object readjusting its position when weight is removed. This study suggests that changes in the river

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network, particularly the merging of the Arun River with the Kosi River, have played a significant role in the uplift of Everest and its neighboring peaks.

Key Takeaways

1. **Isostatic Rebound**: The primary geological process contributing to Everest's rise, caused by the reduction of surface weight due to erosion from river activity.
2. **River Influence**: The Arun River's erosion activities have been pivotal, accelerating the uplift of Everest and its neighboring mountains by reducing land mass and thus decreasing surface weight.
3. **Annual Uplift**: Everest is rising by up to 2mm annually due to these geological processes, with river-induced erosion accounting for about 10% of this uplift rate.
4. **Continued Research**: While the findings highlight the significant impact of river erosion on mountain uplift, some experts express skepticism, noting the challenges in accurately dating river changes and questioning the direct connection between river incision and mountain uplift. Further research is needed to solidify these findings.

How India's temples are run-Indian Express Explained

Polity

Easy Explanation

The debate over the control of Hindu temples in India has resurfaced amid a controversy involving the Tirupati Temple. Unlike Muslim and Christian places of worship, many Hindu temples are under government control, managed through state laws. States like Tamil Nadu, Andhra Pradesh, and Karnataka administer temples through laws based on the Constitution's Article 25(2), allowing governments to regulate religious institutions' secular activities. Hindu organizations, like the Vishwa Hindu Parishad (VHP) and the Rashtriya Swayamsevak Sangh (RSS), have long demanded that temples be freed from government control, claiming that temple funds are being misused. While there are calls for returning temples to Hindu devotees, the courts have generally allowed government oversight, citing societal benefits.

Key Takeaways

1. **Government Control**: Many Hindu temples are administered by state governments under laws enacted after Independence.
2. **Revenue Use**: Temple revenues are used for both religious and secular purposes, including welfare activities like schools and hospitals.
3. **Historical Control**: Government control over temples dates back to British colonial laws, which aimed to prevent the mismanagement of temple funds.
4. **Hindu Organizations' Demand**: Hindu groups like the RSS and VHP have been demanding that temples be freed from government control since the 1950s.
5. **Legal Rulings**: Courts have upheld the government's right to regulate temple management, noting the societal benefits provided by such oversight.
6. **Recent Movements**: The demand to free temples has gained momentum in recent years, with efforts in some states like Uttarakhand and Karnataka to reduce government control.

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10 years of Swachh Bharat Mission:Its aims and status on key targets-Indian Express explained

Governance

Easy Explanation

The Swachh Bharat Mission (SBM), launched by Prime Minister Narendra Modi in 2014, aimed to make India open defecation-free (ODF) by October 2, 2019, in tribute to Mahatma Gandhi's 150th birth anniversary. The mission was divided into rural (SBM-Gramin) and urban (SBM-Urban) components, focusing on building toilets, promoting solid waste management, and driving behavioral change. SBM achieved significant milestones, including the construction of over 10 crore toilets and the declaration of 6 lakh villages and 3,913 cities as ODF. However, challenges remain, especially in managing solid waste and achieving 100% waste remediation. SBM 2.0, launched in 2021, aims to enhance waste management efforts. The mission has also had a positive impact on public health, contributing to reduced infant mortality and preventing diarrheal deaths.

Key Takeaways

1. **Open Defecation-Free (ODF)**: The mission aimed to make India ODF by 2019, with over 10 crore toilets built, and millions of villages and cities declared ODF+.
2. **SBM 2.0**: Launched in 2021, it focuses on waste management, including garbage-free cities and plastic waste control.
3. **Funding**: The government increased financial assistance for building toilets, and over Rs 1.4 lakh crore has been allocated for SBM 2.0.
4. **Health Impact**: SBM contributed to reducing deaths from diarrheal diseases and malnutrition, with the World Health Organization estimating a significant decrease in deaths.
5. **Challenges**: Only 30% of legacy landfills have been cleared, and solid waste management targets are still unmet.

A regime change fantasy-Indian Express Editorial

International relations

Easy Explanation

Israeli Prime Minister Benjamin Netanyahu's current strategy involves pushing for a regime change in Iran as a solution to Middle Eastern conflicts, especially those involving Hamas, Hezbollah, and the Houthis. Netanyahu believes that ousting Iran's clerical leadership will bring peace and prosperity to the region, as well as weaken Iran's influence over neighboring countries like Iraq, Syria, and Lebanon. While Netanyahu promises a future of regional cooperation and economic growth, his plan overlooks the Palestinian issue, a critical point of contention for Arab states. His pursuit of regime change faces significant obstacles, including Iran's strong internal repression, potential intra-elite tensions, and unintended consequences that could destabilize the region further.

Key Takeaways

1. **Regime Change Goal**: Netanyahu's plan includes removing Iran's clerical regime, which he views as the root cause of regional instability.

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2. **Regional Peace Vision**: He promotes a vision of Middle Eastern cooperation between Israel, Arab states, and beyond, centered on economic and technological progress.
3. **Iranian Resistance**: Iran has faced internal protests but retains strong repressive capabilities, making regime change challenging.
4. **Arab States' Position**: While some Arab states align with Israel against Iran, the unresolved Palestinian issue may complicate full cooperation.
5. **Unintended Consequences**: Netanyahu's gamble may lead to destabilization and significant changes in the region, even if regime change in Iran fails to materialize.

Compassion That embraced all-Indian Express Editorial

Ethics

Easy Explanation

Mahatma Gandhi's philosophy of non-violence and compassion influenced numerous global leaders, including Martin Luther King Jr. and Nelson Mandela. His teachings, rooted in peace and justice, aligned with the core principles of the United Nations long before they were formalized. Gandhi's example continues to inspire movements worldwide, emphasizing peaceful methods for social change. As former UN Secretary-General Ban Ki-moon reflects, Gandhi's legacy is relevant in addressing modern challenges like climate change, sustainable development, and the need for spiritual harmony. Gandhi's approach to tackling poverty, empowering people, and promoting sustainable practices is a guiding light for humanity.

Key Takeaways

1. **Non-Violence Philosophy**: Gandhi's principles of non-violence remain influential, guiding global movements for peace.
2. **United Nations Values**: Gandhi's ideals aligned with the UN Charter before its creation, highlighting his foresight in peacebuilding.
3. **Global Leadership**: Ban Ki-moon praises Gandhi's vision, urging global efforts in combating climate change and achieving sustainable development goals.
4. **Sustainable Development**: Gandhi's teachings on addressing poverty and ensuring equitable use of resources are crucial for modern global challenges.
5. **Spiritual Wisdom**: Gandhi's emphasis on spiritual values for peace and harmony is seen as essential for global well-being.

Swallow tail butterflies in key Assam habitat face a citrus worry-The Hindu Science

Science

Easy Explanation

Swallowtail butterflies in Assam's Bodoland Territorial Region (BTR) are facing a decline due to overexploitation of their host plants, primarily valued for their medicinal properties. A study led by Dr. Kushal Choudhury from Bodoland University highlights several factors contributing to this, including illegal cattle

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farming, deforestation, and pesticide use. The region, home to 35 swallowtail butterfly species, has seen a decline in essential plant species, such as those from the Rutaceae family (citrus plants), leading to the shrinking of butterfly habitats. The study also notes that the exploitation of host plants has negatively impacted butterfly species' survival, prompting conservation concerns.

Key Takeaways

1. **Butterfly Decline**: Swallowtail butterflies in Assam are declining due to habitat loss, overexploitation of host plants, and agricultural activities.
2. **Citrus Dependency**: Many butterfly species, especially from the Papilio genus, rely on citrus plants, which are now largely confined to home gardens.
3. **Medicinal Plant Overexploitation**: The demand for plants used in traditional medicine, like Ligustrum cordatum, is affecting butterfly populations.
4. **Conservation Status**: The International Union for Conservation of Nature (IUCN) has marked some swallowtail species as globally endangered due to these threats.
5. **Environmental Indicators**: Butterflies are key indicators of environmental health, and their decline signals broader ecological issues in the region.

In France, a summit for diplomacy, tech and diversity-The Hindu Editorial

International relations

Easy Explanation

France is set to host the 19th Francophonie Summit on October 4-5, 2024, with over 100 heads of states and officials in attendance. The summit will focus on key global issues such as multilateralism, artificial intelligence (AI), and promoting cultural and linguistic diversity. Founded in 1970, La Francophonie promotes the French language and fosters cooperation among its 88 member states. This year's summit emphasizes renewing multilateralism by reforming international institutions like the UN Security Council and addressing global challenges such as climate change and inequality. AI's role in digital technology and language preservation will be a major focus, alongside fostering innovation and collaboration in various fields.

Key Takeaways

1. **Francophonie Summit Focus**: Key issues include multilateralism, AI, and cultural and linguistic diversity.
2. **Renewing Multilateralism**: France supports reforming global institutions like the UN Security Council to make them more representative and effective.
3. **AI and Digital Technology**: The summit will explore AI's impact on language preservation and its broader societal challenges.
4. **Collaboration Opportunities**: Events like the FrancoTech Fair and future summits aim to foster international innovation and cooperation, with opportunities for Indian innovators.
5. **Global Issues**: The summit will address climate change, biodiversity, and reducing inequalities.

3rd October 2024

[New SEBI rules to curb F&O frenzy,aim to protect small investors-Indian Express Explained](#)

Economy

Easy Explanation

The Securities and Exchange Board of India (SEBI) has introduced six measures to enhance the equity index derivatives market, commonly known as futures and options (F&O), aiming to protect small investors from high risks and losses. These measures are designed to curb speculative activities, improve market stability, and ensure that only participants capable of handling significant risks enter this segment. Key changes include increasing the minimum contract size for index derivatives, mandating upfront collection of options premiums, rationalizing the availability of weekly index derivatives, implementing intra-day monitoring of position limits, removing 'calendar spread' treatment on expiry day, and increasing 'tail risk' coverage. These steps are intended to moderate the inflow of small traders and reduce market volatility, especially on contract expiry days.

Key Takeaways

1. **Increased Minimum Contract Size**: The contract size for index derivatives has been recalibrated to Rs 15 lakh to limit speculation by smaller traders.
2. **Upfront Collection of Options Premiums**: Starting from February 1, 2025, options buyers must pay premiums upfront to prevent undue intra-day leverage.
3. **Rationalization of Weekly Index Derivatives**: From November 20, each exchange can offer derivatives contracts for only one of its benchmark indices with weekly expiry, aiming to reduce speculative trades.
4. **Intra-day Monitoring of Position Limits**: Effective from April 1, 2025, this will ensure compliance with position limits throughout the trading day.
5. **Removal of 'Calendar Spread' Treatment**: From February 1, 2025, the benefits of offsetting positions on expiry day will be unavailable, which will discourage last-minute speculative activities.
6. **Increased 'Tail Risk' Coverage**: An additional 'Extreme Loss Margin' of 2% will be applied for short options contracts to mitigate significant risks during volatile market conditions.

[Food safety laws in states-Indian Express Explained](#)

Economics

Easy Explanation

In India, the regulation of food safety and standards is governed by the Food Safety and Standards Act, 2006 (FSSA), overseen by the Food Safety and Standards Authority of India (FSSAI). Under this act, anyone running a food business must either register or obtain a license from the FSSAI. The size and nature of the business determine whether a registration or a license is required. Establishments are obligated to display the owner's identification and the establishment's details prominently. State governments have the authority to enact additional rules under the FSSA to ensure food safety, provided these rules are approved by the Food Authority and published. Recent directives in states like Uttar Pradesh and Himachal Pradesh required eateries

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to display more detailed information about ownership and management, though such directives have faced legal challenges regarding their validity and implications on privacy and discrimination.

Key Takeaways

1. **Regulatory Framework**: All food businesses in India must comply with the FSSA, which requires them to either register or obtain a license from the FSSAI, depending on the business size.
2. **Display Requirements**: The FSSA mandates that licensed or registered food businesses must display the owner's identity and other business details prominently at the premises.
3. **State Powers**: States can make additional rules under the FSSA concerning food safety, subject to the approval of the Food Authority and public disclosure.
4. **Legal Challenges**: Directives by state governments, like those in Uttar Pradesh and Uttarakhand, have faced legal challenges for potentially infringing on privacy rights and causing discrimination, leading to stays by the Supreme Court.
5. **Penalties for Non-Compliance**: Failing to adhere to the FSSA can result in penalties, including fines and suspension or cancellation of licenses.

[Amirage called peace-Indian Express editorial](#)

International relations

Easy Explanation

The Middle East is witnessing a rapid escalation of violence across multiple fronts, significantly fueled by the recent killing of Hezbollah chief Hassan Nasrallah in an Israeli strike and retaliatory Iranian missile strikes. This complex conflict involves various actors including Israel, Hezbollah, the Gaza Strip, pockets of the West Bank, Houthi forces in Yemen, and Iran itself. The situation is exacerbated by technological advancements that Israel has employed to target its adversaries effectively, as evidenced by the assassination of significant figures within enemy lines and the detonation of communication devices used by Hezbollah.

The ongoing violence has not only resulted in high casualties but has also deeply impacted the socio-political landscape across the region. The international community's response has been mixed, with diminishing support for Israel's aggressive stance as civilian casualties mount. The conflict also highlights the entrenched positions of the involved parties, where peace negotiations are overshadowed by mutual hostility and a lack of trust, making any ceasefire or peace talks difficult to achieve.

Key Takeaways

1. **Widespread Conflict**: The Middle East is experiencing an intensification of violence across several fronts, with significant involvement from Israel, Hezbollah, and Iran, among others.
2. **Technological Warfare**: Israel's use of advanced technology for targeted assassinations and military strikes has been a critical factor in its strategy against adversaries, emphasizing its significant intelligence and technological capabilities.
3. **Casualties and International Reaction**: The conflict has led to tens of thousands of casualties, particularly in the Gaza Strip, prompting a shift in international sentiment and calls for a ceasefire, which have so far been unsuccessful.

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4. **Hezbollah's Role**: Hezbollah remains a potent force in Lebanon, intertwined deeply with the state's politics and society, and its conflicts with Israel continue to destabilize the region.
5. **Impact on Civilians**: The ongoing strikes and military actions have caused extensive civilian casualties and suffering, drawing international scrutiny and criticism of Israel's tactics, especially concerning the ethics and legality of its operations.
6. **Stalled Peace Efforts**: The entrenched positions of the conflicting parties, coupled with a lack of effective mediation, have stalled peace efforts. The view of peace as a form of surrender by some factions makes negotiations and ceasefire agreements particularly challenging.
7. **Continued Instability**: Given the complex interplay of regional politics, military strategies, and international diplomacy, the violence across Israel, Gaza, Lebanon, and Iran is likely to continue, with little hope for a swift resolution.

[What special status is Ladakh seeking?-The Hindu Text and Context](#)

Polity

Easy Explanation

Ladakh, along with regions in Arunachal Pradesh and Manipur, is seeking inclusion in the Sixth Schedule of the Indian Constitution to gain autonomy and protect local interests. This schedule provides substantial autonomy to tribal areas in northeastern India, allowing them to govern themselves through Autonomous District Councils (ADCs) that have legislative, executive, and judicial powers. This demand reflects wider discussions on asymmetrical federalism in India, where some states and territories have special provisions for greater autonomy due to unique cultural, geographical, or social conditions.

Key Takeaways

1. **Special Status Request**: Climate activist Sonam Wangchuk and others from Ladakh are advocating for the region's inclusion in the Sixth Schedule to provide greater autonomy and protect its distinct cultural and ecological landscape.
2. **Asymmetrical Federalism**: India employs asymmetrical federalism, allowing certain states and territories more autonomy than others through constitutional provisions, unlike symmetrical federations like the U.S., where all states have equal powers.
3. **Historical Context**: The Fifth and Sixth Schedules were created based on the British-era classifications of 'excluded' and 'partially excluded' areas to manage areas with significant tribal populations. These schedules aim to safeguard tribal rights and ensure their self-governance.
4. **Current Provisions**: The Fifth Schedule covers tribal areas in 10 states, providing for advisory councils and specific governance mechanisms under the oversight of state governors. The Sixth Schedule applies to parts of Assam, Meghalaya, Mizoram, and Tripura, granting broader powers to ADCs for self-administration.
5. **Legal and Political Challenges**: The effectiveness of these schedules is sometimes hindered by bureaucratic control and political dynamics, particularly when different political parties control the state and central governments, affecting the autonomy of these regions.

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6. **Ongoing Demands and Reforms**: There is a push for further reforms and the inclusion of more areas under these schedules, as seen in resolutions from Arunachal Pradesh and Manipur, and demands from Ladakh. These efforts aim to enhance local governance and meet specific regional needs effectively.

Nano diamonds spun at a billion RPM to test the limits of physics-The Hindu Science

Science

Easy Explanation

Fluorescent nanodiamonds (FNDs) are nanometer-sized diamonds that offer groundbreaking applications in various fields due to their stable and non-toxic nature. Produced under high temperature and pressure, these particles exhibit the ability to emit light of a lower frequency when exposed to higher frequency light without blinking, making them superior to other nanomaterials like quantum dots. Recently, researchers at Purdue University have made significant advances by levitating and spinning FNDs at high speeds in a vacuum, which enhances their potential as sensors and in quantum computing. The ability to control and measure the spin of particles within FNDs, and specifically their Berry phase—a quantum mechanical characteristic—paves the way for practical applications in sensing, quantum computing, and possibly in exploring the intersections of quantum mechanics and gravity.

Key Takeaways

1. **Unique Properties**: FNDs are non-toxic, stable under light, and have a long fluorescence lifespan, which makes them ideal for use in high-resolution biological imaging and temperature sensing.
2. **Quantum Spin and Berry Phase**: The study highlighted the ability to manipulate and measure quantum spins within FNDs, capturing the Berry phase, which is crucial for understanding quantum effects and the properties of exotic materials like topological insulators.
3. **Levitation and Spinning**: By confining FNDs in an electric and magnetic field cage and spinning them at up to 20 million times per second, researchers achieved a highly stable and controllable rotation, opening new avenues for precise measurements and industrial applications.
4. **Applications in Sensing and Quantum Computing**: The spinning FNDs have potential uses as gyroscopes for rotation sensing and could play a role in quantum computing by testing the limits of quantum mechanics and exploring the quantum nature of gravity.
5. **Enhancements through Doping**: FNDs can be enhanced by doping, such as by substituting carbon atoms with nitrogen to create nitrogen vacancy (NV) centers, which significantly alter their electrical, magnetic, and optical properties, further broadening their application scope.
6. **Impact on Industry and Research**: The advancements in manipulating FNDs have significant implications for high-value industries and strategic sectors, including the development of sensitive new types of sensors and exploration of fundamental physics principles.

Brazil's coast eroding faster than ever as Atlantic Ocean advances-The Hindu Science

Geography

Easy Explanation

| Clear your doubts now.

Brazil's coastline is experiencing accelerated erosion due to the combined effects of global warming and other environmental factors. This phenomenon is prominently observed in Atafona, north of Rio de Janeiro, where sea levels have risen significantly, resulting in the destruction of hundreds of homes and even large buildings. Similar challenges are faced by other coastal regions along Brazil's 8,500 km Atlantic coastline. The erosion in Atafona is partly attributed to the silting of the Paraiba River, which no longer deposits sand on the beaches to naturally replenish them. Other areas like Ponta Negra and regions near the Amazon River are also facing drastic changes, with beaches shrinking and ecosystems being disrupted by the incursion of saltwater, which affects local biodiversity and community livelihoods. The United Nations and other scientific bodies have documented these trends, noting a global increase in sea level rise, which further exacerbates the situation.

Key Takeaways

1. **Accelerated Coastal Erosion**: In Atafona and other Brazilian coastal communities, rising sea levels due to global warming have led to increased erosion and significant property loss.
2. **Sea Level Rise**: The Atlantic Ocean has risen by 13 cm over the past 30 years in the region around Atafona and is projected to rise by an additional 16 cm by 2050, posing further threats to coastal stability.
3. **Geographical Impact**: The erosion is exacerbated by environmental changes such as the silting of the Paraiba River, which fails to replenish beach sands, leading to more severe erosion.
4. **Biodiversity Threats**: The advance of saltwater into freshwater ecosystems, particularly around the Amazon River, is altering biodiversity and negatively impacting fishing communities.
5. **National Efforts**: Local governments, like in Ponta Negra, are attempting to mitigate erosion by artificially replenishing beaches, although these efforts are costly and may not be sustainable long-term.
6. **Global Context**: The Intergovernmental Panel on Climate Change (IPCC) reports that global sea level rise is accelerating, indicating that coastal erosion in Brazil is part of a broader global pattern linked to climate change.

6th October 2024

[How are tanks armouring Ladakh sector?- TH FAQ](#)

International Relations

Easy Explanation:

The Ukraine war and India-China standoff in Eastern Ladakh have shown that **battle tanks** remain crucial in modern warfare. Tanks are being used at high altitudes, like 13,000-15,000 feet in Ladakh, where both Indian and Chinese armies have stationed them. Despite the challenges of low oxygen and freezing temperatures, tanks like the **T-90** are fully functional in these extreme conditions. To maintain their performance, soldiers need to run the engines multiple times at night, and special lubricants and fuel are used to prevent freezing. The Indian Army has enhanced its infrastructure to maintain these tanks at high altitudes, demonstrating the importance of armour in both defensive and offensive operations.

The stand-off between India and China since 2020 saw massive mobilization of troops and tanks, with India deploying **K9 Vajra self-propelled howitzers** to boost firepower. As both armies station tanks close to the Line

| Clear your doubts now.

of Actual Control (LAC), new challenges like operating in extreme cold and rough terrain continue to test the limits of military hardware. Tanks are still a key element in modern warfare, and India is now focusing on upgrading its existing tanks and developing new lighter tanks to match China's agile tanks on the border.

Key Takeaways:

1. Tanks in Modern Warfare

- Despite advancements in long-range firepower, **tanks remain crucial** in modern battlefields.
- In the **Ukraine war** and the **India-China stand-off** in Ladakh, tanks have played a vital role, even at high altitudes like 13,000-15,000 feet.

2. Indian Army's Deployment in Ladakh

- India has deployed **T-90 tanks** and **BMP-2 armoured carriers** near the LAC in Ladakh, demonstrating their effectiveness in extreme cold and rough terrain.
- These tanks can cross rivers, fire anti-tank missiles, and endure harsh winter conditions with proper maintenance and special lubricants.

3. Challenges in High Altitude Operations

- Tanks face challenges like **low oxygen levels** and **freezing temperatures**, which can impact their performance.
- Special maintenance, such as revving up engines regularly and using anti-freeze kits, ensures their functionality at high altitudes.

4. India's Tank Strategy Post-2020 Galwan Clash

- After the 2020 clash in Galwan, India deployed more **tanks, artillery, and troops** in Ladakh to counter Chinese aggression.
- Indian tanks, such as the **K9 Vajra**, have been enhanced for high-altitude operations, and India is procuring **more tanks** and upgrading existing ones.

5. China's Armour on the LAC

- China has deployed **modern tanks** like the **ZTQ-15** and **Type 96A**, making it essential for India to match their firepower and agility.
- Both sides station tanks close to each other, creating potential conflict zones along the border.

6. Future of Indian Armour

- India is developing new **light tanks** (like the **Zorawar**), designed for better maneuverability at high altitudes, with trials planned for 2025.
- **Upgrading existing tanks** with better ammunition, anti-drone capabilities, and new technology remains a priority for the Indian Army.

7. The Role of Tanks in Future Warfare

| Clear your doubts now.

- Lessons from wars in Ukraine and the Middle East highlight the need for tanks to be equipped with defenses against **drones** and **long-range missiles**.
- India plans to procure **next-gen "Future Tanks"** under the **FRCV** project, with expected induction by 2030, making tanks a central part of its military strategy for years to come.

Why is salt pan land being used for homes?- TH FAQ

Science Tech

Easy Explanation:

The Maharashtra government has allocated **255.9 acres of salt pan land** in Mumbai's eastern suburbs for **rental housing** as part of the Dharavi Redevelopment Project. Salt pans are low-lying coastal lands used for salt production, and they also help prevent flooding by absorbing rainwater. This decision involves using three different land parcels for housing, but environmentalists are concerned about the possible **ecological impact** and **flooding risks**. While the plan aims to provide affordable housing for Dharavi residents, there are concerns that it could disturb these ecologically sensitive areas. The land has been leased for **99 years**, and construction can only proceed after **environmental clearances** are obtained. Legal challenges might arise in the process.

Key Takeaways:

1. What Are Salt Pans?

- Salt pans are **low-lying coastal marshlands** used for salt production.
- They act as natural **flood defenses**, absorbing rainwater and supporting various ecosystems.

2. Allocation of Land for Housing

- The Maharashtra government allocated **255.9 acres of salt pan land** for the **Dharavi Redevelopment Project**.
- These lands are spread across three areas in Kanjur, Bhandup, and Mulund.
- The land will be used for **rental housing, slum rehabilitation**, and **affordable housing** for economically weaker sections.

3. Ownership and Lease Agreement

- The land is owned by the **Central government**, which will lease it to the **State government** for **99 years**.
- The Adani Group holds **80% stake** in the special purpose vehicle (DRPPL), and the State government holds **20%**.
- The land cannot be used for **commercial purposes**.

4. Environmental and Urban Concerns

- Environmentalists worry about the **impact of construction** on ecologically sensitive salt pans.

| Clear your doubts now.

- Salt pans have protected the **eastern suburbs from flooding**, so changing their use might increase flood risks.
- There are also concerns about **in-situ rehabilitation** being ignored, and the possibility of creating **ghettos** by shifting people to different locations.

5. Next Steps and Legal Concerns

- The land handover from the **Central to State government** is in progress.
- The **Dharavi Redevelopment Project** will need **environmental clearance** before proceeding with construction.
- The project could face **legal challenges** from environmentalists, and any litigation will be handled by the **State government**.

[Researchers find mechanisms behind plant response to warming- TH Science](#)

Science tech

Easy Explanation:

Plants have **microscopic pores called stomata** on their leaves that help them control how much water they lose and how much **carbon dioxide** they take in for photosynthesis. When temperatures rise, these pores widen, allowing plants to **cool off** by letting more water evaporate, a process called **transpiration**.

Researchers at the **University of California San Diego** have figured out two ways plants handle heat. First, when leaves warm up, **photosynthesis** increases, using up more carbon dioxide. This causes the stomata to open wider, taking in more carbon dioxide to keep photosynthesis going. But when it gets **too hot**, photosynthesis slows down. In this case, the stomata switch to a **second pathway** where they bypass normal responses and focus on **releasing water** to cool the plant down, like sweating.

Key Takeaways:

1. What are Stomata?

- **Stomata** are tiny pores on the surface of leaves that help plants **control water loss** and **take in carbon dioxide** for photosynthesis.

2. Stomata and Heat Management

- As temperatures rise, **stomatal pores widen** to allow more water evaporation, cooling the plant.
- This process also helps plants take in more **carbon dioxide**, aiding photosynthesis.

3. How Researchers Studied Stomatal Responses

- Researchers developed a new method to **control air humidity** while increasing temperature to better study how stomata respond.
- They discovered **two main pathways** plants use to handle rising temperatures.

4. The First Pathway: Photosynthesis-Driven

| Clear your doubts now.

- When leaves warm up, **photosynthesis increases**, causing the stomata to open wider to take in more carbon dioxide.
- This allows the plant to **continue photosynthesis** and regulate temperature.

5. The Second Pathway: Extreme Heat Response

- In extreme heat, when **photosynthesis slows down**, the plant bypasses the carbon dioxide sensor and opens the stomata to **release more water**, cooling itself down through a **separate heat-response mechanism**.

6. Why This Research Matters

- Understanding how plants **cool themselves** could help develop strategies for growing more heat-tolerant crops in the face of **climate change**.

[Hidden pandemic of AMR poses challenge: TH Science](#)

Science Tech

Easy Explanation:

There is a growing but often silent crisis happening across the world, especially in India. This crisis is caused by **superbugs**, which are bacteria that have become resistant to antibiotics, making them much harder to treat. Antibiotics, which used to be our best weapon against infections, are no longer working the way they should because these bacteria have learned how to fight them off.

This situation is becoming extremely dangerous. According to **Anirban Mahapatra**, a scientist and expert in microbiology, **India is at the heart of this problem**. Every year, about **300,000 people in India die directly** because of infections that antibiotics can no longer treat. Additionally, **10 lakh more deaths** are linked to these superbugs. This crisis is a bigger threat than many people realize.

Even small wounds or infections that used to be easily treated with antibiotics are now turning into serious health risks. In some cases, patients need **complex surgeries** or treatments because the antibiotics we have today just don't work. What's worse is that **no new antibiotics** have been developed in recent years, and **even newborn babies** are getting infections that cannot be easily cured.

So, how did we get here? The problem is partly because the early antibiotics that were discovered were easier to find, but now, many people have developed a **resistance** to them. At the same time, **pharmaceutical companies** have shifted their focus to **cancer drugs** because they are more profitable. Developing new antibiotics takes a long time and costs a lot of money, but the companies don't make as much profit from them as they do from cancer treatments.

To make matters worse, people are using antibiotics incorrectly. Sometimes, when people get a small cold or cough, they use antibiotics even when it's not necessary, and this misuse is making the bacteria even stronger. For example, during the **COVID-19 pandemic**, a lot of people were given antibiotics like **Azithromycin** even though it wasn't necessary, which only made things worse.

| Clear your doubts now.

In short, this crisis could have serious consequences. Without effective antibiotics, many common infections will become life-threatening, and modern medicine could struggle to keep up.

Key Takeaways:

1. Superbugs and Antimicrobial Resistance (AMR):

- **Superbugs** are bacteria that have become resistant to antibiotics.
- **AMR** leads to about **300,000 direct deaths** each year in India and contributes to **10 lakh additional deaths** globally.
- Even small infections that were once easily treated with antibiotics are now becoming serious health risks.

2. Lack of New Antibiotics:

- There have been **no new antibiotics developed** in recent decades, which has worsened the problem.
- Patients, including **newborn babies**, are facing infections that have no easy cure because of this lack of innovation.

3. Why Are New Antibiotics Not Being Developed?

- Early antibiotics were easier to discover, but now it's harder to find new ones.
- **Pharmaceutical companies** are more interested in developing **cancer drugs** because they are more profitable.
- There are only **27 new antibiotic drugs** being developed, compared to **1,600 cancer drugs**.

4. Economic Issues with Antibiotic Development:

- Developing new antibiotics is expensive, and companies have limited time to make a profit before the **patent** runs out and **generic drugs** become available.
- This is why companies are focusing less on antibiotics and more on drugs for conditions like cancer.

5. Overuse and Misuse of Antibiotics:

- Many people use antibiotics even when they don't need them, which makes the problem worse.
- During **COVID-19**, **7 out of 10 people** were given antibiotics unnecessarily, which contributed to the growing issue of resistance.

6. Need for Government Action:

- **Governments** can help by providing **incentives** to pharmaceutical companies to develop new antibiotics.
- There needs to be stricter **regulations** on how antibiotics are used to prevent further misuse and resistance.

In summary, **antibiotic resistance** is a serious global crisis, and **India** is one of the countries most affected. Without new antibiotics and better control over how they are used, we could face a future where common infections become impossible to treat.

| Clear your doubts now.

7th October 2024

A year of war in West Asia-Indian Express Explained

International relations

Easy Explanation

The article examines the ongoing crisis in West Asia that began with Hamas's terrorist attacks on Israel on October 7, 2023. Over the past year, Israel has conducted extensive ground operations and aerial bombardments in Gaza and Lebanon, resulting in the deaths of more than 41,000 people and leaving Gaza heavily devastated. Despite the military efforts, Hamas is believed to still hold 97 of the original 251 hostages.

Israel has also engaged militarily with other Iran-backed groups such as Hezbollah in Lebanon and the Houthis in Yemen. Key events include Iran's direct missile attacks on Israel, Israel's targeted killings of high-ranking leaders like Mohammed Deif and Ismail Haniyeh, and escalated strikes against Hezbollah. The conflict has widened to affect international shipping in the Red Sea due to Houthi attacks.

Internationally, the United States and other Western nations have called for restraint while affirming Israel's right to self-defense. Arab states remain committed to a geopolitical reset in the Middle East but now emphasize the resolution of the Palestinian issue as essential for lasting peace. India has expressed solidarity with Israel against terrorism while reiterating support for a two-state solution and Palestinian sovereignty.

Key Takeaways:

1. **Escalation of Conflict:** The war has intensified over the year, expanding beyond Gaza to involve direct confrontations between Israel and Iran, as well as strikes in Lebanon, Syria, and Yemen.
2. **Humanitarian Crisis:** The conflict has led to a significant loss of life and displacement in Gaza, with 90% of its 2.1 million people displaced and infrastructure heavily damaged.
3. **Regional Geopolitics:** Arab nations are leveraging the prospect of normalizing ties with Israel to push for a resolution to the Palestinian issue, viewing it as a precondition for enduring peace and regional stability.
4. **International Stance:** While the U.S. remains a strong ally of Israel, it faces challenges in mediating the conflict and restraining further escalation. European nations express concern over humanitarian issues but uphold Israel's right to defend itself.
5. **India's Position:** India maintains a balanced approach by condemning terrorism and supporting Israel, while also advocating for the two-state solution and recognizing the legitimate aspirations of the Palestinian people.
6. **Prospects for Peace:** The conflict underscores the critical importance of resolving the Palestinian question. However, Israel's current political climate shows a move away from accepting a two-state solution, complicating future peace efforts.
7. **Global Implications:** The war affects international economics and security, including disruptions in global shipping routes and heightened tensions that could impact worldwide geopolitical dynamics.
8. **Challenges Ahead:** The sustained conflict and Israel's settlement expansion in the West Bank pose significant hurdles to achieving long-term peace in the Middle East, even as some Arab states show short-term tolerance.

| Clear your doubts now.

[Why Israel has invaded Lebanon—and what to make of the war so far-Indian Express Explained](#)

International relations

Easy Explanation

Israel launched targeted ground raids and expanded its military operations in Lebanon against Hezbollah after the killing of its leader, Hassan Nasrallah, on September 27, 2024. The Israeli invasion is part of its broader strategy to weaken Iran-backed groups like Hezbollah and Hamas. This timing aligns with a favorable geopolitical environment where Israel's new Arab partners have limited their criticism, and Iran has been relatively restrained in its response.

Hezbollah has evolved significantly since its last war with Israel in 2006, gaining combat experience in Syria and Iraq. It has a strong military presence with an estimated 25,000 active fighters. For Israel, the aim is to push Hezbollah north of the Litani River and weaken its influence, while Hezbollah's goal is simply to survive and continue its resistance.

The conflict's stakes are high, with the risk of a prolonged war of attrition. Hezbollah's integration into Lebanese society and the criticism of the Israeli invasion from both the UN and the Lebanese government could bolster its domestic support.

Key Takeaways:

1. **Israel's Invasion:** Israel's invasion of Lebanon targets Hezbollah infrastructure, aiming to weaken the group while the geopolitical situation favors such an action.
2. **Hezbollah's Position:** Hezbollah, with its combat experience and large arsenal, remains a formidable force despite Israel's efforts to weaken it by eliminating its leaders.
3. **Differing Goals:** Israel aims to degrade Hezbollah's military capabilities, while Hezbollah's goal is survival and continued resistance.
4. **Potential for Protracted Conflict:** If Israel pushes further north into Lebanon, the conflict could turn into a long-lasting war of attrition.
5. **Hezbollah's Integration:** Despite its losses, Hezbollah's integration into Lebanese society and its criticism of the Israeli invasion may help it gain domestic support.
6. **Geopolitical Factors:** The moderate stance of Iran and limited criticism from Arab nations provide Israel with a strategic advantage to escalate its operations against Hezbollah.
7. **Risks for Israel:** The Israeli campaign in Lebanon faces higher military costs compared to its operations in Gaza, with the potential for significant setbacks.

[UNDER PRESSURE-Indian Express Editorial](#)

Economy

Easy Explanation

After reaching a record high, the Indian stock markets, including the BSE Sensex, have experienced a significant decline, dropping by 5% over the last week. Global factors, such as the Middle East conflict, rising crude oil

prices, and investor uncertainty, are largely responsible for this downturn. Concerns about the conflict spreading and affecting global trade routes, like the Strait of Hormuz, have further fueled market fears.

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Additionally, China's recent economic support measures have boosted its stock
market, attracting foreign investments away from India. Over the last four trading
sessions, foreign investors have sold more than ₹37,000 crore worth of Indian
shares. Domestically, upcoming political events, the first meeting of the
reconstituted monetary policy committee, and corporate earnings results could also
influence market movements in the coming days.
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Key Takeaways:

1. **Market Decline:** The BSE Sensex fell by 5% last week, with notable declines in the Midcap and Smallcap indices.
2. **Global Uncertainty:** The Middle East conflict and fears of supply disruptions in global oil markets have raised investor concerns.
3. **Crude Oil Prices:** Brent crude oil prices rose by 8.7% amid fears of supply chain disruptions.
4. **China's Impact:** China's economic stimulus measures have boosted its stock market, attracting investor interest and causing a shift in global investment.
5. **Foreign Investor Sell-Off:** `Foreign investors have withdrawn over ₹37,000 crore from Indian markets in the last four sessions.`
6. **Regulatory Actions:** India's stock market regulator announced measures to limit trading in the Futures and Options segment.
7. **Domestic Factors:** Upcoming state elections, monetary policy decisions, and corporate earnings reports could further impact market trends.
8. **Investor Sentiment:** The Nifty VIX fear gauge's 19% rise indicates growing uncertainty and cautious investor sentiment.

How has Telegram changed its stance on content moderation policy?-The Hindu text and Context

Science and technology

Easy Explanation

Telegram has changed its content moderation policy to increase cooperation with authorities by sharing user data like phone numbers and IP addresses upon valid legal requests. This move aims to curb criminal activity, including the misuse of Telegram for illegal goods. The company also adjusted its privacy settings by updating its FAQ to include steps for reporting illegal content and replaced its 'People Nearby' feature with 'Businesses Nearby' for legitimate transactions.

Telegram's new approach includes the use of AI to detect and remove problematic content. These changes are a departure from its earlier stance of strict user privacy. Other messaging apps like Signal and WhatsApp also have content moderation approaches, but Telegram's features have made it more susceptible to misuse by anti-social elements.

| Clear your doubts now.

In India, intermediaries like Telegram are required to respond quickly to unlawful content, adhering to Section 79 of the IT Act, which offers some legal protection if they act with due diligence in removing such content.

Key Takeaways:

1. **Policy Change:** Telegram will now share user data like phone numbers and IP addresses with authorities upon valid legal requests.
2. **Content Reporting:** The FAQ section was updated to guide users on reporting illegal content, and Telegram replaced its 'People Nearby' feature with 'Businesses Nearby.'
3. **Moderation Efforts:** Telegram will use AI to remove problematic content and plans to publish quarterly transparency reports about user data disclosures.
4. **Comparison with Other Apps:** Unlike Signal and WhatsApp, Telegram's features like large groups and public search make it more vulnerable to misuse for spreading illegal content.
5. **Legal Compliance in India:** Under Section 79 of the IT Act, intermediaries must quickly respond to unlawful content but are protected if they act without knowledge or with due diligence.
6. **Grievance Redressal:** Telegram has appointed a grievance officer in India to address issues with public content in compliance with IT regulations.

The status of the civil war in Sudan-The Hindu text and Context

International relations

Easy Explanation

The civil war in Sudan between the Sudanese Armed Forces (SAF) and the paramilitary Rapid Support Forces (RSF) has intensified, with a recent major offensive launched by SAF in Khartoum and Bahri. Eighteen months into the conflict, over 20,000 people have died, and nearly 11 million have been displaced. The war, which started as a power struggle between SAF leader Abdel Fattah al-Burhan and RSF leader Hamdan Dagalo, has spread across multiple regions in Sudan.

The RSF currently holds a strategic advantage in several areas, while the SAF has gained ground through frequent airstrikes. Despite nine rounds of ceasefire talks, no lasting peace has been achieved, with both sides accusing each other of violations. The humanitarian crisis is worsening, with famine, floods, and a cholera outbreak severely affecting the population.

External support for both factions from countries like the UAE, Russia, and other players has prolonged the conflict. Ethnic tensions and the involvement of multiple actors have further complicated peace efforts, making a resolution unlikely in the near future.

Key Takeaways:

1. **Renewed Conflict:** The civil war between SAF and RSF has intensified after a major offensive in Khartoum and Bahri.
2. **Humanitarian Crisis:** Over 20,000 people have died, and 11 million have been displaced, with severe food insecurity and disease outbreaks affecting millions.
3. **Ethnic Tensions:** The conflict has evolved along ethnic lines, with various militias taking sides, further complicating the situation.

| Clear your doubts now.

4. **Failed Peace Talks:** Nine rounds of ceasefire talks have failed, with both SAF and RSF showing little commitment to resolving the conflict.
5. **External Support:** Both factions receive significant external support, enabling them to continue fighting without immediate need for compromise.
6. **Regional Instability:** The war has caused mass displacement, triggering refugee crises in neighboring countries like Chad, South Sudan, and Ethiopia.
7. **Uncertain Future:** The ongoing conflict shows no sign of ending soon, with fears of Sudan potentially facing a situation similar to Libya's prolonged division.
8. **Limited Global Attention:** With the world's focus on other global crises like Gaza and Ukraine, the situation in Sudan continues to deteriorate largely unnoticed.

[Scientists are working on a way to detect cancer with sound waves-The Hindu science](#)

Science

Easy Explanation

Scientists have developed a novel, non-invasive technique to detect cancer using high-energy ultrasound waves. Led by Associate Professor Roger Zemp from the University of Alberta, the research involves using ultrasound to break off tiny pieces of cancerous tissue, creating droplets that release biomarkers—such as DNA, RNA, and proteins—into the bloodstream. These biomarkers can then be detected through a simple blood test. This method has the potential to replace traditional biopsies, which are often painful, invasive, and carry risks. The technique significantly enhances the levels of genetic biomarkers in blood samples by over 100 times, enabling the detection of specific cancer types and mutations that are currently hard to identify through blood tests. Initial experiments have successfully detected circulating cancer cells in prostate cancer patients at a fraction of the cost of existing methods. While the approach shows great promise, further studies involving large patient cohorts are needed to validate its effectiveness across different cancer types and populations. If successful, this technology could become commercially available in about five years, revolutionizing cancer detection and monitoring.

Key Takeaways:

1. **Innovative Ultrasound Technique:** Scientists are using high-energy ultrasound to non-invasively detect cancer by releasing tissue biomarkers into the bloodstream.
2. **Alternative to Biopsies:** The method could potentially replace traditional biopsies, reducing patient discomfort and the risks associated with invasive procedures.
3. **Enhanced Biomarker Detection:** Ultrasound increases the levels of genetic and vesicle biomarkers in blood samples by over 100 times, improving detection sensitivity.
4. **Cost-Effective Solution:** This technique could reduce the cost of detecting circulating cancer cells from approximately $10,000 to around $100.
5. **Broad Applicability:** Researchers aim to expand this method to detect other cancer types, including breast cancer and melanoma.
6. **Expert Support with Caution:** While experts find the approach promising, they emphasize the need for extensive clinical trials to validate its efficacy.
7. **Impact on Cancer Screening:** The technique could revolutionize cancer screening and monitoring by providing a new molecular readout with minimal discomfort.

| Clear your doubts now.

8. **Potential Availability Timeline:** Pending successful clinical trials and regulatory approvals, the technology could be commercially available within five years.

A learning curve-The Hindu Editorial

Governance

Easy Explanation

The PM Internship Scheme's pilot project was launched on October 3, with an online portal to help match companies willing to offer year-long training with young people looking for jobs. This scheme aims to address youth unemployment and equip 4.1 crore youth in India with practical skills over five years. The first batch of 1.25 lakh interns will start their training on December 2, 2023. The government's cautious approach in scaling up the program is to ensure that insights from the pilot project help shape the final design. Challenges include placing interns in less industrialized states and incorporating both technical and soft skills in the training. Monitoring dropout rates, grievances, and the impact of the scheme is crucial to evaluate its success when the interns re-enter the job market by December 2025.

Key Takeaways:

1. **Scheme Launch:** The PM Internship Scheme aims to provide year-long job training to youth in India, addressing skills gaps and unemployment.
2. **Pilot Project:** The first batch of 1.25 lakh interns will begin on December 2, with the goal of creating one crore internships by March 2029.
3. **Skill Development:** The scheme focuses on bridging the gap between education and real-world skills, including both technical and soft skills.
4. **Placement Challenges:** Placing interns in less industrialized states like Bihar may be difficult due to fewer job opportunities.
5. **Evaluation:** The project's success will be assessed through monitoring dropout rates, grievances, and the interns' job market performance by 2025.
6. **Strategic Scaling:** The government will use lessons from the pilot phase to refine the scheme before a larger rollout, ensuring effective implementation.
7. **Industry Collaboration:** The scheme encourages participation from businesses to provide certifications, enhancing the employability of young workers.
8. **Outcome Monitoring:** A detailed evaluation is necessary to avoid self-praise and ensure that the intended outcomes are truly achieved.

8th October 2024

A LONG ROAD AHEAD: IE Editorial

International Relations

Easy Explanation:

| Clear your doubts now.

There is a sense of excitement and curiosity ahead of India's **External Affairs Minister S. Jaishankar's visit to Pakistan** on **October 15-16** for the **Shanghai Cooperation Organisation (SCO)** meeting. This is significant because it has been **nine years** since an Indian Foreign Minister last visited Pakistan. Back in **2015**, **Sushma Swaraj** attended the **Heart of Asia Conference** in **Islamabad**, followed by **Prime Minister Narendra Modi's visit to Lahore** to meet Pakistan's Prime Minister at the time, **Nawaz Sharif**. However, since then, the relationship between **India and Pakistan** has only gotten worse, and there's little hope for improvement anytime soon.

The main issue between the two countries remains **Pakistan's support for cross-border terrorism**. Pakistan has used terrorism as part of its strategy, even though this has caused serious problems within its own country. India, on the other hand, strongly opposes this. In fact, Minister Jaishankar made it clear that **normalizing terrorism** or accepting it as a legitimate way to run a country is not something India is willing to do. This is also why **SAARC** (South Asian Association for Regional Cooperation) has become inactive.

From Pakistan's perspective, they have taken a **hardline stance** after **India revoked Article 370** in **Jammu & Kashmir** (which gave special status to the region). Pakistan has demanded that India **reverse this decision** before any talks can happen. But now, it's difficult for Pakistan to back down from this position without facing **political backlash** at home.

Jaishankar has made it clear that his visit to Pakistan is for the **SCO meeting**, which involves several countries, and not specifically to discuss **India-Pakistan relations**. Last year, **Pakistan's then-Foreign Minister Bilawal Bhutto Zardari** visited India for a similar meeting, where there were **heated exchanges** between him and Jaishankar, especially about **Kashmir**. Something similar might happen again in **Islamabad** this time. However, it's also possible that Jaishankar might engage with Pakistani leaders who are open to **less hostile relations with India**, which could be helpful for the future, given Pakistan's **volatile political situation**.

Right now, Pakistan is going through a lot of **political turmoil**. Former **Prime Minister Imran Khan's party (PTI)** is protesting what they say are **delays in judicial decisions**, and they are in conflict with the **Pakistan Army**. This political unrest could affect the **SCO meeting** and overshadow any potential for improving India-Pakistan ties. So, while Jaishankar's visit may not lead to immediate changes, it could be a small **first step** toward better relations in the long run.

Key Takeaways:

1. Jaishankar's Visit to Pakistan:

- **S. Jaishankar** is visiting Pakistan on **October 15-16** for the **Shanghai Cooperation Organisation (SCO)** summit.
- This is the **first visit** by an Indian Foreign Minister to Pakistan in **nine years**.
- The visit is not about **India-Pakistan ties** but focused on the **SCO**.

2. India-Pakistan Relations:

- **India-Pakistan relations** have been deteriorating since **2015**.
- The major issue is **Pakistan's support for cross-border terrorism**, which India strongly opposes.
- Pakistan is still demanding that **India reverse its decision on Article 370** in **Jammu & Kashmir**.

| Clear your doubts now.

3. Tensions Between Leaders:

- Last year, during an SCO meeting, there was **heated tension** between **Jaishankar** and **Pakistan's former Foreign Minister Bilawal Bhutto Zardari**, especially over **Kashmir**.
- A similar exchange might happen this time, but there's also potential for **less hostile** interactions with some leaders in Pakistan.

4. Political Unrest in Pakistan:

- Pakistan is currently facing **political unrest**, with **Imran Khan's party (PTI)** protesting against delays in judicial decisions.
- The protests and **political instability** could overshadow the **SCO meeting** and affect discussions.

5. Long Road to Better Relations:

- While Jaishankar's visit might not immediately improve India-Pakistan relations, it could be a **first step** toward better ties in the future, but the road ahead is long and complicated.

THE KIDS ARE ONLINE: IE Editorial

Sociology

Easy Explanation:

With the increasing use of **smartphones** and **social media**, people are asking whether **restricting** children's access to these digital tools can protect them until they are emotionally mature enough to navigate the online world. Around the world, there are movements and legislative efforts to **limit children's screen time**. For example, in the **UK**, a parent-led campaign called **Smartphone Free Childhood** aims to keep smartphones away from kids until they are 14 years old, and in **Australia**, the government is working on laws to ban social media use for children below a certain age. Even **tech giants** like Meta (which owns **Instagram**) are being pressured to introduce new features like **"teen accounts,"** allowing parents more control over what their children do online.

While some people think that restricting children's access to technology might violate their **rights**—such as the right to **information** and **privacy**—there is also concern about the **negative effects** of too much screen time, like **shortened attention spans** and **mental health issues**. Even though there's no solid evidence that smartphones and social media are the sole causes of these problems, children are particularly **vulnerable** to the effects of technology because their brains are still developing.

The challenge is to find a balance where kids can benefit from the information and opportunities the internet offers, while staying **safe and healthy**. It's not easy to impose digital bans in reality, as **FOMO** (fear of missing out) can make teenagers resistant. In countries like **India**, where there's a **digital divide**, banning smartphones might cut off **girls** and **children from marginalized communities** from accessing important educational resources. The solution lies in having a **broader conversation** where parents, schools, and governments work together to ensure children can grow up safely in the digital age.

Key Takeaways:

| Clear your doubts now.

1. Global Debate on Restrictions:

- There's a growing global conversation on whether children should have **limited access** to **smartphones** and **social media**.
- **UK:** Campaign called **Smartphone Free Childhood** seeks to keep children away from smartphones until age 14.
- **Australia:** Government working on **laws to ban social media** use for children under a certain age.

2. Big Tech Involvement:

- **Meta (Instagram's parent company)** has introduced **"teen accounts"** to give parents more control over their children's online activities due to pressure from governments and parents.

3. Arguments for and Against Restrictions:

- **Against:** Some argue restricting technology access could **violate children's rights** to **information, privacy**, and **equality**.
- **For:** There are concerns about children's **mental health**, including **shortened attention spans**, **loneliness**, and **emotional vulnerability**, linked to excessive smartphone and social media use.

4. Challenges in Implementation:

- **Digital bans** are hard to enforce, especially for teenagers who experience **FOMO** (Fear of Missing Out).
- In countries like **India**, such bans could **disadvantage marginalized children**, cutting them off from **educational resources**.

5. Collective Responsibility:

- Ensuring children's **safety** and **well-being** in the digital world requires **parents, schools, and governments** to work together.
- A **wider conversation** is needed to balance the **benefits** of technology with the need to protect children from its potential harms.

On way to climate resilience: IE Editorial

Environment

Easy Explanation:

The urgency for countries to **adapt** to **climate change** is growing, as highlighted by the recent **global stocktake at COP28**. The stocktake revealed that the progress on **adaptation strategies** is fragmented, with many countries, especially **developing nations like India**, facing **adaptation gaps**. To address this, the **Global Goal on Adaptation (GGA)** was set up as a **framework** to guide countries in **enhancing their adaptive capacity**, **strengthening resilience**, and **reducing vulnerability** to climate change.

The **GGA** sets targets for 2030, such as reducing **water scarcity**, ensuring **climate-resilient food production**, and improving **health services** to mitigate the impacts of climate change. However, a major problem is the **lack of financial support** or **"Means of Implementation" (MoI)**, as **developing countries** need significant funding to

| Clear your doubts now.

achieve these goals. The **Adaptation Gap Report** in 2023 estimated that the **funding gap** is around **$366 billion per year**.

During the **June 2024 negotiations**, developing countries emphasized the need for **public finance**, **technology transfer**, and **capacity building** to support their efforts. These discussions showed a clear divide between **developed and developing countries** on how to implement these strategies.

Implementing the **GGA** can bring both **challenges and opportunities**. The **biggest challenge** is the **lack of financial support** from developed countries. But if these challenges are addressed, the GGA can help countries become **more resilient** to climate change and create new **economic opportunities**, such as job creation and protection of livelihoods. Countries like India, which face severe climate risks like **extreme weather events** and **fluctuating agricultural yields**, can use the GGA to strengthen their adaptation efforts.

The upcoming **negotiations at COP29** in Baku will be crucial in addressing the **financial challenges** and moving forward with the **GGA**. India, in particular, has been a strong advocate for **policy frameworks**, **capacity building**, and **financial support** from developed nations to build a **sustainable and resilient future**.

Key Takeaways:

1. Global Goal on Adaptation (GGA):

- The **GGA** was established to guide countries in improving their **adaptive capacity**, **resilience**, and **reducing vulnerability** to climate change.
- Developing countries like **India** are on the **frontline** of climate impacts and need strong adaptation strategies.

2. Lack of Financial Support (Means of Implementation - MoI):

- The **2023 Adaptation Gap Report** highlighted a **funding gap** of **$366 billion per year**, showing that there is a lack of **financial support** for adaptation efforts.
- **Developing countries** are pushing for **public finance**, **technology transfer**, and **capacity building** from developed nations.

3. Challenges and Opportunities in Implementing GGA:

- **Challenges:** The biggest hurdle is the **lack of financial support** and resources for developing countries.
- **Opportunities:** If implemented properly, the GGA can **boost resilience** to climate impacts, **create jobs**, and protect **livelihoods**.

4. India's Role:

- India faces serious **climate-related challenges** like **extreme weather**, **rising sea levels**, and **agricultural issues**.
- India advocates for strong **policy frameworks**, **capacity building**, and **financial support** from developed countries.

5. Need for Collaboration:

| Clear your doubts now.

- The **June 2024 negotiations** revealed **tensions** between developed and developing countries, especially regarding financial support.
- The upcoming **COP29 negotiations in Baku** will be critical for resolving these issues and moving forward with the GGA.

6. Long-term Commitment:

- India's **commitment** to the GGA and **active participation** in climate talks show its dedication to building a **sustainable and resilient future**.

Middle path in Middle East: IE Ideas

International Relations

Easy Explanation:

As **tensions between Iran and Israel** escalate, there is growing concern that the **Middle East** could be pulled into a dangerous **regional war**. In this situation, **India** needs to **support its Arab partners**, as they are caught in the middle of this conflict. Unfortunately, there hasn't been enough attention paid to **Arab concerns** in the **Indian discussions** about this conflict.

India's relationship with both **Iran and Israel** has grown in importance over the years, but when we look at India's **interests** in the region, it is clear that the **Arab world** holds far more significance. The **Arab world** consists of nearly **500 million people**, much larger than the populations of **Israel** or **Iran**. The **Arabian Peninsula** is especially important due to its **historic ties to India**, **financial power**, **energy resources**, and the large **Indian diaspora**.

While **India's ties with Iran** are also important due to **geography**, **oil reserves**, and potential economic benefits, **Iran's ambitions** have caused problems. **Iran's revolutionary ideology** has put it at odds with its **Arab neighbors** and even created challenges for **India's foreign policy**.

Israel, on the other hand, has become a **key partner** for India in **security** and **technology**, but its **policies in Gaza and the West Bank** have caused it to lose support globally. The ongoing conflict has strengthened **Tehran's position** in the region, making the situation even more volatile.

In recent years, some **Gulf Arab states** have **normalized ties with Israel**, hoping that this would lead to progress on the **Palestinian issue**. However, this has not happened, and relations between **Iran** and **Gulf states** remain strained despite efforts like the recent **Iran-Saudi Arabia agreement**. The **differences** between **Arabia** and **Persia** are **deep and ideological**, making it difficult to find common ground.

India should support the **normalization of ties** between the **Arab world, Iran, and Israel**. A **peaceful Middle East** is vital for India's **prosperity** and **economic integration** with **Central Asia**, **Africa**, and **Europe**. Therefore, **India** must work with **moderate Arab states** to **prevent a full-scale war** between **Iran** and **Israel**.

Key Takeaways:

1. India's Arab Partners:

| Clear your doubts now.

- **India's interests** in the **Arab world** are more significant than in **Israel** or **Iran** due to the **large population**, **financial power**, **energy resources**, and **historic ties** with India.
- **Arabia's importance** to India also lies in its potential to contribute positively to **regional stability** and **religious moderation**.

2. India's Relations with Iran:

- **India's ties with Iran** are important due to **geography**, **oil reserves**, and potential to bypass **Pakistan**, but **Iran's revolutionary ideology** and **regional ambitions** create challenges.
- **Iran's strained relations** with the **Arab world** and its **confrontation with the West** limit India's ability to fully benefit from its partnership with Tehran.

3. India's Relationship with Israel:

- **India and Israel** have expanded ties, especially in **security** and **technology**, but Israel's policies in **Gaza and the West Bank** have caused it to lose global support.
- The **conflict between Israel and Palestine** continues, with no significant political progress in the region.

4. Regional Tensions:

- **Iran's growing influence** in the region, coupled with **its nuclear capabilities**, is a cause of concern for **Arab states** and **Israel**.
- Efforts like the **Abraham Accords** sought to normalize ties between **Arab states** and **Israel**, but they have not yet led to any breakthrough on the **Palestinian statehood issue**.

5. India's Role:

- **India's prosperity** is linked to a **peaceful Middle East** that is **economically integrated** and **secure**.
- **India** should support efforts to **normalize relations** between the **Arab world**, **Iran**, and **Israel**, and prevent the region from descending into **full-scale war**.

6. Challenges Ahead:

- The **differences between Arabia and Persia** are deep and ideological, making it unlikely that tensions will be resolved soon.
- **India's foreign policy** must balance relationships with all key players while ensuring **stability in the region** for its own economic and strategic interests.

MicroRNA: tiny RNAs that hold key to how organisms develop: IE Explained

Science Tech

Easy Explanation:

This year's **Nobel Prize in Medicine** was awarded to scientists **Victor Ambros** and **Gary Ruvkun** for their groundbreaking discovery of **microRNA**, small molecules that play an important role in how **genes** are regulated in our bodies. Their discovery has shown us a new way of understanding how complex organisms,

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including humans, function. **Gene regulation** is essential because it helps different cells in our body perform their specific tasks, like sending signals or enabling movement. Faults in this process can lead to serious diseases like **cancer** or **diabetes**.

Ambros and Ruvkun's research focused on the tiny roundworm **C. elegans**, where they found that microRNAs can **turn off certain genes** by stopping the production of their proteins. This discovery, initially made in the early 1990s, was initially overlooked but later became a major breakthrough when it was found that **microRNAs** exist in many species, including humans.

Key Takeaways:

1. What is Gene Regulation?

- **Gene regulation** is the process by which cells control which genes are active and which are not.
- This is crucial because different cells have different functions, and only certain genes are needed in each type of cell.

2. Discovery of microRNA:

- Scientists **Victor Ambros** and **Gary Ruvkun** discovered **microRNA** while studying roundworms.
- MicroRNA can stop the production of proteins by binding to **mRNA**, which carries genetic instructions.

3. Why is Gene Regulation Important?

- **Proper gene regulation** ensures that each cell performs its specific function, like helping muscles contract or nerves communicate.
- Faults in gene regulation can cause serious diseases, including **cancer** and **autoimmune conditions**.

4. How was microRNA Discovered?

- The scientists studied **C. elegans** and found that a gene called **lin-4** produces a tiny RNA molecule (microRNA) that can block another gene, **lin-14**.
- This was a new way of controlling genes, which scientists hadn't anticipated before.

5. Impact of the Discovery:

- Initially, the discovery was thought to be limited to **C. elegans**, but in 2000, it was found that microRNA exists in many species, including **humans**.
- Today, we know that **microRNA** plays a crucial role in gene regulation in nearly all **multicellular organisms**.

Marburg Virus: IE Explained

Science

Easy Explanation:

| Clear your doubts now.

The **Marburg virus** is causing a major health concern in **Rwanda**, with 46 people infected and 12 deaths reported since the outbreak began last month. **Marburg virus disease (MVD)** is very dangerous, with death rates ranging from **24% to 88%**. This outbreak is particularly hard on Rwanda's **fragile healthcare system**, which only has **1,500 doctors** for over **13 million people**.

Marburg is a virus similar to **Ebola** and spreads through **contact with infected people's body fluids**. The current outbreak in Rwanda is affecting mostly healthcare workers, with **80% of infections** occurring among them.

There is no approved **vaccine or treatment** for MVD, but some experimental vaccines are being tested, and **supportive care** like keeping patients hydrated can improve their chances of survival.

Key Takeaways:

1. What is Marburg Virus?

- **Marburg virus** is one of the deadliest viruses known, similar to **Ebola**.
- It has caused outbreaks with death rates as high as **88%**.
- The first outbreak was reported in **1967** in Germany, but it is now mostly found in **Africa**.

2. How Does MVD Spread?

- Initially, humans got infected through contact with **bats** (especially the Egyptian fruit bat).
- Now, it spreads from **human to human** through contact with **blood** and other body fluids of infected people or contaminated surfaces.
- **Healthcare workers** are especially vulnerable to the infection.

3. Symptoms of Marburg Virus Disease:

- Symptoms appear **2 to 21 days** after infection.
- Common symptoms include **high fever, headaches, muscle pain**, and **severe diarrhea**.
- Many patients develop **bleeding** (haemorrhage) from places like the **digestive system, nose, gums**, or other areas.
- Death, if it occurs, usually happens **8 to 9 days** after symptoms start, due to **blood loss and shock**.

4. Prevention and Treatment:

- There are no approved **vaccines or specific treatments** for MVD.
- **Supportive care** like rehydration can improve survival chances.
- Rwanda is testing **experimental vaccines**, including 700 doses provided by the **Sabin Vaccine Institute** for healthcare workers on the frontlines.

[Agri Sector Report Card: IE Explained](#)

Economy

Easy Explanation:

| Clear your doubts now.

India's farming sector has seen improved growth over the last 20 years, with even better results during the **Narendra Modi government's** tenure, according to a **NITI Aayog paper**. From 2014 to 2024, the farm sector grew at an average rate of **3.7% per year**, higher than previous decades. However, this growth hasn't been uniform across all types of farming. The biggest improvements have been in **livestock and fisheries**, not traditional crop farming. While production of crops like **pulses, oilseeds, and cotton** has stagnated, livestock (like milk, eggs, and poultry) and fisheries have surged ahead.

Key Takeaways:

1. Growth of India's Farm Sector

- **Agricultural growth** increased significantly in the last 10 years under **Narendra Modi's government**, with an average **3.7% annual growth** in the farm sector.
- This is an improvement from the **3.5%** growth during the **UPA government** and the **2.9%** in previous decades.

2. Discrepancies in Growth

- The paper highlights that the major contributors to this growth have been **livestock** and **fisheries**, with poultry and aquaculture showing the highest growth rates.
- Traditional **crop farming** grew at a much slower pace. For example, **non-horticultural crops** like **cotton and tea** had very minimal growth.

3. State-wise Growth

- Some states, like **Madhya Pradesh** and **Telangana**, experienced higher growth in their agricultural sectors.
- Major agricultural states like **Punjab, Haryana, and West Bengal** showed lower growth rates, particularly in crops.

4. Policy Insights

- **Livestock** and **fisheries** drove much of the sector's success, responding to the increased demand for **protein-rich foods** like **meat, eggs, and dairy**.
- There has been a **shift in diets**, with Indian consumers moving from cereal-based diets to more **protein and nutrient-rich** food.

5. Importance of Diversification

- While livestock and horticulture have seen **technological improvements** and better yields, traditional crops have not benefited as much.
- This highlights the need for **better production technologies** and less reliance on **price subsidies**, as **market demand** plays a crucial role in determining which sectors grow faster.

In summary, while India's agriculture sector has improved in the last decade, the growth is uneven. Livestock and fisheries are thriving, but traditional crops need more innovation and better market conditions to catch up.

| Clear your doubts now.

Genome editing is bringing clarity to the study of hereditary cancers: TH Science

Science Tech

Easy Explanation:

Recent research from the **International Agency for Research on Cancer** reveals that cancer affects one in five people worldwide, with 20 million new cases and nearly 10 million deaths in 2022. This is expected to increase to 32 million new cases and 16 million deaths by 2045, with **Asia** expected to account for almost half of all cases. Cancer occurs when genetic mutations happen in the body's genome. About 10% of people with cancer inherit a genetic mutation that contributes to the disease, with some cancers, like **ovarian cancer**, having even higher rates of inherited mutations (20%).

Among the most studied genes linked to hereditary cancers are the **BRCA1** and **BRCA2** genes. Mutations in these genes significantly increase the risk of cancers such as **breast**, **ovarian**, and **prostate cancer**. Testing for these gene mutations is crucial as it allows early identification of risks, and it helps in developing personalized treatment strategies, such as increased screening and preventive surgeries.

CRISPR technology has allowed researchers to study the specific genetic mutations in BRCA genes and how they affect DNA repair and cancer development. New chemotherapy drugs, like **PARP inhibitors**, have shown promise in treating cancers linked to BRCA mutations by targeting how these genes repair DNA. However, scientists are still learning how other genetic mutations may influence how people respond to these treatments.

As research advances, scientists have recently found over **3,000 changes** in another gene called **RAD51C** that could increase the risk of **breast and ovarian cancer**. Identifying these changes will help doctors develop more personalized treatments for patients at risk of developing cancer due to these mutations. The more we learn about the genetics of cancer, the better we can understand who is at risk and how to prevent or treat these cancers early on.

Key Takeaways:

1. Cancer Statistics and Projections:

- **One in five** people worldwide are expected to develop cancer in their lifetime.
- There were **20 million new cancer cases** and **9.74 million cancer-related deaths** in 2022.
- By 2045, cancer cases may rise to **32 million** globally, with **Asia** accounting for nearly half.

2. Inherited Genetic Mutations and Cancer:

- **10%** of all cancer patients inherit genetic mutations linked to cancer.
- The risk of inherited mutations is higher in **ovarian cancer** (20%) and lower in **cervical cancer** (6%).
- **BRCA1 and BRCA2** genes are significant in hereditary breast, ovarian, and prostate cancers.

3. Importance of Genetic Testing:

- Testing for **BRCA mutations** helps in early detection and prevention strategies, such as increased screening and preventive surgery.

| Clear your doubts now.

● Early genetic testing can lead to **personalized cancer treatments**.

4. Treatment Advances with PARP Inhibitors:

● **PARP inhibitors**, a new class of chemotherapy drugs, are showing promising results, especially for cancers related to **BRCA mutations**.
● Research on PARP inhibitors in combination with traditional chemotherapy has been promising for **hereditary cancers**.

5. CRISPR Technology and Cancer Research:

● **CRISPR technology** is being used to study how specific mutations in cancer-related genes, like BRCA, affect DNA repair and cancer growth.
● **CRISPR screens** help researchers identify which genetic mutations make cancers more sensitive to certain treatments like PARP inhibitors.

6. New Discoveries in Cancer Genetics:

● Researchers have identified **3,000 genetic changes** in the **RAD51C gene**, which may increase the risk of breast and ovarian cancer.
● These discoveries allow for better **personalized medicine** and more effective **cancer prevention strategies**.

7. Early Detection and Genetic Screening:

● Population studies help identify the spread of hereditary cancers, allowing for early detection.
● Regular **genetic screening** can lead to early cancer diagnosis, improving treatment options and reducing cancer-related deaths.

By understanding genetic risks and advancements in treatment, more lives can be saved through early detection, personalized treatment, and preventive care.

A re-balancing of India's great power relations: TH Editorial

International Relations

Easy Explanation

India's balancing act in international relations is complex, as seen in two significant events in September 2024. Prime Minister Narendra Modi attended the **Quad Leaders' Summit** in the U.S., highlighting India's commitment to security cooperation with other leading maritime democracies (Australia, Japan, and the U.S.) in the Indo-Pacific region. Meanwhile, **National Security Adviser (NSA) Ajit Doval** visited Russia for the BRICS meeting, which included a personal meeting with **Russian President Vladimir Putin** and talks with **Chinese Foreign Minister Wang Yi**. India's challenge lies in balancing its relationships with these global powers, including **Russia** (a long-time ally) and **China** (with whom India shares a tense border dispute), while maintaining its growing partnership with the **U.S.** through platforms like the **Quad**.

| Clear your doubts now.

Doval's meeting with Putin is significant because it showcases India's attempt to mediate global conflicts, including the ongoing **Russia-Ukraine war**. This balancing act is tricky, as India has historically relied on its military ties with Russia but is also strengthening its relationship with the U.S. and taking a more active role in international peace efforts.

India is concerned about Russia's growing closeness with **China**, which could impact India's security interests. Although India has maintained neutrality on the Russia-Ukraine conflict, this has come at a cost, with the **West** perceiving India as indifferent to global challenges. India's broader diplomatic efforts seek to protect its strategic autonomy while preserving important relationships, particularly with the **U.S.**, which plays a leading role in the **Quad**.

Key Takeaways:

1. Prime Minister Modi's Quad Participation:

- Modi attended the **sixth Quad Leaders' Summit** in the U.S. in September 2024.
- The **Quad** (Australia, Japan, India, U.S.) aims to promote security cooperation in the **Indo-Pacific**.
- India remains committed to working with **maritime democracies** to maintain a rules-based order in the region.

2. Ajit Doval's Visit to Russia:

- India's **NSA Ajit Doval** met **Russian President Vladimir Putin** in early September.
- Doval also met **Chinese Foreign Minister Wang Yi** to address tensions at the **Line of Actual Control (LAC)**.
- Doval conveyed India's **peace plan** for the Russia-Ukraine conflict, signaling India's willingness to mediate global conflicts.

3. Balancing Relationships with Global Powers:

- India seeks to maintain its historical ties with **Russia**, while engaging with **China** to resolve border tensions.
- At the same time, India strengthens its relationship with the **U.S.** through platforms like the **Quad**.
- This balancing act showcases India's strategy of maintaining **strategic autonomy** in its foreign relations.

4. India's Role in Global Peace Initiatives:

- India is positioning itself as a potential **mediator** in international conflicts, such as the **Russia-Ukraine war**.
- India's neutrality on the Ukraine conflict, while maintaining ties with Russia, has been criticized by the **West**.
- Despite the challenges, India's engagement in peace efforts is part of its vision of being a **global power** and **friend to all nations** (Vishwa Bandhu).

5. Russia's Closer Ties with China:

| Clear your doubts now.

- Russia's growing partnership with **China** is a concern for India, especially with unresolved border tensions between India and China.
- India is wary of **Russia's strategic alignment with China**, which could impact India's security and regional stability.

6. Preserving U.S.-India Strategic Partnership:

- Despite India's neutrality on Russia-Ukraine, India values its growing **strategic partnership** with the **U.S.**.
- The **Quad** remains a crucial platform for India to collaborate with the U.S. on security and defense issues in the Indo-Pacific.

7. Challenges in India-Russia-China Relations:

- Russia's closer ties with **China** complicate India's relationship with Moscow.
- India needs to navigate these complex relationships while avoiding conflict and maintaining its strategic autonomy.

India's approach to international relations under **Modi's leadership** demonstrates the importance of balancing global power relations, maintaining independence in foreign policy, and engaging in **diplomatic mediation** in global conflicts.

[Regulation Role: TH Editorial](#)

Science Tech

Easy Explanation:

This year's **Nobel Prize in Physiology or Medicine** was awarded to **Victor Ambros** and **Gary Ruvkun** for their discovery of **microRNA** (miRNA), a small molecule that plays a crucial role in controlling how genes are expressed in living organisms. Before their discovery, scientists believed that **gene regulation** was controlled primarily by special proteins called **transcription factors**, which turn specific genes on or off by interacting directly with DNA. However, Ambros and Ruvkun found that microRNAs regulate genes after the transcription process — the stage where an **RNA copy of DNA** is made — and before the cell uses this RNA to make proteins.

Their initial research in a tiny roundworm called **C. elegans** showed that microRNAs can **regulate gene expression** even after the RNA copy of DNA has been created. At first, scientists thought this mechanism was unique to the worm, but later research revealed that microRNAs play a similar role in **humans** and other complex organisms.

Today, we know that **microRNAs** are present in large numbers in humans — over 1,000 different types have been identified. They are involved in many important processes, and if they don't work properly, it can lead to diseases such as **cancer**, **diabetes**, and **autoimmune diseases**. For example, changes in microRNA levels can allow **cancer cells** to grow uncontrollably and spread through the body. Researchers are now studying how microRNAs could be used to detect diseases early, guide treatment plans, and even as **drug targets** to develop new therapies.

| Clear your doubts now.

Key Takeaways:

1. Nobel Prize Award for microRNA Discovery:

- **Victor Ambros** and **Gary Ruvkun** were awarded the Nobel Prize for discovering **microRNA**, which regulates gene expression after the **transcription** process.
- Previously, gene regulation was thought to only occur through **transcription factors**, but this discovery added a new layer of understanding.

2. Role of microRNA in Gene Regulation:

- **microRNAs** control gene expression after the RNA copy of DNA is made but before the cell begins producing proteins.
- Their role was first discovered in the small worm **C. elegans**, but it is now known that microRNAs are important in all complex organisms, including humans.

3. Importance of microRNA in Human Health:

- The human genome contains over **1,000 microRNAs**, and their dysfunction can lead to various diseases like **cancer**, **diabetes**, and **autoimmune conditions**.
- In **cancer**, microRNAs can influence how cancer cells grow, spread, and resist treatment.

4. microRNAs and Disease Diagnosis:

- Changes in microRNA levels can be used as **biomarkers** to help detect and predict diseases like cancer, making them valuable for diagnosis and prognosis.
- Research is also underway to develop drugs that target microRNAs to treat diseases more effectively.

5. Potential for Future Therapies:

- **Candidate drugs** that target microRNAs are currently being tested in **clinical trials**, showing promise for future treatments in conditions such as **cancer** and **autoimmune diseases**.

This discovery has revolutionized our understanding of gene regulation and opened new pathways for diagnosing and treating complex diseases.

[Unpacking the Centre's affidavit on marital rape: TH Editorial](#)

Sociology

Easy Explanation:

The **Marital Rape Exception (MRE)** in Indian law says that a husband having sexual intercourse with his wife (if she is not under 18) is not considered **rape**. This rule is being challenged in the **Supreme Court of India**, but the Indian government has defended the law. Here's a breakdown of the key arguments and issues surrounding this law:

| Clear your doubts now.

1. **Expectation of Sexual Access in Marriage:** The government argues that being married creates a "reasonable expectation" of sexual access between spouses, meaning a husband has a right to have sex with his wife. However, this is a vague and problematic idea because:
   ○ It's unclear who decides what "reasonable sexual access" means.
   ○ Marriage might create some expectations, but it doesn't mean that one spouse can violate the other's consent.

2. **Marriage vs. Other Relationships:** The government claims that married women and unmarried women are in different situations, which is why the law treats them differently. However, this doesn't explain why other intimate relationships, like **live-in relationships**, are treated differently, despite often having similar expectations.

3. **Institution of Marriage and Misuse of Law:** The government fears that recognizing **marital rape** as a crime might harm the **sanctity of marriage** or lead to false accusations. However:
   ○ The sanctity of marriage should not rely on allowing one spouse to commit violence or rape.
   ○ Concerns about "misuse" of the law are misplaced, as criminal laws always have safeguards to prevent false accusations. Moreover, sexual offenses are usually **under-reported**, not over-reported.

4. **Is Marital Rape a Legal or Social Issue?** The government also argues that **marital rape** is a **social issue**, not a **legal** one, and therefore outside the court's jurisdiction. However, law regulates social issues all the time. The Supreme Court has the power to review whether this law violates fundamental rights, like the **right to equality** (Article 14) and the **right to life** (Article 21).

In short, the arguments defending the **Marital Rape Exception** are based on outdated ideas of marriage and consent. The **Supreme Court** can review whether the law is unconstitutional, and if it violates individual rights, the court can strike it down.

Key Takeaways:

1. Marital Rape Exception (MRE):

- MRE states that **sexual acts between a husband and wife** (if the wife is over 18) are not considered **rape**.
- The law is being challenged, and the government is defending it in the Supreme Court.

2. Reasonable Expectation in Marriage:

- The government claims marriage creates a **"reasonable expectation" of sexual access** between spouses.
- However, this idea is vague and doesn't consider **consent**.

3. Marriage vs. Other Relationships:

- The law treats **married and unmarried women** differently, but it's unclear why **live-in relationships** don't have the same rules.

4. Sanctity of Marriage and Misuse Concerns:

| Clear your doubts now.

- The government argues that criminalizing marital rape could harm **marriage** or lead to **false accusations**.
- However, there is no evidence that this law would hurt marriages, and **false accusations** are not a major issue with sexual offenses.

5. Legal vs. Social Issue:

- The government says **marital rape** is a **social issue**, not a legal one, but courts handle social issues all the time.
- The **Supreme Court** has the right to decide if the **Marital Rape Exception** violates **fundamental rights** like equality and dignity.

6. Constitutional Review:

- The Supreme Court's role is not to make new laws but to decide if this law is **constitutional** or not. If it violates fundamental rights, the court can strike it down.

On 'casteist' provisions in prison manuals: TH Text&Context

Sociology

Easy Explanation:

The **Supreme Court of India** declared that **caste-based division of labor in prisons** is unconstitutional on October 3, 2024. This decision struck down parts of several state prison manuals that enforced caste discrimination, considering it a violation of prisoners' fundamental rights. Here's a breakdown of the case and the issues involved:

1. **The Case:**
   - A journalist filed a petition in the Supreme Court challenging certain prison rules in states like **Tamil Nadu, West Bengal, Uttar Pradesh, and others** that assigned tasks based on caste. For example, in Tamil Nadu's **Palayamkottai Central Jail**, prisoners were separated based on their caste (Thevars, Nadars, Pallars), and in Rajasthan, **Mehtar** (a Scheduled Caste) prisoners were assigned to clean latrines, while **Brahmins** cooked food.
2. **Colonial Stereotypes in Prison Manuals:**
   - Some prison rules were based on colonial-era laws like the **Criminal Tribes Act, 1871**, which labeled marginalized communities as "born criminals." Even after this law was repealed, prison manuals continued to stereotype these groups, calling them "habitual offenders" without any legal conviction.
   - For instance, in **West Bengal**, prison rules stated that certain prisoners from "wandering tribes" could not be night guards, reinforcing these harmful stereotypes. Similarly, rules in **Andhra Pradesh** and **Kerala** also labeled certain communities as habitual criminals.
3. **Violation of Fundamental Rights:**
   - The court declared that **caste-based separation in prisons** violates **Article 14 (Right to Equality)** and **Article 15 (Protection from Discrimination)** of the **Indian Constitution**. Caste should only be used to uplift marginalized groups, not to perpetuate discrimination.

| Clear your doubts now.

- ○ The court also found that assigning specific tasks based on caste, such as **cleaning duties for lower castes** and **cooking for higher castes**, was unconstitutional. These practices were seen as promoting untouchability, prohibited by **Article 17** of the Constitution.
4. **Court's Directions:**
   - ○ The Supreme Court ordered all **States and Union Territories** to amend their prison rules within three months to eliminate discriminatory practices.
   - ○ It also pointed out issues with the **Model Prison Manual (2016)** and the **Model Prisons and Correctional Services Act (2023)**, and ordered reforms within the same time period.
   - ○ To ensure these changes happen, district legal authorities and prison inspectors must conduct regular checks.

In short, the Supreme Court has ruled that caste-based labor division in prisons violates equality and dignity, and all states must change their rules to ensure fairness for prisoners.

Key Takeaways:

1. The Case:

- A petition challenged **caste-based discrimination in prisons**, such as assigning different tasks to prisoners based on caste.
- Examples include Tamil Nadu's **Palayamkottai Jail**, where prisoners were separated by caste, and Rajasthan's prison rules that allocated cleaning tasks to lower castes.

2. Colonial Stereotypes in Prison Manuals:

- Prison rules reinforced colonial-era stereotypes from laws like the **Criminal Tribes Act, 1871**, which labeled marginalized communities as "born criminals."
- Manuals continued to call certain groups "habitual offenders" without convictions, perpetuating discrimination.

3. Violation of Fundamental Rights:

- The court ruled that **caste-based separation** and **division of labor** violated prisoners' rights to **equality (Article 14)** and **protection from discrimination (Article 15)**.
- Assigning menial tasks to marginalized castes was considered **untouchability**, prohibited under **Article 17**.

4. Court's Directions:

- All states and Union Territories must change their prison rules within **three months** to stop caste-based practices.
- The court ordered reforms to the **Model Prison Manual (2016)** and the **Model Prisons and Correctional Services Act (2023)** to prevent discrimination.
- Regular inspections will ensure compliance with these changes.

[How high-performance buildings are the next step towards a sustainable future: TH Text&Context](#)

Environment

| Clear your doubts now.

Easy Explanation:

Buildings have a significant impact on the environment, especially in terms of energy consumption and carbon emissions. In rapidly growing cities, like those in India, buildings contribute heavily to energy use and pollution. There is a growing need for sustainable and energy-efficient construction practices to reduce this impact and help meet climate goals. High-performance buildings (HPBs) are designed to reduce energy use and improve overall efficiency. These buildings go beyond regular green buildings by using advanced technologies like smart systems, natural lighting, and energy-efficient materials. They also actively monitor and adjust their performance to optimize resource use in real-time.

India's urbanization is accelerating, with the population expected to hit 600 million by 2030, and the construction of sustainable buildings like HPBs could be key to managing energy consumption. Examples of HPBs in India, like the Infosys campus in Bengaluru and the Indira Paryavaran Bhawan in New Delhi, demonstrate how these buildings can significantly reduce energy demand while improving living conditions. HPBs are seen as future-proof investments that can address challenges like resource scarcity, fluctuating energy markets, and rising temperatures while also creating healthier indoor environments.

Key Takeaways:

- **Impact of Buildings on the Environment:** Buildings are responsible for a significant portion of global energy consumption and carbon emissions. In India, buildings contribute to over 30% of energy use and 20% of carbon emissions.
- **Importance of High-Performance Buildings (HPBs):** HPBs use advanced technologies to maximize efficiency in areas like energy use, water conservation, and occupant comfort. They also monitor performance in real-time and make necessary adjustments to optimize resource use.
- **Technologies in HPBs:** HPBs often incorporate technologies like energy-efficient HVAC systems, greywater recycling, and smart lighting controls. These features help reduce energy consumption and improve the building's overall sustainability.
- **Examples in India:** Notable examples of HPBs in India include Unnati in Greater Noida and the Infosys campus in Bengaluru, which utilize smart design and technologies to improve energy efficiency and comfort.
- **Long-Term Benefits of HPBs:** HPBs provide higher returns on investment, lower maintenance costs, and better indoor air quality and comfort for occupants. They also help create intelligent ecosystems that can adapt to changing conditions through automation and AI.
- **HPBs as a Solution for Urbanization:** In rapidly urbanizing India, HPBs offer a solution to the strain on public infrastructure by promoting sustainability and resilience in cities. They are crucial for India's transition to a low-carbon economy.

9th October 2024

Discriminatory: Why SC struck down caste rules in jail manuals: IE Explained

Polity

Easy Explanation:

| Clear your doubts now.

The Supreme Court recently ruled that several rules in state prison manuals that reinforced caste-based differences and targeted marginalized communities were unconstitutional. The case was brought forward by journalist Sukanya Shantha, highlighting rules in various states that promoted caste-based labor divisions. For example, in Madhya Pradesh, certain castes were specifically assigned menial tasks like cleaning toilets, while other castes handled cooking. These rules were found to violate the fundamental rights of prisoners by discriminating against them based on their caste.

The court emphasized that caste should only be used as a criterion to grant benefits to victims of discrimination and should not be used to enforce caste divisions. The judgment also stressed that all prisoners should have an equal chance for rehabilitation, regardless of their caste. The court directed that all state and union territory prison manuals be updated within three months to remove these discriminatory practices.

Key Takeaways:

- **Violation of Fundamental Rights:** The court ruled that assigning prison work based on caste violated prisoners' rights under Articles 14, 15, 17, 21, and 23 of the Constitution, which ensure equality, protection from discrimination, the abolition of untouchability, the right to dignity, and the prohibition of forced labor.
- **Reinforcing Caste Divisions:** Many prison manuals reinforced outdated and discriminatory practices by assigning different tasks to prisoners based on their caste, perpetuating social hierarchies.
- **Directive for Reform:** The Supreme Court directed all states and union territories to revise their prison manuals within three months to remove caste-based discrimination and update the 2016 Model Prison Manual to reflect these changes.
- **Impact of the Criminal Tribes Act:** The court noted that prison manuals perpetuated stereotypes from the colonial-era Criminal Tribes Act, which classified certain tribes as criminals. These stereotypes have continued to affect marginalized communities, even after the law was repealed.
- **Equal Opportunity for Reform:** The judgment underscored that prisoners should have equal opportunities for rehabilitation and not be assigned tasks based on caste, which deprives marginalized groups of their dignity and chance for reform.

SMALLER AREA SOWN,RUINED CROP: WHY TOMATO HAS HIT RS100/KG- IE Explained

Economy

Easy Explanation:

The price of tomatoes in India has seen a significant rise recently, with retail prices going as high as Rs 120-130 per kg in some areas. The government has intervened by selling tomatoes at Rs 65 per kg in Delhi, but many customers are still paying around Rs 80-90 per kg. This sudden price hike is mainly due to two reasons: lower than expected tomato planting this season and heavy rains in the tomato-growing regions that destroyed crops ready for the market.

Tomatoes are typically grown in two main seasons—kharif and rabi. Kharif tomatoes are mainly grown in Maharashtra, Andhra Pradesh, and Telangana, while rabi tomatoes are grown in Maharashtra and Karnataka. However, lower-than-expected planting of kharif tomatoes has led to a shortage. Additionally, extreme heat last year caused many farmers to switch from growing tomatoes to maize, which is a more resilient crop in extreme weather. As a result, the overall supply of tomatoes has reduced, causing prices to rise.

| Clear your doubts now.

Experts predict that prices will remain high, or even increase further, in the near future. Fresh harvests in Nashik and Telangana may provide some relief after Dussehra, but another supply gap is expected afterward. A significant price drop may not happen until the next crop is ready, around March next year.

Key Takeaways:

- **Price Surge:** Tomatoes are being sold at Rs 120-130 per kg in some areas due to a shortage of supply. The government has stepped in to sell tomatoes at a subsidized rate of Rs 65 per kg in Delhi.
- **Reasons for Price Hike:** The price increase is due to lower sowing of kharif tomatoes and destruction of crops from heavy rains in late September. Additionally, many farmers switched from tomato farming to maize due to high input costs and crop diseases.
- **Future Price Outlook:** Prices are expected to remain high, with only temporary relief from fresh harvests. A significant drop in tomato prices is not expected until around March when the next crop comes to market.

[Making machines learn: IE Explained](#)

Science

Easy Explanation:

Artificial Intelligence (AI) has become an integral part of everyday life, with tools that allow users to create, interpret data, and seek information like never before. The Nobel Prize in Physics this year was awarded to two scientists, John Hopfield and Geoffrey Hinton, whose work laid the foundation for the AI revolution we see today. These two pioneers developed groundbreaking technologies in the 1980s that are now shaping the way machines learn and perform tasks that once required human intelligence.

Hopfield's significant contribution was creating an artificial neural network that mimics how the human brain functions. This allows computers to "remember" and "learn" from patterns, much like humans do. His model helped computers recognize things like images and sounds, which paved the way for technologies like facial recognition. On the other hand, Hinton advanced this work by creating more complex networks that could perform tasks like understanding voices and recognizing complex patterns in images. His innovation in "deep learning" is now at the core of many modern AI technologies, including voice assistants, image recognition, and self-driving cars.

The impact of their work was realized when Hinton's deep learning model, called AlexNet, demonstrated remarkable accuracy in recognizing images, proving how far AI could go in solving complex problems. Their work has revolutionized how we approach machine learning and AI, allowing computers to learn from their mistakes and continuously improve their accuracy.

Key Takeaways:

- **Artificial Intelligence Foundations:** John Hopfield and Geoffrey Hinton's work, starting in the 1980s, laid the groundwork for today's AI tools and machine learning techniques.
- **Hopfield's Neural Networks:** Hopfield developed artificial neural networks that mimic the brain's way of learning and remembering, which became foundational for pattern recognition, like facial recognition and image improvement tools.

| Clear your doubts now.

- **Hinton's Deep Learning:** Hinton improved on Hopfield's work by developing deep neural networks capable of more complex tasks, such as understanding voices and recognizing detailed images.
- **Breakthrough in AI:** Hinton's model, AlexNet, made a significant leap in AI development by dramatically improving image recognition, showcasing the potential of AI in various fields.
- **Real-World Impact:** Deep learning and neural networks are now at the heart of modern AI applications, including speech recognition, translation, self-driving cars, and more.
- **Nobel Prize in Physics:** This recognition highlights the intersection of computer science and physics, showing the relevance of AI advancements to both fields.

Study uncovers surprising new 'spatial grammar' of gene expression: TH Science

Science

Easy Explanation:

Sascha Duttke and his team have made a groundbreaking discovery about how cells decide which parts of our genetic information to use. Our genes contain instructions for everything our bodies do, but not all cells use the same instructions in the same way. Duttke's team found that how and where certain proteins, called transcription factors, attach to DNA plays a crucial role in determining which genes get turned on or off. This research has revealed a "spatial grammar"—meaning the position of these proteins relative to the starting point of gene transcription influences whether a gene will be activated or repressed.

Transcription factors are proteins that help turn genes on or off by binding to specific DNA sites. Previously, researchers focused mainly on these binding sites, but Duttke's study shows that the location of these binding sites in relation to where transcription starts also matters. For example, if the binding site is before the start site, the transcription factor may help activate the gene, but if it's after, it could repress it.

This discovery is important for understanding how genetic mutations can lead to diseases like cancer and could help predict which mutations might cause problems. Duttke also sees this research as shedding light on how organisms, including humans, have evolved to use their genes in more complex ways.

Key Takeaways:

- **Transcription Factor Binding:** The way transcription factors bind to DNA, and their position relative to the transcription start site, can affect whether a gene is turned on or off.
- **Spatial Grammar:** The study discovered a "spatial grammar" in how genes are regulated, showing that transcription factors' location matters as much as their presence.
- **Implications for Disease:** This research could help scientists better understand and predict how certain genetic mutations outside of genes contribute to diseases.
- **Evolutionary Insights:** The findings provide new understanding of how gene regulation might have evolved to allow more complex organisms to adapt to environmental changes.

Sunset for the U.K.'s coal fired power, lessons for India: TH Editorial

Environment

Easy Explanation:

| Clear your doubts now.

The closing of Britain's last coal-fired power plant in Nottinghamshire marks an important moment in the global shift towards cleaner energy. However, this change has not been smooth or without challenges. Some suggest that other countries, particularly developing ones, should follow Britain's lead in phasing out coal. But this is not practical because each country's situation is different, and poorer nations face more complex issues.

Britain's move away from coal began long before its 2015 Paris climate pledge. The process can be traced back to the Great Smog of London in 1952, which led to new environmental laws. Over time, economic and political factors, like the discovery of natural gas in 1965 and concerns about relying on coal imports from the Soviet Union, made coal less viable in Britain. The transition was accelerated in the 1980s when many coal mines were closed, resulting in economic hardship in coal-reliant regions, a struggle that some areas still face today.

India, by comparison, is still heavily reliant on coal, with 70% of its energy coming from this source. India's peak coal production and consumption are expected between 2030 and 2035, and it still employs millions of people in coal mining and power generation. Directly comparing India's coal phase-out to Britain's isn't realistic due to India's ongoing energy needs, growing population, and developmental stage.

However, India can learn from the UK's recent approach to phasing out coal, which involved not just closing coal mines but also supporting workers through retraining programs and developing new industries in coal-reliant areas. The UK also repurposed coal plants for cleaner energy, which helped mitigate job losses. India must plan ahead, set clear timelines for decommissioning coal plants, and support its coal-dependent regions to ensure a just and smooth transition to cleaner energy.

Key Takeaways:

1. **Britain's Coal Transition:** Britain's shift away from coal began decades ago, spurred by environmental and economic factors, not just recent climate commitments.
2. **India's Coal Dependence:** India is still heavily dependent on coal, and a direct comparison to Britain's phase-out isn't feasible due to India's energy needs and economic challenges.
3. **Learning from the UK:** India can take lessons from Britain's recent efforts, such as retraining coal workers and redeveloping coal-reliant regions, to plan a more inclusive energy transition.
4. **Importance of Planning:** India needs a holistic approach with clear timelines, regional redevelopment, and job retraining to ensure a smooth transition from coal to cleaner energy.

[From solidarity to pseud, India's shift on Palestine: TH Editorial](#)

International Relations

Easy Explanation:

India's support for Palestine, which once symbolized its anti-colonial stance, has changed significantly since the end of the Cold War, especially in the last decade. India has moved closer to Israel and shifted to a more transactional and interest-based diplomacy. This shift is driven by several factors, including the rise of Hindutva, which aligns India's foreign policy with a Hindu nationalist ideology that views Israel as a partner against Islamic terrorism. This has led to the marginalization of the Palestinian cause, which is now seen through a communal lens rather than as a broader anti-colonial or moral issue.

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Historically, India's support for Palestine was rooted in values like self-determination and anti-colonialism, but now, India's foreign policy focuses more on pragmatic interests. The BJP-led government under Prime Minister Modi has deepened ties with Israel, especially in areas like defense and technology, while only paying lip service to the Palestinian cause. This change reflects a broader global trend where foreign policies prioritize economic and strategic benefits over historical commitments.

India's ambitions to become a global power have also influenced this shift. While the country seeks to play a mediator role in conflicts like the one in Ukraine, its support for Palestine has diminished, likely due to its alignment with the U.S., Israel's strongest ally. As India continues to strengthen ties with Israel, its once-principled stance on Palestine has faded into the background.

Key Takeaways:

1. **Hindutva Influence on Foreign Policy:** India's growing closeness with Israel reflects a shift in its foreign policy influenced by Hindutva ideology, which views Israel as a partner against Islamic terrorism.
2. **Shift from Values to Interests:** India's historical support for Palestine, rooted in anti-colonial values, has given way to a more transactional diplomacy focused on economic and strategic interests, particularly with Israel.
3. **Marginalization of the Palestinian Cause:** As India focuses on strengthening ties with Israel, the Palestinian cause has been sidelined, with official support limited to rhetorical endorsements of a two-state solution.
4. **India's Strategic Ambitions:** India's growing ambition to be a global power, aligned with U.S. interests, has contributed to its diluted stance on Palestine, prioritizing power politics over principles.

What does USCIRF report say about India?: TH Text&Context

Sociology

Easy Explanation:

The United States Commission on International Religious Freedom (USCIRF), based in Washington, D.C., recently released a report on religious freedom in India, highlighting a worsening situation for minority communities. The report mentions instances of individuals from these communities being lynched, religious leaders being arrested, and places of worship being destroyed. The Indian government has rejected the report, calling the USCIRF a biased organization with a political agenda.

USCIRF is a U.S. government agency that monitors religious freedom globally. It operates independently and releases annual reports on religious freedom conditions in countries other than the U.S. While its reports can influence a country's image, they do not directly impact bilateral relations, which is the responsibility of the U.S. State Department.

The report on India mentions several laws and actions by the Indian government, such as the Citizenship (Amendment) Act and anti-conversion laws, which it claims are used to repress religious minorities. It also highlights the use of hateful rhetoric by Indian officials, which has led to violence against these communities.

India responded by rejecting the report, calling it biased and part of a political agenda. While the USCIRF's reports are supported by research and verified sources, there are concerns about its timing and whether it is

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being used as a tool of U.S. foreign policy. Despite its findings, USCIRF's recommendations are not binding, and it is up to the U.S. government to decide whether to act on them.

Key Takeaways:

1. **USCIRF's Role and Report:**
   ○ USCIRF monitors religious freedom worldwide and recently flagged worsening religious freedom conditions in India, citing violence against minorities and discriminatory laws.
   ○ India has rejected the report, calling it biased and agenda-driven.
2. **Concerns Raised by USCIRF:**
   ○ The report mentions the Citizenship (Amendment) Act, anti-conversion laws, and hateful rhetoric by officials as contributing to religious repression in India.
3. **India's Response:**
   ○ India strongly rejected the report, accusing USCIRF of spreading a false narrative and having a political agenda.
4. **Impact and Limitations:**
   ○ USCIRF's recommendations are not binding, and it is up to the U.S. government to decide whether to act on them, considering broader foreign policy goals.

Why is the textile industry struggling to perform better?: TH Text&Context

Economy

Easy Explanation:

India's textile and apparel sector is aiming to reach a business size of $350 billion by 2030, which is expected to create 3.5 crore jobs. Currently, the sector is worth $153 billion, with the majority of the business coming from the domestic market. The sector has also been a significant contributor to India's GDP and provides employment to over 100 million people. However, the industry faced challenges in the last two years due to reduced demand, both internationally and domestically. This has resulted in closures of textile mills and a slump in exports.

Several factors have caused this downturn, including geopolitical issues, rising prices of cotton and man-made fibers, and an import duty on cotton, making Indian cotton more expensive. Additionally, new business models, like direct online retailing, are disrupting traditional methods, and there is a growing demand for sustainable sourcing by foreign brands. The industry is also facing increased consumer interest in comfort wear. To achieve its $350 billion target, the sector will require significant investments, technological advancements, and workforce skilling to boost productivity.

Key Takeaways:

1. **Current Status:**
   ○ The Indian textile and apparel sector aims to reach $350 billion by 2030.
   ○ It is currently valued at $153 billion, with domestic business contributing $110 billion.
   ○ The sector employs 105 million people and contributes 2.3% to India's GDP.
2. **Challenges:**

- ○ The industry faced slowdowns in 2022-2023 due to reduced demand and rising raw material prices.
- ○ High import duties on cotton and disruptions in the availability of man-made fibers have worsened the situation.
- ○ Exporting units are particularly impacted by geopolitical factors and high costs.

3. **Market Shifts:**
   - ○ Direct retailing through e-commerce and the rise of comfort wear are reshaping traditional business models.
   - ○ Foreign brands are prioritizing sustainability in their supply chains, requiring vendors to meet specific sustainability targets.

4. **Future Plans:**
   - ○ The industry seeks $100 billion in investments to meet its 2030 goal.
   - ○ To remain competitive, the sector must focus on technology, skilling workers, and improving productivity.

Global Digital Compact: advancing digital innovation in a sustainable fashion: TH Text&Context

Science

Easy Explanation:

The "Global Digital Compact" (GDC) was recently adopted at the UN's "Summit of the Future." The GDC is an international agreement aimed at harnessing and regulating digital technologies for the common good. It is not a legally binding document, but it outlines shared goals for governments, institutions, and companies to work together. The GDC focuses on promoting the responsible use of digital technologies, closing the digital divide, and improving access to data. It encourages global cooperation in the governance of data, particularly in the areas of artificial intelligence (AI) and sustainable development.

The GDC recognizes that while digital technologies can offer many benefits, they also pose challenges like data privacy issues and monopolistic control. It proposes digital public goods, such as open-source software and data, to drive social change and address these challenges. However, critics argue that the GDC doesn't add much to existing frameworks, relies too heavily on self-regulation by tech companies, and overlooks the complexities of digital governance. Although the GDC aims to align digital technologies with the UN's Sustainable Development Goals (SDGs), its ability to create real change remains uncertain. Nonetheless, it can still foster collaboration between countries and support capacity building in developing nations.

Key Takeaways:

1. **What is the GDC?**
   - ○ The Global Digital Compact (GDC) is a non-binding agreement focused on harnessing and regulating digital technologies for the common good.
   - ○ It encourages collaboration between governments, institutions, and companies to advance responsible digital practices and improve data governance.

2. **Goals of the GDC:**
   - ○ Close the digital divide and improve access to digital technology.
   - ○ Encourage responsible use of data and AI while promoting sustainability and inclusive participation.

| Clear your doubts now.

- Propose "digital public goods" like open-source software and data to drive social change.
3. **Challenges and Criticism:**
    - The GDC relies heavily on self-regulation by tech companies, which has proven ineffective in the past.
    - It overlooks complexities like data privacy issues and monopolistic control by large corporations.
    - The GDC's ability to create real change is uncertain, and its goals may be too ambitious without concrete strategies.
4. **Connection to Sustainable Development Goals (SDGs):**
    - The GDC links its objectives to the UN's SDGs, emphasizing the role of digital technologies in achieving global sustainability goals.
    - However, the current AI revolution was not anticipated when the SDGs were adopted in 2015, making the GDC's impact on them uncertain.
5. **Overall Impact:**
    - While the GDC may not lead to a major shift in digital governance, it can facilitate important collaborations, especially between developing and developed nations, and support capacity-building efforts.

10th October 2024

Rice with added nutrients, Centre to continue supply until 2028: IE Explained

Sociology

Easy Explanation:

The Union Cabinet has extended the program to provide fortified rice through government food schemes, such as the Public Distribution System (PDS) and school meals, until December 2028. Fortified rice is enriched with essential micronutrients like iron, folic acid, and vitamin B12 to help combat malnutrition, especially anemia, which is a widespread issue in India, particularly among women and children.

Fortification involves adding nutrients to regular rice through a process called extrusion. This creates fortified rice kernels (FRKs), which are then blended with regular rice. The fortified rice looks and cooks like normal rice, retaining its nutritional content even after being washed and prepared. The Indian government has been distributing fortified rice since 2015, gradually expanding the program to cover all districts by 2024. The initiative aims to improve public health at a relatively low cost, addressing the micronutrient deficiencies that affect large sections of the population.

Key Takeaways:

1. **Extension of Fortified Rice Program:**
    - The Union Cabinet has extended the program of providing fortified rice under central government schemes until December 2028.
    - The goal is to tackle widespread issues like anemia and micronutrient deficiencies in India.
2. **What is Rice Fortification?**

| Clear your doubts now.

- ○ Rice fortification is the process of adding essential micronutrients such as iron, folic acid, and vitamin B12 to rice.
- ○ Fortified rice helps improve nutritional quality and addresses health issues caused by deficiencies.

3. **How is Rice Fortified?**
   - ○ The extrusion process is used to create fortified rice kernels (FRKs) by mixing rice flour with micronutrients.
   - ○ These FRKs are blended with regular rice at a ratio of 10g per kg to create fortified rice.

4. **Progress of the Initiative:**
   - ○ The program started in 2015, with phased implementation to cover all districts by 2024.
   - ○ So far, 406 lakh metric tonnes of fortified rice have been distributed through government schemes.

5. **Challenges and Costs:**
   - ○ The annual cost of rice fortification is around Rs 2,700 crore, less than 2% of India's annual food subsidy bill.
   - ○ India has a strong capacity for fortified rice production, with 925 manufacturers and 21,000 rice mills involved in the process.

6. **Public Health Impact:**
   - ○ The initiative aims to reduce malnutrition and improve the overall health of millions of people, especially vulnerable groups like women and children, by providing them with fortified rice through government food schemes.

HOW BATTERIES WORK,HOW THEY ARE CHANGED: IE Explained

Science Tech

Easy Explanation:

A Congress delegation recently met the Election Commission of India (ECI) to raise concerns about the alleged manipulation of Electronic Voting Machines (EVMs) in Haryana elections. They submitted a memorandum detailing issues from seven constituencies, claiming discrepancies in battery charges of the EVMs, where some machines were showing 99% charge and others 60-70% at the same polling station. The ECI assured the Congress leaders of a detailed, written response addressing their concerns point by point.

How does the battery in an EVM work?

EVMs run on batteries, allowing their use in areas without electricity. The control unit (CU) of an EVM operates on a power pack of 7.5 or 8 volts, while the Voter Verifiable Paper Audit Trail (VVPAT) has its own 22.5-volt battery. These batteries are manufactured by Bharat Electronics Limited (BEL) and Electronics Corporation of India Limited (ECIL). The ECI regularly monitors the power levels of these batteries, which are displayed as "High," "Medium," "Low," "Marginal," or "Change Battery." A new battery can typically last through an entire election and counting process, and the battery's status is monitored closely.

How are EVM batteries changed?

Before elections, EVM batteries are replaced during a first-level check, with political parties informed so their representatives can be present. If the battery dips during the mock poll, which takes place on election morning,

it is changed in the presence of polling agents. After voting, the presiding officer of each polling station submits a report to the ECI, detailing any battery changes, with relevant information like the control unit's unique ID and signatures of polling agents.

Key Takeaways:

1. **Congress's Concerns:**
   ○ A Congress delegation alleged discrepancies in EVM battery charges during the Haryana elections and sought a detailed probe from the ECI.
2. **EVM Battery Function:**
   ○ EVMs have a power pack for the control unit and VVPAT, with the battery level monitored and displayed by the control unit.
3. **Battery Replacement Process:**
   ○ Batteries are replaced before elections during the first-level check and during the mock poll if needed, with reports submitted by the presiding officer afterward.
4. **ECI's Response:**
   ○ The ECI assured the Congress of a point-by-point written response to their concerns regarding the alleged battery discrepancies.

Deciphering proteins using AI: IE Explained

Science

Easy Explanation:

Proteins are essential molecules that support nearly all biological processes in living organisms. Understanding their structure and function has been the focus of scientific study for decades. This year's Nobel Prize in Chemistry was awarded to David Baker, Demis Hassabis, and John Jumper, not for discovering new proteins, but for creating tools that make it easier to understand and create protein structures. Hassabis and Jumper co-developed an artificial intelligence tool called AlphaFold, which predicts protein structures with high accuracy. Baker used similar computational methods to create new proteins not found in nature, which can perform useful functions.

Proteins are made of long chains of amino acids, and the arrangement of these acids determines how the proteins fold into their final three-dimensional shapes, which in turn dictate their functions. Traditionally, decoding protein structures was a slow and tedious process using methods like x-ray crystallography. AlphaFold dramatically speeds this process by predicting protein structures based on amino acid sequences. Baker's work, on the other hand, focuses on designing new proteins that can perform tasks such as degrading plastics, a breakthrough that opens up numerous possibilities for medicine and other fields.

Key Takeaways:

1. **Importance of Proteins:**
   ○ Proteins are crucial to almost all biological processes and are made from amino acids arranged in specific sequences. Their structure determines their function.
2. **AlphaFold's Role:**

- ○ The AI tool AlphaFold, developed by Hassabis and Jumper, predicts protein structures with high accuracy, revolutionizing the field by using data and computation.
3. **Creation of New Proteins:**
   - ○ David Baker designed synthetic proteins that do not exist in nature, which could perform new, useful functions like breaking down plastics.
4. **Impact on Science:**
   - ○ These breakthroughs have huge implications for drug discovery and solving diseases caused by protein disorders. AlphaFold's success was already anticipated by the scientific community.
5. **AI's Growing Role:**
   - ○ Both this year's Nobel Prizes in Chemistry and Physics were awarded for AI-related research, highlighting its increasing significance in advancing science.

Ready for a lower rate: IE Ideas

Economy

Easy Explanation:

The Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) has adopted a neutral stance, keeping the policy rate unchanged due to high food inflation, which remains a key concern. While non-food inflation was low at 2.3% in August, the MPC is expected to reduce the policy rate by 25 basis points in December as food inflation is likely to ease. Global factors, such as the U.S. Federal Reserve's recent rate cuts, may also influence India's monetary policy. The Fed's actions typically result in capital inflows to emerging markets like India, giving the RBI more room to adjust interest rates. However, India's domestic growth and inflation dynamics will ultimately drive the MPC's decisions.

Despite some countries already cutting rates due to global monetary shifts, India's inflation remains a challenge, particularly food inflation, which makes up a large part of the consumer basket. While food inflation does not respond directly to interest rates, it still affects overall inflation and can lead to higher wage demands and broader price increases. Non-food inflation is expected to stay low as the global economy slows down, and food inflation is anticipated to ease due to good monsoon rains and improved agricultural production. Overall, the combination of global and domestic factors could lead to a policy rate cut by the RBI in December.

Key Takeaways:

1. **RBI's Neutral Stance:**
   - ○ The MPC kept the policy rate unchanged due to high food inflation but may cut rates in December as inflation eases.
2. **Non-Food Inflation:**
   - ○ Non-food inflation remains low at 2.3%, with no major upside expected unless global factors like crude oil prices worsen.
3. **Global Monetary Trends:**
   - ○ The U.S. Fed's rate cuts have created favorable conditions for emerging markets like India, increasing capital inflows and strengthening the rupee.
4. **Impact of Food Inflation:**
   - ○ High food inflation remains a concern for the RBI, as food and beverages make up a large part of India's consumer basket.

| Clear your doubts now.

5. **Future Outlook:**
   - A combination of lower food inflation, global rate cuts, and favorable economic conditions may lead to an interest rate cut by the RBI in December.

[Mental health in India's material world: TH Editorial](#)

Sociology

Easy Explanation:

The recent deaths of successful professionals due to work pressure and mental health struggles highlight a growing mental health crisis in India. Despite material success, many people are battling depression, anxiety, and a sense of purposelessness. India is seeing a rise in mental health disorders, exacerbated by societal pressures, consumerism, and a focus on wealth and productivity. The quest for material success often leads to feelings of isolation and inadequacy.

The solution to this crisis lies in rethinking what constitutes a good life, shifting focus from individual success and material wealth to collective well-being. Strong communities, social connections, and meaningful work are essential for mental health. Countries like Brazil have used community-based initiatives to counter isolation, and similar efforts in India could help strengthen social bonds. Emphasizing community living, shared responsibilities, and mutual support can create environments that nurture emotional and psychological well-being.

Additionally, India's growing consumer culture, where freedom is equated with the ability to buy goods, further fuels the mental health crisis. To address this, India needs to prioritize mental well-being, community, and equity over material success.

Key Takeaways:

1. **Mental Health Crisis in India:**
   - Rising cases of depression and anxiety are linked to societal pressures and consumerism.
2. **Material Success vs. Well-Being:**
   - Achieving wealth and status does not necessarily lead to happiness or mental well-being.
3. **Community as a Solution:**
   - Strong social connections and community living can improve mental health and reduce stress.
4. **Impact of Consumerism:**
   - The focus on buying power and material wealth is contributing to feelings of inadequacy and dissatisfaction.
5. **Shift in Focus Needed:**
   - India should prioritize mental well-being, social support, and community-driven initiatives to address the mental health crisis.

[What is the Samsung workers strike in Chennai about?: TH Text&Context](#)

Sociology

Easy Explanation:

| Clear your doubts now.

Around two-thirds of the 1,800 workers at Samsung's flagship factory in Chennai have been on strike for over a month, demanding better wages, working conditions, an eight-hour workday, and recognition of their newly formed labour union, the Samsung India Workers Union (SIWU). While the Tamil Nadu government urged workers to return to work and claimed an agreement had been reached with a "workmen's committee," the striking workers rejected this, accusing the committee of being aligned with the company rather than representing the majority of employees.

Samsung, South Korea's largest company, has long had a 'no union' policy, only recently starting to recognize unions in 2021 after legal challenges. SIWU, however, is still awaiting official recognition and has filed a case in the Madras High Court to seek registration, which would grant them legal standing and protections under the Trade Union Act. Despite accusations that the Tamil Nadu government is siding with Samsung, labour leaders assert that unionization has benefitted both workers and companies in the region, and they hope the government will support their cause.

Key Takeaways:

1. **Samsung Workers Strike in Chennai:**
   Workers demand higher wages, an eight-hour workday, better conditions, and recognition of their union.
2. **Dispute Over Agreement:**
   Workers rejected an agreement allegedly made by a "workmen's committee," claiming it doesn't represent their interests.
3. **Samsung's Union History:**
   The company has historically opposed unions but began recognizing them in 2021 following legal challenges.
4. **SIWU's Legal Battle:**
   SIWU has filed a case for registration, which would give the union legal protections and bargaining rights.
5. **Government's Role Questioned:**
   Union leaders accuse the Tamil Nadu government of siding with Samsung, but argue that unionization has been beneficial for businesses in the region.

11th October 2024

[The gruelling course of litigation in India: TH Editorial](#)

Polity

Easy Explanation:

In a recent speech, India's President Droupadi Murmu addressed the issue of court delays, which make people hesitant to approach courts, fearing the long, exhausting process of litigation. This has been termed the 'black coat syndrome,' symbolizing how people feel overwhelmed by the legal system, similar to how some feel anxious at a doctor's office. The slow pace of justice is largely due to poor scheduling and case management practices in the courts. While there are rules like the Case Flow Management Rules to help streamline court processes, they have not been consistently implemented.

| Clear your doubts now.

At the district court level, judges face systemic pressures, such as deadlines from higher courts, which force them to prioritize certain cases over others. This disrupts scheduling and creates delays. Moreover, the performance evaluation system for judges, based on how many cases they close (the "unit system"), encourages them to prioritize simpler cases over more complex ones. Lawyers, too, play a role in delaying cases by frequently seeking adjournments or strategically choosing which cases to attend.

Witnesses often suffer from unpredictable schedules, which disrupt their lives and cause them to miss work or travel long distances without knowing when they'll testify. To fix these issues, reforms should not only focus on rules but also on incentivizing judges, lawyers, and witnesses to work more efficiently, alongside using technology to improve case management.

Key Takeaways:

1. **Court Delays:**
   President Droupadi Murmu highlighted how court delays discourage people from seeking justice, likening it to 'black coat syndrome.'
2. **Poor Case Management:**
   Delays stem from inefficient scheduling and case management in the judiciary, despite rules being in place to improve it.
3. **Judge Pressures:**
   Judges face pressure from higher courts to prioritize certain cases, disrupting their ability to manage schedules effectively.
4. **Unit System:**
   The current system of evaluating judges based on case closures encourages them to focus on simpler cases, leading to delays in complex cases.
5. **Lawyer and Witness Role:**
   Lawyers frequently seek adjournments, and witnesses face unpredictable schedules, further contributing to delays.
6. **Need for Reform:**
   A holistic reform that incentivizes judges, lawyers, and witnesses, along with technological solutions, is essential for addressing court delays.

The U.K. and 'leaving lessons' from the Indian Ocean: TH Editorial

International Relations

Easy Explanation:

The Chagos Islands, located in the Indian Ocean, are a group of seven atolls, the northernmost being Peros Banhos. These islands are close to the Maldives and have historical connections with the region. Maldivians refer to these islands as Foalhavahi, and they have a deep history linked to the Maldives, which is evident from old records like a 1560 letter from the Sultan of Maldives, referring to Peros Banhos as part of the Maldives. The islands have also played a significant role in ancient sea navigation routes.

Historical records also show that some Maldivian islands share cultural and geographical ties with the Chagos Islands, and there is even a connection to Sumatra and Bengal in terms of past rulers and conflicts.

| Clear your doubts now.

During colonial times, control over the Chagos Islands switched between the British and French. By 1965, the islands were under British control, but even then, the Maldives had significant interests there, such as fishing expeditions. The Maldives used the Chagos Islands for fishing, camping, and preparing fish before returning home.

A pressing concern today is the depletion of fish stocks in the Indian Ocean due to industrial fishing by foreign trawlers. The Maldives and Chagos are the only areas where fishing is carefully regulated to protect marine life. The Maldives employs sustainable fishing techniques, such as pole and line fishing, which do not harm other marine species.

As Britain continues the process of decolonizing its Indian Ocean territories, it is important for the country to work with the Maldives and other Indian Ocean nations to preserve the marine conservation status of the Chagos Islands. Lessons from the partition of India in 1947 highlight the need for a peaceful and cooperative exit from the region, ensuring that these islands remain protected.

Key Takeaways:

1. **Historical Connection:**
   The Chagos Islands are geographically close and historically tied to the Maldives. The Maldivians refer to them as Foalhavahi, and historical records show that these islands were once part of the Maldives.
2. **Colonial Influence:**
   Control over the Chagos Islands shifted between the British and French, and by 1965, they were under British rule. The Maldives continued to use the islands for fishing.
3. **Marine Conservation:**
   The Maldives and the Chagos Islands are the only areas in the Indian Ocean where sustainable fishing practices are enforced. Industrial fishing by foreign trawlers is depleting fish stocks elsewhere.
4. **Decolonization and Conservation:**
   As Britain decolonizes its territories, it should work with Indian Ocean nations like the Maldives to ensure the Chagos Islands' protected status for marine conservation. Lessons from the partition of India show the importance of a peaceful and cooperative transition.

First Responder: TH Editorial

International Relations

Easy Explanation:

Maldives President Mohamed Muizzu made his first official bilateral visit to India after nearly a year in office, signaling an effort to repair strained relations. Although his visit to India came later than usual for a neighboring country, it followed a series of diplomatic events, including brief meetings with Indian Prime Minister Narendra Modi in 2023 and 2024. Relations between the two countries had been tense due to Muizzu's presidential campaign, which supported the "India Out" movement, and controversies surrounding tourism in Lakshadweep. Additionally, Muizzu's visits to countries like Turkey, China, and the UAE before India added to concerns in Delhi, particularly over Maldives' growing ties with China.

Despite these tensions, efforts to improve relations were underway by the time of Muizzu's visit. India agreed to Muizzu's request to replace Indian troops stationed in the Maldives with technical personnel. Both countries'

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foreign ministers exchanged visits, and India extended financial support to the Maldives, helping the country avoid default on its debt. Muizzu also softened his stance by firing ministers who had been critical of India.

During the visit, the two countries announced new infrastructure projects and discussed free trade agreements, and India provided further financial support to boost Maldives' currency reserves. Muizzu, in turn, encouraged Indian tourists to return and highlighted investment opportunities. The positive shift in relations reflects the importance of careful diplomacy and the longstanding close geographic ties between India and the Maldives.

Key Takeaways:

1. **Diplomatic Tensions:**
   Relations between India and the Maldives were strained due to President Muizzu's initial support for the "India Out" campaign and closer ties with China.
2. **Efforts to Repair Relations:**
   India and the Maldives made progress in improving their relationship, with India agreeing to replace its troops in the Maldives and providing financial support to help the country avoid default.
3. **Economic and Strategic Partnerships:**
   During the visit, both countries discussed joint infrastructure projects, free trade agreements, and maritime security, indicating a positive shift in their partnership.
4. **Diplomacy Over Posturing:**
   The turnaround in relations highlights the effectiveness of diplomacy in resolving tensions and reaffirms India's role as a key partner for the Maldives.

AI-generated medical images: a new frontier or potential pitfall?: TH Science

Science

Easy Explanation:

In recent times, synthetic medical images, which are created by artificial intelligence (AI) rather than traditional imaging devices like MRI or CT scans, have gained attention. These images are completely generated by AI without involving real patient data, which has made them useful in healthcare for research, diagnosis, and filling gaps where actual medical scans are not available.

Synthetic images are produced through AI techniques such as Generative Adversarial Networks (GANs), diffusion models, and autoencoders. These methods enable the AI to generate realistic medical images based on existing data. One of the advantages of these images is that they help maintain privacy since they are not tied to actual patients. This makes it easier for medical researchers and institutions to share and collaborate without worrying about patient confidentiality. Moreover, synthetic medical images reduce the high costs and time involved in collecting real medical data.

However, there are some challenges. These synthetic images may lack the detail and complexity of real medical scans. For example, a synthetic brain MRI may look accurate but might miss subtle variations in tissue density found in actual cases. There's also the risk of "deepfakes" being introduced into hospital systems, where fake images could lead to wrong diagnoses or even fraudulent insurance claims. Another concern is that over-reliance on synthetic data could cause AI systems to deviate from real-world medical realities, possibly undermining the accuracy of diagnoses.

| Clear your doubts now.

To overcome these challenges, close collaboration between AI engineers and medical professionals is crucial. Doctors can help guide AI developers to create better models that reflect real-world complexities. While synthetic medical images have the potential to improve healthcare, it's important to proceed cautiously and ensure that AI-generated content aligns with real-world medical needs, without compromising patient care.

Key Takeaways:

1. **What are synthetic medical images?**
   These are AI-generated images used in healthcare to mimic real medical scans without using actual patient data.
2. **Advantages:**
   Synthetic images maintain patient privacy, lower the cost of medical data collection, and help create or improve images across different medical scans.
3. **Challenges:**
   Synthetic images may not capture the full complexity of real medical data and could be misused to create fraudulent medical cases or diagnoses.
4. **Collaboration is key:**
   Doctors and AI engineers need to work together to ensure synthetic images meet real-world medical needs.
5. **Caution needed:**
   While promising, the use of synthetic medical images should be balanced with human oversight to avoid compromising the accuracy and reliability of medical diagnoses.

Why deaths occur due to heatstroke: TH Science

Science

Easy Explanation:

On Sunday, during an airshow in Chennai, five people lost their lives, and many others suffered from heat-related health issues. The event highlighted the dangers of prolonged heat exposure. Several people were treated for dizziness and headaches caused by the extreme heat. One person even experienced seizures after stopping their medication, showing that heat can worsen existing health conditions.

How does heat affect health?

The World Health Organization (WHO) explains that heat affects the body when it can't eliminate internal heat or cool itself down. Factors like high temperatures, humidity, and clothing that traps heat can make it worse. This increases the risk of heat exhaustion and heat stroke.

Dr. Rammohan K. R., from MGM Healthcare, explained that constant heat exposure can raise core body temperature above 40.6°C, leading to heat stroke. Normally, the body works at around 38-39°C, but when the temperature rises, it can cause dizziness, excessive sweating, and dehydration. This thickens the blood, making it harder to circulate and causing a drop in blood pressure.

Once the body temperature exceeds 40°C, it can interfere with important reactions inside the body, potentially causing a stroke (blood clots in the brain or heart). Dr. Theranirajan added that dehydration from sweating can

| Clear your doubts now.

increase sodium levels in the body, leading to hypernatremia, which can cause a brain hemorrhage. Prolonged heat exposure also affects the body's metabolism and fluid levels, leading to kidney problems and other serious health issues.

To prevent complications, it's crucial to lower body temperature quickly. In hospitals, patients with heat stroke are given cool saline solutions and cold blankets to bring down their body temperature.

Key Takeaways:

1. **Heat-related deaths in Chennai:** Five people died during an airshow due to prolonged heat exposure, and many others were treated for heat-related symptoms like dizziness and dehydration.
2. **How heat affects health:** Prolonged heat exposure can raise the body's temperature to dangerous levels, causing dehydration, thickening of the blood, and eventually leading to heat stroke, strokes, and kidney damage.
3. **Treating heat stroke:** Doctors lower body temperature using cool saline solutions and cold blankets. Older people and those with pre-existing conditions are more vulnerable to heat-related illnesses.

Can India escape middle income gap?: TH Text&Context

Economy

Easy Explanation:

The World Development Report 2024 by the World Bank highlights the "middle-income trap," where countries experience slower growth as incomes rise. The World Bank notes that when a country's income per capita reaches about 11% of the U.S.'s, it stagnates. Only 34 countries have successfully transitioned from middle to high income in the last 34 years. To escape this trap, the report recommends the "3i" approach: investment, infusion of global technologies, and innovation.

Key lessons from other countries:

Countries like South Korea and Chile have escaped this trap through strong state intervention. In South Korea, the government directed private companies, rewarded successful ones, and allowed failing firms to collapse. This helped the country grow, especially in manufacturing exports. Chile, too, intervened to promote the growth of its natural resource industries, such as salmon production.

Challenges for India:

India faces several challenges in escaping the middle-income trap:

1. **Slower global export growth:** Today's world is different from South Korea's era of export-led growth. Global trade has slowed, and many countries have turned to protectionism. This makes it harder for countries like India to rely on exports for growth.
2. **Premature deindustrialization:** Many developing countries are seeing the manufacturing sector shrink before it can fully drive economic growth. It is unclear if the service sector can replace manufacturing as a growth engine.

| Clear your doubts now.

3. **Wage stagnation:** While India's overall economy is growing, wages are not keeping pace. With inflation at around 5%, real wage growth is minimal. Without wage growth, people have less money to spend, which could slow economic growth.
4. **The role of democracy:** South Korea's growth happened under a military regime that suppressed labor unions, while Chile's economic success followed a coup that overthrew a democratic government. India must avoid thinking that sacrificing democracy is necessary for growth. The challenge is to promote economic growth while maintaining democratic values.

Key Takeaways:

1. **Middle-income trap:** Countries tend to slow down in growth once they reach a certain income level, and breaking out requires investments, global technology, and innovation.
2. **India's challenges:** Slow export growth, premature deindustrialization, and wage stagnation are major obstacles for India in overcoming this trap.
3. **Democracy vs. growth:** Unlike South Korea and Chile, India must find ways to grow economically while maintaining its democratic values, without resorting to authoritarian tactics.

How does U.K.'s OpenSAFELY ensure transparency?: TH Text&Context

Science

Easy Explanation:

Ben Goldacre and his team at the University of Oxford created OpenSAFELY, a groundbreaking platform that gives researchers access to health data of around 58 million people in the U.K. without compromising individual privacy. This system allows researchers to analyze health data, especially for important topics like COVID-19, without actually seeing the personal records. This ensures both privacy and transparency in research.

The National Health Service (NHS) in the U.K. has been keeping health records of every citizen from birth to death for over 70 years. These records are used to track and improve healthcare, but leaks in the past have made people worry about their privacy. Goldacre's platform solves this issue by ensuring researchers can ask questions about the data but never access the actual personal information. This way, they get the answers they need while people's privacy remains protected.

OpenSAFELY works like a secure vault of data where researchers can run their analyses using dummy data first, and if the process is correct, they are given the real data they need. Importantly, everything the researchers do is transparent, so everyone can see exactly what steps were taken during the research. This prevents any manipulation of data for biased results.

OpenSAFELY has already been used to study a wide range of health issues, including factors affecting COVID-19 deaths and missed diagnoses of diseases like prostate cancer. It's a system that can be applied in many different fields beyond healthcare, offering a template for responsible and effective data use.

Key Takeaways:

- **What is OpenSAFELY?**

| Clear your doubts now.

- ○ A platform that allows researchers to access health records of 58 million people in the U.K. while maintaining privacy.
- **NHS Health Data:**
  - ○ The NHS has kept health records of all British citizens from birth to death for over 70 years, and 96% of doctors' offices have electronic records since 1996.
- **How Does OpenSAFELY Work?**
  - ○ Researchers do not access actual patient data but run queries through a secure system. Dummy data is used first to check their analysis, and only then do they receive the real answers.
- **Advantages of OpenSAFELY:**
  - ○ Ensures both privacy and transparency.
  - ○ Prevents biased results by making every analysis step visible to the public.
- **Use of OpenSAFELY:**
  - ○ Has been used to study COVID-19, missed cancer diagnoses, prescription safety, and other health concerns.
- **Why It's Important:**
  - ○ It's a world-first system at this scale, solving the problem of using health data responsibly while maintaining privacy and transparency.

[What set him apart: IE Editorial](#)

RATAN TATA

Easy Explanation:

Ratan Tata, often affectionately called RNT, was not just an outstanding business leader but a global ambassador for India. His humility, vision, and leadership inspired everyone he met, whether it was global business leaders or everyday people. He was always down-to-earth, showing the same respect to a lift operator as he did to dignitaries. Ratan Tata's influence was immense, but he carried it with quiet strength and grace.

One example of his leadership was during the 2000 bid for Air India. Tata's group was close to winning, but the unions feared job cuts. Ratan Tata personally met with the workers and won their trust. Though the deal didn't go through back then, it was significant that he finally saw Air India return to the Tata group in his later years.

His compassion extended beyond people; he was a great lover of animals, and even the dogs in Tata's Bombay House office building received special care. RNT also had a deep passion for environmental sustainability, promoting green practices within the Tata group, and supporting sanitation and water initiatives. His leadership was always driven by integrity, fairness, and a desire to create a better future for India and the world.

Key Takeaways:

- **Ratan Tata's Global Influence:**
  - ○ He was a remarkable ambassador for India, inspiring global leaders with his humility, vision, and ability to connect.
- **Humility and Compassion:**

- ○ Ratan Tata showed respect to everyone, no matter their status, and carried his own luggage onto flights, avoiding fuss.
- **Leadership in Business:**
  - ○ He led the Tata bid for Air India in 2000, charming a once-hostile audience by personally engaging with the unions and workers.
- **Love for Animals and Environment:**
  - ○ Ratan Tata cared deeply for both animals and the environment, reflecting this in the way stray dogs were cared for at Tata's Bombay House and his passion for green practices.
- **Support for National Initiatives:**
  - ○ He supported Swachh Bharat through Tata Trusts, helping build teams of young professionals to drive sanitation projects in every district of India.
- **Architect and Visionary:**
  - ○ His influence was evident in the creation of Tata buildings, including the one at Harvard Business School, where his attention to design and environmental sustainability stood out.
- **Inspiring Leadership:**
  - ○ Ratan Tata led with quiet strength, empowering others and balancing vision with practical action, leaving behind a legacy of integrity and moral leadership that continues to inspire today.

SHAPER OF TOMORROW: IE Editorial

RATAN TATA

Easy Explanation:

Ratan Tata will be remembered for transforming Tata Group, India's largest and oldest business conglomerate, into a global powerhouse. Under his leadership, the group shifted from being focused on domestic and commodity-driven businesses to becoming a more consumer-oriented and global conglomerate. Today, companies like Tata Consultancy Services (TCS), Tata Motors, and Titan exemplify this shift. For example, TCS is India's largest IT company and earns nearly 95% of its revenue from exports. Tata Motors has evolved from being just a commercial vehicle manufacturer to a global player with its luxury brand, Jaguar Land Rover (JLR). Titan is now a leading consumer brand selling jewelry, watches, and eyewear. This transformation under Ratan Tata's leadership marked a significant change from the previous era when Tata companies operated almost independently under powerful leaders.

When Ratan Tata took over in 1991, he made strategic changes by consolidating the group's control under Tata Sons and selling businesses that weren't delivering value. He focused on making Tata a global brand by acquiring companies like Jaguar Land Rover (JLR), Corus, and Tetley. However, not all ventures were successful. The Corus acquisition did not meet expectations, and the Tata Nano, intended to be a low-cost car for the masses, struggled in the market. Despite these setbacks, Ratan Tata's vision of global expansion set the group on a path toward becoming a global name.

Today, under the leadership of N Chandrasekaran, who took over after the controversial exit of Cyrus Mistry, Tata Group is exploring new areas like semiconductors and contract manufacturing. The big question now is who will continue Ratan Tata's legacy and lead the group into the future.

Key Takeaways:

| Clear your doubts now.

- **Transformation Under Ratan Tata:**
  - Shifted Tata Group from a commodity-based domestic giant to a global, consumer-facing conglomerate.
  - Companies like TCS, Tata Motors (with JLR), and Titan became leading brands.
- **Strategic Focus:**
  - Ratan Tata streamlined the group, increased Tata Sons' control, and sold businesses that were too dependent on government policies or weren't performing well.
  - Prioritized building strong relationships with consumers and shareholders over government connections.
- **Global Expansion:**
  - Led Tata's acquisitions of international brands like JLR, Corus, and Tetley.
  - The goal was to make Tata a global brand and reduce reliance on commodities.
- **Challenges and Failures:**
  - Not all ventures were successful: Corus was seen as a misstep, the telecom business didn't meet expectations, and the Tata Nano struggled commercially.
  - The ousting of Cyrus Mistry as chairman led to a high-profile dispute that ended in court.
- **Leadership Transition:**
  - N Chandrasekaran, who took over from Mistry, has stabilized the group and ventured into new areas like semiconductors and contract manufacturing.
- **Future of Tata Group:**
  - The next challenge for the group is identifying who will carry forward the Tata legacy and lead the conglomerate into the future.

Why govt wants to formulate standard National Agriculture Code: IE Explained

Economy

Easy Explanation:

The Indian government, through the Bureau of Indian Standards (BIS), is working on creating a National Agriculture Code (NAC), similar to the National Building Code and National Electrical Code. This code will set standards for agricultural practices across the country, covering every aspect of farming from planting to post-harvest processes. Currently, BIS has standards for agricultural machinery like tractors and harvesters, but many areas like irrigation and field preparation don't have guidelines. The NAC aims to fill these gaps, providing farmers, universities, and policymakers with a detailed guide on how to manage agriculture more effectively.

The NAC will be split into two parts: general standards for all crops and specific standards for major crops like wheat, rice, and pulses. It will also cover new technologies like the Internet of Things (IoT), allowing farmers to use data from soil and weather to improve farming practices. The goal is to improve the quality of Indian agriculture by creating a framework that ensures farmers make the right decisions in every step of their farming process.

Key Takeaways:

- **What is NAC?**
  - A comprehensive framework by BIS for setting standards in agriculture.

| Clear your doubts now.

- ○ Similar to the National Building Code, but for farming practices.
  - ○ Aimed at guiding farmers, agriculture universities, and officials.
- **What will NAC cover?**
  - ○ General agricultural processes: crop selection, irrigation, soil health, plant management, harvesting, post-harvest operations, and sustainability.
  - ○ Input management standards: use of fertilizers, pesticides, and storage of crops.
  - ○ Emerging technologies: IoT and precision farming.
- **Objectives of NAC:**
  - ○ Provide a national code considering different agro-climatic zones and crops.
  - ○ Assist policymakers and agriculture departments with guidelines for better agriculture practices.
  - ○ Promote SMART farming and sustainability in agriculture.
  - ○ Build capacity through training programs for farmers and agriculture professionals.
- **Timeline and Development:**
  - ○ Working panels have been formed with experts, and the deadline for the code is October 2025.
  - ○ Training programs will be provided for farmers after the NAC is finalized.
- **Standardised Agriculture Demonstration Farms (SADFs):**
  - ○ BIS is setting up SADFs at selected agricultural institutes.
  - ○ These farms will serve as experimental sites for new agricultural practices and technologies based on the NAC.
  - ○ MoUs with agriculture institutes have been signed to develop these farms.
- **International Example:**
  - ○ China has successfully implemented similar demonstration farms, and India is following a similar approach.

As green patch spreads in Antarctica, here's what is worrying scientists: IE Explained

Environment

Easy Explanation:

The Antarctic Peninsula, a region pointing toward South America, has seen a significant increase in plant cover over the past few decades due to rising temperatures. According to a study by researchers from the universities of Exeter and Hertfordshire, the area of plant life on the peninsula has grown 14 times larger over the last 35 years. This greening, mostly mosses and lichens, is a result of the region warming faster than the rest of the world, and this transformation is a sign of the global impact of climate change.

The Antarctic Peninsula is warming five times faster than the global average, which is causing ice to melt and new plant life to take root. This rapid increase in plant growth could lead to further changes in the ecosystem, such as the arrival of invasive species and more soil formation, which could affect the delicate balance of the region's environment. Additionally, more plants mean less sunlight will be reflected back into space, leading to even warmer temperatures.

Key Takeaways:

- **Warming in Antarctica:**
  - ○ Antarctica is warming twice as fast as the global average.

| Clear your doubts now.

- ○ The Antarctic Peninsula is warming five times faster than the global average, with an average temperature rise of 3°C since 1950.
  - ○ Record-breaking heatwaves have been recorded, with temperatures reaching up to 39°C above normal.
- **Increased Vegetation:**
  - ○ The study found that plant cover on the Antarctic Peninsula increased 14 times between 1986 and 2021.
  - ○ Vegetation is primarily made up of mosses and lichens.
  - ○ The total plant-covered area increased from less than 1 sq km to nearly 12 sq km during this period.
- **Global Impact of Climate Change:**
  - ○ Rising temperatures are not only affecting Antarctica but are a sign of the global influence of climate change.
  - ○ The study highlights how even the most remote places on Earth are being impacted.
- **Risks of Increased Vegetation:**
  - ○ More vegetation can lead to soil formation, which may attract invasive species.
  - ○ Increased plant cover can reduce the surface's ability to reflect sunlight, potentially accelerating local warming.
- **Consequences for Ice Loss:**
  - ○ Antarctica has lost 280% more ice mass in recent decades.
  - ○ Rising temperatures are expected to further contribute to ice loss and rising global sea levels.

12th October 2024

THE GROWTH DRIVERS: IE Editorial

Economy

Easy Explanation:

India's agriculture sector grew at an average of 3.7% per year during the 10 years leading up to 2023-24 under the Modi government. This is slightly better than the 3.5% growth seen during the 10 years under the previous UPA government. However, while the overall numbers may seem positive, the real story lies in the details. Much of this growth has come from the livestock and fisheries sectors, not from traditional crop farming.

Livestock farming (such as dairy, poultry) grew by 5.8% and fisheries by 9.1% during 2014-15 to 2022-23, while crop farming grew by just 2.3%. Even within crop farming, the growth of horticulture (fruits and vegetables) was much higher than non-horticulture crops (like rice and wheat). The crisis in Indian agriculture is primarily in traditional field crops like rice and wheat, which receive most of the government's support through Minimum Support Prices (MSP) and subsidies, but still underperform.

The real growth has come from livestock, fish, and horticulture farming, which are driven by market demand as more Indians are consuming protein- and vitamin-rich foods. States like Andhra Pradesh, Madhya Pradesh, Maharashtra, and Gujarat, which have diversified into livestock and horticulture, have seen the highest agricultural growth, while states like Punjab and Haryana, which focus more on cereals, have lagged behind.

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The takeaway is that farmers are more successful when they produce what the market demands, and government policies should shift from crop-specific support like MSP to more flexible income support and credit access, encouraging farmers to take risks and be more market-oriented.

Key Takeaways:

- **Agriculture Growth Comparison:**
    - Modi government (2014-2024): 3.7% average annual growth.
    - UPA government (2004-2014): 3.5% average annual growth.
    - Pre-2000s: 2.9% growth.
- **Growth Driven by Livestock and Fisheries:**
    - Livestock (dairy, poultry): 5.8% annual growth (2014-2023).
    - Fisheries: 9.1% annual growth (2014-2023).
    - Crops: 2.3% annual growth, lower than the 3.4% during UPA rule.
- **Horticulture vs. Field Crops:**
    - Horticulture (fruits, vegetables): 3.9% growth.
    - Non-horticulture field crops (rice, wheat): 1.6% growth.
- **Crisis in Traditional Field Crops:**
    - Government support (MSP) primarily benefits field crops like rice and wheat.
    - Livestock, fisheries, and horticulture receive market-driven support and grow faster.
- **Market-Oriented Growth:**
    - States with high growth: Andhra Pradesh, Madhya Pradesh, Maharashtra, and Gujarat (diversified into livestock, fisheries, horticulture).
    - Lagging states: Punjab and Haryana (focused on cereals and field crops).
- **Policy Recommendation:**
    - Move away from MSP and crop-specific support.
    - Provide per-acre income support to encourage risk-taking and market-driven farming.
    - Increase access to credit, insurance, and technology instead of distorting market decisions through government intervention.

[Milton was an unusual hurricane, but not unexpected. Here's why: IE Explained](#)

Geography

Easy Explanation:

Hurricane Milton hit Florida's Siesta Key, bringing deadly rain, flooding, tornadoes, storm surges, and powerful winds. The storm resulted in at least 12 deaths, destroyed homes, and caused power outages for millions. Milton was unusual because it rapidly intensified, going from a weaker Category 1 storm to a powerful Category 5 hurricane in just 12 hours, which is rare. Its winds reached 285 km/h, making it one of the strongest hurricanes recorded in the Atlantic.

Milton's unusual behavior is mainly due to very high sea temperatures in the Gulf of Mexico, where the storm formed. Warm sea water gives hurricanes more energy, making them more intense. Climate change, caused by greenhouse gas emissions, is heating the oceans, making storms like Milton more likely. Additionally, the

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atmosphere had high humidity, which made the storm even stronger, and there was no wind shear (which can weaken hurricanes), allowing Milton to intensify even more.

Scientists aren't surprised by Milton's behavior because storms are becoming stronger due to climate change. Rapidly intensifying hurricanes are becoming more common, and experts warn that such storms will become more frequent and severe as the climate crisis worsens.

Key Takeaways:

- **Hurricane Milton's Impact:**
  - Hit Florida's Siesta Key, causing intense rainfall, flooding, tornadoes, and power outages.
  - Resulted in 12 deaths and widespread destruction, including damage to homes and infrastructure.
- **Unusual Characteristics:**
  - Rapid intensification: Milton went from a Category 1 to Category 5 hurricane in just 12 hours, with winds reaching 285 km/h.
  - Rare path: Milton formed in the Gulf of Mexico and made landfall in Florida as a powerful storm, an unusual pattern for hurricanes.
- **Causes of Intensification:**
  - **Warm sea temperatures:** Sea surface temperatures in the Gulf of Mexico reached 31°C, far above the 26°C needed for hurricane development.
  - **Climate change:** The warming of oceans due to climate change fuels rapid intensification of storms.
  - **High humidity:** The atmosphere's high moisture content contributed to stronger storm intensity and more rainfall.
  - **Lack of wind shear:** Wind shear, which can weaken storms, was absent, allowing Milton to become more intense.
- **Scientific Perspective:**
  - Rapid intensification of hurricanes is becoming more frequent, driven by rising global temperatures.
  - Hurricanes like Milton, Otis, and Ian are examples of this growing trend.
  - Future predictions suggest that rapid storm intensification will become more common and severe due to climate change.
- **Future Outlook:**
  - Climate experts warn that more extreme weather, including rapidly intensifying hurricanes, is expected as the climate crisis continues to escalate.

[Nobel for N-bomb survivors: IE Explained](#)

Science

Easy Explanation:

The 2024 Nobel Peace Prize was awarded to the Japanese organization Nihon Hidankyo, which represents survivors of the 1945 atomic bombings in Hiroshima and Nagasaki. These survivors, known as Hibakusha, have

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played a key role in promoting global awareness of the catastrophic effects of nuclear weapons and advocating for disarmament.

In 1945, the U.S. dropped two atomic bombs on Japan during World War II. The first, "Little Boy," was dropped on Hiroshima on August 6, instantly killing over 70,000 people. A second bomb, "Fat Man," was dropped on Nagasaki on August 9, killing at least 40,000 people. These bombings forced Japan to surrender, ending the war. However, the immense destruction led to the global development of nuclear weapons, prompting the Hibakusha to speak out against the use of such weapons.

Nihon Hidankyo, founded in 1956, has been advocating for the welfare of Hibakusha and the elimination of nuclear weapons. The Nobel Committee recognized the group's efforts in keeping the world aware of the devastating impact of nuclear weapons, especially as more countries seek to develop them.

Key Takeaways:

- **Nobel Peace Prize 2024:**
  - Awarded to Nihon Hidankyo, a Japanese organization of atomic bomb survivors.
  - Recognized for raising awareness about the humanitarian consequences of nuclear weapons and advocating for disarmament.
- **Hibakusha:**
  - Survivors of the 1945 atomic bombings in Hiroshima and Nagasaki.
  - Their testimonies have helped establish a global "nuclear taboo" and drive the disarmament movement.
- **History of Atomic Bombings:**
  - In August 1945, the U.S. dropped two atomic bombs on Japan: "Little Boy" on Hiroshima and "Fat Man" on Nagasaki.
  - Over 100,000 people died instantly, with many more dying later from radiation exposure.
  - The bombings led to Japan's surrender in World War II.
- **Nihon Hidankyo's Activism:**
  - Founded in 1956 to support Hibakusha and advocate for the elimination of nuclear weapons.
  - They share their experiences to raise awareness and prevent the use of nuclear weapons.
- **Nuclear Weapons Today:**
  - Despite efforts for disarmament, many countries still possess nuclear weapons, and some are upgrading their arsenals.
  - The nuclear taboo established by the Hibakusha's efforts is under threat as new countries seek nuclear weapons.
- **Previous Nobel Peace Prize Recipients:**
  - Many Nobel Peace Prizes have been awarded to individuals or organizations working for nuclear disarmament.
  - In 2017, the International Campaign to Abolish Nuclear Weapons (ICAN) received the Nobel Prize for its work on nuclear disarmament.
- **Importance of Disarmament:**
  - The Nobel Committee continues to emphasize disarmament as a key to global peace, in line with Alfred Nobel's vision of reducing standing armies and promoting peace.

WHO ARE THE UN PEACEKEEPERS AT LEBANON'S BORDER WITH ISRAEL?: IE Explained

International Relations

Easy Explanation:

India has expressed concern over the worsening security situation in West Asia after two members of the United Nations peacekeeping mission, UNIFIL (United Nations Interim Force in Lebanon), were injured in an attack. An Israeli tank fired on one of the peacekeepers' observation towers along the Lebanon-Israel border, an area often referred to as the Blue Line. This incident happened after Israel asked the peacekeepers to move from a location close to where Hezbollah fighters were firing rockets into northern Israel, but the peacekeepers declined the request.

UNIFIL has been in southern Lebanon since 1978 to monitor the border area and prevent violations between Lebanon and Israel. Its main task is to ensure that no hostile activities, such as the stockpiling or firing of weapons, occur in this region. Although UNIFIL has armed personnel, they are generally only allowed to use force if their safety or the safety of civilians is at immediate risk. In recent years, Israel and the United States have criticized the peacekeepers for being ineffective at preventing Hezbollah from operating in the area.

On Thursday, the situation escalated as Israeli forces fired at Hezbollah positions near UNIFIL's base, and Israeli tank fire struck a UN observation tower, injuring two peacekeepers. The situation highlights the ongoing tensions in the region and the risks faced by UN personnel operating in conflict zones.

Key Takeaways:

- **India's Concern:**
    - India is worried about the worsening security situation in West Asia after two UN peacekeepers were injured by Israeli tank fire near Lebanon's border.
- **What is UNIFIL?**
    - The United Nations Interim Force in Lebanon (UNIFIL) has been stationed along the 121-km Blue Line (Lebanon-Israel border) since 1978.
    - UNIFIL's mission is to monitor the border and prevent hostile activities, such as Hezbollah fighters launching rockets into Israel.
    - UNIFIL includes over 10,000 civilian and military personnel from 50 countries.
    - It operates under a 2006 UN resolution that mandates keeping the area free from weapons or fighters.
- **Recent Incident:**
    - On Thursday, Israeli tank fire hit a UN observation tower and damaged a bunker near a UNIFIL base, injuring two peacekeepers.
    - The Israeli military requested that UNIFIL relocate due to Hezbollah's rocket fire from near their positions, but the peacekeepers declined.
- **Challenges for UNIFIL:**
    - Although peacekeepers are armed, they can only use force in self-defense or to protect civilians.
    - Israel and the U.S. have criticized UNIFIL for not being able to stop Hezbollah from stockpiling and firing rockets in the area.
    - The situation complicates the peacekeepers' role as Hezbollah has been launching rockets into Israel from near UNIFIL positions.

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- **International Law:**
  - Attacks on UN personnel are violations of international law, but the proximity of Hezbollah's operations to UN positions complicates the situation.

13th October 2024

Why is microRNA discovery a big leap?: TH FAQ

Science

Easy Explanation:

Victor Ambros and Gary Ruvkun won the 2024 Nobel Prize for Medicine for discovering microRNA and its role in controlling how genes function after they are made into RNA. This discovery is important because it helps explain how different types of cells develop even though they all have the same genes. MicroRNA molecules act like tiny switches that control which genes are active in different cell types, which is crucial for the body to function properly.

Our bodies have thousands of these microRNAs, and they play a big role in controlling how genes work. If microRNA doesn't function correctly, it can lead to diseases like cancer. Ambros and Ruvkun's discovery has helped scientists understand the fine-tuning process that makes sure the right genes are active in the right cells, and this discovery opened new paths for research on how cells develop and how diseases can occur when this process goes wrong.

Key Takeaways:

- **What is microRNA?**
  - MicroRNA is a small RNA molecule that plays a crucial role in regulating genes after they are copied from DNA.
  - Every cell in the body has the same genes, but microRNAs help determine which genes are active in different cell types, such as muscle or nerve cells.
- **Nobel Prize-winning Discovery:**
  - Victor Ambros and Gary Ruvkun discovered microRNA's role in gene regulation, solving a puzzle about how different cell types develop from the same genetic information.
  - Their research revealed that microRNA regulates gene activity by preventing certain proteins from being made.
- **How Does MicroRNA Work?**
  - Genes provide instructions to make proteins, and microRNA controls which proteins get made by attaching to messenger RNA (mRNA) and blocking protein production.
  - This process is essential for the development and function of multicellular organisms, including humans.
- **Scientific Journey:**
  - Ambros and Ruvkun started their research on roundworms and discovered that the microRNA lin-4 regulated another gene called lin-14.
  - They published their groundbreaking findings in 1993, and this paved the way for further discoveries about microRNA.

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- **Impact of the Discovery:**
  - MicroRNA regulates many genes and helps cells and tissues develop normally.
  - If microRNA doesn't function correctly, it can contribute to diseases like cancer and other genetic disorders.
- **Future Applications:**
  - The discovery of microRNA has led to major advances in understanding gene regulation.
  - Scientists are studying how microRNA might be used to diagnose or treat diseases like cancer, where abnormal microRNA regulation is a factor.

This discovery changed the way scientists understand how genes are regulated and how cells develop, and it has opened up new possibilities for medical research and treatments.

[How will tech reshape protein studies?: TH FAQ](#)

Science

Easy Explanation:

The 2024 Nobel Prize for Chemistry was awarded to David Baker, Demis Hassabis, and John Jumper for their significant contributions to understanding proteins—specifically how proteins are structured and how to design them. Proteins are crucial to all life forms as they perform a wide variety of functions in the body, from giving structure to cells to enabling muscle movement and biochemical reactions. However, the key to understanding proteins lies in knowing how they fold into specific 3D shapes, a challenge that scientists have been trying to solve for decades.

Baker's work focused on creating new proteins for specific purposes using computers, while Hassabis and Jumper used artificial intelligence to predict the 3D structure of proteins, greatly speeding up the process. Their discoveries have far-reaching implications for medicine, research, and biotechnology.

Key Takeaways:

- **Importance of Proteins:**
  - Proteins are essential to life, performing various functions like providing structural support, moving molecules, and controlling biochemical reactions.
  - All proteins are made from combinations of 20 amino acids, which form different proteins depending on their arrangement.
- **Protein Folding Problem:**
  - A protein's function depends on its 3D structure, but understanding how proteins fold into these structures has been a longstanding scientific puzzle, known as the "protein-folding problem."
  - Proteins fold into their correct shape quickly and naturally, but the exact reason behind this self-folding ability was unknown for years.
- **AlphaFold:**
  - Demis Hassabis and John Jumper developed AlphaFold, a deep-learning AI model that predicts protein structures with high accuracy.
  - AlphaFold's predictions are as reliable as X-ray crystallography, a traditional method, but can be done in hours rather than weeks.

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- However, while AlphaFold can predict protein shapes, scientists still need to interpret why proteins prefer certain structures.
- **Protein Design:**
  - David Baker created computational tools that allow scientists to design new proteins with specific shapes and functions.
  - In 2003, Baker's team developed the first novel protein using the Rosetta program, which was a major breakthrough in protein design.
  - These designed proteins have practical applications, such as antiviral treatments, new chemical reactions for industrial processes, and biosensors for medical use.
- **Real-world Applications:**
  - Baker's team used protein design to create an antiviral nasal spray for COVID-19, targeting the virus's spike protein.
  - Designed proteins are also being used in the development of new enzymes for industrial processes and in biosensors for monitoring health conditions like diabetes.

This research represents a huge leap in understanding and using proteins, with significant potential in medical, scientific, and industrial fields.

How are the physics laureates impacting AI?: TH FAQ

Science

Easy Explanation:

The 2024 Nobel Prize for Physics was awarded to John Hopfield and Geoffrey Hinton for their pioneering work in the field of machine learning using artificial neural networks (ANNs). Their discoveries laid the foundation for modern AI technologies, including tools like ChatGPT. ANNs are systems designed to mimic how the human brain works, processing information through layers of interconnected nodes that work together to learn, recognize patterns, and make decisions.

Hopfield created a type of neural network that learns by association and stores information in a way similar to the brain's memory. Hinton contributed by developing early deep-learning models using a mathematical concept called the Boltzmann equation. These models laid the groundwork for today's AI, where neural networks are used for tasks ranging from speech recognition to image analysis. Their work has transformed AI from theoretical models to real-world applications, although they have expressed concerns about the future risks of AI technology.

Key Takeaways:

- **Artificial Intelligence (AI) and Neural Networks:**
  - AI refers to machines or software that can perform tasks typically requiring human intelligence, such as learning, reasoning, and problem-solving.
  - Artificial Neural Networks (ANNs) are inspired by the brain's neurons. Each node (neuron) processes input data and sends output to other nodes, enabling complex tasks through "deep learning" across multiple layers.
- **Hopfield Network:**

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- ○ Created by John Hopfield in 1983, this type of neural network uses "Hebbian learning" to strengthen connections between nodes that frequently interact.
- ○ The network stores information, like a memory, in a "low-energy state." It can retrieve correct information even from noisy or incomplete inputs.
- ○ Hopfield's work connected ideas from physics, psychology, and biology to create a new understanding of cognitive processes in machines.
- **Boltzmann Machine:**
  - ○ Geoffrey Hinton developed the Boltzmann Machine in the 1980s, based on a principle from statistical physics that predicts the likelihood of different outcomes in a system.
  - ○ It introduced hidden nodes that learn from input data in a way that mimics brain function, forming the foundation for "generative AI."
  - ○ Restricted Boltzmann Machines (RBMs) improved the efficiency of learning in neural networks, helping create deep learning models.
- **Deep Learning and Modern AI:**
  - ○ Hinton's work led to advances in deep learning, where multiple layers of ANNs are trained to perform complex tasks, such as image recognition and language translation.
  - ○ New types of neural networks, like transformers (used in ChatGPT), can process vast amounts of information, enabling breakthroughs in AI applications.
  - ○ Techniques like backpropagation and long short-term memory (LSTM) help ANNs learn better and remember information for specific tasks.
- **Concerns About AI:**
  - ○ Both Hinton and Hopfield have expressed concerns about AI becoming more intelligent than humans and potentially taking control.
  - ○ Despite these concerns, their work has profoundly impacted the development of AI, shaping many of the tools and technologies we use today.

The research of Hopfield and Hinton forms the roots of today's AI advancements, enabling systems that can learn, process, and adapt, making AI a crucial part of modern technology.

Toothbrush, showerhead are breeding places for viruses: TH Science

Science

Easy Explanation:

A study by researchers at Northwestern University has discovered that showerheads and toothbrushes are full of a wide variety of viruses, most of which are new to science. But don't worry—these viruses don't harm humans; they only infect bacteria. These types of viruses, known as bacteriophages or "phages," are actually beneficial and could one day help treat antibiotic-resistant bacterial infections.

The research involved collecting used toothbrushes and samples from showerheads. Through DNA sequencing, the team found over 600 different viruses, with no two samples being exactly the same. Interestingly, they found many phages that attack bacteria responsible for diseases like tuberculosis and leprosy, suggesting that these viruses could have future medical uses.

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Dr. Erica Hartmann, who led the study, advises people not to be concerned about these viruses. Instead of using harsh chemicals to clean your bathroom, simply use vinegar or soap and water for regular cleaning, and remember to replace your toothbrush heads regularly.

Key Takeaways:

- **Discovery of Viruses:**
    - A study found that showerheads and toothbrushes contain many previously unknown viruses, but they don't infect humans. These viruses only target bacteria.
- **Bacteriophages (Phages):**
    - Phages are viruses that infect bacteria. Scientists are interested in using them to treat bacterial infections, especially those resistant to antibiotics.
- **Study Details:**
    - Over 600 different viruses were found in samples collected from toothbrushes and showerheads, showing a wide variety of viruses in these everyday objects.
- **Mycobacteriophages:**
    - Many of the discovered viruses are mycobacteriophages, which infect bacteria that cause diseases like tuberculosis and leprosy. These could potentially be used to treat such diseases in the future.
- **Cleaning Advice:**
    - Instead of worrying about these viruses, people can clean their showerheads with vinegar or soap and water, and replace toothbrush heads regularly to maintain hygiene.

[The many myths about protein deficiency in people in India: TH Science](#)

Science

Easy Explanation:

In India, there are several misconceptions about protein that come from a lack of understanding of nutrition. One common myth is that most Indians are protein deficient. However, a study of household food intake shows that the risk of protein deficiency is low among adults and non-existent in children. Another myth is that protein is the main factor behind the physical growth of infants, but in reality, infant growth depends on energy intake. If infants receive enough energy from diverse foods, their protein needs will naturally be met.

Protein and energy are both found in foods, so it's important to look at the "protein to energy ratio" (PER) to understand how much protein we really need. For example, young children have a low PER, meaning they don't need a lot of protein compared to their energy needs. Active adults require more protein, but they get enough if they eat a diverse range of foods. On the other hand, elderly people need higher protein foods because their energy needs are lower.

Different foods have different levels of protein quality. Cereals like rice and wheat have lower protein quality compared to lentils, milk, eggs, and meat. To meet the required protein intake, especially for infants and children, diets should include a mix of higher-protein foods like eggs, milk, or meat along with cereals.

Another myth is that people need a lot of protein to build muscle, especially after exercising. While some protein is necessary after exercise, too much won't help build extra muscle. In fact, the body can only use a

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certain amount of protein at a time. Eating too much protein can even lead to health risks like kidney issues or heart disease.

In conclusion, while protein is essential, we don't need excessive amounts. Eating a balanced, diverse diet that includes natural sources of protein is enough for good health. Instead of relying on supplements, it's better to get protein from food sources like farms.

Key Takeaways:

- **Myths about Protein Deficiency:**
  - Many believe Indians are protein-deficient, but research shows the risk of protein deficiency is low, especially in children.
- **Protein and Energy Needs:**
  - Protein and energy are found together in foods, and the body's protein needs vary by age and activity level.
  - Infants and children require less protein compared to their energy needs, while elderly people need higher protein foods.
- **Protein Quality in Foods:**
  - Foods like cereals have lower protein quality compared to lentils, milk, eggs, and meat.
  - A balanced diet with high-protein foods ensures that infants, children, and adults meet their protein needs.
- **Exercise and Protein:**
  - Moderate protein intake is sufficient after exercise. Excess protein doesn't build extra muscle, and too much protein can have negative health effects.
- **Health Risks of Excess Protein:**
  - Too much protein can lead to health risks like kidney problems and heart disease.
  - A balanced diet from natural plant or animal sources provides adequate protein for good health.
- **Conclusion:**
  - Protein should be consumed in moderation. It's better to rely on a balanced diet from natural sources rather than supplements for overall health.

OROV virus in semen 16 days after symptom onset: TH Science

Science

Easy Explanation:

A study published in the U.S. CDC's journal *Emerging Infectious Diseases* found that a person infected with the Oropouche virus (OROV) continued to shed the virus for a prolonged period, even after recovering from symptoms. The virus was detected in the blood, serum, urine, and semen of the patient. On day 16 after the onset of symptoms, the virus was still active and replicating in the semen samples. By day 32, while higher levels of the virus were found in semen than in blood or urine, the virus did not appear to be replicating.

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OROV is primarily spread by biting midges and mosquitoes. The study noted that the virus was still detectable in semen even on day 58 after symptoms began. This is not unusual, as viruses like Zika and Ebola have also shown prolonged persistence and shedding in semen.

The study also raised concerns about the potential for OROV to be transmitted sexually, as OROV RNA was found in semen long after the patient had recovered. The researchers advise caution and suggest using barrier protection during sexual activity if OROV infection is confirmed or suspected.

Key Takeaways:

- **Prolonged Virus Shedding:**
  - The Oropouche virus (OROV) was found in blood, serum, urine, and semen after symptom recovery.
  - The virus was still active in semen on day 16 and detectable in semen until day 58.
- **Virus Replication in Semen:**
  - On day 16, the virus was replicating in semen samples.
  - Higher levels of virus RNA were found in semen compared to urine or blood.
- **Transmission Concerns:**
  - OROV is primarily spread by mosquitoes and midges, but the study raises concerns about possible sexual transmission.
  - The virus may persist and shed in semen, similar to viruses like Zika and Ebola.
- **Precautionary Measures:**
  - Men infected with OROV may need to use barrier protection during sexual intercourse to prevent potential person-to-person transmission.
  - The researchers recommend more studies to better understand how long OROV sheds in semen and its clinical relevance.
- **Adverse Pregnancy Outcomes:**
  - The study mentioned possible risks of adverse pregnancy outcomes related to OROV infection, such as spontaneous abortions, seen in Brazil.
- **Further Research:**
  - The researchers call for more studies to confirm the risk of sexual transmission and understand the persistence of the virus in the body.

14th October 2024

Why precision medicine in India can't advance without biobank laws: TH Science

Science

Easy Explanation:

Precision medicine is revolutionizing healthcare by tailoring treatments to individuals. This approach gained momentum after the Human Genome Project, and since then, technologies like gene editing and mRNA therapeutics have played significant roles in treating various diseases, such as cancers and genetic disorders. One success story includes restoring vision using gene therapy and even reversing diabetes through stem cell

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transplants. Precision medicine became more prominent during the COVID-19 pandemic when mRNA vaccines were developed quickly, winning a Nobel Prize.

Another promising area in precision medicine is "organ-on-chips," where human cells are used to replicate organ environments in labs for testing drugs. In India, precision medicine is growing rapidly, with efforts to use artificial intelligence and advanced technologies like CAR-T cell therapy for cancer.

A critical aspect of precision medicine is biobanks, which store biological samples like blood and DNA. These samples are essential for research and creating treatments. However, India's biobanking regulations have gaps that need to be addressed to ensure public trust, protect privacy, and encourage participation in research.

Currently, India has 19 biobanks, and projects like 'Genome India' and 'Phenome India' are helping gather genetic information to treat rare diseases. But, India lacks comprehensive laws to regulate biobanks, unlike other countries, which could limit the potential of precision medicine.

Key Takeaways:

- **What is Precision Medicine?**
    - Precision medicine uses genetic information to customize healthcare for individuals, offering targeted treatments.
    - It involves technologies like gene editing, mRNA vaccines, and organ-on-chip devices for drug testing.
    - Success stories include using gene therapy to restore vision and stem cells to reverse diabetes.
- **Growth in India:**
    - India's precision medicine market is growing at a rate of 16%, expected to be worth over $5 billion by 2030.
    - Initiatives like 'Genome India' and cancer treatments like CAR-T therapy are part of this expansion.
- **Biobanks in Precision Medicine:**
    - Biobanks store biological samples essential for precision medicine research.
    - Large, diverse biobanks are crucial for successful outcomes in research and treatment development.
- **Challenges in India's Biobanking:**
    - India's biobanking regulations are inconsistent and lack comprehensive protections for individuals, leading to potential misuse of samples and data.
    - There is no single authority to oversee biobanks, increasing the risk of ethical violations.
- **Global Standards and Opportunities:**
    - India needs to align its biobanking laws with global standards to ensure public trust and participation.
    - Stronger regulations can make India a leader in next-generation therapeutics, building on its existing pharmaceutical and vaccine manufacturing prowess.

China, India and New Delhi's Quad dilemma: TH Editorial

International Relations

Easy Explanation:

| Clear your doubts now.

India's growing relationship with the Quad nations (Australia, India, Japan, and the U.S.) has recently become more focused on security, especially regarding China. While the Quad doesn't officially mention China, it's clear that the group aims to contain China's influence in the Indo-Pacific region. This has implications for India, particularly because its relationship with China is already strained.

India and China are still locked in a border standoff, especially in areas like Galwan and Ladakh, where military tensions persist. Both countries are strengthening their defenses, but China's larger defense budget gives it more confidence. China's leaders, particularly Xi Jinping, have become more aggressive in their policies, warning external powers not to interfere with China's goals.

While India needs to be cautious about its dealings with China, it must also carefully navigate its alliances with the Quad nations. Aligning too closely with countries that are openly critical of China might provoke China into taking more aggressive actions.

Historically, China's claims over Indian territory, such as parts of Ladakh and Arunachal Pradesh, were based on old, unofficial maps. However, China's real focus and concerns are in areas like its eastern seaboard, where it sees any challenge as a direct threat to its existence. Understanding this helps India deal with China more wisely.

In recent years, China has expressed concern over India's involvement in the Quad, viewing it as a U.S.-led attempt to contain its rise. This could heighten tensions between India and China. Therefore, it's crucial for India to avoid giving the impression that it's joining the West in trying to block China's growth. India should ensure that its future security decisions reflect its own interests, not just aligning with Western powers against China.

Key Takeaways:

- **Quad's Growing Security Focus**: The recent Quad meeting solidified the group's stance against China's influence in the Indo-Pacific, even if not explicitly mentioned.
- **India-China Tensions**: India's relationship with China is strained, especially along the northern borders where military standoffs continue. Both countries are strengthening their defenses.
- **China's Concerns**: China is more worried about territorial issues along its eastern seaboard than the border dispute with India. However, it views India's involvement with the Quad as a bigger threat.
- **Xi Jinping's Aggressive Nationalism**: Under Xi, China's stance has become more aggressive, warning external powers not to interfere with its ambitions. India must tread carefully in balancing its alliances.
- **Strategic Approach**: India needs to avoid being seen as part of a Western alliance aimed at blocking China's rise. India's security and future should focus on its own interests, not solely on countering China.

Take the gauntlet: TH Editorial

Science

Easy Explanation:

On October 11, a passenger train in Kavaraipettai near Chennai collided with a stationary goods train, causing 13 bogies to overturn and one to catch fire. Fortunately, no lives were lost, though several passengers were

| Clear your doubts now.

injured. While this accident didn't lead to fatalities, it's part of a series of recent train accidents that have raised concerns about the safety of India's railways.

In this incident, officials said the passenger train was supposed to go on the main line but mistakenly moved onto the loop line, causing the collision. This is where "Kavach," India's train protection system, comes into play. It's designed to prevent such accidents, but it hasn't been implemented across the entire railway network yet. The government could install "Kavach" in about 10 years using just 2% of its annual capital expenditure. However, this isn't a quick fix and will take time to show results.

Improving rail safety goes beyond just installing new technology like "Kavach." Railway employees, especially locomotive pilots, face tough working conditions, such as long shifts and poor facilities. Even if "Kavach" is in place, the safety of the railways depends on ensuring that staff have proper working conditions to stay alert.

The Indian Railways also faces other challenges. It's financially dependent on government funding, and its main freight transport is coal, which could be affected by efforts to reduce carbon emissions. Many rail routes are overused, and the railways lost some market share during the COVID-19 pandemic, which it still hasn't regained.

In response to recent accidents, the government has also involved counter-terrorism investigators. While it's important to cover all possibilities, this focus should not distract from the real issues: improving railway infrastructure, safety, and working conditions.

Key Takeaways:

- **Kavaraipettai Train Incident**: A passenger train collided with a goods train near Chennai, causing several injuries but no deaths. The incident highlights ongoing safety concerns in Indian Railways.
- **Kavach System**: The "Kavach" train protection system could prevent such accidents, but it hasn't been fully implemented yet. It will take time to roll out across the railway network.
- **Staff Working Conditions**: Locomotive pilots work in tough conditions, with long hours and poor facilities. This affects their ability to maintain safety on the rails.
- **Railways' Broader Challenges**: Financial issues, reliance on coal transport, and overcrowded routes are all problems that the Railways must address alongside safety improvements.
- **Government Response**: While the government is investigating accidents, including counter-terrorism measures, the focus should remain on addressing the fundamental issues within the Railways.

What is Wayanad's new X-band radar?: TH Text&Context

Science

Easy Explanation:

In July 2024, devastating floods and landslides in Kerala's Wayanad district killed over 200 people. In response, the Union Ministry of Earth Sciences approved the installation of an X-band radar in the district to help prevent such disasters in the future. The landslide in Punchirimattom was caused by torrential rains, and the situation worsened with a massive debris flow triggered by these rains.

Radar, which stands for "radio detection and ranging," uses radio waves to detect objects and measure their distance, speed, and physical features. Weather radars, specifically Doppler radars, help monitor weather

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conditions, detect rain, storms, and wind patterns. Doppler radars work by measuring the change in frequency of waves when they hit moving objects, such as clouds.

X-band radars, which operate at a higher frequency (8-12 GHz), are particularly useful for detecting smaller particles like rain droplets. Their shorter wavelengths allow them to provide higher-resolution images but with a limited range. In Wayanad, this X-band radar will help monitor particle movements, such as soil, which can aid in landslide warnings.

India has been using radar for weather monitoring since the 1950s, and there are plans to expand the radar network further. In September 2024, the Ministry of Earth Sciences announced that India will install 56 additional Doppler radars in the coming years under a program called 'Mission Mausam'. The government has also started the process of installing X-band radars in the northeastern states and Himachal Pradesh to improve weather forecasting.

Additionally, NASA and ISRO are developing a satellite called NISAR, which will use radar imaging to map the earth's landmasses. This satellite is expected to be launched in 2025 and will use both L-band and S-band radars to track natural processes on Earth.

Key Takeaways:

- **Wayanad Landslides**: After deadly floods and landslides in Wayanad in July 2024, an X-band radar will be installed to monitor particle movements and issue landslide warnings.
- **How Radar Works**: Radar uses radio waves to detect objects and measure their distance and speed. Doppler radars are widely used for weather monitoring and tracking storms.
- **X-band Radar**: This type of radar uses higher frequency waves (8-12 GHz) for better resolution but has a shorter range. In Wayanad, it will help detect soil movements that can lead to landslides.
- **India's Radar Network**: India has been using weather radar since the 1950s and plans to expand its network with 56 new Doppler radars under 'Mission Mausam' to improve weather forecasting across the country.
- **NISAR Satellite**: NASA and ISRO are developing NISAR, a satellite that will use radar to map Earth's landmasses. It's set to launch in 2025 and will track changes in the environment using L-band and S-band radars.

[Who gets the preferred symbol when there are two factions?: TH Text&Context](#)

Polity

Easy Explanation:

Sharad Pawar, founder of the Nationalist Congress Party (NCP), has filed a plea in the Supreme Court, requesting that the Ajit Pawar faction be prevented from using the NCP's 'clock' symbol in the upcoming Maharashtra Assembly elections. This issue arises from a split in the NCP, leading to a dispute over which faction is the rightful NCP.

Political parties are allotted symbols by the Election Commission of India (ECI) to help voters, especially in a country where many are still illiterate, recognize the parties during elections. National or state-recognized parties have exclusive rights to their reserved symbols. The NCP's clock symbol, for example, is one that has been reserved for the party.

| Clear your doubts now.

In July 2023, the NCP split, with Ajit Pawar claiming the support of the majority of MLAs (41 out of 53). The ECI recognized Ajit Pawar's faction as the legitimate NCP and allowed them to use the clock symbol during the April-May 2024 Lok Sabha elections. Sharad Pawar's faction, referred to as NCP (SP), was given a new symbol: a 'man blowing a trumpet.' Sharad Pawar's faction argues that this caused confusion among voters, as many were unsure which faction represented the real NCP. They are now requesting that the clock symbol be frozen and that Ajit Pawar's faction be given a new symbol.

Historically, the ECI has the authority to decide which faction can use a party's symbol in case of a split. In some cases, like with AIADMK in 1989 and 2017, or Shiv Sena in 2022, the ECI has frozen symbols until the dispute was resolved.

In a landmark 1971 case (Sadiq Ali vs. ECI), the Supreme Court established a 3-test formula to determine which faction should be recognized as the original party:

1. The aims and objectives of the party,
2. Whether the party follows its internal constitution and democracy,
3. The majority support in the legislative and organizational wings of the party.

In the current NCP dispute, the ECI's February 2024 decision was based on the majority of legislators supporting Ajit Pawar's faction. However, in the Maharashtra Lok Sabha elections, Sharad Pawar's faction (with a new symbol) performed better than Ajit Pawar's faction, raising questions about the legislative majority.

Although the Supreme Court usually does not interfere in election matters, it may make exceptions in this case, possibly directing the ECI to freeze the clock symbol for the assembly elections. The real solution, however, lies in institutionalizing internal democracy within political parties, something that various experts believe should not involve the ECI but be driven by the members of the parties themselves.

Key Takeaways:

●   **Sharad Pawar's Plea**: Sharad Pawar has asked the Supreme Court to stop the Ajit Pawar faction from using the NCP's 'clock' symbol in the upcoming Maharashtra Assembly elections, following the NCP's split.
●   **ECI's Role in Symbol Allocation**: The Election Commission of India (ECI) assigns symbols to political parties, and in cases of splits, decides which faction can use the symbol. The 'clock' symbol was assigned to the Ajit Pawar faction during the 2024 Lok Sabha elections.
●   **Dispute Background**: The NCP split in July 2023, with Ajit Pawar claiming majority MLA support. However, in the Maharashtra Lok Sabha elections, Sharad Pawar's faction performed better despite using a new symbol, challenging Ajit Pawar's majority claim.
●   **3-Test Formula**: The Supreme Court's 1971 ruling set a 3-test formula to decide which faction should be recognized as the real party: (1) party's aims and objectives, (2) adherence to internal constitution and democracy, and (3) majority support in the legislative and organizational wings.
●   **Possible Court Action**: Considering Sharad Pawar's faction's success in recent elections, the Supreme Court may direct the ECI to freeze the 'clock' symbol for the upcoming assembly elections.
●   **Need for Internal Democracy**: The core issue is the need for political parties in India to have regular, internal elections to ensure democracy within the parties, which should be driven by party members, not the ECI.

| Clear your doubts now.

Are the U.S.'s cybersecurity concerns over Chinese electric vehicles justified?: TH Text&Context

Science

Easy Explanation:

Electric vehicles (EVs) are not only advanced but also connected to technologies that enhance convenience and safety, like autopilot and charging features. However, with these advancements comes the risk of misuse, especially in terms of cybersecurity. The U.S. government has raised concerns about Chinese EVs, fearing that the data they collect and their technology could pose national security risks. This is because Chinese EVs make up a significant portion of the global market, and their technology could potentially collect sensitive data about U.S. drivers and infrastructure.

A big concern is the weak cybersecurity in EV software. Since EVs rely heavily on software for essential functions like driving and locking, hackers could exploit these vulnerabilities to cause harm, such as controlling vehicles or accessing personal data. These risks extend to critical infrastructure, like power grids, which could be destabilized if hackers target EV charging stations.

Furthermore, nation-state hackers, especially from countries like Russia and China, are seen as capable of using EV software weaknesses to cause bigger problems. These risks make the U.S. wary of allowing Chinese EV technology to operate in the country.

Key Takeaways:

- **Connected EV Technology**: Modern EVs are equipped with technologies like autopilot, geo-fencing, and advanced driver assistance, all of which rely on software. However, this reliance makes them vulnerable to cyberattacks.
- **U.S. Concerns About Chinese EVs**: The Biden administration is concerned about Chinese EVs, which dominate the global market, due to potential national security risks related to the data they collect.
- **Cybersecurity Risks**: Weak cybersecurity in EVs can allow hackers to gain control of vehicle systems, steal personal data, and even compromise other connected smart devices.
- **Threats to Infrastructure**: EVs' connection to power grids for charging presents a risk, as hackers could target EV charging stations, potentially destabilizing energy supplies in major cities.
- **Nation-State Threats**: Countries like Russia and China, known for their cyber capabilities, could exploit software vulnerabilities in EVs to infiltrate broader networks, compromise fleets of vehicles, or target critical infrastructure.
- **Importance of Cybersecurity**: The combination of weak cybersecurity in EVs and the capabilities of nation-state actors poses significant risks, particularly in critical markets like the U.S.

TURNING TO THE EAST: IE Editorial

International Realtions

Easy Explanation:

The recent meetings of the Association of Southeast Asian Nations (ASEAN) and the East Asia Summit took place amid global tensions, with conflicts in Europe, the Middle East, and rising military pressures in Asia.

| Clear your doubts now.

Prime Minister Narendra Modi, attending his 11th consecutive ASEAN summit, stressed the importance of finding peaceful solutions and avoiding military conflict.

Modi's visit marked the 30th anniversary of India's "Look East" policy and the 10th anniversary of his revised "Act East" policy. However, today's context in Asia is different. In the late 1990s, there was great power cooperation and economic globalisation, which helped India's re-engagement with ASEAN. Today, tensions between major powers, especially China's growing influence and maritime disputes in the South China Sea, have made things more difficult for ASEAN. The organisation is struggling to manage China's military dominance, while economic challenges are arising due to less cooperation between the U.S. and China.

ASEAN is also facing internal problems, such as the ongoing crisis in Myanmar, which has added to its difficulties. India, meanwhile, has gained standing in the region thanks to its strong economic growth and military capabilities. India's active participation in the Quad (with Australia, Japan, and the U.S.) has strengthened its regional role, and Modi has taken a clearer stance against China's expansion in the South China Sea.

However, India's trade with ASEAN has its issues. Although trade has doubled over the past decade to $130 billion, India faces a large trade deficit of $44 billion with the region. ASEAN's economy is slightly larger than India's and continues to grow impressively. India must now focus on overcoming internal challenges and fostering better trade relations to strengthen its long-term role in East Asia.

Key Takeaways:

- **Context of ASEAN Meetings**: The ASEAN meetings, attended by PM Modi, took place amid global conflicts and rising tensions in Asia, with discussions focusing on peaceful solutions.
- **India's Regional Role**: India has strengthened its position in Southeast Asia due to its economic growth and participation in the Quad. Modi reaffirmed India's opposition to China's expansion in the South China Sea.
- **Challenges Facing ASEAN**: ASEAN is struggling with both external challenges, like China's dominance, and internal issues, such as the crisis in Myanmar.
- **India's Trade Deficit**: While India's trade with ASEAN has increased, the large trade deficit of $44 billion is a concern. ASEAN's economy is growing, and India needs to overcome internal obstacles and rethink its trade policies for long-term success in East Asia.

Issues in the treatment of 'rare diseases', and what the govt can do: IE Explained

Science

Easy Explanation:

The Delhi High Court recently issued directions to improve the availability of "orphan drugs," which are used to treat rare diseases. Rare diseases are lifelong, debilitating conditions that affect very few people. In India, around 55 medical conditions, such as Gaucher's disease and certain forms of muscular dystrophy, are classified as rare diseases. However, treatments are available for less than 5% of rare diseases, and these treatments are often very expensive.

India classifies rare diseases into three categories based on treatment options. Group 1 includes diseases that can be cured with one procedure, while Group 2 and Group 3 include diseases that require long-term treatment, which can be expensive and may need lifelong care.

The government provides financial assistance to help with the cost of treatment, and Centres of Excellence (CoEs), such as AIIMS in Delhi, help patients with these treatments. A crowdfunding platform was also set up for people to donate to help fund treatment for rare disease patients. However, there are challenges in selecting the right patients for financial assistance and delays in processing exemptions for the import of expensive medicines.

Many orphan drugs are very expensive because they are patented, and pharmaceutical companies do not always find it profitable to produce them. The court suggested that India could reduce costs by manufacturing these drugs locally, and the government could offer incentives, like tax breaks, to companies. The court also emphasized the need to cut delays in decision-making and negotiate with pharma companies to reduce costs.

Key Takeaways:

1. **Rare Diseases in India**: Conditions such as Gaucher's disease and muscular dystrophy are classified as rare diseases. Only 5% of these have treatments, and they are usually expensive.
2. **Government Support**: Financial assistance is provided for treatment at Centres of Excellence, and a crowdfunding platform helps raise funds for patients.
3. **Challenges**: The high cost of patented orphan drugs and the lack of profit incentive for pharmaceutical companies make these treatments costly. There are also delays in getting approvals and exemptions for these drugs.
4. **Court's Role**: The Delhi High Court emphasized the need to reduce costs by negotiating with pharma companies, manufacturing the drugs locally, and cutting bureaucratic delays. The court is pushing for faster approval of tax exemptions for these medicines.
5. **Improving Access**: The court called for more research, government negotiations with pharmaceutical companies, and faster decision-making to lower costs and improve access to treatments for rare diseases.

WHAT ARE DRAGON DRONES BEING USED IN RUSSIA-UKRAINE WAR?: IE Explained

Science

Easy Explanation:

A new deadly weapon called "dragon drones" has emerged in the Russia-Ukraine war. These drones drop a substance called thermite, which burns at a very high temperature of 2,427 degrees Celsius. Thermite is a mixture of aluminum and iron oxide, originally developed for welding railroad tracks. When ignited, it creates an intense reaction that burns through almost anything, including military vehicles and even underwater. On humans, it can cause severe burns and bone damage.

Dragon drones are believed to have been first used by Ukrainian forces around September 2024 to burn the vegetation that Russian troops were using for cover. The Russians then developed their own dragon drones for use in the conflict.

| Clear your doubts now.

Thermite has been used in weapons before, during both World Wars. It was used in bombs, grenades, and even dropped by German zeppelins in World War I. In World War II, both the Allies and Axis forces used thermite-laden explosives in aerial bombing campaigns. Today, thermite is often used by special operations teams because it burns intensely but does not create an explosion.

Using thermite in war is not banned under international law, but its use against civilians is prohibited. The Convention on Certain Conventional Weapons, a Cold War-era UN guideline, limits the use of incendiary weapons like thermite to strictly military targets due to the severe burns and injuries they can cause.

Key Takeaways:

1. **Dragon Drones**: These drones drop thermite, a substance that burns at over 2,400°C, which is highly effective in destroying military equipment and causing severe burns.
2. **Thermite Usage**: Thermite has a long history of use in warfare, from World War I to World War II. It was used in bombs, grenades, and to disable equipment without causing explosions.
3. **Legality**: While thermite use in war is not banned, it is restricted to military targets under international law to prevent harm to civilians.
4. **Russia-Ukraine Conflict**: Both sides in the war are using dragon drones, starting with Ukraine to expose Russian troops by burning vegetation used as cover.
5. **Dangers**: Thermite is dangerous because it burns through almost anything, and the use of dragon drones adds precision, making them a highly effective weapon in modern warfare.

15th October 2024

[Jaishankar in Pakistan:Low Expectations,some possibilities-Indian Express Explained](#)

International relations

Easy Explanation

Jaishankar's trip to Islamabad for the SCO meeting is not about improving relations between India and Pakistan but about participating in a larger regional event. India and Pakistan still have serious disagreements, especially on terrorism and Kashmir. Pakistan is also dealing with big internal problems like political instability and economic trouble. While Jaishankar's visit won't likely change things between India and Pakistan, it does open up the possibility of future talks.

Key Takeaways:

1. **S Jaishankar's Visit:** India's External Affairs Minister Jaishankar will attend the SCO Council of Heads of Government meeting in Islamabad, but it's a multilateral visit, not a bilateral one. He doesn't expect meaningful direct talks with Pakistan.
2. **India-Pakistan Tensions:** India and Pakistan have tense relations due to cross-border terrorism and the situation in Jammu and Kashmir. Jaishankar previously criticized Pakistan for supporting terrorism, and this stance remains firm.

| Clear your doubts now.

3. **SCO's Importance:** India has been a full member of the Shanghai Cooperation Organization (SCO) since 2017. The visit is part of broader regional diplomacy, focusing on multilateral cooperation rather than addressing India-Pakistan issues directly.
4. **Historical Context:** Relations between the two nations have deteriorated after several terror attacks (e.g., Pathankot, Pulwama) and India's constitutional changes in Jammu and Kashmir in 2019. Bilateral relations, trade, and services have mostly been cut off since.
5. **Pakistan's Internal Challenges:** Pakistan faces internal instability, including protests and a weakened economy. This adds complexity to any diplomatic engagement between the two nations.

Why nations fail or succeed-Indian Express Explained

Economics

Easy Explanation

The 2024 Nobel laureates in Economics — Daron Acemoglu, Simon Johnson, and James A Robinson — were recognized for their work on how institutions shape prosperity. They demonstrated that nations with inclusive institutions, such as democracy and law, tend to grow and succeed, while those with extractive institutions, where power is concentrated and rule of law is weak, fail to generate long-term progress.

Their research highlights the long-term effects of colonialism, where colonizers either created exploitative systems or inclusive ones, depending on local conditions like the mortality rate. This has had lasting impacts, including in countries like India, where historical exploitation during colonial rule has influenced modern-day challenges in economic growth despite inclusive institutions.

Acemoglu also pointed out that globally, institutions are weakening, and support for democracy is waning. Stronger governance and reinvigorating democratic institutions are key to improving prosperity across nations. For India, realizing its full economic potential will require maintaining and strengthening these inclusive frameworks.

Key Takeaways:

1. **Nobel Prize Focus:** The 2024 Economics Nobel winners (Daron Acemoglu, Simon Johnson, and James A Robinson) focused on how institutions shape national prosperity. They highlighted the differences between inclusive and extractive institutions.
2. **Inclusive vs. Extractive Institutions:** Inclusive institutions, such as democracy, law and order, and property rights, promote growth. Extractive institutions, with autocracy and lack of law, exploit populations and hinder progress.
3. **Colonial Impact on Institutions:** The laureates studied how colonizers set up extractive or inclusive institutions based on their mortality risks. In places where settlers couldn't live, they created exploitative systems, while safer areas saw more inclusive frameworks.
4. **India's Situation:** India, despite having inclusive institutions (democracy, judiciary), has not fully realized its economic potential. Acemoglu's work shows that institutions are critical, but other factors like historical exploitation can delay progress.

| Clear your doubts now.

5. **Global Decline in Institutional Strength:** Acemoglu noted that globally, institutions are weakening, and public support for democracy is declining. Restoring faith in democracy and improving governance are crucial for future growth.

Why SpaceX 'catching' Starship booster with robotic arms is significant-Indian Express Explained

Science and technology

Easy Explanation

SpaceX's recent mission demonstrated a significant milestone in reusable rocket technology, as its Starship booster was caught mid-air by robotic arms, known as "Mechazilla." This event is crucial for SpaceX's goal of developing a fully reusable rocket system, which could drastically reduce space travel costs and turnaround times. Unlike traditional rockets that are expendable, Starship aims to revolutionize space travel by enabling rockets to be reused almost immediately after landing.

Starship consists of two stages: the first stage booster, called Super Heavy, and the Starship spacecraft. The rocket system, standing nearly 120 meters tall, is the largest ever built. Sunday's mission involved the booster successfully landing using Mechazilla's robotic arms while the Starship spacecraft completed a controlled splashdown in the Indian Ocean after one orbit around Earth.

Starship is essential for SpaceX's future space exploration plans, including missions to the Moon and Mars. SpaceX aims to use Starship to return NASA astronauts to the Moon by 2026 under the Artemis III mission, advancing human space exploration.

Key Takeaways:

1. **Starship's Reusability Milestone:** SpaceX successfully used giant robotic arms, called "Mechazilla," to catch the 70-meter-long first-stage booster of its Starship rocket system, marking a major step toward creating a fully and rapidly reusable rocket system.
2. **Reusability Significance:** Reusable rockets could drastically reduce the cost and time of space launches, as most current rockets are expendable and can be used only once.
3. **Future Vision:** Elon Musk envisions that Mechazilla will one day be able to quickly reset a rocket on the launchpad, potentially allowing rockets to be relaunched within 30 minutes.
4. **Falcon 9 Comparison:** While SpaceX has already mastered the reusable landing of its Falcon 9 rocket, Starship's landing technique is more advanced, using robotic arms instead of landing legs.
5. **Space Exploration Ambitions:** Starship is central to SpaceX's long-term plans for space exploration, including sending astronauts to the Moon for NASA's Artemis III mission by 2026 and eventually enabling human exploration of Mars.

On Samsung workers' right to unionise-The Hindu Text and Context

Polity

Easy Explanation

| Clear your doubts now.

Samsung India workers in Tamil Nadu are protesting for their right to form the Samsung India Workers Union (SIWU) and engage in collective bargaining for better work conditions. The workers' demands stem from their fundamental right under the Indian Constitution to form a union, as upheld by the Supreme Court. However, the Tamil Nadu government responded by forming a 'workmen committee' and using police force to suppress the strike, rather than registering the union first. This approach has drawn criticism from labor law experts who argue that the union should have been recognized before any further steps.

The ability to collectively bargain is a crucial right for workers, supported by both Indian and international labor laws. Samsung, meanwhile, has raised concerns about the use of its name in SIWU, citing trademark laws, but legally, trade unions do not fall under business or trade categories. The protest highlights the ongoing struggle for workers' rights and the importance of collective bargaining in achieving fair labor practices.

Key Takeaways:

1. **Right to Form a Union:** Workers at Samsung India in Tamil Nadu are protesting for the right to form a union (Samsung India Workers Union or SIWU) and engage in collective bargaining to improve their work conditions. The Supreme Court has upheld this right as a fundamental right under Article 19(1)(c) of the Constitution.
2. **State's Role and Response:** The State government formed a 'workmen committee' instead of first registering the union, which labor law experts view as legally incorrect. The use of police force to quell the protests suggests bias towards the company.
3. **Collective Bargaining:** Collective bargaining is a fundamental worker's right recognized under Indian labor law. Workers should be allowed to negotiate their terms of employment with management through a registered union.
4. **Trademark Dispute:** Samsung has objected to the use of its name in SIWU, citing trademark concerns, but unions are not business entities, and this argument is legally questionable.
5. **Historical Context:** Collective bargaining and labor unions have long protected workers' rights globally, and are considered vital for ensuring a level playing field between employers and employees.

[How did the Haber-Bosch process change the world?-The Hindu Text and Context](#)

Environment

Easy Explanation

The Haber-Bosch process, developed by Fritz Haber and Carl Bosch, revolutionized global agriculture by enabling the large-scale production of synthetic fertilizers. This method converts nitrogen from the atmosphere into ammonia, which is crucial for plant growth. The process significantly boosted food production, contributing to a sevenfold increase in global food supply in the 20th century, and today supports the nutrition of about one-third of the world's population.

However, the process also introduced environmental challenges. The overuse of synthetic nitrogen fertilizers leads to soil degradation, water pollution, and acid rain, while disrupting natural ecosystems. Though natural processes like lightning and bacterial activity also produce reactive nitrogen, the scale of industrial nitrogen production far exceeds these natural levels, causing ecological imbalances.

| Clear your doubts now.

Despite its massive contribution to feeding the world, the Haber-Bosch process alone cannot address issues like hunger and malnutrition. These problems often stem from political and social factors, requiring coordinated efforts beyond technological solutions to ensure that food is distributed equitably and sustainably across the globe.

Key Takeaways:

1. **Haber-Bosch Process:** This method enabled the large-scale production of synthetic fertilizers by converting nitrogen from the air into ammonia, revolutionizing agriculture and drastically increasing global food production.
2. **Impact on Food Supply:** The process led to a sevenfold increase in food supply during the 20th century and is credited with feeding one-third of the world's population today.
3. **Environmental Concerns:** Despite its benefits, synthetic nitrogen fertilizers have significant environmental downsides. Excessive nitrogen use leads to soil and water pollution, acid rain, and harmful ecological effects like deoxygenation of water bodies.
4. **Natural Nitrogen Cycle:** While nature also produces reactive nitrogen through processes like lightning and bacterial activity, the Haber-Bosch process produces far more nitrogen than what naturally occurs, disrupting ecosystems.
5. **Limits of Technological Fixes:** While the Haber-Bosch process transformed agriculture, it also highlights that technology alone cannot solve issues like hunger or malnutrition. Political and social actions are necessary to ensure equitable food distribution.

Researchers zero in on how the TB bacteria evade immune response-The Hindu Science

Science

Easy Explanation

Researchers have made significant progress in understanding how Mycobacterium tuberculosis (Mtb), the bacteria causing tuberculosis (TB), evades the human immune response. Mtb is known for its ability to hide in macrophages, immune cells designed to destroy foreign invaders, and stay dormant in tissues for decades without causing disease. One focus of current research is Mtb's cysteine synthase enzymes, which help the bacteria survive oxidative stress within macrophages. Studies have shown that inhibiting these enzymes weakens Mtb, making it more vulnerable to antibiotics like isoniazid.

Researchers have identified compounds that target cysteine synthase enzymes, presenting a promising pathway for new TB treatments. However, Mtb has evolved numerous survival strategies, including manipulating immune responses and altering its metabolism. While these discoveries open new doors for TB treatment, much more research is needed, especially involving human cells, to develop effective therapies. Given India's significant burden of TB, continued focus on advancing these findings into practical treatments is crucial for controlling the disease.

Key Takeaways:

1. **Tuberculosis Challenge:** Mycobacterium tuberculosis (Mtb) bacteria have coevolved with humans for millennia, making them highly adaptable and resistant to many current treatments. Mtb can evade the

immune system by hiding in macrophages, cells meant to destroy bacteria, and remain dormant in human tissues for decades.

2. **Cysteine Synthase Enzymes:** Mtb produces cysteine, a sulfur-containing amino acid, which helps it survive oxidative stress within macrophages. Researchers have found that cysteine synthase enzymes, particularly CysK2 and CysM, play a critical role in Mtb's ability to resist the body's immune response.

3. **New Drug Targets:** Studies have identified 71 compounds that can inhibit cysteine synthase enzymes, making traditional antibiotics like isoniazid more effective. Since humans don't have these enzymes, these compounds are promising candidates for new anti-TB drugs.

4. **Complex Evasion Mechanisms:** Mtb uses various strategies to survive within host cells, including altering metabolism, strengthening its cell wall, and erasing immune memory in macrophages, making it harder for the body to recognize and eliminate the bacteria.

5. **Future Research Needs:** While these discoveries are promising, further research is necessary to translate these findings into human treatments, and India must prioritize efforts in this area to combat TB.

Ensuring a proper social safety net for the gig worker-The Hindu Editorial

Economy

Easy Explanation

The Indian government is working on legislation to include gig workers in social security schemes, providing benefits like health insurance and retirement savings. However, gig workers are currently classified as part of the informal sector, which limits their access to formal labor protections. The government plans to require aggregators, such as ride-hailing and delivery companies, to contribute a small percentage of their revenue toward a social security fund for gig workers.

The core issue remains the unclear employer-employee relationship in gig work, as aggregators often label workers as independent contractors. This classification exempts gig workers from key protections like minimum wage, paid maternity leave, and occupational safety laws. Experts argue that the government should redefine gig work employment relations, recognizing aggregators as employers, which would allow gig workers to benefit from existing labor laws under the four labor codes introduced in 2020.

Clarifying the employment relationship would better formalize the gig sector and ensure comprehensive protection for gig workers, following international precedents like the UK Supreme Court's ruling on Uber drivers in 2021.

Key Takeaways:

1. **Social Security for Gig Workers:** The Indian government is drafting legislation to include gig workers in social security schemes, offering benefits such as health insurance and retirement savings. Aggregator companies will be required to contribute a small percentage of their revenue to fund these benefits.

2. **Definition of Gig Workers:** Current laws categorize gig workers as part of the informal sector, excluding them from traditional employer-employee protections. This ambiguous employment relationship allows companies to avoid standard labor laws.

| Clear your doubts now.

3. **Institutional Social Security Gap:** Unlike formal workers, gig workers are offered only limited social security schemes, not comprehensive protections like paid maternity leave, minimum wage, or occupational safety.
4. **Employment Relation Definition:** The core issue is the absence of a clearly defined employer-employee relationship in gig work. Recognizing aggregators as employers and redefining gig work employment relations is crucial for protecting gig workers' rights.
5. **International Precedents:** The UK Supreme Court's 2021 ruling recognized Uber drivers as employees, setting a precedent for recognizing gig workers' rights under labor laws.

16th October 2024

How Bone Ossification Test Works,and its application in law-Indian Express Explained

Polity

Easy Explanation

In the murder case of Maharashtra MLA Baba Siddique, an accused claimed to be 17 years old, but his Aadhaar card showed 19. The court ordered a bone ossification test, which determined he was not a minor, leading to his remand in police custody.

A bone ossification test uses X-rays of bones to estimate age by comparing bone development with standard charts. This test is crucial in India's legal system to determine if someone should be tried as a minor or adult under the **Juvenile Justice Act**. Minors are given different legal treatment, focusing on rehabilitation.

The **Juvenile Justice Act** prioritizes birth certificates or school records for age proof, using ossification tests only as a last resort. Courts view these tests as less reliable due to natural variations in bone development, with a margin of error often applied. Courts generally prefer documentary evidence over ossification tests for determining age.

Key Takeaways

Bone Ossification Test Explained: Utilizes X-rays of hands and wrists to assess bone development stages and estimate an individual's age.

Legal Significance: Determines whether an accused is tried as a minor (under 18) or an adult, impacting legal procedures and sentencing under the Juvenile Justice Act.

Juvenile Justice Act Prioritization: Prefers documentary evidence (birth certificates, school records) for age verification; bone ossification tests are used only when such documents are unavailable.

Court Preferences: Courts generally favor documentary proof over ossification tests due to potential inaccuracies and variability in bone development.

Reliability Issues: Bone tests provide age ranges (e.g., 17-19 years), leading to debates on interpreting results and applying margins of error.

| Clear your doubts now.

Judicial Guidelines: Recent rulings suggest considering the upper end of the age range from ossification tests and applying a two-year margin of error, especially in sensitive cases like those under the POCSO Act.

Impact on Legal Outcomes: Accurate age determination is crucial as it affects whether the accused undergoes rehabilitation as a minor or faces adult criminal proceedings.

Supreme Court Stance: Medical age determination tests should be a last resort and cannot override valid documentary evidence.

THAAD-Indian Express Explained

Science and technology

Easy Explanation

The United States has deployed the Terminal High-Altitude Area Defense (THAAD) missile defense system to Israel, along with American military personnel to operate it. This action occurs amid increasing tensions between Israel and Iran, and criticism over Israel's targeting of UN peacekeepers in Lebanon. The THAAD system, developed by Lockheed Martin, comprises 95 soldiers, six truck-mounted launchers, 48 interceptors (eight per launcher), radar surveillance, and a tactical fire component. It provides a rapidly deployable capability against short-range (up to 1,000 km), medium-range (1,000–3,000 km), and limited intermediate-range (3,000–5,000 km) ballistic missile threats during their terminal phase.

The U.S. Department of Defense stated that this deployment is part of broader adjustments to support Israel's defense and protect American interests from attacks by Iran and Iranian-aligned militias. The move follows unprecedented Iranian attacks on Israel on April 13 and October 1. Iran has warned the U.S. against further involvement in the West Asia conflict, with Iranian Foreign Minister Abbas Araghchi asserting that Iran has no red lines in defending its people and interests.

While Israel already possesses an advanced, multi-tiered air defense system, the addition of THAAD significantly enhances its capabilities. The presence of THAAD is expected to serve as a deterrent to Iran and provide reassurance to Israel as it prepares to respond to recent missile attacks. Ukraine has also requested THAAD to defend against Russia, but the system's high cost and the need for trained U.S. personnel limit its deployment.

Key Takeaways

- **THAAD System Overview**: An advanced missile defense system capable of intercepting short to limited intermediate-range ballistic missiles during their terminal phase of flight.
- **Components and Capabilities**: Consists of 95 soldiers, six launchers, 48 interceptors, radar surveillance, and tactical fire control, allowing defense over a larger area than older systems like the Patriot.
- **Purpose of Deployment**: Enhances Israel's air defenses amid recent Iranian missile attacks and aims to deter further aggression from Iran and its allies.

| Clear your doubts now.

- **U.S. Defense Strategy**: Part of broader efforts to support Israel and protect American interests in the region against threats from Iran and Iranian-backed militias.
- **Iran's Response**: Iran criticizes the U.S. deployment, warning against increased involvement and stating it will defend its interests without red lines.
- **Strategic Impact**: The THAAD deployment serves as both a deterrent to Iran and a reassurance to Israel, strengthening their defensive posture in a volatile region.
- **Operational Constraints**: THAAD is expensive and requires specialized U.S. personnel to operate, limiting its availability to other nations like Ukraine that have requested it.
- **Enhanced Israeli Defenses**: Despite existing advanced air defense systems, THAAD significantly boosts Israel's ability to counter ballistic missile threats.

Greenwashing Guidelines-Indian Express Explained

Environment

Easy Explanation

The Indian government has introduced new guidelines to prevent companies from making false or misleading environmental claims—a practice known as greenwashing. Released by the Central Consumer Protection Authority (CCPA) under the Consumer Affairs Ministry, these guidelines require companies to substantiate their environmental claims with scientific evidence. This initiative complements existing regulations that address misleading advertisements in general.

Greenwashing involves deceptive practices where companies exaggerate or misrepresent the environmental benefits of their products, services, or activities. Notable examples include the 2015 Volkswagen emissions scandal and accusations against corporations like Shell, BP, and Coca-Cola.

Key aspects of the guidelines are:

- **Definition of Greenwashing**: Any deceptive or misleading practice that exaggerates or conceals environmental claims about a product or service.
- **Evidence Requirement**: Companies must provide scientific proof for claims using terms like "eco-friendly," "organic," "sustainable," etc.
- **Clear Communication**: Technical environmental terms must be explained in consumer-friendly language.
- **Advertising Standards**: Misleading use of symbols, imagery, or claims that highlight positive attributes while hiding negative aspects is prohibited.
- **Allowance for General Statements**: Non-deceptive, generic claims that do not mislead consumers are permitted.

The guidelines apply to all entities involved in advertising products or services, including manufacturers, service providers, traders, advertising agencies, and endorsers. This move aligns with global efforts to enhance transparency and accountability in environmental claims.

Key Takeaways

| Clear your doubts now.

1. **Mandatory Scientific Evidence**: Companies must substantiate environmental claims with credible scientific proof.
2. **Definition of Greenwashing**: Deceptive practices that misrepresent the environmental benefits of products or services are prohibited.
3. **Advertising Regulations**: Misleading use of terms like "natural," "organic," or "eco-friendly" is not allowed without proper evidence.
4. **Applicability**: Guidelines apply to all parties involved in promoting products or services, including advertisers and endorsers.
5. **Clear Language Requirement**: Technical environmental terms must be explained clearly to consumers.
6. **Allowance for Non-Deceptive Claims**: General statements that do not mislead consumers are acceptable.
7. **Consumer Protection Focus**: Aims to protect consumers from misleading environmental claims, ensuring informed decisions based on accurate information.

Abetment of suicide:why SC cautioned against 'unnecessary prosecutions'-Indian Express Explained

Polity

Easy Explanation

The Supreme Court recently cautioned against "unnecessary prosecutions" in abetment of suicide cases, particularly in workplace-related situations. This comes after a case involving a salesman, Rajeev Jain, who died by suicide after alleged harassment from senior officers. The SC quashed the case against the officers, overturning an earlier Allahabad High Court decision that linked the workplace harassment to Jain's suicide.

Under **Section 107 of the IPC (and Section 45 of the Bharatiya Nyaya Sanhita, 2023)**, abetment involves instigating, conspiring, or aiding in a wrongful act. For abetment of suicide under **Section 306 IPC**, the courts emphasize a direct connection between the accused's actions and the suicide. In workplace cases, where relationships are managed by rules and policies, the SC ruled that there must be clear evidence of intent to cause suicide.

The SC clarified that courts should avoid holding full-fledged trials without strong evidence of intent, as it leads to unnecessary legal processes.

Key Takeaways

1. **Definition of Abetment**: Involves instigating, conspiring, or aiding in a wrongful act under Section 107 IPC.
2. **Abetment of Suicide Standard**: For Section 306 IPC, there must be clear evidence of direct incitement or intent to cause suicide.
3. **Workplace Cases**: Courts must avoid unnecessary prosecutions in workplace-related suicides unless clear intent is shown.
4. **Official Capacity vs. Sentimental Ties**: Proving abetment is harder in professional relationships, as they are governed by rules, unlike personal relationships where emotional factors can influence behavior.

| Clear your doubts now.

5. **Supreme Court's Directive**: Trials should be avoided if facts clearly show no intent by the accused to cause suicide.
6. **Prior Court Rulings**: The SC and High Courts have emphasized that proving abetment depends on case-specific facts and requires strong evidence of incitement.
7. **SC's Quashing of Case**: The SC quashed the case against the officers, considering it an abuse of legal process without sufficient evidence.

A tough road from the brink-Indian Express Editorial

International relations

Easy Explanation

India-Canada relations hit a new low on October 14, with public recriminations escalating beyond intelligence and diplomacy into personal political attacks. This downturn began when Canadian Prime Minister Justin Trudeau accused India of being involved in the killing of a Canadian citizen, Hardeep Singh Nijjar, which India denied. Canada accused India of engaging in illegitimate diplomatic conduct, demanding the lifting of diplomatic immunities, which India refused. The situation worsened when India recalled its diplomats and expelled Canadian diplomats in response to Canada's moves.

Canadian officials claimed that Indian diplomats were involved in activities against pro-Khalistani elements. India responded strongly, condemning Trudeau's actions and politics. While Canada insists on respecting India's territorial integrity, it defends its laws on freedom of expression that allow pro-Khalistani activities. The deepening diplomatic row is expected to affect bilateral ties across all spheres, including trade and people-to-people relations. India's challenge will be to manage relations with other Western countries while addressing Canada's accusations and actions.

Key Takeaways

1. **Escalating Diplomatic Row**: India-Canada relations have hit a new low after Canada's accusations against India over the Nijjar killing.
2. **Canada's Allegations**: Trudeau accused India of involvement in Nijjar's murder, which India strongly denied, leading to diplomatic expulsions.
3. **Diplomatic Tensions**: India recalled its diplomats and expelled six Canadian diplomats in retaliation.
4. **Pro-Khalistan Activities**: Canada defends its laws that allow pro-Khalistani activities under freedom of expression, further straining ties.
5. **Impact on Relations**: The diplomatic crisis is expected to impact bilateral relations, including trade and people-to-people contacts.
6. **Indian Response**: India has issued strong condemnations of Trudeau's actions and is focusing on managing relations with other Western nations.
7. **Future Challenges**: India will need to navigate the situation, particularly as Canada prepares to present evidence in the Nijjar case, which could further complicate ties.

| Clear your doubts now.

Coastal flooding harms different tree species differently: study-The Hindu Science

Science

Easy Explanation

A new study by Drexel University and Northern University of Arizona challenges the idea that rising sea levels and coastal flooding are always detrimental to tree growth. Published in *Frontiers in Forests and Global Change*, the study found that some coastal tree species, like American holly, may thrive under these conditions, while others, such as loblolly and pitch pine, suffer. Researchers used dendrochronology (the study of tree rings) and machine learning to analyze how trees respond to temperature, precipitation, and tidal levels. The study revealed that different tree species and sites react differently to environmental changes, highlighting the importance of local factors in coastal forest management. As sea levels continue to rise, this research can help forest managers assess the risk to specific tree species and adjust conservation strategies accordingly.

Key Takeaways

1. **Tree Growth Factors**: Coastal tree growth depends on temperature, rainfall, soil health, and nearby vegetation.
2. **Rising Sea Levels**: Some coastal trees, like American holly, benefit from higher water levels, while others, like loblolly pine, are negatively impacted.
3. **Tree Rings and Climate**: Researchers used dendrochronology to link tree ring size with climatic conditions, tracking growth patterns over time.
4. **Machine Learning**: Gradient-boosted linear regression helped analyze the complex interactions of temperature, precipitation, and tidal levels on tree growth.
5. **Site-Specific Reactions**: Different coastal regions and tree species respond variably to rising sea levels and flooding.
6. **Sea-Level Rise Acceleration**: Sea levels are rising faster, with significant impacts expected by 2050, including more frequent and intense coastal flooding.
7. **Forest Management Implications**: The study emphasizes the need for site-specific conservation strategies to address the diverse effects of climate change on coastal forests.

On the need to make more containers to boost trade-The Hindu Text and Context

Economy

Easy Explanation

India's trade growth relies heavily on containerised transport, but the country faces a major bottleneck due to inadequate container production. Containers are essential for seamless transport via rail, ship, and road, revolutionising world trade by reducing delays. India produces only 10,000 to 30,000 containers annually, far below the 2.5 to 3 million containers made by China. This shortage affects India's ability to become a major hub on the East-West trade route, forcing Indian ports to rely on short-distance feeder vessels. High freight rates and port congestion further hinder India's trade prospects.

To address the issue, the government has introduced **Make in India** initiatives to promote container manufacturing through public-private partnerships (PPP) or by incentivising private production. Other potential

| Clear your doubts now.

solutions include reducing container repositioning costs, increasing container yard capacities, and implementing Production Linked Incentives (PLI). Incentives for using Indian-made containers, relaxing GST on raw materials, and creating a container tracking system could boost domestic production and reduce costs.

Key Takeaways

1. **Importance of Containers**: Containers facilitate seamless transport by rail, ship, and road, drastically reducing transport times and port delays.
2. **India's Production Lag**: India produces only 10,000 to 30,000 containers annually, compared to China's 2.5 to 3 million.
3. **Trade Impact**: Container shortages limit India's potential as a global trade hub, forcing reliance on feeder vessels and increasing freight rates.
4. **Make in India Initiatives**: Government efforts aim to boost domestic container production through PPPs and incentives.
5. **Cost Reduction Strategies**: Measures like reducing repositioning charges, enhancing container yard capacity, and providing subsidies could lower production costs.
6. **Production Linked Incentives (PLI)**: Implementing PLI schemes and relaxing GST on raw materials could further support the industry.
7. **Tracking Mechanism**: Developing a container tracking system would improve logistics, reduce turnaround time, and alleviate shortages.

18th October 2024

[Korean peninsula heating up again:history of hostility between North and South,trigger for current tensions-Indian Express Explained](#)

International relations

Easy Explanation

Tensions between North and South Korea are heating up again, with North Korea announcing that over 1.4 million citizens have applied to join the army. This escalation follows South Korea allegedly sending drones with anti-Pyongyang leaflets across the border. The Korean Peninsula has been divided since 1945 after World War II, with North and South Korea technically at war since 1950. Despite attempts at peaceful reunification, little progress has been made, and North Korea has continued to develop nuclear weapons. Current tensions have worsened after failed denuclearization talks in 2019, and North Korea now views South Korea as its "principal enemy." Experts are concerned about the heightened dangers, though war is not seen as imminent.

Key Takeaways:

1. Tensions have escalated after South Korea allegedly sent anti-Pyongyang propaganda.
2. North Korea blew up border infrastructure and announced a massive military recruitment.
3. The two Koreas have technically been at war since 1950, with no peace treaty.
4. Past efforts at peaceful reunification have made little progress.

| Clear your doubts now.

5. Failed 2019 denuclearization talks worsened relations, with North Korea now seeing South Korea as its primary enemy.
6. Experts warn of rising danger but do not predict an imminent war.

CAN LIFE EXIST ANYWHERE ELSE IN THE SOLAR SYSTEM? WE MAY KNOW SOON-Indian Express Explained

Science and technology

Easy Explanation

NASA's Europa Clipper mission launched from Kennedy Space Center, aiming to explore the possibility of life beyond Earth. The spacecraft is headed to Europa, one of Jupiter's moons, which is notable for its subsurface ocean covered by a thick ice shell. This mission, costing $5.2 billion, is NASA's first focused solely on assessing the habitability of ocean worlds in our solar system. Europa is considered a prime candidate for life due to its potential for hosting necessary life-sustaining ingredients and having had sufficient time for life to develop. Europa Clipper's journey will span five and a half years, covering 1.8 billion miles, and is set to begin its exploration in 2030 with 49 flybys of Europa over four years.

Key Takeaways:

1. **Mission Goal**: The Europa Clipper's mission is to determine if life can exist on Europa, a moon of Jupiter.
2. **Launch Details**: Launched from Kennedy Space Center, the mission represents NASA's largest interplanetary spacecraft effort.
3. **Europa's Environment**: Europa is characterized by an ice-covered ocean, speculated to be over 10 miles thick, making it a focus for questions about extraterrestrial life.
4. **Scientific Speculation**: Scientists like Robert Pappalardo believe Europa is the most likely place in the solar system to find life due to its ample life-supporting ingredients and long history.
5. **Mission Duration and Plan**: Europa Clipper will travel for five and a half years before orbiting Jupiter and will conduct 49 flybys of Europa to gather data.
6. **Broader Implications**: The mission's findings could significantly advance our understanding of habitability on other ocean worlds in the solar system.

As the world warms and cools-Indian Express Editorial

Disaster Management

Easy Explanation

As climate change causes more frequent and severe natural disasters, ensuring human security becomes a crucial aspect of national security. Disasters can disrupt lives, displace populations, and derail economic growth, threatening national aspirations like India's goal to become a $5-trillion economy. To address these vulnerabilities, disaster risk insurance emerges as a vital tool. Following Prime Minister Narendra Modi's Ten-Point Agenda for Disaster Risk Reduction, India is focusing on expanding risk coverage to all sectors, from households to multinational companies. Initiatives like parametric insurance, which provide quick payouts based on predefined disaster triggers, are being explored to streamline support during crises. By integrating disaster risk insurance, India aims to protect its economic progress and enhance overall national security.

| Clear your doubts now.

Key Takeaways

1. **Increased Disaster Risk**: Climate change leads to more frequent and severe natural disasters, affecting individuals and economies.
2. **Human Security Equals National Security**: Protecting people from disasters is essential for maintaining national stability and achieving economic goals.
3. **Economic Impact of Disasters**: Disasters can cause significant economic downturns, hindering countries like India from reaching ambitious economic targets.
4. **Role of Disaster Risk Insurance**: Insurance helps mitigate the financial impact of disasters, ensuring quicker recovery and reducing economic losses.
5. **Parametric Insurance Advantage**: This type of insurance provides fast payouts based on specific disaster triggers, avoiding lengthy claim processes.
6. **Government Initiatives**: Prime Minister Modi's Disaster Risk Reduction Agenda emphasizes comprehensive risk coverage for everyone, from small households to large companies.
7. **Collaborative Efforts**: Workshops and collaborations between government bodies like NDMA and insurance companies are developing effective insurance models to meet diverse needs.
8. **Global Examples**: Historical events like Bangladesh's 1991 cyclone and Haiti's 2011 earthquake highlight the critical need for effective disaster insurance to support recovery and prevent long-term economic hardship.

By prioritizing disaster risk insurance, India aims to safeguard its population and economy against the unpredictable challenges posed by natural disasters.

THE BODY SHOP-Indian Express Editorial

Internal security

Easy Explanation

Over the past decade and a half, several Indian cities have become major centers for organ transplant surgeries, performing nearly 18,000 procedures annually—the highest after the US and China. While India's healthcare sector has advanced, it faces significant challenges due to illicit networks involving doctors, hospital administrators, and organ traffickers. Investigations have uncovered international kidney trafficking rings operating out of prominent hospitals in the National Capital Region (NCR), exploiting loopholes by using fake documents and collaborations between large hospitals and smaller health firms. India's organ transplantation laws permit donations from relatives, altruistic donors, and swap donations, with strict requirements for foreign nationals to ensure donations are not coerced or financially motivated. Despite these regulations, illegal organ trading, particularly between India and Bangladesh, persists by disguising trafficking as altruistic donations and exploiting impoverished donors with minimal payments. With over 150,000 patients in India needing organ transplants each year, many from neighboring countries seek medical care in India. Enhanced law enforcement efforts and increased awareness about organ donation are crucial to combat trafficking and restore trust in the transplantation system.

Key Takeaways:

| Clear your doubts now.

1. **India's Leading Role in Organ Transplants**: India performs nearly 18,000 organ transplants annually, making it a top destination after the US and China.
2. **Illicit Organ Trafficking Networks**: Dubious networks involving doctors and hospital administrators exploit loopholes, facilitating illegal organ trades across borders.
3. **High-Profile Investigations**: Recent investigations revealed international kidney trafficking rings operating from prominent NCR hospitals, using fake documents and collaborations with smaller health firms.
4. **Legal Framework and Loopholes**: India's organ transplantation laws allow donations from relatives, altruistic donors, and swap donations, with strict certification required for foreign nationals to prevent money-driven or coerced donations.
5. **India-Bangladesh Trafficking**: The illicit market between India and Bangladesh disguises trafficking as altruistic donations, enticing impoverished donors with small payments (Rs 4-5 lakhs).
6. **High Demand for Organ Transplants**: Over 150,000 patients in India require organ transplants each year, with many international patients seeking treatment in India due to limited capabilities in their home countries.
7. **Law Enforcement Challenges**: Police efforts to dismantle illicit rings are often insufficient, allowing organ traffickers to evade prosecution and undermining trust in the transplant system.
8. **Need for Comprehensive Solutions**: Addressing organ trafficking requires more than law enforcement; it involves increasing awareness about organ donation, correcting misconceptions, and balancing donor-recipient demographics (e.g., more women donors and men recipients).
9. **Economic and Social Impact**: Effective management of organ transplantation and prevention of trafficking are essential to maintain the integrity of India's healthcare system and support its growing medical capabilities.
10. **Urgent Call for Action**: Enhanced regulatory measures, proactive law enforcement, and public education on organ donation are critical to combat illegal trafficking and ensure ethical practices in organ transplantation.

By addressing these issues comprehensively, India can strengthen its organ transplantation framework, protect vulnerable populations, and uphold the ethical standards of its healthcare system.

How firms like Samsung view labour-The Hindu Text and Context

Economy

Easy Explanation

The recent labor strike at Samsung's Sriperumbudur facility in Tamil Nadu, India, centered around workers demanding the recognition of the Samsung India Workers' Union (SIWU). The strike ended after negotiations, but the company remains firm in not acknowledging the union. East Asian firms like Samsung, which are influenced by the Japanese Kaizen production method, prioritize efficiency and productivity, often creating challenging working conditions. The company operates under the South Korean Chaebol system, which combines family control and diverse business operations. These conglomerates have historically maintained strict labor control, with minimal recognition of trade unions. This situation raises concerns about India's efforts to attract foreign investments while balancing labor rights.

Key Takeaways:

| Clear your doubts now.

1. **Strike Context**: Workers at Samsung's Tamil Nadu plant sought union recognition; the strike ended after negotiations but without union acknowledgment.
2. **Samsung in India**: Operating since 1995, Samsung's Indian operations are key, especially in smartphone production.
3. **Management Philosophy**: East Asian firms, including Samsung, follow the Kaizen production model, which emphasizes continuous improvement, often intensifying work.
4. **Chaebols**: Samsung is part of South Korea's Chaebol system—large family-owned conglomerates that dominate the economy and control labor costs.
5. **Union Reluctance**: Samsung and other East Asian companies remain hesitant to recognize labor unions, particularly those with communist affiliations.
6. **Indian Concerns**: The strike highlights India's challenge of balancing foreign investment attraction and protecting labor rights.

What does the Global Hunger Index 2024 state about India?-The Hindu Text and Context

Economy

Easy Explanation

The Global Hunger Index (GHI) 2024 has ranked India **105th out of 127 countries,** indicating a 'serious' level of hunger with a score of 27.3. The GHI assesses countries based on **four parameters: child stunting, undernourishment, child wasting, and child mortality.** According to the report, 13.7% of India's population is undernourished, 35.5% of children under five are stunted, 18.7% are wasted, and 2.9% die before their fifth birthday. Notably, India has the highest child wasting rate globally. While acknowledging India's initiatives like the National Food Security Act, Poshan Abhiyan, and PM Garib Kalyan Yojana, the report suggests there is room for improvement, especially in addressing the intergenerational cycle of undernutrition. The Ministry of Women and Child Development has raised concerns over the GHI's data collection methods, arguing that their 'Poshan Tracker' shows significantly lower child wasting rates.

Key takeaways

India's Hunger Ranking: India is ranked 105th out of 127 countries in the 2024 Global Hunger Index, indicating a serious hunger problem.

Main Indicators of Hunger:

- **Undernourishment**: 13.7% of people in India don't get enough food.
- **Child Stunting**: 35.5% of children under five are too short for their age due to poor nutrition.
- **Child Wasting**: 18.7% of children under five are underweight for their height—the highest rate in the world.
- **Child Mortality**: 2.9% of children die before they turn five.

Cycle of Poor Nutrition: Malnourished mothers often have undernourished children, creating a cycle that continues through generations.

Economic Growth Isn't Enough: Simply increasing GDP doesn't guarantee that hunger will decrease. Policies need to specifically help the poor and reduce inequality.

| Clear your doubts now.

Recommendations to Reduce Hunger:

- **Improve Access to Food Programs**: Strengthen initiatives like the Public Distribution System and child nutrition services.
- **Support Diverse Farming**: Encourage the cultivation of nutritious crops like millets.
- **Focus on Health and Sanitation**: Invest in healthcare, clean water, and sanitation, especially for mothers and children.
- **Address Larger Issues**: Consider how hunger is linked to gender inequality and climate change.

Government's Disagreement: India's Ministry of Women and Child Development disputes the report's findings, stating that their own data shows lower rates of child wasting (around 7.2%).

Researchers' Reply: The authors of the report say they use consistent data methods worldwide to make fair comparisons between countries.

Need for Pro-Poor Policies: To effectively reduce hunger, it's important to create policies that directly assist the poorest people and tackle social and economic inequalities.

Nobel for microRNA underscores the primacy of RNA in biology-The Hindu Science

Science

Easy Explanation

Victor Ambros and Gary Ruvkun won the 2023 Nobel Prize in Physiology or Medicine for discovering microRNAs (miRNAs) and their role in gene regulation. In 1993, they found that the roundworm *Caenorhabditis elegans* uses small RNA molecules to control protein production. This mechanism was later found to be universal across animals. MiRNAs are short RNA sequences that bind to messenger RNA (mRNA), inhibiting protein synthesis. They regulate about 60% of human genes and are involved in key biological processes like development, cell differentiation, and responses to diseases such as cancer. While miRNAs have significant therapeutic potential, clinical applications have faced challenges. Nonetheless, their discovery emphasizes RNA's crucial role in biology.

Key Takeaways:

1. **Nobel Prize Awarded for Discovery of MicroRNA**: Victor Ambros and Gary Ruvkun received the 2023 Nobel Prize in Physiology or Medicine for discovering microRNAs and elucidating their role in gene regulation.
2. **MicroRNAs Regulate Gene Expression**: MiRNAs are small RNA molecules that bind to messenger RNA, preventing the production of specific proteins, thus playing a crucial role in gene regulation.
3. **Initial Research and Broader Implications**: While initially thought to be unique to worms, miRNA-mediated regulation was later found to be universal across the animal kingdom, signifying a major shift in understanding molecular biology.
4. **Role in Various Biological Processes**: MiRNAs are involved in essential cellular functions such as development, cell differentiation, cell division, apoptosis, and responses to stress and diseases, especially cancers.

| Clear your doubts now.

5. **Therapeutic Potential and Challenges**: Although miRNAs have high specificity and are ideal for targeted therapies, clinical applications have faced obstacles like delivery mechanisms and immune reactions, leading to some terminated trials.
6. **Significance of RNA in Biology**: This discovery emphasizes RNA's central role in maintaining cellular balance and function, suggesting that RNA, not just DNA, is fundamental to biological processes.
7. **Continued Research and Future Prospects**: Despite current challenges, ongoing research into miRNAs holds promise for developing new therapeutic strategies for various diseases.
8. **Multiple Nobel Prizes for RNA Research**: This award marks the fifth time RNA research has been recognized with a Nobel Prize, highlighting the field's importance in advancing our understanding of biology.

18th October 2024

WHAT IS THE NEW 'CLICK-TO-CANCEL' RULE ANNOUNCED BY USFTC?-Indian Express Explained

International relations

Easy Explanation

The U.S. Federal Trade Commission (FTC) is introducing a "click-to-cancel" rule to simplify the process of canceling subscriptions and memberships. This rule requires that canceling a service must be as easy as signing up for it, prohibiting companies from making cancellations difficult or requiring consumers to interact with representatives unnecessarily. Companies cannot charge extra fees for cancellations and must respond promptly to cancellation requests. This update modernizes the FTC's 1973 Negative Option Rule to address challenges in today's digital and subscription-heavy economy. The move comes in response to a significant increase in consumer complaints about complicated cancellation processes.

Key Takeaways

1. **Ease of Cancellation:** Canceling a subscription must be as straightforward as the sign-up process.
2. **No Mandatory Interaction:** Consumers cannot be required to speak with a representative to cancel if it wasn't needed to sign up.
3. **No Extra Fees:** Companies cannot charge additional fees for cancellation methods like phone cancellations.
4. **Prompt Responses:** Businesses must respond promptly to cancellation requests during normal business hours.
5. **Broad Application:** The rule applies to most subscription models, including free trials and automatic renewals.
6. **Consumer Protection:** Aims to combat deceptive practices and reduce the growing number of complaints about difficult cancellations.
7. **Global Perspective:** India currently lacks similar regulations addressing subscription cancellations.

| Clear your doubts now.

Four issues in Assam verdict-Indian Express Explained

Polity

Easy Explanation

The Supreme Court of India, in a majority decision, upheld Section 6A of the Citizenship Act, which deals with the citizenship status of migrants who entered Assam up to March 24, 1971. This section was an outcome of the 1985 Assam Accord and was intended to address unique issues stemming from extensive migration and demographic changes in Assam. The court ruled that Parliament has the authority under the Constitution to regulate citizenship matters, and Section 6A is in alignment with this power. The verdict addresses several critical issues such as the right to equality, external aggression from illegal migration, and the rights of Assamese people to preserve their culture.

Key Takeaways

1. **Parliamentary Powers:** The Supreme Court confirmed that Parliament has the comprehensive authority to make laws regarding citizenship, overriding any constraints that might arise from other constitutional articles.
2. **Assam's Unique Situation:** The verdict recognizes Assam's unique historical and demographic challenges compared to other Indian states, justifying a tailored approach to citizenship in the region.
3. **Equality and Non-Discrimination:** The Court found that Section 6A does not violate the principle of equality. The specific challenges of Assam justify a distinct legal treatment to address its unique problems.
4. **No External Aggression:** The Court disagreed with the notion that allowing migrants from a specific period amounts to external aggression, viewing Section 6A as a regulated and controlled form of migration.
5. **Cultural Preservation:** The majority opinion rejected the argument that granting citizenship to certain migrants violates the rights of Assamese people under Article 29 to preserve their culture. The presence of diverse ethnic groups, per the Court, does not infringe on these rights.
6. **Justice Pardiwala's Dissent:** Highlighted the lack of an effective mechanism in Section 6A for migrants of the 1966-1971 period to voluntarily declare their status, suggesting the provision may not effectively serve its intended purpose over time.

This ruling not only reaffirms the legislative powers of Parliament in matters of citizenship but also highlights the constitutional balance between national law and regional necessities in addressing migration and its socio-political impacts.

WHY RESEARCHERS STUDIED MARINE TEMPERATURES IN THE TWILIGHT ZONE-Indian Express Explained

Environment

Easy Explanation

Researchers have expanded the study of Marine Heat Waves (MHWs) — typically observed only at the ocean's surface due to technical and environmental challenges — to include the ocean's "twilight zone," which ranges

from 200 to 1,000 meters deep. A recent study published in the journal *Nature* highlights that these deeper regions may also experience significant MHWs, suggesting that such events might be underreported. Using advanced technology like Argo floats, which can dive up to 2,000 meters and measure temperature and salinity, the study discovered that eddy currents, rather than atmospheric conditions, primarily influence deep-sea temperatures. These currents can transport warm or cold water over vast distances and are found to be intensifying due to global warming. This intensification may exacerbate the warming rates of MHWs and cooling rates during cold spells. The implications of these findings are crucial as the twilight zone is home to key marine species and plankton, which form the base of the oceanic food chain. The study indicates that MHWs in these depths could lead to lower oxygen levels and reduced nutrients, impacting marine biodiversity.

Key Takeaways

1. **Extended Impact of MHWs:** Marine heat waves affect not just the surface but also the twilight zone of the ocean, which was previously under-studied due to its depth and lack of sunlight.
2. **Role of Eddy Currents:** Temperature changes in the deep ocean are largely influenced by eddy currents, which transport thermal energy over long distances, rather than by direct atmospheric interactions.
3. **Global Warming Effects:** Global warming is strengthening these eddy currents, thereby magnifying the effects of marine heat waves and potentially increasing their frequency and intensity.
4. **Environmental Concerns:** The changes in temperature in the twilight zone can lead to decreased oxygen levels and nutrients, posing a risk to marine life, particularly important fish species and plankton that sustain the marine ecosystem.
5. **Research and Monitoring Advancements:** The use of Argo floats and other deep-sea monitoring technologies is crucial for gaining a more comprehensive understanding of how climate change affects all oceanic layers, potentially leading to better predictive models and conservation strategies.

A Modified UBI policy may be more feasible-The Hindu Editorial

Economy

Easy Explanation

The concept of a Universal Basic Income (UBI) has gained traction globally as a potential solution to jobless growth and increasing inequality exacerbated by automation and AI. In India, discussions about replacing inefficient welfare schemes with direct income transfers have been energized by the feasibility provided by the JAM (Jan-Dhan, Aadhaar, Mobile) infrastructure. Recent initiatives, like cash transfer schemes for farmers, suggest a shift towards simplified, albeit targeted, welfare approaches. However, a true UBI, by definition, should be universal and not targeted. A modified, less ambitious UBI is being considered, which would align budget constraints with the need to provide a social safety net. This approach proposes a universal income transfer that is manageable within existing fiscal frameworks, potentially supplemented by targeted programs for vulnerable groups like the elderly or disabled.

Key Takeaways

1. **UBI Relevance:** UBI discussions in India are driven by the need to address jobless growth and social inequality, highlighting the relevance of a safety net in the current economic landscape.

| Clear your doubts now.

2. **Feasibility vs. Desirability:** While a full UBI may be desirable for its simplicity and coverage, fiscal constraints make a limited version more feasible.
3. **Current Schemes as Precursors:** Existing schemes, like PM-KISAN, which provides transfers to farmers, illustrate the potential of income transfer programs but are limited by their targeted nature.
4. **Proposed Modified UBI:** `A feasible UBI model might offer a smaller, universal income transfer—suggested at about ₽144 per person per month, totaling about 1% of GDP, aimed at broader coverage including non-farmers like landless laborers.`
5. **Implementation Challenges:** Even a modified UBI faces logistical hurdles, such as ensuring access to cash-out points and handling network and biometric authentication issues.
6. **Potential for Comprehensive Coverage:** Combining a modified UBI with existing targeted programs could provide a more robust safety net, accommodating various vulnerable groups.

The consideration of a modified UBI in India reflects a pragmatic approach to welfare, attempting to balance economic realities with the growing necessity for a universal safety net.

India's SDG focus and its human development issues-The Hindu Editorial

Sociology

Easy Explanation

India's progress in aligning with the Sustainable Development Goals (SDGs) as part of the UN Agenda 2030 has been marked by notable participation in global discussions, including the G-20 Summit and subsequent SDG Summit at the United Nations. The UNDP Human Development Report (HDR) for 2023-24 assesses India's human development since 1990, categorizing the nation within the medium human development tier with an HDI value of 0.644, ranking 134 out of 193 countries. Despite some progress, challenges such as the COVID-19 pandemic have hindered advances in key human development dimensions like education and income.

India faces significant gender disparities, particularly in labor force participation, and exhibits higher income inequality compared to global and regional averages. These issues are crucial as they directly impact the achievement of related SDGs including good health, quality education, gender equality, decent work, and reduced inequalities.

Key Takeaways

1. **Human Development Status:** India's slight improvement in HDI to 0.644 in 2022 from previous years indicates gradual progress but highlights persistent development challenges compared to neighboring nations.
2. **Gender Gaps:** There is a significant gender gap in labor force participation, with a marked disparity between male and female participation rates, especially in urban areas.
3. **Income Inequality:** India's income distribution is skewed towards the wealthiest, with the richest 1% controlling a larger share of income than seen in many other countries in the region.
4. **SDG Relevance:** Addressing human development issues such as gender inequality and income disparity is essential for India to meet its SDG commitments effectively.

| Clear your doubts now.

5. **Policy Focus:** The data suggests a need for robust policy interventions aimed at enhancing female labor force participation and addressing income inequality to ensure equitable and sustainable development.

Overall, while India has made strides in some areas of human development, significant efforts are required to address the structural issues that hinder more substantial progress towards achieving the SDGs.

On the exception to marital rape-The Hindu Text and Context

Polity

Easy Explanation

The Supreme Court of India is currently evaluating the legality of the Marital Rape Exception (MRE) in Section 375 of the Indian Penal Code, which exempts husbands from rape charges against their wives if the wife is over 18 years old. This law is rooted in the outdated doctrine of coverture from English common law, where a wife's legal identity was subsumed by her husband's upon marriage. The challenge to the MRE argues it violates fundamental rights such as equality, non-discrimination, and the right to privacy and bodily integrity under the Indian Constitution.

Recent judicial actions, including a split verdict by the Delhi High Court in 2022, reflect evolving recognition of married women's rights. The government opposes abolishing the MRE, citing the sanctity of marriage and the potential for misuse of the law. The Supreme Court's decision could realign Indian legal standards with global norms by removing this exception, thus ensuring uniform legal treatment of all non-consensual sexual acts.

Key Takeaways

1. **Legal Challenge:** The Supreme Court of India is examining the constitutionality of the Marital Rape Exception (MRE) under Section 375 of the IPC, which exempts husbands from rape charges within marriage if the wife is over 18.
2. **Historical Context:** The MRE originates from the doctrine of coverture in English common law, where a wife's legal identity was absorbed into her husband's upon marriage.
3. **Global and National Precedents:** Countries like the UK have abolished similar laws. In India, recent judicial decisions, such as the Karnataka High Court's 2022 ruling, have challenged the MRE's validity.
4. **Constitutional Concerns:** The MRE is argued to violate fundamental rights under the Indian Constitution, including equality, non-discrimination, and the right to bodily integrity and privacy.
5. **Government Position:** The Indian government defends the MRE, citing marriage sanctity and potential misuse of marital rape laws as reasons for its retention.
6. **Legal Impact of Abolition:** Removing the MRE would align legal standards for all non-consensual sexual acts, eliminating the current marital exemption without creating a new offense.

These points highlight the ongoing debate on aligning legal protections against sexual violence with contemporary standards of human rights and gender equality.

| Clear your doubts now.

Doctors' strike reveals how apathy to health pushes people into poverty-The Hindu Science

Sociology

Easy Explanation

The recent doctors' strike in West Bengal has spotlighted the critical issues plaguing India's healthcare system. Triggered by the tragic incident at R.G. Kar Medical College, the strike underscores the severe underfunding and neglect in the healthcare sector, which not only jeopardizes doctor safety but also patient care. With West Bengal allocating only 1% of its GDP to healthcare—among the lowest in India—and a significant 68% of healthcare expenses borne out-of-pocket by patients, the state exemplifies broader national challenges. These financial pressures push many into poverty, especially when coupled with the high costs in the burgeoning private sector, which dominates 70% of India's healthcare market.

Key Takeaways

1. **Severe Underfunding:** West Bengal spends a mere 1% of its GDP on healthcare, significantly less than the amount spent by more successful healthcare models in other countries, such as Cuba's 14%.
2. **High Out-of-Pocket Expenses:** The majority of healthcare costs in West Bengal are paid directly by patients, making it the second-highest in India for such expenses, following Uttar Pradesh.
3. **Poor Working Conditions for Doctors:** The strike highlighted the unsustainable working conditions for healthcare professionals, including long shifts without adequate facilities and frequent instances of violence and harassment.
4. **Corruption and Inefficiency:** Widespread corruption and inefficiency exacerbate the issues within the healthcare system, leading to mismanagement and poor delivery of services.
5. **Need for Reform:** There is an urgent need for comprehensive healthcare reform in India, focusing on increased funding, better infrastructure, and policies to reduce the financial burden on patients.
6. **Impact on Poverty:** The high cost of medical treatment contributes significantly to poverty, with the NITI Aayog reporting that healthcare expenses push nearly 7% of the Indian population below the poverty line annually.

The ongoing crisis in West Bengal's healthcare system reflects deep-seated issues that require immediate attention to prevent further deterioration of patient care and healthcare worker safety.

19th October 2024

Lady Justice: Roots in ancient Greece, not always blindfolded-Indian Express Explained

Polity

Easy Explanation

The new statue of Lady Justice in India's Supreme Court reimagines the traditional depiction. Instead of the usual blindfolded woman with scales and a sword, this version, commissioned by Chief Justice D.Y. Chandrachud, shows a saree-clad woman without a blindfold, holding the scales and a copy of the Indian Constitution. This change signifies that the law "sees everyone equally," as opposed to the earlier blindfold

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symbolizing impartiality. The classic Lady Justice iconography can be traced to Greek and Roman mythology, with figures like Themis and Justitia. The introduction of Lady Justice to India dates back to British rule. The shift in imagery aligns with India's efforts to "decolonize" its legal framework.

Key Takeaways:

1. **New statue of Lady Justice** in India's Supreme Court shows her without a blindfold, holding the Constitution.
2. **Significance of no blindfold**: Symbolizes law's ability to see everyone equally, challenging the older idea of blind impartiality.
3. **Historical roots**: The figure of Lady Justice comes from ancient Greek and Roman mythology.
4. **Decolonizing the legal system**: This new image reflects ongoing legal reforms in India aimed at breaking colonial traditions.
5. **International parallels**: Similar statues have been erected and faced controversy, such as in Bangladesh.

India and the science Nobels-Indian Express Explained

Science

Easy Explanation

India has had minimal success at the Nobel Prizes in the sciences, with only one Indian working in India, C.V. Raman, winning the Physics Nobel in 1930. Other Indian-origin Nobel laureates, like Har Gobind Khorana, Subrahmanyan Chandrasekhar, and Venkatraman Ramakrishnan, did their Nobel-winning work abroad. This is attributed to factors like insufficient research funding, bureaucratic hurdles, and lack of incentives. While Indian scientists have been nominated for the Nobel, including Meghnad Saha and Homi J. Bhabha, many deserving scientists like Jagadish Chandra Bose were overlooked. Other nations like China, South Korea, and Israel have also underperformed, despite better research infrastructures. The US and Europe continue to dominate the science Nobels due to their unmatched scientific ecosystems.

Key Takeaways:

1. Only **one Indian** working in India, C.V. Raman, has won a science Nobel.
2. **Major reasons**: lack of research funding, bureaucratic obstacles, and limited opportunities in India.
3. Indian-origin scientists like **Khorana, Chandrasekhar**, and **Ramakrishnan** won the prize but worked abroad.
4. Other countries like **China and Israel** have also underperformed despite stronger research infrastructures.
5. **US and Europe dominate** the science Nobels due to their superior research environments.

What the killing of Yahya Sinwar means for Hamas and the war in Gaza-Indian Express Explained

International relations

Easy Explanation

| Clear your doubts now.

The killing of Yahya Sinwar, Hamas's leader in Gaza, marks a significant turning point in the war between Israel and Hamas. Sinwar was a key figure, responsible for coordinating military operations and allegedly masterminding the October 7, 2023, terrorist attacks. His death leaves a power vacuum within Hamas, with potential successors lacking his influence and control. While Hamas is weakened and in disarray, experts argue this does not signal the end of the group. The conflict is expected to continue, and Sinwar's death might open negotiations for the release of Israeli hostages. However, Israeli Prime Minister Benjamin Netanyahu has indicated the war is not over.

Key Takeaways:

1. **Yahya Sinwar's death**: A major blow to Hamas, leaving a power vacuum in the group.
2. **Sinwar's role**: He was Hamas's top military leader and responsible for planning attacks on Israel.
3. **Hamas weakened**: The group is disorganized, but experts do not see this as its end.
4. **Potential for negotiations**: Sinwar's death may facilitate talks for a ceasefire and hostage release.
5. **Conflict continues**: Despite this development, Israel's leadership plans to keep fighting, and the war is unlikely to end soon.

HOW 'SMART INSULIN' PROMISES TO REVOLUTIONISE DIABETES TREATMENT-Indian Express Explained

Science and technology

Easy Explanation

A new breakthrough in diabetes treatment, "smart insulin," promises to revolutionize how diabetes is managed. Smart insulin, named NNC2215, can automatically respond to blood sugar levels, activating or deactivating as needed. Unlike current treatments that require patients to constantly monitor and adjust insulin doses, NNC2215's molecular structure allows it to respond to glucose levels in real-time, reducing the risk of blood sugar falling too low. Though it has shown promise in animal tests, human trials are still pending, and researchers are refining the insulin to make its activation smoother.

Key Takeaways:

1. **Smart insulin**: Automatically adjusts to blood sugar fluctuations, reducing the need for constant monitoring.
2. **Mechanism**: The insulin molecule has an "on-and-off switch" that responds to glucose levels, activating when needed.
3. **Animal testing**: NNC2215 has successfully lowered blood sugar in rats and pigs.
4. **Future potential**: Human trials are upcoming, but researchers are working to make insulin release more gradual.
5. **Impact**: This breakthrough could significantly ease the management of diabetes and improve the well-being of millions worldwide.

In dangerous territory-Indian Express Editorial

International relations

| Clear your doubts now.

Easy Explanation

The recent charges against Vikash Yadav, alleged by the US to be an Indian intelligence officer involved in an assassination attempt on US soil, have stirred significant diplomatic tensions. This incident follows similar accusations from Canada, heightening concerns about India's global reputation and the conduct of its intelligence agencies. These developments raise questions about the accountability and oversight of Indian intelligence operations, the professionalism of its agencies, and the strategic choices India is making on the global stage. If true, these allegations suggest a severe misjudgment by Indian intelligence, potentially involving rogue operations that risk India's international relationships and its democratic principles.

Key Takeaways:

1. **Diplomatic Impact**: The charges against Yadav could severely damage India's international standing and relations, especially with countries like the US and Canada.
2. **Accountability Concerns**: The incident highlights a lack of proper oversight and accountability mechanisms for Indian intelligence agencies, which could lead to unchecked and risky operations.
3. **Question of Professionalism**: There are concerns about the professionalism and discipline within India's intelligence community, particularly regarding how operations are managed and conducted.
4. **Strategic Implications**: The allegations, if true, challenge the strategic wisdom behind such operations, especially given the minimal threat posed by the targeted groups.
5. **Domestic and International Ramifications**: This situation could have broad implications, from domestic policy and security practices to India's position and actions on the international stage.

NOT A SMART HIKE-Indian Express Editorial

Economy

Easy Explanation

The Indian government has increased the minimum support price (MSP) for wheat to Rs 2,425 per quintal for the 2024-25 crop, up by Rs 150 from the previous year. This decision comes despite concerns that such increases make Indian wheat globally uncompetitive and fuel domestic inflation. The rationale behind the hike includes maintaining adequate stock levels and responding to high open market prices, but these justifications face criticism. Critics argue that the focus on MSP distracts from more crucial agricultural needs like enhancing yields and reducing cultivation costs. Additionally, alternative measures such as duty-free imports have been suggested to address low stock issues without impacting market competitiveness.

Key Takeaways:

1. **MSP Hike**: The recent MSP increase for wheat may negatively impact its global competitiveness and contribute to domestic inflation.
2. **Stock Levels**: While wheat stocks are low, rice stocks are at an all-time high, questioning the need for a wheat MSP increase based solely on stock levels.
3. **Global Pricing**: The current MSP makes Indian wheat more expensive than imported wheat, even with added costs, which could deter exports and affect farmers.
4. **Agricultural Policy Focus**: The policy shift towards higher MSPs diverts attention from essential long-term agricultural reforms such as improving per-acre yields and reducing costs.

| Clear your doubts now.

5. **Sustainable Farming Practices**: Enhancing agricultural productivity and sustainability requires investment in advanced breeding, efficient resource use, and pest management, areas currently overshadowed by MSP-focused policies.

Forecasting better in India, come rain or shine-The Hindu Editorial

Geography

Easy Explanation

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India's increasing vulnerability to extreme weather events, marked by severe
monsoon flooding affecting many states, highlights the urgent need for enhanced
weather forecasting capabilities. The recently approved "Mission Mausam" aims to
address this by expanding India's weather observation network, improving
forecasting models, and exploring weather modification techniques. This ₹2,000
crore initiative will be spearheaded by key institutes under the Ministry of Earth
Sciences. Despite existing advancements, significant gaps remain in radar coverage
and data accessibility, which are critical for developing localized early warning
systems and other analytical tools to mitigate climate risks.
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Key Takeaways:

1. **Increasing Extreme Weather**: India is facing more frequent and severe weather events, necessitating better forecasting and early warning systems.
2. **Mission Mausam**: Launched to enhance India's meteorological capabilities, focusing on expanding observation networks and integrating advanced forecasting technologies.
3. **Coverage Gaps**: There's an urgent need to increase the number of weather radars, especially along the western coast and in major urban centers that are currently under-covered.
4. **Data Accessibility**: Making weather data freely available to researchers and entrepreneurs is essential for developing localized solutions and enhancing understanding of weather patterns.
5. **User Engagement**: Improving the dissemination and interpretation of weather information through user-friendly platforms and educational tools will help communities better prepare for and respond to weather-related threats.

20th October 2024

What are the stress factors for Indian Railways?: TH FAQ

Economy

Easy Explanation:

On October 17, the Agartala-Lokmanya Tilak Express derailed in Assam, but luckily, no one was hurt. Earlier, on October 11, a passenger train hit a stationary goods train near Chennai, again without casualties. These incidents add to a series of recent railway accidents in India. The deadliest of these was the Balasore accident on June 2, 2023, which killed over 275 people. These incidents highlight the pressure on Indian Railways to improve safety despite financial constraints.

| Clear your doubts now.

How common are accidents?

- Railway accidents in India have decreased over time, from 1,390 annually in the 1960s to about 80 per year in the last decade.
- In the recent years, there were 34, 48, and 40 significant accidents in 2021-22, 2022-23, and 2023-24 respectively.
- Most accidents (55.8%) were caused by mistakes made by railway staff, while equipment failures caused 6.2%.
- Some major accidents have been linked to issues with the signalling system, like in Balasore and Kavaraipettai.

What is 'Kavach'?

- 'Kavach' is a system designed to prevent train collisions by tracking the relative positions of trains and initiating automatic braking if necessary.
- It has been installed on only 1,465 km of the railway's total network by February 2024, making up 2% of the network.
- Although 'Kavach' can enhance safety, experts argue that the government has the resources to implement it more widely to prevent accidents like Balasore.
- However, it might not have helped in all cases, such as the Kavaraipettai accident, due to limitations in its design.

What is the operating ratio?

- The operating ratio (OR) measures how much the Railways spends to earn ₹100. A higher OR indicates less money available for investment.
- The Railways' OR is estimated to be ₹98.2 in 2024-2025, slightly better than ₹98.7 in the previous year but higher than ₹97.8 in 2016.
- Higher spending pressures make the Railways more dependent on government budget support and extra borrowings.
- In 2016, the railway budget was merged with the regular budget, which made it easier to access government funds but also led to increased debt.

How are freight services faring?

- Freight services are crucial for the Railways, contributing 65% of its internal revenue.
- While both passenger and freight revenues are increasing, freight rates have risen more quickly.
- Nearly 30% of the railway network is over capacity, leading to slow freight movement and slower revenue growth.
- Projects like the Dedicated Freight Corridors (DFCs) have been slow to complete, impacting the speed and efficiency of freight movement.
- Coal remains a major part of the Railways' freight revenue, but the shift to renewable energy is reducing demand for coal transport.

What about passenger services' revenue?

- The Railways makes a profit from freight but loses money on passenger services.

| Clear your doubts now.

- For example, passenger services made over ₹50,000 crore in revenue in 2019-2020 but had a loss of ₹63,364 crore.
- Revenue from passenger services is expected to rise with new trains, like Vande Bharat Express, but the Railways last adjusted passenger fares in 2020.
- To increase revenue, the Railways has replaced cheaper sleeper coaches with more expensive AC coaches on some routes.

How is safety affected?

- The Railways struggles between keeping travel affordable and being financially sustainable.
- High expenses, including wages, pensions, and fuel costs, add to the challenge.
- Locomotive pilots often work under difficult conditions, including long shifts, which can impact safety.
- High traffic congestion affects the effectiveness of safety measures like 'Kavach' and other alert systems for trackside workers.
- The Railways' struggle to balance financial needs, maintain infrastructure, and meet safety requirements means it is often trying to catch up to its challenges.

Key Takeaways:

1. **Safety Concerns**: Recent derailments and accidents highlight ongoing safety issues within Indian Railways, despite the installation of systems like 'Kavach'.
2. **Accident Trends**: Railway accidents have decreased over decades but still occur, with staff errors and equipment issues being common causes.
3. **Financial Constraints**: The Railways' high operating ratio limits its ability to invest in infrastructure and safety, relying heavily on government support.
4. **Freight & Passenger Revenue**: Freight services provide crucial revenue, but passenger services often operate at a loss. Efforts to boost revenue include introducing new trains and modifying coach types.
5. **Challenges Ahead**: Balancing safety improvements, managing expenses, and addressing overcapacity are critical for the Railways' future success.

[How will a classical status help languages?: TH FAQ](#)

Sociology

Easy Explanation:

What's Happening? The Indian government recently declared five new languages as "classical languages." These languages are Marathi, Bengali, Assamese, Pali, and Prakrit. The announcement comes after changing some of the rules that decide what makes a language "classical." This status can bring a lot of benefits, like funding for research, language preservation, and support for translating old literature.

What Makes a Language Classical? When the concept of a "classical language" started in 2004, it was meant to recognize languages that are very old and important. The original rules were that:

1. The language should have written records or historical texts from over a thousand years ago.
2. It should have a rich collection of ancient literature that is seen as valuable.
3. The language's old writings should be unique, not heavily borrowed from another language group.

| Clear your doubts now.

The first language to get this status was Tamil. Later, languages like Sanskrit, Telugu, Kannada, Malayalam, and Odia also received this recognition.

How Did These Languages Become Classical?

- **Marathi:** In 2012, a special committee was formed to prove that Marathi had ancient roots. They gathered old documents as evidence. Even though the request was made in 2014, it took until now for it to be approved. Many people supported the move through petitions and campaigns, showing that Marathi has a long history of over 2,000 years.
- **Bengali:** West Bengal's Chief Minister sent a detailed report to the central government, arguing that Bengali has been written down since the 3rd or 4th century BCE. The goal was to show that the language has ancient roots and deserves recognition.
- **Assamese:** Assamese supporters collected evidence, including old stone inscriptions and ancient manuscripts, to show the language's history going back to the 3rd century AD. The push for recognition also comes from a desire to preserve the language after attempts to suppress it during colonial times.

In July 2024, the government made the criteria for a language to become classical a bit easier. They removed the need for a language to be entirely original and added that having ancient knowledge texts and inscriptions could help a language qualify as classical.

What Does This Mean for These Languages? With the classical status, these languages can get more attention, funding, and support. Here's what this could look like:

- **Bengali:** It's a big deal for a language in which Rabindranath Tagore wrote to get this recognition. It could mean more translations of Bengali works, more research funding, and support for different Bengali dialects. This is especially important as more people shift to speaking other languages.
- **Assamese:** The recognition can encourage studies of ancient Assamese texts and inscriptions that haven't been fully explored yet. It could also help keep modern Assamese alive, especially as many students now attend English-medium schools.

For these newly recognized classical languages, the government might fund special university centers, support research, and offer awards to celebrate and preserve the languages.

Key Takeaways:

1. **New Classical Languages**: Marathi, Bengali, Assamese, Pali, and Prakrit have been declared classical languages by the Indian government, bringing new opportunities for preservation and study.
2. **Original Criteria (2004)**: Initially, a language needed ancient texts dating back over 1,000 years, unique ancient literature, and a tradition not borrowed from other languages to qualify as classical.
3. **Updated Criteria (2024)**: Now, the requirements focus on having ancient knowledge texts and inscriptions, and the need for purely original literature has been removed. This change allowed languages like Marathi, Bengali, and Assamese to qualify.
4. **Efforts for Recognition**:
   - **Marathi**: Efforts began in 2012 with support from many people, and it took over a decade to secure the status.
   - **Bengali**: West Bengal presented detailed historical evidence to prove the language's antiquity.

| Clear your doubts now.

- ○ **Assamese**: Evidence included ancient inscriptions and manuscripts, driven by a desire to preserve the language after colonial suppression.
5. **Benefits of Classical Status**: Recognized languages may receive funding for research, preservation, and translating ancient literature. This can help keep the languages alive, support academic studies, and promote cultural heritage.
6. **Focus on Language Preservation**: The recognition can also encourage the use of these languages in modern contexts, balancing the rise of English-medium education with the preservation of cultural heritage.

[Redesigned programmes can improve TB treatment outcomes: TH Science](#)

Science Tech

Easy Explanation:

Why is Tuberculosis (TB) a big issue in India? TB is a serious health problem in India, with about three million new cases every year and around 300,000 people dying from it. TB is closely linked to social issues like poverty, overcrowded living conditions, and undernutrition (lack of proper food). People who are poor often don't get good medical care, which makes the disease worse. They may lose their income due to illness and struggle to buy food, making it harder for them to recover and return to work. Poor nutrition is especially dangerous because it makes it easier to get TB, and even if patients get treated, they can become sick again if they don't have enough to eat.

What is the Government Doing? To tackle this, the Indian government has announced some new steps:

1. **Nikshay Poshan Yojana (NPY)**: `This is a program that helps TB patients by giving them money to buy food. Previously, patients received ₹500 per month during their treatment, but now it has been doubled to ₹1,000. Additionally, patients will receive a one-time payment of ₹3,000 when they are diagnosed.`
2. **Nutrition Support**: The government is also planning to give extra food or nutritional supplements to patients who are underweight for two months. They also want to help the families of TB patients with food and other support.

Why Is Nutrition So Important for TB Patients? When people get TB, they often have very low body weight. For example, adult men with TB in India typically weigh only 43 kg, and women weigh around 38 kg. Without proper nutrition, they don't gain weight quickly during their treatment, which can increase their risk of dying from the disease. Even after completing their treatment, many remain undernourished, making them more likely to get sick again.

Providing nutritional support helps in many ways:

- **Improves Recovery**: Proper nutrition helps TB patients recover faster and regain their strength.
- **Reduces Risk of Death**: Studies show that if TB patients gain weight early in their treatment, their risk of dying is reduced by more than 50%.
- **Prevents New Cases**: Giving food baskets to patients and their families has been shown to reduce the chances of new TB cases by up to 50%, almost like a vaccine.

What Are the Challenges with This Program?

| Clear your doubts now.

1. **Burdened Staff**: TB program staff, who already have a lot of responsibilities, find it challenging to manage the process of getting money to patients.
2. **Access Issues**: Many of the poorest people can't access the benefits because they don't have proof of identity or bank accounts, or they live too far from the facilities where they can apply for help.
3. **Need for Better Support**: Studies show that TB patients who don't receive financial support from the NPY are four times more likely to have poor health outcomes.

What Can Be Improved?

1. **More Dedicated Staff**: The government needs to hire more staff specifically for managing the NPY program and helping patients.
2. **Better Counseling**: Patients and their families need clear information on why nutrition is important and what foods are best for them. Instead of relying on expensive supplements, they should be encouraged to eat affordable, protein-rich foods like pulses, ground nuts, milk, and eggs.
3. **Food Baskets Over Supplements**: Instead of costly commercial supplements, providing food baskets could be a better long-term solution because they are more sustainable and have proven benefits.
4. **Expand Support Duration**: Providing only two months of extra food might not be enough for patients with severe undernutrition. Longer support could help them recover better.
5. **Protecting Patient Privacy**: The stigma around TB can discourage people from seeking help, so the government should ensure that patients are not embarrassed or exposed when receiving food baskets.
6. **Better Coordination with Healthcare**: Nutritional and financial support should be part of a bigger plan that includes a steady supply of TB medicines, better management of other health conditions, and careful monitoring of high-risk patients.

Key Takeaways:

- **TB Challenge in India**: About 3 million new TB cases and 300,000 deaths occur annually, with poor living conditions and nutrition being key risk factors.
- **Nikshay Poshan Yojana (NPY)**: A government program that now provides ₹1,000 per month to TB patients during treatment, plus a ₹3,000 one-time payment at diagnosis.
- **Importance of Nutrition**:
  - Undernutrition is common in TB patients, worsening their recovery.
  - Providing food support can reduce the risk of death and prevent new TB cases.
- **Challenges in Implementation**:
  - Lack of resources and staff burden in managing support.
  - Difficulties for the poorest in accessing financial benefits.
- **Recommendations for Improvement**:
  - Hire more staff for NPY activities.
  - Provide clear, culturally relevant nutrition counseling.
  - Use food baskets instead of expensive supplements for long-term support.
  - Extend nutritional support beyond two months for severely undernourished patients.
  - Ensure privacy for patients to reduce stigma.
- **Integrated Care**: Nutrition and financial support should work alongside other TB care efforts like continuous medicine supply and better diagnosis and management.

| Clear your doubts now.

Plankton balloon to six times their size to reach ocean surface: TH Science

Science Tech

Easy Explanation:

What are Phytoplankton and Their Mysterious Movement? Phytoplankton are tiny, single-celled organisms that live in the ocean, and many of them can glow in the dark, a trait called bioluminescence. One particular species, called *Pyrocystis noctiluca*, has puzzled scientists for a long time. These tiny plankton move up and down through the ocean, from the cold, dark depths to the sunlit surface, and then back down again. But the question was: how do these tiny creatures, which don't have fins or other appendages to help them swim, manage this journey?

What Did the Scientists Discover? Scientists studying *Pyrocystis noctiluca* found that they have a unique way of controlling their movement, much like little submarines. Normally, these plankton are slightly heavier than seawater, meaning they should sink. But researchers noticed that these plankton can suddenly swell up to six times their original size, which helps them float up to the ocean surface. This process is a bit like a balloon filling with air.

How Do the Plankton Control Their Movement? The researchers used a special device called a "gravity machine" to mimic the conditions of the ocean's depths. By adjusting the water pressure and density inside the machine, they created a virtual ocean environment to observe how the plankton behaved. They discovered that when the plankton cells swell up, they become less dense than the surrounding seawater. This makes them float upwards, escaping the pull of gravity.

Why Do They Swell Up? The swelling process happens naturally as a part of the plankton's life cycle. When a single plankton cell divides to form two new cells, an internal structure called a vacuole (similar to a water tank) fills with fresh water. This causes the new cells to expand massively in size. Because the fresh water inside makes the cells lighter, they start to float upwards towards the ocean's surface.

What Happens Next? Once the plankton reach the surface, they use the sunlight to make food through photosynthesis, much like plants do on land. During the day, they absorb sunlight and produce energy, becoming heavier as they build up biomass. Eventually, they become too heavy and start to sink back down to deeper waters. When they divide again in these deeper waters, they use the swelling trick to rise back up, repeating the cycle.

Why Is This Important? This discovery shows how these tiny plankton have a clever way of controlling their position in the water. By being able to move up and down, they can access the sunlight they need to survive and then sink back to a safer depth when necessary. This ability to change their size and density helps them thrive in the challenging environment of the ocean.

Key Takeaways:

- **Phytoplankton Movement**: *Pyrocystis noctiluca* plankton can control their movement up and down through the ocean by changing their size.
- **Swelling Mechanism**:
  - They swell up to six times their original size by filling an internal structure called a vacuole with fresh water.

- This makes them less dense than seawater, allowing them to float upwards like a balloon.
- **Life Cycle Connection**:
  - The swelling happens during cell division, helping the newly formed cells reach the ocean surface.
  - Once at the surface, they use sunlight for photosynthesis and then become heavy as they produce energy, eventually sinking back down.
- **Research Method**:
  - Scientists used a "gravity machine" to simulate ocean conditions and observe how the plankton's density changes allow them to rise.
- **Importance of Movement**:
  - This up-and-down movement helps the plankton find the right balance between accessing sunlight for energy and staying in deeper waters to avoid dangers.

This discovery helps us understand how these tiny, seemingly simple organisms have adapted to thrive in the vast, dynamic environment of the ocean. It sheds light on the fascinating strategies that even microscopic life forms use to survive.

21st October 2024

[A new accord for Assam-Indian Express Editorial](#)

Polity

Easy Explanation

The Supreme Court of India upheld Section 6A of the Citizenship Act, 1955, which is crucial for implementing the Assam Accord aimed at managing citizenship issues arising from illegal immigration. Section 6A grants citizenship to migrants who came to Assam between 1950 and 1971 but excludes those who arrived after March 25, 1971. While the court's decision reflects the historical complexities and the sensitive political nature of Assam's demographic concerns, it creates challenges for many who could be rendered stateless. The judgment acknowledges the unique circumstances of Assam but leaves unresolved issues around statelessness and illegal immigrants.

Key Takeaways

1. **Supreme Court's decision**: Section 6A of the Citizenship Act remains constitutionally valid, reflecting the political compromise of the Assam Accord.
2. **Assam Accord**: Section 6A was introduced to address concerns about illegal immigration, granting citizenship based on specific dates.
3. **Demographic concerns**: Assam has long faced fears of cultural and linguistic dilution due to illegal immigration.
4. **Challenges to Section 6A**: The petitioners argued that it violated Assam's cultural and linguistic rights and that it should be applied uniformly across India.
5. **Court's stance**: The court chose not to strike down the provision, as doing so could render many stateless, indicating a need for political resolution.

| Clear your doubts now.

THE DIGITAL WAY FORWARD-Indian Express Editorial

Science and technology

Easy Explanation

The article discusses the adoption of the **Global Digital Compact (GDC)** at the UN Summit in September 2024, marking a global commitment to ensure that technology benefits everyone. It highlights India's pivotal role in promoting **Digital Public Infrastructures (DPIs)** during its G20 presidency, showcasing initiatives like **Aadhaar** and **UPI** that have significantly advanced financial inclusion and digital transactions in the country. However, the article underscores the necessity of conducting **impact assessments** to ensure DPIs remain accessible, inclusive, and effective. Without proper evaluation, there's a risk that DPIs could fail to serve their intended purpose or worsen existing inequalities. To address these challenges, the authors propose a framework based on three pillars—**Design, Data, and Dialogue**—to institutionalize impact assessments, improve policymaking, and ensure DPIs fulfill their transformative potential.

Key Takeaways

1. **Global Cooperation in Digital Governance**: The adoption of the Global Digital Compact signifies a global commitment to cooperative digital governance, aiming to make technology beneficial for all.
2. **India's Leadership in DPIs**: Through its G20 presidency, India has mainstreamed DPIs as tools for accelerating economic development, especially in the Global South, with initiatives like Aadhaar and UPI setting global examples.
3. **Expansion of DPIs Worldwide**: DPI initiatives are spreading globally, with programs like the World Bank's ID4D and India's MOSIP supporting numerous countries in developing their own digital infrastructures.
4. **Importance of Impact Assessments**: Conducting impact assessments is crucial to ensure DPIs are effective, inclusive, and do not exacerbate existing inequalities, guiding policymakers in making informed decisions.
5. **Challenges in Data Availability**: A significant hurdle in impact assessment is the lack of granular, intersectional data, which is essential for understanding how DPIs affect various segments of the population.
6. **Proposed 3D Framework**:
    - **Design**: Integrate impact assessment mechanisms into the design phase of DPIs to enable continuous feedback and improvements.
    - **Data**: Make data accessible through trusted and well-governed mechanisms to facilitate high-quality assessments while maintaining privacy and security.
    - **Dialogue**: Foster collaboration among stakeholders—including policymakers, private sector, civil society, and third-party agencies—to build ownership and accountability.
7. **Halfway Journey**: While India's confidence in DPIs is justified due to their initial success, institutionalizing impact assessments is necessary to fully realize their potential in transforming economies and improving millions of lives.

WATER IN COMMON-Indian Express editorial

Geography

| Clear your doubts now.

Easy Explanation

The **Global Commission on the Economics of Water** warns of an escalating global water crisis that could jeopardize over half of the world's food production if immediate action isn't taken. The crisis may reduce global GDP by 8% by 2050, with poorer nations potentially facing a 15% loss. Freshwater demand is projected to exceed supply by 40% by the end of the decade. The Commission urges rethinking water as a global common good requiring collective stewardship.

Issues like inefficient agricultural water use and industrial pollution, prevalent in countries like India, exacerbate the crisis. Despite awareness, there is a lack of political will to implement prudent water management practices. The Commission calls for a global pact to conserve water, but emphasizes that countries need to adapt recommendations to their specific contexts and resolve internal conflicts first. The report underscores that delaying action on water management is no longer sustainable.

Key Takeaways

1. **Escalating Water Crisis**: Immediate global action is crucial to avert the worsening global water crisis.
2. **Risk to Food Production**: More than half of global food production could be jeopardized if water resources are not managed more efficiently.
3. **Economic Consequences**: The water crisis could lead to an 8% decrease in global GDP by 2050, with poorer nations potentially experiencing a 15% reduction.
4. **Urgent Need for Freshwater**: Freshwater demand is expected to exceed supply by 40% within this decade, emphasizing the urgency of the situation.
5. **Humanitarian Impact**: Each day, over 1,000 children, primarily in poor countries, die due to lack of access to safe water.
6. **Global Common Good**: Water must be treated as a global common good, requiring collective and sustainable management strategies.
7. **Political and Practical Reforms Needed**: There is a significant gap between the recognition of water management issues and the political will to implement effective solutions.

[$1tn over 30 years:the huge cost of pivoting away from coal-Indian Express Explained](#)

Economy

Easy Explanation

A study by the environmental think-tank **iForest** estimates that India will need over **$1 trillion (Rs 84 lakh crore)** in the next 30 years to achieve a **just transition away from coal**. Coal plays a central role in India's energy sector and economy, employing millions, including over 369,000 in public sector coal companies alone. As India targets net-zero emissions by 2070, moving away from coal must be equitable, considering the livelihoods dependent on it.

The study outlines **eight key cost components**: mine closures and repurposing, retirement of coal plants, labor reskilling, economic diversification, community support, green energy investments, revenue substitution for states, and planning costs. Approximately **48% of the $1 trillion** will fund green energy infrastructure to replace coal assets.

Funding is expected from a mix of **public funds**—grants, subsidies, district mineral foundation funds, and CSR funds—for non-energy costs, and **private investments** for energy projects. International examples like **South Africa's** Just Energy Transition Investment Plan and **Germany's** coal phase-out legislation highlight global approaches to just transitions.

In India, coal-dependent districts like **Korba, Bokaro, Ramgarh, and Angul** will require significant investment to shift their economies, rehabilitate workers, and develop green energy, ensuring socio-economic stability during the transition.

Key Takeaways

1. **Massive Investment Needed**: India requires over **$1 trillion over the next 30 years** to facilitate a just transition away from coal, ensuring socio-economic stability in coal-dependent regions.
2. **Coal's Central Role**: Coal is vital to India's energy mix and economy, with millions employed in coal mining, coal plants, and allied sectors like steel, cement, transportation, and logistics.
3. **Just Transition Defined**: A **just energy transition** is an equitable and inclusive shift towards a low-carbon economy that considers the interests of fossil-fuel-dependent workers and communities.
4. **Eight Cost Components**:
   - **Mine Closures and Repurposing**
   - **Retirement of Coal Plants and Site Repurposing**
   - **Labor Reskilling for Green Jobs**
   - **Economic Diversification with New Businesses**
   - **Community Support Initiatives**
   - **Investments in Green Energy Infrastructure**
   - **Revenue Substitution for States**
   - **Planning and Implementation Costs**
5. **Funding Sources**:
   - **Public Funding**: Grants, subsidies, district mineral foundation funds (~$4 billion), and CSR funds will cover non-energy costs like community support and worker reskilling.
   - **Private Investments**: Will primarily fund energy costs, including new clean energy projects and infrastructure.
6. **Global Approaches to Just Transition**:
   - **South Africa**: Implementing the JET-IP with international funding of **$98 billion** over two decades to phase down coal.
   - **Germany**: Legislated to phase out coal power by 2038, allocating over **$55 billion** to close coal mines and support coal-dependent regions.
7. **Case Studies of Indian Districts**:
   - **Korba (Chhattisgarh), Bokaro and Ramgarh (Jharkhand), Angul (Odisha)** were studied.
   - Example: In **Bokaro**, the coal-based economy contributes to **54%** of the district's domestic product, employing around **139,000 workers**.
   - Transitioning Bokaro away from coal after 2040 will require an outlay of **Rs 1.01 lakh crore** over 30 years for worker rehabilitation, mine repurposing, and green energy development.

Come back of krishi in Bharat-Indian Express Explained

Economy

| Clear your doubts now.

Easy Explanation

Recent data indicates a reversal in the decades-old trend of decreasing reliance on agriculture in rural India. The **All India Rural Financial Inclusion Survey 2021-22** by NABARD found that **57% of rural households are agricultural**, up from 48% in 2016-17. Additionally, the **Periodic Labour Force Surveys (PLFS)** show that agriculture's share in employment rose from a low of 42.5% in 2018-19 to 46.1% in 2023-24. This increase occurs despite significant GDP growth, suggesting that more people are turning to farming for livelihoods due to a lack of job opportunities in manufacturing and other non-farm sectors. The trend raises questions about the nature of India's economic growth and its capacity to create diverse employment opportunities.

Key Takeaways

1. **Rising Agricultural Dependence**: The share of rural households engaged in agriculture increased from 48% in 2016-17 to 57% in 2021-22.
2. **Increased Employment in Agriculture**: Agriculture's share of the workforce grew from 42.5% in 2018-19 to 46.1% in 2023-24, reversing a declining trend.
3. **Higher Income from Farming**: Agricultural households saw an increased share of income from farming activities, with over 45% in 2021-22, up from 43.1% in 2016-17.
4. **Impact of COVID-19**: The pandemic may have influenced this shift, as agriculture was less affected by lockdowns compared to other sectors.
5. **Lack of Manufacturing Jobs**: Manufacturing employment decreased, employing only 11.4% of the workforce in 2023-24, contributing to the reliance on agriculture.
6. **Regional Variations**: States like Chhattisgarh, Madhya Pradesh, and Uttar Pradesh have over 50% of their labor force in agriculture, while states like Goa and Kerala have significantly lower shares.
7. **Economic Paradox**: Despite substantial GDP growth, the increased dependence on agriculture suggests a need to examine the effectiveness of economic expansion in generating non-farm employment.

India's choices in a world becoming bipolar again-The Hindu Editorial

International relations

Easy Explanation

The article examines India's strategic position in an increasingly bipolar world dominated by the United States and China vying for global hegemony. Unlike the Cold War era, the current U.S.-China rivalry is characterized by deep economic interdependence, with extensive trade, investment, and people-to-people connections that did not exist between the U.S. and the Soviet Union. This interconnectedness makes the competition more complex and less ideologically driven.

China's rise as a global power challenges U.S. dominance in economic and military spheres, leading to new strategic alignments such as the Quad (comprising the U.S., India, Japan, and Australia) and AUKUS (Australia, the U.K., and the U.S.). The Indo-Pacific region has become a critical arena for this rivalry. The article emphasizes that India faces unique challenges, including border tensions with China, and must navigate its relationships carefully. India should safeguard its sovereignty, engage economically with China where necessary, strengthen its military deterrence, and pursue its geopolitical interests independently to avoid becoming a pawn in the U.S.-China power struggle.

| Clear your doubts now.

Key Takeaways

1. **Emerging Bipolarity**: The global power structure is shifting towards a new form of bipolarity with the U.S. and China as the primary competitors for global influence.
2. **Economic Interdependence**: Unlike the Cold War, the U.S. and China have significant economic ties, making their rivalry more complex and less predictable.
3. **Non-Ideological Rivalry**: The competition is not based on ideological differences but on strategic and economic interests, with China seeking global hegemony without promoting a particular ideology.
4. **China's Growing Power**: China's economic might and military advancements pose a significant challenge to U.S. dominance, especially in technologies like 5G and naval capabilities.
5. **Role of Russia**: Russia acts as a junior partner to China, adding complexity to global dynamics, particularly through their alignment with nations like North Korea and Iran.
6. **Strategic Importance of the Indo-Pacific**: The Indo-Pacific has become a central theater for U.S.-China competition, leading to new alliances and partnerships aimed at counterbalancing China's influence.
7. **India's Independent Path**: India must carefully navigate this bipolar landscape by protecting its sovereignty, addressing border issues with China, engaging in selective economic cooperation, and ensuring it does not become aligned too closely with either superpower.

On climate finance to developing nations-The Hindu Text and Context

Environment

Easy Explanation

The 29th Conference of the Parties (COP29) of the UNFCCC, designated as a "finance COP," is set to address pivotal climate finance issues. Developing countries, disproportionately impacted by climate change due to geographical vulnerabilities and dependence on agriculture, will be a central focus. Despite contributing less to historical global emissions, these countries face significant developmental and environmental challenges. The UNFCCC defines climate finance as funding from public, private, and alternative sources aimed at supporting climate change mitigation and adaptation actions.

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Criticism has been directed at the OECD's climate finance reports, which have been
accused of overestimating contributions by counting commitments rather than actual
disbursements and including non-additional funds. Developing nations require
substantial external finance to achieve sustainable development alongside climate
resilience. For India, achieving its 2030 climate goals, such as installing 500 GW
of non-fossil fuel capacity and expanding green hydrogen and electric vehicles,
will necessitate an investment of approximately ₹850 lakh crore. The establishment
of a New Collective Quantified Goal (NCQG) for post-2025 climate finance, focusing
on actual disbursements and new additions, is a key agenda item at COP29.
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Key Takeaways

1. **Vulnerability of Developing Countries**: Developing nations are more susceptible to climate change impacts due to geographical factors and reliance on sectors like agriculture, despite contributing less to global emissions.

2. **Definition of Climate Finance**: Climate finance involves funding from various sources to support mitigation and adaptation efforts; accurate accounting of such finance is crucial for transparency and effectiveness.

3. **Criticism of OECD Climate Finance Reports**: The OECD's reported figures have been questioned for including commitments instead of actual disbursements and counting funds that are not new or additional.

4. **Need for External Financing**: Developing countries require significant external funds to balance climate action with developmental goals, facing higher capital costs and smaller domestic financial systems.

5. **India's Climate Finance Requirements**: `India needs substantial investment to meet its climate targets, such as expanding renewable energy capacity, green hydrogen production, and electric vehicle adoption, amounting to ₹850 lakh crore by 2070.`

6. **Establishing the NCQG**: Determining a new annual climate finance target post-2025 is a priority at COP29, emphasizing actual disbursements of new and additional public grants and mobilized private capital.

7. **Global Financial Estimates**: An independent expert group estimates that developing countries (excluding China) will need around $1 trillion in external finance annually by 2030 to effectively address climate change challenges.

What do the Atlantic Ocean hurricane forecasts foretell for India?-The Hindu Science

Environment

Easy Explanation

Atlantic Ocean hurricane forecasts do not directly predict weather patterns for India; however, they provide valuable insights into broader climate trends that affect the Indian Ocean region. The recent unpredictability in hurricane patterns, attributed to factors such as the absence of a strong La Niña and unexpected warming trends, suggests a shift in established climate models. This variability in forecasting models has implications for India, particularly in the Indian Ocean where cyclones are common.

India and other Indian Ocean rim countries are highly susceptible to both chronic and acute climate stressors. Chronic stressors include long-term changes like warming oceans, rising sea levels, and increased rainfall variability. Acute stressors, such as cyclones and heavy rainfall, compound these ongoing issues, often with devastating effects on the environment and local communities.

The region has seen a rise in cyclone activity, particularly in the Arabian Sea, with cyclones drawing energy from warmer upper ocean temperatures. This has led to more instances of rapid intensification, a phenomenon that remains challenging to predict accurately. Despite improvements in forecasting cyclones and managing disaster responses, the region's ability to predict the intensity and aftermath of cyclones, particularly post-landfall impacts, remains limited.

Key Takeaways

1. **Influence of Global Weather Patterns**: While Atlantic hurricane forecasts don't directly affect India, they highlight changes in climate patterns that could influence cyclone activity in the Indian Ocean.

2. **Vulnerability to Climate Stressors**: India is particularly vulnerable to a range of climate-induced changes, from sea-level rise to increased cyclone intensity, which poses significant risks to its population and infrastructure.

3. **Challenges in Cyclone Prediction**: The region faces significant challenges in predicting and managing cyclones, especially with rapid intensifications fueled by warmer ocean temperatures.

4. **Need for Advanced Forecasting**: Improving the accuracy of cyclone forecasts, particularly regarding their intensity and post-landfall impacts, is crucial for effective disaster management and mitigation strategies.

5. **Socio-economic and Security Implications**: The impacts of climate change and severe weather events extend beyond environmental damage, affecting socio-economic stability and national security in the Indian Ocean region.

22nd October 2024

What is Z-Morh tunnel?Why is it strategically important?-Indian Express Explained

Economy

Easy Explanation

What is the Z-Morh Tunnel?

The Z-Morh Tunnel is a 6.4 km long tunnel located near Gagangir village in the Ganderbal district of Jammu and Kashmir, India. It connects the town of Kangan to the tourist destination of Sonmarg. The tunnel gets its name from the Z-shaped stretch of road at its construction site. It is a part of the larger Zojila Tunnel project aimed at providing all-weather connectivity between Srinagar, Drass, Kargil, and Leh on National Highway-1 (NH-1).

Why is it Strategically Important?

- **All-Weather Connectivity:** The Srinagar-Leh Highway (NH-1) is one of only two roads connecting Ladakh to the rest of India, the other being the Manali-Leh Highway (NH-3). Both highways are often closed during winter months due to heavy snowfall and avalanche threats. The Z-Morh Tunnel will bypass a high-altitude stretch prone to closures, ensuring uninterrupted connectivity.

- **Military Significance:** Ladakh is a strategically vital region for India, sharing borders with both Pakistan and China. The area has seen military tensions, notably the 2020 Galwan clashes with China. Year-round road access facilitated by the tunnel enhances the movement of troops and supplies, bolstering India's defensive capabilities.

- **Economic and Tourism Boost:** The tunnel will make the resort town of Sonmarg accessible throughout the year, promoting tourism and contributing to the local economy.

Project Timeline and Current Status

- **Inception:** Originally conceived by the Border Roads Organisation (BRO) in 2012, the project was first awarded to Tunnelway Ltd.

| Clear your doubts now.

- **Re-Tendering:** The National Highways & Infrastructure Development Corporation Limited (NHIDCL) later took over the project, re-tendering it to APCO Infratech.
- **Progress and Delays:** Initially expected to be completed by August 2023, the project faced delays due to various reasons. A soft opening occurred in February 2023. As of now, the tunnel is almost complete, with inauguration delayed due to the Model Code of Conduct (MCC) in place because of the Jammu and Kashmir Assembly elections.
- **Related Projects:** The Zojila Tunnel, a 14 km long tunnel connecting Sonmarg in Kashmir to Drass in Ladakh, is also under construction by Megha Engineering and is expected to be completed by December 2026.

Key Takeaways

- **Strategic Infrastructure:** The Z-Morh Tunnel is a critical component in enhancing India's strategic infrastructure in the Ladakh region, providing reliable connectivity for both civilian and military purposes.
- **Improved Mobility:** The tunnel ensures all-year mobility on NH-1, reducing reliance on air transport for military logistics and cutting associated costs.
- **Economic Development:** By making tourist destinations like Sonmarg accessible year-round, the tunnel is set to boost tourism and stimulate economic growth in the region.
- **Enhanced Security:** Improved infrastructure supports quicker mobilization of forces in times of need, strengthening national security along sensitive borders.

[The Population Question-Indian Express Explained](#)

Sociology

Easy Explanation

South Indian states like Andhra Pradesh and Tamil Nadu are facing concerns over declining birth rates and aging populations. Political leaders worry about the demographic shift affecting economic productivity and reducing parliamentary representation after delimitation, which could penalize states with slower population growth. Andhra Pradesh's Chief Minister has proposed incentivizing larger families, but global evidence shows that pro-natalist policies rarely work in prosperous, educated societies. Instead, experts suggest internal migration from northern states with higher fertility could help balance population disparities. Additionally, the focus should be on increasing the economic productivity of the workforce rather than solely boosting birth rates.

Key Takeaways:

1. **Aging Population Concern:** Southern states face a growing elderly population, which increases dependency ratios and puts pressure on healthcare and social services.
2. **Declining Fertility Rates:** States like Andhra Pradesh and Kerala reached low fertility rates earlier than northern states, leading to concerns about future economic and political impacts.
3. **Pro-Natalist Policies:** Global examples show that financial incentives to increase birth rates are not very effective in prosperous regions.
4. **Internal Migration as a Solution:** Migration from northern to southern states can balance demographic differences and provide a younger workforce without the need to increase birth rates.

| Clear your doubts now.

5. **Focus on Economic Productivity:** Enhancing the skills and economic output of the current working population is key to handling demographic changes effectively.

What Is Satellite Spectrum,why most countries prefer not to hold auctions-Indian Express Explained

Economy

Easy Explanation

India's Union Communications Minister, Jyotiraditya Scindia, announced that satellite spectrum for satellite communication (satcom) would be allocated administratively rather than through auctions, which was proposed by Reliance Jio. This decision benefits global satcom companies like Elon Musk's Starlink. Unlike terrestrial spectrum, which is limited by national boundaries, satellite spectrum has a global, non-exclusive nature managed by the International Telecommunication Union (ITU). Satcom services offer key benefits like broader coverage and resilience in rural and remote areas. Although some countries like the U.S. and Brazil have experimented with auctions for satellite spectrum, they found the process impractical and reverted to administrative allocation. India's satcom sector is expected to grow from $2.3 billion to $20 billion by 2028.

Key Takeaways:

1. **Satcom Spectrum Allocation:** Satellite spectrum will be allocated through administrative processes rather than auctions because satellite spectrum is non-exclusive and globally coordinated by the ITU.
2. **Benefits of Satcom Services:** Satcom services provide broader connectivity in remote areas, higher resilience in extreme weather, and can complement terrestrial networks by covering regions that are difficult to reach with traditional communication infrastructure.
3. **Market Growth:** India's satellite communication sector is expected to grow from $2.3 billion to $20 billion by 2028, presenting a significant market opportunity for satellite operators.
4. **Auction Feasibility:** While some countries like the U.S. and Brazil attempted to auction satellite spectrum, they found the process impractical and switched back to administrative allocation due to the shared, non-exclusive nature of satellite spectrum.
5. **Global and National Significance:** Satcom is crucial for providing internet and communication in rural areas and is seen as more resilient than terrestrial networks during natural disasters. The sector holds great potential for India's broadband market, which remains largely untapped.

An approaching milestone in constitutional governance-The Hindu Editorial

Polity

Easy Explanation

November 26, 2024, marks the 75th anniversary of the adoption of the Constitution of India, an important milestone in India's democratic history. Over the past seven decades, India has successfully upheld key constitutional values, including respect for democratic institutions, smooth transitions of power, protection of fundamental rights, federalism, and the role of media and civil society in fostering democracy. The adoption of the Constitution in 1949 was crucial in unifying a diverse subcontinent into a nation built on shared constitutional principles. India's continued social and economic development, high voter turnout in elections, and commitment to democratic governance demonstrate the resilience of its constitutional framework.

| Clear your doubts now.

Key Takeaways:

1. **Respect for Democratic Institutions:** Indians have consistently shown respect for democratic processes, as seen through high voter turnout and participation in elections since 1951. This respect has deepened as standards of living and life expectancy have improved.
2. **Smooth Transitions of Power:** A hallmark of India's democracy is the smooth transfer of power after elections, regardless of political ideology or party, reaffirming the people's central role in governance.
3. **Protection of Rights and Freedoms:** The Constitution places a high value on individual rights and freedoms, safeguarded by courts. The framers ensured that rights would be protected, balancing the state's power with a focus on fundamental freedoms.
4. **Federalism and Diversity:** Federalism has strengthened over time, acknowledging India's cultural and linguistic diversity. State-level parties and local governance institutions, like panchayats, contribute to national political consciousness.
5. **Role of Media and Civil Society:** Despite challenges, the media and civil society have played a key role in keeping democracy alive by fostering transparency and enlightening the electorate, contributing to an informed public discourse.

On sanctions and shadow fleets-The Hindu Text and Context

International relations

Easy Explanation

The discussion of "shadow fleets" has become prominent in the context of international sanctions, particularly during the Russia-Ukraine conflict. These fleets, often consisting of tanker ships carrying commodities like Russian crude oil, utilize Flags of Convenience (FoCs) to obscure their ownership and circumvent strict regulatory oversight. This practice allows them to evade sanctions by operating under the flags of countries with less stringent regulations, such as Panama and Liberia. India has come under scrutiny for allegedly hosting such a shadow fleet, largely due to the activities of Indian firms and classification societies that manage or certify ships involved in transporting Russian oil, many of which are based in Dubai.

The global shipping industry's intricate and decentralized structure makes it difficult to enforce sanctions effectively. Ships maintain their insurance and avoid sanctions by registering in nations that do not comply with international regulatory standards or by altering ship management to entities in compliant jurisdictions. This systemic opacity and the flexibility in registration and ownership contribute to ongoing challenges in tracking and sanctioning these vessels.

Key Takeaways:

1. **Flags of Convenience (FoCs):** Flags of Convenience from countries like Panama and Liberia are commonly used by ships to evade stringent international regulations and sanctions, enabling them to obscure ownership and operational details.
2. **India's Involvement:** Accusations have surfaced against India for its alleged role in hosting a shadow fleet, primarily linked to the certification of vessels involved with Russian oil by Indian entities, with operations coordinated from Dubai.

| Clear your doubts now.

3. **Complexity in Enforcement:** The decentralized and complex nature of the global shipping industry, coupled with opaque ownership structures, makes it challenging to enforce international sanctions effectively.

4. **Tactics to Maintain Operations:** To avoid sanctions and continue operations, ships often switch flags, manage registrations through jurisdictions with lenient standards, or change ship management to entities with valid insurance cover.

5. **Global Shipping Structure:** The structure of the global shipping industry, involving diverse stakeholders and varying national regulations, adds layers of complexity to sanction enforcement efforts.

On Railways decision to shrink advance booking period-The Hindu text and Context

Economy

Easy Explanation

Indian Railways has revised its Advance Reservation Period (ARP) policy, reducing the booking window from 120 days to 60 days, effective November 1, 2024. This change marks a return to the ARP policy that was in place from 1995 to 2007, and reverses the 16-year-old policy initiated in 2008. The decision was based on observations that a longer booking window led to higher rates of ticket cancellations and non-attendance ("no shows"), which in turn facilitated fraudulent activities like impersonation and illegal ticket sales by railway officials. Railways officials noted that the majority of reservations occur within 60 days of travel, supporting the rationale for this adjustment. The new rules apply to all passengers, although foreign tourists and certain express trains like Taj Express and Gomti Express have exceptions due to specific booking behaviors and quotas.

Key Takeaways:

1. **Reduced ARP Window:** The booking window for train tickets on Indian Railways has been shortened from 120 days to 60 days to reduce administrative issues and fraud linked to long-term bookings.

2. **Reasons for Change:** Observations showed that a longer booking period resulted in a 21% cancellation rate and about 4-5% of passengers not showing up, which not only led to seat wastage but also opened opportunities for various frauds.

3. **Impact on Fraud and Touts:** Shortening the ARP is expected to mitigate risks such as impersonation and illegal activities by reducing the window available for such practices and curtailing the leverage of touts who block large numbers of tickets.

4. **Exceptions and Special Cases:** Foreign tourists can still plan their journeys year-round due to a special quota. Certain trains that typically have tickets booked shortly before travel are exempt from these ARP changes.

5. **Debate on ARP Duration:** There is an ongoing debate within the Ministry on the optimal length of the ARP, with some advocating for an even longer reservation period to secure advance revenue, although this is currently limited to foreign tourists.

How policies shape high-performance building standards and climate goals-The Hindu text and Context

Environment

Easy Explanation

High-Performance Buildings (HPBs) represent a strategic response to climate change and urban challenges, integrating advanced design to significantly reduce energy consumption, manage resources efficiently, and minimize environmental impact. These buildings not only decrease operational costs but also enhance occupant well-being, making them a preferred choice for sustainable urban development. Governments worldwide, including India, are promoting HPBs through progressive policies, financial mechanisms, and incentives that support energy efficiency and carbon neutrality. Indian initiatives under its National Action Plan on Climate Change, such as the Energy Conservation Building Code (ECBC) and certifications like GRIHA and LEED, have been instrumental in advancing the adoption of energy-efficient practices in the construction sector.

Key Takeaways:

1. **Policy Support for Energy Efficiency:** Various global and national policies, including building codes and financial incentives, support the construction of HPBs. These policies aim to reduce the substantial carbon emissions associated with conventional buildings and promote sustainability in the construction sector.
2. **Financial Advantages of HPBs:** HPBs offer significant financial benefits, including lower utility bills, enhanced property values, and access to carbon financing. These benefits make HPBs attractive investments for businesses and property developers.
3. **Carbon Financing as an Incentive:** HPBs can generate carbon credits by reducing emissions, which provides financial incentives for developers to invest in sustainable building practices. Carbon financing helps offset the higher upfront costs associated with HPBs.
4. **India's Progress in HPB Promotion:** India has made considerable progress in promoting HPBs through its national policies and standards. Initiatives like ECBC and certification systems such as GRIHA have led to a noticeable increase in green building projects across the country.
5. **Challenges and Opportunities in Financing:** While the initial cost of HPBs can be higher than conventional buildings, various financing mechanisms like green bonds and climate-focused funds help mitigate these costs and promote the adoption of HPBs.

Black holes in Webb data allay threat to cosmology's standard model-The Hindu Science

Science

Easy Explanation

Recent observations by the James Webb Space Telescope (JWST) have sparked significant discussions regarding the standard model of cosmology. Initially, the JWST's data revealed the presence of massive, well-developed galaxies much earlier in the universe's timeline than the standard model predicts, suggesting that these galaxies formed 400-650 million years after the Big Bang, much sooner than expected. This finding raised questions about the accuracy of current cosmological models.

| Clear your doubts now.

However, a new study led by Katherine Chworowsky and Steven Finkelstein has provided a possible explanation that aligns with the standard model, suggesting that these early galaxies could have had more efficient star formation processes due to the extreme physical conditions and the abundance of gas available at the time. Moreover, the study also found that the influence of massive black holes in these galaxies, which were not previously accounted for, might have skewed earlier measurements of galaxy mass. By correcting for this overestimation, the galaxies were not as massive as once thought, thus realigning these observations with the standard model expectations.

Key Takeaways:

1. **Efficient Star Formation:** The study suggests that galaxies formed stars more efficiently early in the universe, supporting massive galaxy formation soon after the Big Bang within the standard cosmological model.
2. **Role of Black Holes:** Initial overestimations of galaxy mass were corrected after recognizing the significant light contributions from black holes at the centers of these galaxies, showing these galaxies were less massive than previously thought.
3. **Reaffirmation of the Standard Model:** The standard model of cosmology remains valid as the primary framework for understanding the universe's evolution, with ongoing refinements to incorporate new data.
4. **Future Research Directions:** Further analyses using additional JWST data will test the standard model predictions at higher redshifts and for more massive galaxies, enhancing our understanding of early galaxy formation.
5. **Implications for Cosmological Studies:** These findings underline the need for continuous observation and adaptable theoretical frameworks in astronomy to integrate new discoveries.

World lags on 2030 nature goals as COP16 talks begin–The Hindu Science

Environment

Easy Explanation

As the world's nations gather at the COP16 biodiversity summit in Cali, Colombia, they face significant challenges in meeting the ambitious goals set in the Kunming-Montreal Global Biodiversity Framework. Two years into the decade-long commitment to halt the destruction of nature, many countries are already lagging behind. The main concerns are the continued rate of natural destruction through activities like logging and overfishing, and the shortfall in funding and execution of national conservation plans, known officially as National Biodiversity Strategies and Action Plans (NBSAPs). Only 31 out of 195 countries have submitted their plans to the UN biodiversity secretariat by the deadline. The summit aims to catalyze action and funding to meet the "30 by 30" target of preserving 30% of the land and sea by 2030.

Key Takeaways:

1. **Compliance Issues:** A major issue highlighted is the failure of most countries to submit their national biodiversity action plans, with only a small fraction meeting the deadline.
2. **Funding Shortfalls:** The funding required to effectively implement these conservation plans is significantly lacking, particularly for poorer countries that struggle with securing the necessary resources.

| Clear your doubts now.

3. **Economic Disparities:** There is a clear disparity in the ability of richer and poorer nations to prepare and submit their biodiversity strategies, with wealthier countries generally able to meet commitments more readily.
4. **Urgency for Action:** The summit serves as a crucial platform to reinforce the commitments made and to push for immediate actions to course-correct towards the 2030 goals.
5. **Potential Solutions:** Discussions at COP16 are focused on developing new initiatives that could generate revenue for nature conservation, which is critical for the support of global biodiversity goals.

23rd October 2024

Does Madarsa Education Violates Secularism?SC to decide-Indian Express Explained

Polity

Easy Explanation

The Supreme Court of India is poised to deliver a landmark judgment on whether the Uttar Pradesh Board of Madarsa Education Act, 2004 (Madarsa Act), violates the constitutional principle of secularism. The Allahabad High Court had previously struck down the Act, deeming it unconstitutional on grounds of violating secularism, the Right to Education (Article 21A), and conflicting with central legislation like the University Grants Commission Act, 1956.

Background:

- **Madarsa Act, 2004:** The Act provides a legal framework for madarsa education in Uttar Pradesh, integrating the National Council of Educational Research and Training (NCERT) curriculum with religious education. It establishes the Uttar Pradesh Board of Madarsa Education, predominantly comprising members of the Muslim community, responsible for prescribing course materials and conducting examinations from 'Maulvi' (equivalent to Class 10) to 'Fazil' (equivalent to a Master's degree).
- **Allahabad High Court Decision (March 22, 2023):** The High Court struck down the Madarsa Act on three main grounds:
    1. **Violation of Secularism:** The court held that compulsory Islamic studies in madarsas favor a particular religion, contravening the state's duty to maintain equal treatment of all religions.
    2. **Right to Education (Article 21A):** The state was found to be violating the constitutional mandate by not providing quality, secular education in modern subjects to children aged six to fourteen.
    3. **Conflict with Central Law:** The Madarsa Board's authority to grant degrees conflicted with the University Grants Commission Act, which reserves such powers exclusively for universities and deemed universities.

Arguments Before the Supreme Court:

- **Religious Education vs. Religious Instruction:**
    - **Petitioners' Argument:** Madarsas provide religious education, not religious instruction, and thus do not violate the principle of secularism. They cited the Supreme Court's distinction in *Aruna*

Roy vs. Union of India (2002) between permissible religious education (teaching about religions to promote harmony) and prohibited religious instruction (imparting specific religious doctrines in state-funded institutions).

- ○ **High Court's Stance:** Compulsory Islamic studies amount to religious instruction, violating Article 28 of the Constitution.
- ● **Scope of the High Court's Judgment:**
  - ○ **Petitioners' Argument:** The High Court erred in striking down the entire Act instead of specific unconstitutional provisions. The state has the power to make rules under the Act to ensure secular education.
  - ○ **Respondents' Argument:** The Act inherently mandates religious education over secular subjects, failing to integrate students into the mainstream educational framework.

Potential Impact:

- ● **State and National Ramifications:** While the immediate impact is on Uttar Pradesh, the Supreme Court acknowledged that the decision could affect religious educational institutions nationwide, including gurukuls and convent schools.
- ● **Educational Policy and Secularism:** The judgment will clarify how secularism is applied in the context of state involvement with religious educational institutions and may influence future educational policies.

Key Takeaways:

1. **Interpretation of Secularism:**
   - ○ The case underscores the constitutional principle of secularism, emphasizing the state's duty to maintain neutrality and impartiality towards all religions in the educational sphere.
2. **Right to Quality Education:**
   - ○ Reinforces the state's obligation under Article 21A to provide free and compulsory quality education in modern, secular subjects to all children aged six to fourteen.
3. **Distinction Between Religious Education and Instruction:**
   - ○ Highlights the constitutional differentiation where 'religious education' aimed at promoting understanding among religions is permissible, but 'religious instruction' specific to a faith in state-recognized institutions is not.
4. **State's Regulatory Authority:**
   - ○ Examines the extent to which the state can regulate minority-run educational institutions without infringing upon rights granted under Articles 29 and 30 of the Constitution.
5. **Conflict with Central Legislation:**
   - ○ The case brings attention to the need for state laws to be in harmony with central laws like the UGC Act to maintain a uniform educational standard.
6. **Precedent for Minority Educational Institutions:**
   - ○ The decision will set a precedent affecting the autonomy of minority institutions in integrating religious teachings within their curriculum while adhering to constitutional mandates.
7. **Broader Implications for Educational Institutions:**
   - ○ The ruling may necessitate a re-evaluation of curricula in institutions that include religious components to ensure compliance with secular principles.
8. **Balance Between Religious Freedom and Secularism:**

| Clear your doubts now.

- The case exemplifies the delicate balance the Constitution seeks between protecting religious freedoms and upholding secularism, particularly in education.

WHY INDIA WILL BUILD A 'CLOUD CHAMBER' UNDER MISSION MAUSAM-Indian Express Explained

Geography

Easy Explanation

India's *Mission Mausam* aims to improve weather forecasting and manage specific weather events like rainfall, hail, and fog through enhanced cloud physics research. As part of this mission, a first-of-its-kind convective cloud chamber will be established at the Indian Institute of Tropical Meteorology (IITM) in Pune. This facility will help scientists study cloud behavior, especially under conditions typical of Indian monsoons. The cloud chamber simulates cloud formation by injecting water vapor and aerosols in a controlled environment. Scientists will tailor atmospheric parameters to better understand cloud formation, intra-particle interactions, and the behavior of monsoon clouds.

This research is crucial for future weather modification efforts, such as enhancing or suppressing rainfall. Previous experiments, like cloud seeding under the Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX), showed rainfall increases of up to 46% under favorable conditions. However, cloud seeding is not a definitive solution for rain shortages and will require further study and testing.

Key Takeaways:

1. **Mission Mausam:** Launched to improve weather forecasting and manage weather events like rainfall, hail, and fog in India.
2. **Cloud Chamber:** A facility simulating cloud formation will be built at IITM Pune to study cloud behavior and cloud physics, especially for Indian monsoons.
3. **Cloud Physics Research:** Scientists will use the chamber to study cloud formation, rain droplet and ice particle formation, and inter-particle interactions under various environmental conditions.
4. **Weather Modification Potential:** The chamber will support research for possible weather modification, such as enhancing rainfall or suppressing fog.
5. **Cloud Seeding:** Past experiments in India showed cloud seeding could increase rainfall by up to 46%, but it is not a universal solution to rain shortages.
6. **Advanced Instrumentation:** The chamber will require highly advanced instruments to monitor and study the intricate properties of clouds and particles.

The Biodiversity COP-Indian Express explained

Environment

Easy Explanation

The 16th Conference of Parties (COP16) to the Convention on Biological Diversity (CBD) is currently being held in Cali, Colombia. The CBD, established during the 1992 Rio Earth Summit, focuses on protecting global

biodiversity, restoring ecosystems, and ensuring equitable distribution of benefits from biological resources. COP16 is the first meeting since the adoption of the Kunming-Montreal Global Biodiversity Framework in 2022, which sets ambitious goals, including conserving 30% of land and oceans (30x30 targets) and restoring 30% of degraded ecosystems by 2030.

Key discussions at COP16 include the progress on National Biodiversity Strategies and Action Plans (NBSAPs), the implementation of the High Seas Treaty to protect biodiversity in oceans, and the equitable sharing of genetic resources. The conference is also addressing financial mobilization for biodiversity conservation, aiming to raise $200 billion annually by 2030, with $20-30 billion coming from developed countries to support biodiversity efforts in developing nations. The establishment of a biodiversity fund and new financial mechanisms, such as biodiversity credits, is also being considered.

Key Takeaways:

1. **COP16:** The 16th meeting of CBD in Colombia focuses on global biodiversity protection and ecosystem restoration.
2. **30x30 Targets:** A central goal is to protect 30% of global land and oceans and restore 30% of degraded areas by 2030, under the Kunming-Montreal Global Biodiversity Framework.
3. **National Biodiversity Plans:** Countries are urged to submit action plans for halting biodiversity loss, similar to climate action plans under the Paris Agreement.
4. **High Seas Treaty:** The treaty aims to protect biodiversity in oceans beyond national jurisdictions, ensuring equitable sharing of benefits from genetic resources.
5. **Finance Mobilization:** COP16 seeks to mobilize $200 billion annually by 2030 for biodiversity conservation, with financial support from developed to developing nations.
6. **Genetic Resource Sharing:** Discussions focus on fair sharing of benefits from genetic resources, including those stored digitally, particularly benefiting indigenous communities.
7. **Biodiversity Fund:** The possibility of creating a biodiversity fund and financial mechanisms like biodiversity credits is being explored.
8. **Impact on Incentives:** Countries aim to phase out harmful subsidies and incentives that damage biodiversity, such as those encouraging deforestation or over-fishing.

[Hosting the BRICS summit:why Kazan in Tatarstan matters Putin's Russia-Indian Express Explained](#)

International relations

Easy Explanation

Kazan, the capital of Tatarstan, hosts the 16th BRICS summit attended by leaders from India, China, South Africa, and Russia, marking the city's significance in Vladimir Putin's Russia. Kazan, known as Russia's "third capital," is a major hub for petrochemicals, military industries, and IT, and reflects the country's growing ethnic and cultural diversity. The population of Kazan is nearly equally split between ethnic Russians and Tatars, a Muslim Turkic ethnic group, symbolizing Russia's evolving demographic mix.

Russia is becoming less ethnically Russian and more diverse due to lower birth rates among ethnic Russians and higher birth rates among Muslim minorities. This shift is expected to accelerate in the coming decades. Kazan's historical and cultural heritage, including the prominent Kul Sharif Mosque, highlights the blending of Orthodox Christianity and Islam, a reflection of Russia's multicultural identity.

| Clear your doubts now.

Putin's approach toward ethnic minorities, such as Tatars, has involved efforts to reconcile differences while also dealing firmly with secessionist sentiments. Hosting the BRICS summit in Kazan is seen as a conciliatory gesture towards Tatarstan, especially after reducing the region's political autonomy in 2021. The summit is part of Russia's broader strategy to project itself as a multi-ethnic and diverse nation.

Key Takeaways:

1. **Kazan's Strategic Importance:** As one of Russia's wealthiest cities, Kazan plays a vital role in industries like petrochemicals, military production, and IT, and reflects Russia's east-west cultural blend.
2. **Demographic Shifts:** Russia is becoming less ethnically Russian and more diverse, with Muslim minorities, particularly Turkic ethnic groups like Tatars, growing as the Russian birth rate declines.
3. **Cultural Diversity in Kazan:** The city's mix of Orthodox Christian and Islamic landmarks, like the Kul Sharif Mosque and Annunciation Cathedral, symbolize Russia's multicultural identity.
4. **Putin's Balancing Act:** Putin has sought to integrate ethnic minorities while suppressing secessionist movements, but actions such as reducing Tatarstan's autonomy have been controversial.
5. **BRICS Summit in Kazan:** Hosting the BRICS summit in Kazan is seen as a reconciliatory gesture towards Tatarstan, underscoring the importance of diversity in modern Russia's national identity.
6. **National Strategy:** The summit's location and Russia's investment in Kazan's development align with the country's efforts to showcase itself as a multi-ethnic nation at the international level.

An Agreement,some questions-Indian Express Editorial

International relations

Easy Explanation

India and China have reached an agreement on patrolling the Line of Actual Control (LAC), aiming to resolve issues from the 2020 Chinese incursions. Announced by Indian Foreign Secretary Vikram Misri, the deal marks a diplomatic success for India but raises questions about whether it covers all disputed areas, including legacy issues in Demchok and Depsang. While the agreement focuses on disengagement and reversing Chinese transgressions, it does not resolve the broader boundary dispute.

The timing of the agreement, ahead of the BRICS summit, seems to project progress in managing border tensions. India faces a delicate geopolitical situation, balancing its BRICS engagement, its stance on Russia's Ukraine invasion, and economic dependency on Chinese investments.

The absence of the Indian Army in the announcement and the lack of military response during the 2020 crisis highlight concerns about India's preparedness. Additionally, questions about intelligence lapses and public accountability remain unresolved. Without addressing these critical issues, India risks being unprepared for future border crises with China.

Key Takeaways:

1. **Patrolling Agreement:** India and China have agreed on patrolling arrangements along the LAC, focusing on disengagement and resolving issues from the 2020 Chinese incursions.
2. **Unclear Scope of Disengagement:** It remains unclear whether the agreement addresses all disputed areas, including older issues in Demchok and Depsang, or only those related to the 2020 incursions.

| Clear your doubts now.

3. **Diplomatic Success:** The agreement is seen as a success for Indian diplomacy but is limited in scope, focusing on reversing Chinese transgressions without fully addressing the broader boundary dispute.
4. **Strategic Timing:** The timing of the announcement, ahead of the BRICS summit, suggests the need to showcase progress in resolving border issues.
5. **Geopolitical Context:** India's BRICS engagement is sensitive due to Russia's Ukraine invasion and China's close ties with Russia, which draws Western opposition.
6. **Economic Considerations:** India faces challenges in maintaining restrictions on Chinese investments while depending on China for supply chains and technology.
7. **Military Absence:** The Indian Army was notably absent from the announcement, raising questions about its role in handling Chinese transgressions.
8. **Lack of Public Accountability:** Questions remain about the 2020 border crisis, including intelligence lapses, military preparedness, and public accountability for the government's response.
9. **Need for Preparation:** Without addressing these questions and learning from past mistakes, India risks being unprepared for future border crises with China.

On Section 6A of the Citizenship Act-The Hindu Text and Context

Polity

Easy Explanation

On October 18, a Constitution Bench of the Supreme Court of India upheld the constitutional validity of **Section 6A of the Citizenship Act, 1955**. This provision sets a special framework for granting Indian citizenship to migrants who entered the state of Assam from erstwhile East Pakistan (now Bangladesh) before **March 25, 1971**. The decision was delivered by a 4:1 majority, with Justice Surya Kant authoring the majority opinion, joined by Chief Justice D.Y. Chandrachud, Justices M.M. Sundresh, and Manoj Misra. Justice Pardiwala presented a dissenting opinion.

Background:

- **Assam Accord (1985):** The Assam Accord was signed on August 15, 1985, between the Government of India and Assam's student groups after a six-year-long agitation against the influx of undocumented migrants from Bangladesh into Assam. The Accord aimed to address the issue of illegal immigration and set March 25, 1971, as the cut-off date for granting citizenship in Assam.
- **Provisions of Section 6A:**
  - **Citizenship for Pre-1966 Migrants:** People who entered Assam before January 1, 1966, and have been ordinary residents since then are deemed Indian citizens.
  - **Citizenship with Conditions for 1966-1971 Migrants:** Those who came between January 1, 1966, and March 24, 1971, would enjoy all rights of citizenship except voting rights for ten years.
  - **Post-1971 Migrants:** Individuals who entered Assam on or after March 25, 1971, are considered foreigners and are to be detected and deported as per law.

Legal Challenge:

| Clear your doubts now.

- **Petitioners' Arguments:**
  - **Violation of Article 14 (Right to Equality):** Having a different cut-off date for Assam is discriminatory compared to the rest of India.
  - **Inconsistency with Articles 6 and 7:** Section 6A conflicts with constitutional provisions dealing with citizenship at the commencement of the Constitution (January 26, 1950).
  - **Threat to Cultural Identity (Article 29):** The influx threatens the cultural and linguistic rights of Assam's indigenous people.
  - **Failure under Article 355:** The Union government has not protected Assam from "external aggression" and "internal disturbance" due to illegal immigration.

Supreme Court's Majority Decision:

- **Section 6A is Constitutionally Valid:**
  - **Unique Historical Context:** Assam's unique historical and political circumstances justify the different treatment.
  - **No Violation of Article 14:** The classification is reasonable and serves a legitimate purpose.
  - **Consistency with Articles 6 and 7:** Section 6A complements these articles by addressing migrants not covered under them.
  - **Parliament's Authority (Article 11):** Parliament has the power to make laws on citizenship, including setting different criteria for specific regions.
  - **No Violation of Article 29:** The provision does not infringe upon the cultural rights of the indigenous Assamese people.
  - **Article 355 Not Breached:** The migration does not constitute "external aggression" or "internal disturbance" as defined under Article 355.

Justice Pardiwala's Dissent:

- **Section 6A is Unconstitutional:**
  - **Failure to Prevent Illegal Immigration:** The provision has not effectively curbed illegal migration into Assam.
  - **Demographic Changes:** Continued influx has altered the demographic pattern, affecting the rights of indigenous communities.
  - **Departure from Constitutional Scheme:** The lack of a sunset clause and reliance solely on state detection are inconsistent with constitutional provisions.

Implications of the Judgment:

- **Affirmation of NRC Cut-off Date:** The March 25, 1971, cut-off date is upheld, supporting the National Register of Citizens (NRC) process in Assam.
- **Impact on Citizenship Amendment Act (CAA), 2019:** The judgment may influence debates around the CAA, which sets a different cut-off date (December 31, 2014) for granting citizenship to non-Muslim migrants from neighboring countries.
- **Emphasis on Implementation:** The court highlighted the need for effective detection, identification, and deportation of illegal immigrants who entered after the cut-off date.
- **Balance Between Humanitarian Concerns and Indigenous Rights:** The judgment seeks to balance compassion for migrants with the protection of Assam's resources and cultural identity.

| Clear your doubts now.

Key Takeaways:

1. **Validation of Section 6A:** The Supreme Court upheld Section 6A, recognizing Assam's unique historical and social circumstances regarding migration.
2. **Parliament's Legislative Power Affirmed:** The decision reaffirms Parliament's authority under Article 11 to make specific provisions for citizenship, even if they differ from other constitutional articles.
3. **No Violation of Equality Principle:** The court held that different treatment for Assam does not violate the right to equality, as it is based on reasonable classification.
4. **Cultural Rights Considered:** The judgment concluded that Section 6A does not infringe upon the cultural and linguistic rights of Assam's indigenous people under Article 29.
5. **Dissent Highlights Concerns:** Justice Pardiwala's dissent underscores ongoing issues related to illegal immigration and demographic changes in Assam.
6. **Implications for NRC and CAA:** The ruling has significant implications for the NRC process and may influence discussions around the Citizenship Amendment Act.
7. **Need for Effective Enforcement:** The court emphasized the importance of implementing mechanisms to identify and deport illegal immigrants in a timely manner.
8. **Federal Balance Maintained:** The judgment cautioned against overreach by the Union government under Article 355, maintaining respect for the federal structure.

The Supreme Court's decision on Section 6A of the Citizenship Act is a landmark ruling that balances constitutional principles with Assam's unique historical context. It upholds the special provisions for citizenship in Assam while acknowledging the challenges posed by illegal immigration. The judgment will have lasting implications on citizenship laws, the NRC, and policies addressing migration and cultural preservation in India.

Why are Big Tech companies such as Google scouting for nuclear power?-The Hindu Text and Context

Science and technology

Easy Explanation

Big tech companies like Google, Microsoft, and Amazon are turning to nuclear energy, particularly Small Modular Reactors (SMRs), to power their energy-hungry operations such as data centers and AI model training. Google recently announced a corporate deal to purchase nuclear energy from SMRs developed by Kairos Power, aiming to generate 500 MW of carbon-free power by 2030. The shift towards nuclear energy is seen as a way to maintain 24/7 power while reducing carbon emissions, as tech giants face increasing energy demands from their infrastructure.

Nuclear energy is viewed by these companies as clean and reliable compared to solar and wind, which are intermittent. However, nuclear power remains controversial due to its history of accidents, such as Chernobyl, Fukushima, and Three Mile Island, and concerns about long-term environmental impacts. Environmental groups continue to challenge the idea that nuclear energy is truly clean, citing the risks of accidents and radioactive waste. Despite this, the U.S. government supports nuclear energy, emphasizing the need for the U.S. to lead globally in nuclear technology and reduce carbon emissions.

| Clear your doubts now.

Key Takeaways:

1. **Big Tech's Nuclear Move:** Companies like Google, Microsoft, and Amazon are investing in nuclear energy, particularly Small Modular Reactors (SMRs), to meet their growing energy needs and reduce carbon emissions.
2. **Energy Demands:** The increasing demand for energy, driven by AI model training and data center operations, is pushing tech companies to seek reliable and continuous power sources.
3. **Advantages of Nuclear Power:** Nuclear energy is seen as a clean, carbon-free, and round-the-clock source of power, unlike solar and wind energy.
4. **Nuclear Safety Concerns:** Despite the benefits, nuclear energy is controversial due to past accidents like Chernobyl and Fukushima, raising concerns about safety and long-term environmental impact.
5. **Small Modular Reactors (SMRs):** SMRs are viewed as a safer and more cost-effective alternative to traditional nuclear reactors, with compact designs and lower operational risks.
6. **U.S. Government Support:** The U.S. government sees nuclear power as a crucial component in reducing carbon emissions and reasserting the U.S. as a global leader in nuclear technology.
7. **Environmental Criticism:** Environmental groups argue that nuclear energy is risky, expensive, and not as clean as presented, citing concerns over accidents and radioactive waste disposal.
8. **Global Competition:** The U.S. views nuclear energy leadership as important to stay competitive with China and Russia in the energy sector.

24th October 2024

Researchers meld AI and genomics to find thousands of new viruses: TH Science

Science Tech

Easy Explanation:

Why Are Viruses Important? Viruses are tiny entities that are everywhere—present in soil, water, the atmosphere, and even in extreme environments like hot springs. Despite being so abundant, they were often overlooked by people. Scientists now understand that viruses aren't just harmful; they play important roles in the environment. They are crucial for maintaining the balance of ecosystems, helping in the transfer of genes between organisms, and influencing the cycles that control the flow of elements like carbon in nature. However, we have only identified a small number of the trillions of viral species that exist.

The Hidden Threat of Viruses Understanding viruses better is essential because they can be responsible for new infectious diseases. Some scientists believe that there are around 300,000 mammalian viruses yet to be discovered, many of which could jump from animals to humans and cause diseases (called zoonotic threats). Unlike bacteria, which can be studied by growing them in labs, studying viruses is harder because they need living cells to grow and are difficult to culture.

Using New Technology to Find Viruses In recent years, new tools like genome sequencing have made it easier to study viruses. Genome sequencing means reading the genetic information directly from samples taken from nature, without needing to grow the virus in a lab. This method has helped scientists discover many new viruses in different environments, giving us a much clearer picture of the unseen world of microbes and viruses.

The Role of RNA Viruses RNA viruses are particularly important because they can change quickly, making them adaptable to new environments. This ability to mutate rapidly makes RNA viruses responsible for many of the major diseases that humans face, like COVID-19, Ebola, and influenza. Unlike DNA viruses, which have more stable genetic information, RNA viruses replicate quickly but make more mistakes, allowing them to evolve faster.

The Discovery of New Viruses Using Serratus In 2022, a team of Canadian scientists created an open-source tool called Serratus. This tool helped scientists match genetic sequences from environmental samples to known viral genes, specifically a gene called RdRP (which is critical for RNA virus replication). Using Serratus, they sifted through massive amounts of genetic data and discovered over 100,000 new viruses, significantly expanding our knowledge of viral diversity.

Other Advances in Virus Research Another study in 2022 by a team in the U.S. used computational methods to sort through large amounts of RNA data and found thousands of new RNA viruses. Some of these viruses were found in unique environments like oceans and even inside the energy-producing parts of cells called mitochondria.

The Role of Machine Learning in Virus Discovery One challenge with genome sequencing is that it often looks for genetic sequences similar to those already known, which means it could miss viruses that have evolved differently. However, researchers are now using machine learning, particularly a type called "transformers," to identify genetic patterns more effectively. Transformers can recognize patterns in genetic data, even when they don't match known sequences exactly. This allows scientists to discover new types of viruses more accurately.

Why Is This Important for Public Health? The discovery of new viruses helps us prepare for future pandemics. As our ability to share genetic data improves and as genome sequencing becomes more common, scientists can identify potentially dangerous viruses before they become a major problem. This means that we could prevent the next pandemic before it spreads widely by understanding which viruses have the potential to jump from animals to humans and become infectious.

The Future of Virus Research Looking forward, combining genomics (the study of genes) with machine learning and ecological studies can help us understand viruses better. This knowledge can help us prevent future pandemics by studying how viruses interact with their hosts and how they change over time. By continuously mapping the diversity of viruses in nature, scientists can better predict which viruses might cause future health problems and take steps to address them early on.

Key Takeaways:

- **Viruses' Role in Nature**:
  - Viruses are the most common life form on Earth, present in every environment, including extreme ones.
  - They play important roles in maintaining ecological balance, helping gene transfer, and influencing natural cycles.
- **Virus Research and Discovery**:
  - New genome sequencing techniques allow scientists to study viruses without needing to grow them in labs.
  - These methods have led to the discovery of thousands of new viruses, including those in unique environments like oceans.

- **RNA Viruses and Their Significance**:
  - RNA viruses mutate quickly and adapt to new conditions, making them key players in infectious diseases like COVID-19.
  - They replicate faster than DNA viruses, which makes them more likely to evolve into new forms.
- **Using Tools Like Serratus**:
  - Serratus, a tool developed by Canadian researchers, helped identify over 100,000 new viruses from environmental data.
  - It focused on finding a specific gene, RdRP, which is crucial for RNA virus replication.
- **Advances with Machine Learning**:
  - Machine learning models called transformers can find genetic patterns even when they don't exactly match known sequences.
  - This allows for the discovery of more diverse and previously unknown viruses.
- **Pandemic Preparedness**:
  - Understanding viruses helps scientists predict and prevent potential pandemics by identifying dangerous viruses early.
  - Combining genomics with ecological studies and machine learning can help map viral diversity and reduce the risk of large-scale outbreaks.
- **The Future of Virus Research**:
  - Continued research on viral-host interactions and viral evolution will enable scientists to better prepare for emerging infectious diseases.
  - This approach could allow us to manage viruses at the microscopic level, reducing the risk of global pandemics.

[Ancient meteorite was 'giant fertilizer bomb' for life on earth: TH Science](#)

Science Tech

Easy Explanation:

The Impact of a Massive Meteorite Long Ago About 66 million years ago, a meteorite struck Earth, causing a global catastrophe that led to the extinction of the dinosaurs. But, surprisingly, this wasn't the largest meteorite ever to hit our planet. Around 3.26 billion years ago, a much larger space rock—up to 200 times bigger than the one that wiped out the dinosaurs—collided with Earth. This ancient impact had a far more destructive effect, yet it may have actually helped life on Earth to flourish.

How the Impact Helped Early Life At that time, Earth was dominated by simple life forms like bacteria and archaea (single-celled organisms similar to bacteria). The massive meteorite acted like a giant fertilizer bomb, providing these early life forms with essential nutrients like phosphorus and iron, which are crucial for their survival and growth. These nutrients allowed life to recover quickly after the disaster and even thrive.

Evidence Found in Ancient Rocks Scientists studied ancient rocks from the Barberton Greenstone Belt in northeastern South Africa. These rocks are some of the oldest on Earth and hold clues about what happened billions of years ago. By examining the chemical signatures and fossils in these rocks, researchers found evidence that life rebounded strongly after the meteorite impact. The presence of preserved organic material and fossils of bacterial mats suggests that life didn't just survive—it flourished.

| Clear your doubts now.

The Earth's Conditions During This Time Back then, Earth was very different from today. It was mostly covered in water with some volcanic activity and few continental rocks. The atmosphere and oceans had almost no oxygen, and the only living cells were simple and lacked nuclei (like modern bacteria).

Details of the Meteorite and Its Effects The meteorite that hit Earth 3.26 billion years ago was made of a carbon-rich material known as carbonaceous chondrite, and it contained phosphorus. It was about 37-58 km in diameter, making it massive compared to the asteroid that caused the extinction of the dinosaurs.

The impact of the meteorite released an enormous amount of energy, vaporizing itself and the surrounding rocks upon collision. The resulting rock vapor cloud and dust would have quickly spread around the planet, darkening the sky. The impact likely created a huge tsunami that traveled across the oceans, disrupting the sea floor and flooding coastlines. The intense energy released by the collision also caused the atmosphere to heat up, even boiling the surface layers of the oceans.

Recovery After the Impact After the immediate destruction, it took a few years to decades for the dust to settle and the atmosphere to cool down. When conditions finally stabilized, life began to bounce back. Microbes that relied on sunlight or lived in shallow waters were initially wiped out, but others found a new opportunity to thrive.

A Boost for Microbial Life The meteorite delivered a large supply of phosphorus to Earth's surface. Phosphorus is a key nutrient for microbes because it helps build molecules that store and transfer genetic information. Additionally, the massive tsunami stirred up iron-rich waters from the deep ocean, mixing them with shallower waters. This created ideal conditions for certain microbes, as iron provides a valuable energy source for them. This influx of nutrients allowed many types of microorganisms to flourish in the new environment.

Key Takeaways:

- **Massive Meteorite Impact**: About 3.26 billion years ago, a huge meteorite struck Earth, much larger than the one that killed the dinosaurs 66 million years ago.
- **Positive Effect on Early Life**:
  - Despite the destruction, the meteorite acted as a "fertilizer bomb" by delivering essential nutrients like phosphorus and iron to Earth's surface.
  - These nutrients helped early life forms like bacteria and archaea recover and thrive after the initial devastation.
- **Evidence in Ancient Rocks**:
  - Researchers found signs in ancient South African rocks (Barberton Greenstone Belt) that life rebounded quickly after the impact.
  - The presence of organic materials and bacterial fossils suggests that life thrived in the aftermath.
- **Conditions of Ancient Earth**:
  - Earth was mostly covered by water with little land and no oxygen in the atmosphere or oceans.
  - Only simple life forms without cell nuclei existed at that time.
- **Impact Effects**:
  - The meteorite impact caused massive destruction, creating a vapor cloud that darkened the skies and triggered global tsunamis.

| Clear your doubts now.

- ○ The energy released by the collision heated the atmosphere, even boiling the upper layers of the oceans.
- **Nutrient Supply**:
  - ○ The meteorite brought a large amount of phosphorus, a vital nutrient for early life.
  - ○ The tsunami mixed iron-rich waters from the deep ocean with surface waters, providing energy for many types of microbes.
- **Long-term Benefits**:
  - ○ After the initial chaos, these nutrient-rich conditions enabled life to flourish, showing that even catastrophic events can sometimes lead to new opportunities for growth and evolution.

The Manipur crisis, the issue of managing diversity: TH Editorial

Internal Security

Easy Explanation:

Background on the Manipur Situation Recently, violence has intensified in Manipur, leading the state's Chief Minister to demand more control over security operations. This indicates that, for some time, the Chief Minister may not have had full control of the situation. Media reports have suggested that Article 355 of the Indian Constitution might have been invoked. This article allows the central government to intervene in states to protect them from internal disturbances or external threats. The situation in Manipur has become severe, raising concerns about whether the Constitution can handle such deep-rooted identity-based conflicts effectively.

The Idea of 'Special Provisions' for States India's Constitution is designed to manage diversity, recognizing that different states have unique challenges. This includes states like Jammu and Kashmir (before the revocation of its special status), Maharashtra, Gujarat, Nagaland, Assam, Manipur, Andhra Pradesh, Sikkim, Mizoram, and others. These states were granted "special provisions" to either ensure fair development or protect cultural identities. This approach reflects the reality that federalism (power-sharing between the central and state governments) is essential for a large and diverse country like India.

In India's northeastern states, the Constitution has tried to balance different cultural and identity-based needs through mechanisms like power-sharing and autonomy. The goal is to ensure that different groups feel heard and represented in governance, helping to maintain political stability rather than creating further divisions. This balanced approach is vital, especially as the situation in Manipur worsens with rising deaths and displacement.

Examples of Constitutional Adjustments

1. **Sikkim's Inclusion in India**:
   - ○ When Sikkim became a part of India in 1975, Article 371F was added to the Constitution. This article aimed to protect the interests and rights of different groups within Sikkim. For example, it allowed for special arrangements to support the social and economic progress of various communities in the state.
   - ○ Sikkim's representation system, which favored certain communities, was challenged in the Supreme Court case of R.C. Poudyal (1993). The Court upheld the arrangement, arguing that it

reflected Sikkim's unique history and was necessary for political stability. This decision was part of the larger idea of making "accommodations and adjustments" to support coexistence among different groups.

2. **Tripura's Path to Peace**:
   ○ Tripura faced significant insurgency, which led to the implementation of the Sixth Schedule of the Constitution in its tribal areas in 1984. The Sixth Schedule allows for local governance in tribal areas, giving them more autonomy in areas like education, land management, and local customs.
   ○ A peace agreement in 1988 between the Union government, Tripura's state government, and a militant group led to the reservation of one-third of seats in the state assembly for Scheduled Tribes. This agreement required the state to abandon violence in exchange for greater representation.
   ○ The Supreme Court later upheld this arrangement, even though it meant giving more seats to tribes than their population proportionally justified. The Court viewed it as a necessary step to achieve peace and stability in the region.

Special Provisions for Manipur

● Unlike some other northeastern states, Manipur is not governed by the Sixth Schedule. Instead, it is governed by Article 371C, which establishes a Hill Area Committee made up of representatives from the hilly regions of the state. However, this committee's approval is not required for decisions affecting these areas.
● Additionally, Manipur has the Manipur Hill Areas Autonomous District Council Act, 2000, which allows for the creation of district councils based on tribal classification. Unlike in some other states, these councils do not have the same veto power over decisions affecting their areas. This absence of strong local control has led to tensions, as communities feel underrepresented and marginalized.

The Role of the Constitution in Addressing Tensions

● The ongoing tensions in Manipur have heightened concerns over representation, resource allocation, and the perception of dominance by one community over others.
● The Indian Constitution is meant to be a living document, capable of adapting to new challenges and evolving situations. The Supreme Court's past judgments, like in the R.C. Poudyal case, emphasize that diverse societies result from history and require creative solutions within a democratic framework.
● For Manipur, this means that solutions must be found through constitutional means, focusing on reconciliation and balance between different groups. Only through the Constitution can the state hope to achieve lasting peace and stability, making any other attempts to solve identity-based issues inadequate.

Key Takeaways:

● **Current Crisis in Manipur**:
   ○ Escalating violence has led to demands for greater control over security operations.
   ○ Reports suggest that Article 355, which allows central intervention, may have been invoked.
   ○ The situation highlights challenges in handling identity-based conflicts within India's federal structure.
● **Diversity Management Through Special Provisions**:

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- ○ The Indian Constitution includes special provisions for states to address unique challenges (cultural protection, equitable development).
  - ○ Federalism is essential for managing India's diversity and preventing conflicts.
- **Examples of Constitutional Adaptation**:
  - ○ **Sikkim**: Article 371F allowed for special arrangements to ensure the stability of different communities.
  - ○ **Tripura**: A peace agreement led to the reservation of assembly seats for Scheduled Tribes, upheld by the Supreme Court as necessary for stability.
- **Special Arrangements for Manipur**:
  - ○ Governed by Article 371C, which allows for the Hill Area Committee but with limited powers.
  - ○ The lack of strong local control has contributed to feelings of underrepresentation and tension among communities.
- **Constitution as a Solution**:
  - ○ The Constitution has shown an ability to adapt to challenges and promote peace through democratic adjustments.
  - ○ Lasting solutions for Manipur's tensions will require a balanced approach rooted in constitutional provisions.
  - ○ Peace and stability can only be achieved through the Constitution, providing a framework for managing diversity and reconciling differences.

The shifting sands within global supply chains: TH Editorial

Economy

Easy Explanation

Global supply chains have been changing a lot over the years. Initially, businesses and countries aimed to make their supply chains super efficient—meaning they would only have products and materials delivered when they were needed, without keeping much extra stock. This approach, called "just in time," was great for saving costs. But when unexpected events like the COVID-19 pandemic happened, these systems struggled because they didn't have enough backup supplies.

After the pandemic, countries shifted their focus to being more prepared for emergencies—this was called "just in case." The idea was to keep extra supplies on hand, just in case something disrupted their supply chains again. It made things a bit less efficient but helped avoid running out of important supplies when things went wrong.

Now, the focus has shifted again, but this time it's all about security. Countries like the U.S. are more worried about who makes the technology they use and where it comes from, especially when it involves places like China and Russia. They want to make sure that the technology and products they rely on, such as cars and communication tools, are safe and can't be used for spying or cyber-attacks.

Two major events in September 2024 highlighted why countries are thinking this way. The first was when the U.S. announced new rules that could ban certain high-tech products from China and Russia. The concern is that technology in modern cars, which can connect to the internet, could be misused by hackers to spy on people or even control the cars remotely. The U.S. doesn't want to take that risk, especially with countries they might not fully trust.

| Clear your doubts now.

The second event involved an attack in Lebanon using simple communication devices like pagers. Israel used this old technology to cause a lot of damage, which surprised many people. It showed that even basic tech could be turned into a weapon. This made countries realize that they need to be careful about the tech they allow into their borders, even if it seems harmless.

All of this has led to a new focus on making sure supply chains are secure, not just efficient or resilient. Countries want to avoid relying too much on any one supplier, especially from places they don't fully trust. They're also thinking about how to keep their technology safe and making sure that important systems can't be easily tampered with. This way, they hope to balance being prepared for emergencies with keeping their technology and supply chains secure.

Key Takeaways:

- **Shift from Efficiency to Security**: Supply chains used to focus on being efficient ("just in time"), then shifted to keeping extra supplies after COVID-19 ("just in case"), and now focus on security ("just to be secure").
- **U.S. Concern Over Chinese Technology**: New U.S. rules could ban Chinese tech in connected cars due to fears of spying or remote control risks.
- **Israel's Attack Shows Vulnerability**: The attack using simple communication devices in Lebanon highlighted how even basic tech could be weaponized, reinforcing the need for secure supply chains.
- **Balancing Risks in Supply Chains**: Countries like India are exploring ways to ensure security without fully cutting off imports, using strategies like strict checks and diversifying suppliers.

Growth prescription: TH Editorial

Economy

Easy Explanation:

The IMF's latest World Economic Outlook has a mix of positive news and concerns. On the bright side, a global recession has been avoided for now, inflation is nearly under control, and the overall growth outlook remains steady. The U.S. economy is expected to grow more than previously expected, helping offset slower growth in some European countries. For developing regions like West Asia, sub-Saharan Africa, and Central Asia, growth expectations are lower due to conflicts disrupting production and trade. But the forecast is better for emerging Asian economies like China and India, thanks to higher public investments. The IMF predicts that the global economy will grow at 3.2% in 2024, the same as in 2023.

The reduction in inflation is partly due to the fading of earlier disruptions from the COVID-19 pandemic and the Ukraine conflict, along with the effects of strict monetary policies. Now, central banks may have the chance to focus more on supporting economic growth. Still, the IMF warns of potential food price increases in some regions and that inflation in services remains high compared to pre-pandemic levels.

For India, the IMF kept its growth forecast at 7% for 2024-25, and 6.5% for the following year. This lower growth compared to last year is because the extra demand that built up during the pandemic is starting to run out. Signs of this include slower sales of cars and everyday goods in urban areas. A recent index from the Reserve Bank of India suggests that India's growth rate was 6.8% in the second quarter, slightly up from 6.7%

in the first quarter. A good monsoon season could improve rural incomes and boost growth, but this is not certain.

The IMF's long-term outlook is less optimistic, predicting global growth could slow down to 3.1% over the next five years, which is below pre-pandemic trends. This slowdown is partly due to countries adopting more protectionist policies. While India's growth mainly relies on its internal market, reduced exports and foreign investments could pose challenges. The Indian government has emphasized that many needed economic reforms must be implemented by state governments. However, there is still a need for central policies that make India more open to trade and foreign investments. The IMF and World Bank suggest that India should reduce import tariffs, attract more foreign investments, and carry out reforms to boost competition and private sector growth.

Key Takeaways:

- **Global Growth Outlook**: IMF predicts global growth of 3.2% in 2024, steady from 2023, with improved prospects in the U.S. and emerging Asia but slower growth in Europe, West Asia, and sub-Saharan Africa.
- **Inflation Control**: Inflation is easing due to past shocks fading and tight monetary policies, allowing central banks to adopt a more balanced stance. However, food prices could rise again in some regions, and services inflation remains high.
- **India's Growth Forecast**: IMF maintains India's growth at 7% for 2024-25, then 6.5% for the following year, attributing the slowdown to the fading demand from the pandemic. Good monsoons could boost rural incomes and growth.
- **Long-term Global Growth Concerns**: IMF warns that global growth may be "mediocre" at 3.1% over the next five years, with more countries adopting protectionist policies.
- **Reform Recommendations for India**: India needs to lower trade barriers, attract more foreign investments, and implement domestic reforms to enhance competition and encourage private sector investments, as per IMF and World Bank suggestions.

PERPETUAL EMERGENCY: IE Editorial

Environment

Easy Explanation:

The Supreme Court of India has repeatedly emphasized that the Right to Clean Air is a fundamental part of the Right to Life. Recently, the Court criticized the central and state governments, including Delhi and its neighboring states, for not ensuring clean air in the National Capital Region (NCR). For the past few days, the air quality in the NCR has been "very poor." According to the Court, this issue stems from a lack of determination and effort from both the central and state governments. While there has been a reduction in stubble burning—a major contributor to pollution—around Delhi, the problem is so severe that small improvements are not enough to make a noticeable difference.

The Court specifically criticized the failure to effectively implement the Commission on Air Quality Management (CAQM) Act, which was established over three years ago. The CAQM was meant to bring together different agencies to address the NCR's air quality, but the lack of coordination and ongoing political

differences have hampered progress. For example, states like Delhi, Haryana, and Punjab often blame each other over stubble burning without working together for a solution. Even after Punjab's government changed in 2022, hopes for better cooperation did not materialize.

The CAQM has also not succeeded in changing the farming practices around Delhi to reduce crop residue burning. The agency has mostly acted as a crisis manager instead of working year-round to prevent the issue. While stubble burning happens during a specific season, encouraging farmers to stop this practice needs to happen throughout the year, not just at the last moment. Additionally, emergency measures are not enough to address other sources of pollution in the NCR, such as emissions from vehicles and industries. The real challenge is reducing Delhi's high baseline pollution levels. This will require new technologies, better public transport, and encouraging people to adopt cleaner habits—efforts that cannot be handled only during emergencies.

Key Takeaways:

- **Supreme Court's Stand**: The Supreme Court reiterated that the Right to Clean Air is part of the Right to Life and criticized governments for not ensuring clean air in the NCR.
- **Current Air Quality Issue**: NCR residents have been dealing with very poor air quality for several days, with only small reductions in stubble burning.
- **Ineffective Coordination**: The CAQM Act, meant to coordinate pollution control efforts, has not been implemented effectively, with states often blaming each other.
- **CAQM's Role**: The Commission on Air Quality Management (CAQM) has not taken long-term measures to prevent crop residue burning, acting mostly in crisis situations.
- **Beyond Stubble Burning**: Reducing pollution requires addressing other sources like vehicles and industries, and focusing on long-term solutions like better public transport and technological innovations.

Indian Ocean Churn: IE Editorial

International Relations

Easy Explanation:

The UK's recent decision to hand over control of the Chagos Archipelago to Mauritius is a major event in global relations and ocean politics. This issue had been a point of contention for many years until the UK resolved it, aiming to satisfy key players while still looking out for its own interests. The decision not only addresses the lingering effects of colonialism but also changes the balance of power in the Indian Ocean, which has important implications for regional security and maritime strategy.

This move by the UK was somewhat expected, given the growing pressure from international bodies like the International Court of Justice, the United Nations, and countries like India. India has strongly supported the decolonization process and Mauritius's claims, showing its leadership in the Global South. With international expectations mounting, the UK likely saw this transfer as a way to align itself with global opinion.

The agreement has strategic implications. Although Mauritius gains full control of the archipelago, the US and UK maintain control of the military base at Diego Garcia for 99 years. For India, which plays a leading role in

security in the Eastern Indian Ocean, this situation means more than just the potential access to Diego Garcia's military resources. It touches on India's broader goals, like maintaining independence in its strategic decisions, building regional alliances, and adjusting to the shifting power dynamics in the Indian Ocean region (IOR).

Given India's strong military ties with the US and UK, access to Diego Garcia could offer the Indian Navy valuable opportunities for maritime patrols, anti-piracy missions, and intelligence gathering. With China's increasing naval presence in the Indian Ocean, India might use closer cooperation with the US as a way to counter China's influence.

However, India's closeness to Diego Garcia, a major US military base, could complicate its strategic plans. Diego Garcia is a significant location for US naval operations, including its nuclear submarines, and plays a crucial role in the Western Indian Ocean. Using this base could raise concerns about India's independence in its strategic choices, especially as the Indian Ocean becomes more competitive due to tensions in regions like the Red Sea and the ongoing conflict between Iran and Israel.

India has always emphasized a policy of maintaining strategic independence. Stronger military ties with the US might appear as a shift towards the West, possibly affecting India's ability to interact with a wide range of partners, including countries like Russia, Iran, and other Middle Eastern nations. Although Diego Garcia is vital for US operations in the Middle East, India has to navigate the complexities of the region, balancing its closer relationship with Israel with its ties to Iran and other non-Western countries.

The transfer of Chagos aligns with India's longstanding desires, and India played a role behind the scenes to encourage this outcome. While India sees the continued US control of the Diego Garcia base as beneficial, it will likely maintain a cautious approach to avoid appearing too aligned with the US and UK.

At the same time, India's strategic community will view this situation through the perspective of China's expanding presence in the Indian Ocean. With a naval base in Djibouti and potential future bases in Pakistan, China is emerging as a strong player in the Indian Ocean. While India has to consider the expectations of other regional countries, many of which have ties with China, its main focus will be countering China's influence in the region.

India is also aware of Mauritius's security needs. Mauritius may look to India for help in protecting its waters and managing maritime resources, like preventing illegal fishing. Given its concerns about Chinese activities, India is interested in helping strengthen Mauritius's security. India's goal will be to protect its interests while maintaining its reputation as an independent power in the region.

Key Takeaways:

- **Chagos Archipelago Transfer**: The UK's decision to transfer the Chagos Archipelago to Mauritius is a significant shift in international relations, addressing colonial issues and altering power dynamics in the Indian Ocean.
- **International Pressure on the UK**: The UK faced pressure from the International Court of Justice, the UN, and countries like India, which pushed for decolonization and supported Mauritius's claims.
- **Strategic Importance**: The transfer allows Mauritius sovereignty over the archipelago but keeps the US-UK control of the Diego Garcia military base, impacting regional security and India's strategic considerations.

| Clear your doubts now.

- **India's Role and Strategic Challenges**: India could use closer ties with the US to counter China's growing presence in the Indian Ocean, but this could complicate its policy of strategic independence.
- **Balancing Regional Relations**: While India sees benefits in the US control of Diego Garcia, it aims to maintain a balanced stance to avoid appearing too aligned with the US and UK.
- **Countering China**: India is focused on countering China's influence in the Indian Ocean, while also managing expectations of other regional states.
- **Supporting Mauritius**: India aims to help Mauritius enhance its security capabilities, particularly in managing its waters, aligning with India's interests in maintaining regional stability.

[Geoengineering idea: diamonds in the sky, cooling the Earth: IE Explained](#)

Science

Easy Explanation:

The idea of spraying diamond dust in the upper atmosphere to cool the Earth and combat global warming might sound strange, but a new study suggests it could work. This concept is a part of "geoengineering," where scientists try to change Earth's climate system on a large scale to counteract climate change. The goal is to reflect some of the Sun's rays back into space, preventing them from reaching Earth and thereby reducing temperatures.

The study found that diamond dust could be more effective than other materials like sulphur compounds or calcium in reflecting sunlight. To cool the Earth by about 1.6 degrees Celsius, around 5 million tonnes of diamond dust would need to be released into the atmosphere each year. While this might help slow global warming, it comes with significant challenges, including high costs, technological hurdles, and potential risks to the environment.

Geoengineering techniques like this are seen as quick fixes, but they are not without risks. Manipulating nature on such a large scale could cause unexpected problems, such as changes in weather patterns and rainfall, which could affect agriculture and ecosystems.

Another method under geoengineering is capturing carbon dioxide directly from the air or from industries and storing it underground. This helps reduce the greenhouse gases in the atmosphere, but it's difficult and expensive to do on a large scale. Some scientists believe that using these methods might be necessary to meet global climate goals, even though they're far from being practical solutions right now.

Key Takeaways:

- **Diamond Dust for Cooling**: A new study suggests that spraying diamond dust in the atmosphere could help cool the Earth by reflecting sunlight, making it an option for geoengineering.
- **Geoengineering Concept**: The idea involves large-scale changes to the Earth's climate system to reduce global warming, especially through Solar Radiation Management (SRM).
- **Study Findings**: To reduce Earth's temperature by 1.6°C, about 5 million tonnes of diamond dust would need to be used annually in the atmosphere.
- **Challenges and Risks**: High costs, technological challenges, and the risk of unintended changes to global weather patterns make SRM and other geoengineering efforts difficult to implement.

- **Carbon Capture Technologies**: Other methods like Carbon Capture and Storage (CCS) and Direct Air Capture (DAC) aim to reduce carbon dioxide levels, but they are costly and difficult to scale up.
- **CCS Role in Climate Goals**: CCS is seen as almost unavoidable in achieving climate targets like the 1.5°C or 2°C temperature limits, but it requires massive investments and suitable storage sites.

Taxing industrial alcohol: IE Explained

Economy

Easy Explanation:

The Supreme Court of India ruled that states have the power to tax not only alcoholic beverages meant for drinking but also "industrial" alcohol, which is not meant for human consumption. This decision is significant because taxing alcohol is a major source of income for states, and now they can include industrial alcohol in their tax collections.

The main question was whether the term "intoxicating liquor" includes industrial alcohol, which is usually mixed with chemicals to make it undrinkable. Eight out of nine judges agreed that states should have this power, arguing that even industrial alcohol could be misused to create illegal liquor, making it necessary for states to regulate it. However, one judge, Justice Nagarathna, believed that only the central government should have the power to regulate industrial alcohol since it is part of larger industries that the Centre controls.

This decision also touches on how powers are divided between the central and state governments in India. The Constitution has a list of subjects that states can control and another list for the Centre. The issue arose because both state and central powers seemed to overlap on the subject of alcohol regulation. The majority opinion was that when such overlaps happen, it's better to maintain a balance that allows states to have control over matters that directly affect their revenue and public health, like alcohol regulation.

The Supreme Court's decision also overturned a previous judgment from 1990, which had ruled that only drinkable alcohol could be taxed by states. Now, states can also tax industrial alcohol, which is often used in products like cleaning agents, perfumes, and pharmaceuticals but can be turned into harmful, illegal liquor.

Key Takeaways:

- **States' Right to Tax Alcohol**: The Supreme Court ruled that states can tax both drinking alcohol and industrial alcohol, boosting their revenue.
- **Disagreement Among Judges**: Eight judges supported state powers over industrial alcohol, while one judge believed the Centre should have control.
- **Constitutional Overlap**: The ruling addressed overlaps in the Constitution's division of powers, giving states the upper hand in alcohol regulation for maintaining federal balance.
- **Impact on Revenue**: Alcohol taxes are a major source of income for states, and this ruling could increase their collections.
- **Overturning 1990 Ruling**: The new decision reverses a past judgment that restricted states from taxing non-drinkable alcohol.
- **Potential Risks with Industrial Alcohol**: States argued that industrial alcohol could be misused to make illegal liquor, justifying their need to regulate it.

| Clear your doubts now.

25th October 2024

Not another BRICS in the wall: IE Editorial

International Relations

Easy Explanation:

The recent 16th BRICS Summit in Kazan, hosted by Russia, focused on strengthening international cooperation for fair global development and security. The BRICS group, which includes Brazil, Russia, India, China, and South Africa, has evolved since its formation, which started as an economic alliance highlighted by a report from Goldman Sachs. Over time, the group expanded its membership, with new countries joining in 2024 and forming additional partnerships at this summit. Prime Minister Modi emphasized India's role and priorities in this expanded group, known as BRICS+.

Originally, BRICS members aimed to collaborate with the developed world, but tensions between the West and Russia-China, especially after economic slowdowns and global conflicts, shifted BRICS's focus. Although some Western narratives view BRICS as anti-West, the group insists it is not against any country and seeks partnerships worldwide. The summit also continued to push for reforms in global institutions like the United Nations and the UN Security Council (UNSC), although no specific plans were agreed upon.

The summit's discussions covered various global issues, emphasizing economic cooperation within BRICS. The group has established new financial tools like the New Development Bank to supplement existing global banks, aiming to boost trade and financial transactions among member countries. Russia's focus on trading in local currencies is part of this effort, although the dominance of the US dollar is expected to remain.

BRICS has become attractive to other countries, especially those looking for a stronger voice in global affairs. The recent addition of nations like Egypt, UAE, and Iran reflects this trend. However, with its expanding membership, BRICS faces the challenge of maintaining its core principles and balancing the different economic and political systems of its members. India, as a founding member, has played a key role in shaping BRICS's agenda and serves as a link between the Global South, BRICS, and other international forums like the G7 and G20.

Key Takeaways:

- **Summit Focus**: The 16th BRICS Summit, held in Kazan, Russia, aimed at strengthening global cooperation for fair development and security.
- **Origins and Evolution**: Initially formed for economic collaboration, BRICS has expanded to include new members and partnerships, growing its global influence.
- **India's Role**: Prime Minister Modi emphasized India's commitment to BRICS+, highlighting citizen-focused development and global cooperation.
- **Geopolitical Shifts**: Tensions between the West and Russia-China have influenced BRICS's position, but the group insists it seeks global partnerships, not opposition.
- **Reform Agenda**: The summit continued to push for reforms in global bodies like the UN and UNSC, though no concrete steps were finalized.

| Clear your doubts now.

- **Economic Initiatives**: BRICS developed financial tools like the New Development Bank to enhance trade and investment among members, including trading in local currencies.
- **New Members**: Recent additions like Egypt and UAE reflect BRICS's growing appeal to countries seeking a stronger global voice.
- **India's Strategic Role**: As a founding member and a key player in the Global South, India helps bridge BRICS with other international groups like the G7 and G20.

HOPE AND REALISM: IE Editorial

International Relations

Easy Explanation:

Prime Minister Narendra Modi's recent meetings with Chinese President Xi Jinping and his participation in the BRICS forum in Kazan, Russia, have generated some optimism about improving India-China relations and strengthening BRICS as a global alliance. However, those who closely follow diplomatic relations remain cautious. While it is positive that Modi and Xi expressed a desire to stabilise relations between India and China, and that BRICS has called for more international cooperation during times of conflict like the wars in Europe and the Middle East, India remains aware of the challenges ahead.

In terms of India-China relations, India takes credit for convincing China to step back and restore peace along their shared border, especially after tensions arose in 2020. The recent agreement on disengagement and the meeting between the two leaders are seen as initial steps toward returning to the pre-2020 status. However, the separate statements released by both countries after the meeting show that their priorities differ—China wants to focus on improving trade and political ties quickly, while India emphasizes the need to first stabilize the border situation.

BRICS, which now includes new members like Egypt, Ethiopia, Iran, and the UAE, faces its own set of challenges. While the group aims to challenge Western influence, the members have imbalances among themselves, especially since China's economy is much larger than the others combined. For India, BRICS is seen as a way to create a world where power is more evenly spread, not dominated by just one country. However, both Russia and China have their own agendas—Russia needs the US to balance power in Europe, while China seeks to work closely with the US as an equal power. India, like its BRICS partners, sees the group as a way to gain more leverage in global affairs. But even as India engages with Russia and China through BRICS, it continues to maintain strong ties with Western nations, shown by Modi's upcoming meetings with European leaders like the German Chancellor and the Spanish Prime Minister, which will focus on defence cooperation.

Key Takeaways:

- **India-China Relations**: Modi and Xi's discussions emphasized hopes for stabilizing ties, but India's focus remains on resolving border issues first.
- **BRICS Expansion**: With new members like Egypt and UAE, BRICS seeks to counter Western influence but faces internal imbalances, especially with China's economic size.
- **Strategic Goals**: BRICS countries, including India, use the platform to gain leverage in global affairs, each with their unique interests.

| Clear your doubts now.

- **India's Balanced Approach**: Despite its engagement with BRICS, India continues to build strong relationships with Western nations, shown by upcoming meetings with European leaders.

AN INVESTMENT, NOT A WASTE: IE Editorial

Economy

Easy Explanation:

The discussion revolves around how India should allocate funds to support its agricultural sector, particularly focusing on research and development (R&D) to improve crop productivity and withstand climate change. The idea is that India needs more investment in R&D to ensure long-term food security. A recent article by Ashok Gulati suggests that to raise these funds, the government could cut back on spending in other areas, like food subsidies. Food subsidies help make essential food items more affordable for the population through programs like the Public Distribution System (PDS). Gulati argues that cutting food subsidies could free up money for R&D in agriculture, potentially benefiting both farmers and consumers.

However, the suggestion to cut food subsidies is debated. Some argue that food subsidies are not like other subsidies, such as those for electricity and fertilizers, which mainly benefit producers. Food subsidies help the poorer sections of society by making basic food like rice and wheat affordable, which in turn supports their food security. The food subsidy also indirectly helps farmers by stabilizing the price of grains. During crises like COVID-19, the importance of these subsidies became even more evident, as they provided crucial support to vulnerable populations.

The broader question is whether so many people still need food subsidies. A decade ago, India expanded its food subsidy system under the National Food Security Act (NFSA) to cover more people, arguing that identifying only the poorest accurately was difficult. Critics thought this would lead to more grain being procured, increasing costs. But while the coverage increased, the amount of grain given to each beneficiary actually decreased, balancing out the costs.

Investing in agricultural R&D has a high return, especially if it focuses on diverse food crops like pulses, milk, eggs, vegetables, and fruits, which are important for better nutrition. This kind of investment benefits both consumers and producers and helps improve the overall health of the population. Therefore, it might be better to find other areas to cut costs rather than reducing food subsidies, which directly support those in need.

Key Takeaways:

- **R&D vs. Subsidies**: Ashok Gulati argues for cutting food subsidies to fund more agricultural R&D, suggesting it would benefit farmers and consumers.
- **Importance of Food Subsidies**: Food subsidies play a key role in providing affordable food for the poorer sections of society, helping to maintain food security, especially during crises like COVID-19.
- **NFSA and Coverage**: The expansion of food subsidy coverage under the National Food Security Act (NFSA) aimed to reduce exclusion errors, increasing the number of beneficiaries but reducing the amount of grain per person.
- **R&D's Benefits**: Investment in agricultural R&D, particularly for diverse food crops, can yield high returns and improve nutrition, making it a valuable area for investment.

| Clear your doubts now.

- **Need for Careful Trade-offs**: Instead of cutting food subsidies, it might be more effective to find other areas for expenditure cuts to ensure balanced support for both R&D and food security.

[The India-China agreement: IE Explained](#)

International Relations

Easy Explanation:

India and China have reached an agreement on how their troops will patrol along the Line of Actual Control (LAC), which has helped resolve some of the tensions that began in 2020. This announcement came just before a meeting between Prime Minister Narendra Modi and Chinese President Xi Jinping during the BRICS summit in Russia. However, China's statements this week did not directly mention the new agreement on patrolling.

Earlier in 2024, Modi emphasized the importance of addressing the ongoing border situation with China to normalize the relationship. China responded positively, indicating a willingness to improve ties through diplomatic and military communication. By May, India's External Affairs Minister highlighted that the main issues to resolve were about how patrolling rights along the border should be managed.

Patrolling is a key part of managing the border between India and China. Since there isn't a physical boundary that both sides agree on, troops usually patrol up to their country's perceived border. The new agreement allows India to resume patrolling in specific areas like the Depsang Plains and Demchok, areas with long-standing disputes.

This agreement is expected to reduce military tension in these areas, where each side currently has around 50,000 to 60,000 troops stationed. The process of scaling back military presence is likely to begin within the next week or so. However, this agreement does not include some previously contentious areas like the Galwan Valley and Pangong Tso, which had already seen some disengagement efforts.

The agreement follows a process called the "three Ds": disengagement, de-escalation, and de-induction of troops, which means first separating troops, then reducing tension, and finally withdrawing soldiers. Both sides hope this will prevent clashes like those seen in 2020, where there were casualties on both sides.

Despite this progress, there are still some differences in how India and China view their relationship. While India insists that the border situation must be resolved before normal relations can resume, China believes the border issue should not affect their overall ties. After the leaders met, India's statement emphasized further discussions to resolve the border dispute, while China spoke more broadly about improving relations.

India remains cautious about the agreement, with a "trust, but verify" approach. Even if both sides keep their promises, it could take a couple of years before all tensions are resolved and relations between the two countries return to normal.

Key Takeaways:

- **Patrolling Agreement**: India and China have agreed on patrolling arrangements along the Line of Actual Control (LAC), helping ease tensions from 2020.
- **Modi-Xi Meeting**: The agreement was announced before a meeting between Modi and Xi during the BRICS summit, although China's statements did not mention the agreement directly.

| Clear your doubts now.

- **Resumed Patrolling**: Indian troops will be able to patrol in specific areas like the Depsang Plains and Demchok, where issues existed even before 2020.
- **Disengagement Process**: The agreement includes a phased process of disengagement, de-escalation, and troop withdrawal, expected to begin soon.
- **Cautious Approach**: India maintains a cautious stance, emphasizing the need to resolve border issues before normalizing broader ties with China. The full resolution is expected to take time.

How panchayat-level weather forecasts will help: IE Explained

Geography

Easy Explanation:

India has launched a new initiative to provide five-day weather forecasts, updated every hour, specifically for gram panchayats (village councils). This step is significant because it brings more localized weather information directly to rural areas, helping communities better prepare for climate-related challenges. The program is a collaboration between the Ministry of Panchayati Raj, the India Meteorological Department (IMD), and the Ministry of Earth Sciences. It aims to support rural areas by improving their readiness for natural disasters and helping them adopt sustainable farming practices.

Farmers can now access hourly updates on temperature, wind speed, rainfall, and other weather details through platforms like the e-GramSwaraj and Gram Manchitra portals, as well as the Meri Panchayat app. This detailed weather data helps farmers make better decisions about when to sow seeds, irrigate, and harvest their crops, ensuring they can plan their activities more effectively.

Weather forecasts, especially when localized, are more challenging to make accurately due to the unpredictable nature of weather patterns. It's easier to predict larger weather events like cyclones or heatwaves, but sudden, localized incidents like cloudbursts are harder to forecast. Nonetheless, this new system gives small communities the ability to plan with greater confidence, allowing them to adapt better to changing weather conditions.

Key Takeaways:

- **New Weather Forecasting Initiative**: India now offers five-day weather forecasts updated every hour for gram panchayats, aiding local communities.
- **Collaboration for Rural Preparedness**: The project is a joint effort of the Panchayati Raj Ministry, IMD, and Ministry of Earth Sciences, aiming to improve disaster readiness and sustainable agriculture.
- **Accessibility**: Forecasts can be accessed through e-GramSwaraj, Gram Manchitra, and the Meri Panchayat app, providing data on temperature, wind speed, rainfall, and more.
- **Farmer Support**: Detailed weather data helps farmers plan activities like sowing, irrigation, and harvesting, making them more resilient to climate changes.
- **Localized Forecast Challenges**: Predicting local weather events like cloudbursts is harder than forecasting larger weather systems, but the new system aims to improve rural planning and preparedness.

| Clear your doubts now.

Overflowing godowns, unhappy millers: paddy procurement crisis in Punjab: IE Explained

Economy

Easy Explanation:

The paddy procurement process in Punjab is facing serious delays and mismanagement this year, despite good weather conditions for the harvest. Nearly 90% of the harvested crop is stuck in grain markets (mandis) because private rice millers are refusing to store the government-procured paddy. This situation is due to logistical issues, storage space shortages, and disagreements with middlemen and laborers. Without a quick solution, the problem could become worse.

The paddy procurement process involves the government and Food Corporation of India (FCI) buying paddy from farmers at a fixed price, then milling it into rice, which is stored for future use or distribution under various welfare schemes. However, this year, the amount of paddy procured is much lower than expected, and only a small portion has been moved from the mandis, causing delays.

One major issue is the lack of storage space, as private millers are reluctant to store paddy because the government's storage facilities are already full. There is also a controversy over new hybrid paddy varieties that result in less rice output, leading to financial losses for millers. Additionally, middlemen (arhtiyas) and laborers are demanding better compensation, further slowing down the process.

These delays mean that less paddy is being harvested, which could hurt farmers financially. It could also disrupt the planting of the next crop, winter wheat, which might lead to more stubble burning and air pollution in North India. If the situation isn't managed soon, it could lead to unrest among farmers and become a larger problem for the state.

To fix this issue, the government needs to find temporary storage solutions, like using existing rice mills, and address the concerns of millers. Improving coordination among the various agencies involved and addressing the demands of middlemen and laborers could also help streamline the process. In the long term, Punjab should diversify its crops to avoid similar problems in the future.

Key Takeaways:

- **Current Situation**: Punjab's paddy procurement faces delays, with nearly 90% of harvested paddy stuck in mandis due to storage issues.
- **Factors Behind the Delay**: Limited storage space, disputes over hybrid rice varieties, and compensation demands from middlemen and laborers contribute to the slow pace.
- **Impact on Farmers**: Delays could result in economic losses for farmers, disrupt the winter wheat planting schedule, and increase stubble burning.
- **Urgent Solutions Needed**: Temporary storage in rice mills and addressing millers' concerns, along with better coordination, could help resolve the crisis.
- **Long-Term Strategy**: Punjab should diversify its crop base to prevent future issues related to surplus paddy production.

| Clear your doubts now.

Trachoma eliminated as a public health problem in India; what next?: TH Science

Science Tech

Easy Explanation:

On October 12, 2024, a malfunctioning aircraft at Trichy Airport required pilots to keep it circling for hours before safely landing it. The incident captured public attention due to the visible efforts of the pilots, drawing headlines and media coverage. In contrast, just a few days earlier, India achieved a significant yet quieter success—eliminating trachoma as a public health problem on October 8. This achievement is crucial for India's health system but did not receive as much attention.

Trachoma is an infectious eye disease that can lead to blindness, especially in areas with poor sanitation. It spreads through contact with infected secretions or contaminated items. The World Health Organization (WHO) classifies trachoma as a neglected tropical disease and aims to eliminate it worldwide by 2030. India has made substantial progress in reducing the prevalence of trachoma, largely due to WHO's SAFE strategy, which includes surgery, antibiotics, promoting facial cleanliness, and improving access to clean water.

Though trachoma is no longer a significant public health threat in India, it has not been entirely eradicated. "Elimination as a public health problem" means that the disease's impact has been drastically reduced, but sporadic cases may still exist. To maintain this status, continuous efforts like improving sanitation and regular health checks are needed. India's progress against trachoma highlights the importance of behind-the-scenes work in public health, showing that such efforts can lead to meaningful change, even if they don't make headlines.

Key Takeaways:

- **Aircraft Incident vs. Health Achievement**: A plane's safe landing after an incident dominated headlines, while India's quiet success in eliminating trachoma as a public health issue went largely unnoticed.
- **Impact of Trachoma**: Trachoma causes blindness in regions with poor hygiene and affects children and women in particular. It spreads through contact with infected secretions.
- **Significance of Elimination**: Achieving "elimination as a public health problem" means reducing trachoma to levels where it no longer poses a major health risk, though some cases may still exist.
- **Continued Efforts Needed**: Ongoing surveillance, adherence to the SAFE strategy, and initiatives like Swachh Bharat are essential to prevent trachoma from re-emerging.
- **Inspiration for Future Health Goals**: The success against trachoma shows that collective efforts can address public health challenges, offering hope for tackling other diseases like kala-azar and tuberculosis.

Why did the Central govt. sanction a 50% hike in prices of commonly used drugs?: TH Science

Easy Explanation:

On October 14, India's National Pharmaceutical Pricing Authority (NPPA) raised the ceiling prices of eight essential drugs, including those used for treating asthma, tuberculosis, bipolar disorder, and glaucoma, by 50%. This decision came under "extraordinary circumstances" and was deemed in the "public interest." The

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NPPA, which is under the Ministry of Chemicals and Fertilizers, is responsible for keeping essential drugs affordable without making them unavailable.

The price increase was prompted by requests from manufacturers who faced higher costs for ingredients, production, and exchange rates, making it hard for them to keep these drugs in the market. Some manufacturers even wanted to discontinue certain drugs due to their unprofitability. To ensure the continued availability of these essential drugs, the NPPA decided to allow the price increase.

The NPPA, established in 1997, sets drug prices through the Drug Price Control Order (DPCO). The recent decision was made using special powers under Section 19 of the DPCO, 2013, which allows for price adjustments in exceptional situations. While this power has been used before in 2019 and 2021, the recent adjustment aims to ensure that vital, low-cost drugs remain available for public health programs. The pricing of drugs in India is tightly regulated, with regular checks to ensure compliance and action taken against overpricing.

Key Takeaways:

- **Price Increase for Essential Drugs**: The NPPA raised the ceiling prices of eight essential drugs by 50% on October 14, citing "extraordinary circumstances" and public interest.
- **Reason for the Price Hike**: The rise was due to increased costs in production, active pharmaceutical ingredients, and exchange rates, making it difficult for manufacturers to keep these drugs available.
- **Regulation Framework**: The NPPA regulates drug prices through the Drug Price Control Order (DPCO) under the Essential Commodities Act and has the power to adjust prices during exceptional circumstances.
- **Past Instances**: The NPPA has used its extraordinary powers to adjust prices in 2019 and 2021 as well, allowing similar increases to ensure drug availability.
- **Compliance and Control**: Drug pricing in India is strictly controlled by the government, with actions taken against companies selling at higher prices, ensuring that essential medicines remain accessible to the public.

[The Gaza war and the Global South's 'interventions': TH Editorial](#)

International Relations

Easy Explanation:

On October 16, 2024, the Israeli military killed Hamas chief Yahya Sinwar in Gaza, marking a major milestone for Israel. Sinwar, who became the leader of Hamas after Ismail Haniyeh's assassination in July 2024, was a key planner of the October 7, 2023, attacks. As Israel meets its goal of eliminating several Hamas and Hezbollah leaders, the focus shifts to what happens next, especially with the rising civilian casualties in Gaza and Lebanon. Despite calls for a ceasefire, the United States has been preoccupied with its own elections and has not managed to push for peace, while countries like India and China have been considered as potential alternatives for mediation.

The response from different nations, especially within the so-called Global South, has varied. South Africa took Israel to the International Court of Justice over its actions, but India and China have taken different stances that reflect their own national interests. China has focused on supporting the Arab position, emphasizing

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Palestinian rights, and maintaining open channels with various Palestinian groups, including Hamas. Meanwhile, India has adopted a balanced position, supporting Israel's right to counter-terrorism efforts while still advocating for a two-state solution.

China's approach has shifted away from fostering ties with Israel, focusing instead on its relations with Arab and Iranian interests. This was reflected in its efforts through forums like BRICS, which recently expanded to include new members, including Palestine showing interest. India, on the other hand, is seen as leaning towards Israel, highlighting shared concerns like counter-terrorism, but also continues to back Palestinian statehood, creating a nuanced stance that accommodates both perspectives.

The broader situation in Gaza reveals a decline in U.S. influence in global conflicts, with no viable alternative from the Global South. Differences between India and China, along with other divides like democracies versus non-democracies, make it difficult for any collective effort to bring peace to West Asia. The efforts by Global South countries often reflect their individual interests rather than a unified push for a peaceful resolution.

Key Takeaways:

- **Sinwar's Death and Israel's Goals**: Yahya Sinwar, Hamas chief, was killed by Israeli forces on October 16, 2024, following his involvement in planning the October 2023 attacks. Israel has also targeted other Hamas and Hezbollah leaders.
- **Differing Approaches from Global Powers**: The U.S. has not been able to initiate a ceasefire due to its domestic focus, while countries like India and China have adopted different strategies regarding the conflict.
- **China's Stance**: China has supported the Arab perspective, aiming to maintain diplomatic relations with Palestinian groups and challenging U.S.-Israeli alignment.
- **India's Balanced Position**: India supports Israel's right to counter terrorism while advocating for a two-state solution for Palestine, reflecting a balanced diplomatic approach.
- **Challenges for Global South Unity**: Differences between India and China, along with other political divides, limit the Global South's ability to act collectively in resolving the conflict in Gaza and West Asia.
- **Impact on U.S. Influence**: The ongoing war in Gaza highlights a decline in the influence of the U.S. as a global mediator, with no immediate alternative power emerging from the Global South.

Building blocks: TH Editorial

International Relations

Easy Explanation:

Russia hosted the 16th BRICS Summit in Kazan, which caught the attention of many, especially Western nations. This was Russia's biggest international gathering since the Ukraine war began in 2022, with leaders from nine countries, Saudi Arabia's Foreign Minister, and about 30 Global South leaders attending a special BRICS outreach. Russian President Vladimir Putin aimed to show that Russia wasn't isolated because of the Ukraine conflict. The summit's agenda and the Kazan Declaration emphasized the importance of strengthening economic ties within BRICS, which represents a third of the world's GDP. It also signaled that not everyone agrees with unilateral sanctions on members like Russia and Iran. Key agreements included creating a system

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for interbank cooperation, a grain exchange, cross-border payments, and boosting the BRICS New Development Bank, all as alternatives to the current global governance structures.

The induction of Iran, Egypt, Ethiopia, the UAE, and Saudi Arabia into BRICS signaled that the group is a serious counterbalance to Western-dominated global systems. Even though many BRICS members have ties with the U.S. and Europe, they believe the current international institutions favor the old Western powers. Prime Minister Narendra Modi addressed concerns about this, emphasizing that BRICS is an inclusive group aimed at benefiting humanity, not creating divisions. His remarks about preferring "dialogue and diplomacy" over war highlighted the fact that BRICS members don't always agree on geopolitical issues. India's support for statements on Israel and Palestine in the Declaration showed this nuance.

The BRICS forum also provided a space for members to address bilateral disputes, such as those between Iran-UAE and Egypt-Ethiopia. Meetings on the side-lines, like the one between Modi and Xi Jinping, allowed India and China to work on resolving long-standing issues, including the LAC standoff.

Key Takeaways:

- **Kazan Summit's Significance**: Russia hosted the 16th BRICS Summit in Kazan, emphasizing that Russia is not isolated due to the Ukraine war.
- **Strengthening BRICS Bonds**: The summit focused on building stronger economic ties within BRICS, seeking alternatives to current global systems like a new interbank cooperation mechanism and boosting the BRICS New Development Bank.
- **New Members Join BRICS**: Iran, Egypt, Ethiopia, the UAE, and Saudi Arabia joined BRICS, showing that the group remains a strong counterbalance to Western dominance.
- **India's Diplomatic Balance**: Prime Minister Modi stressed that BRICS is an inclusive organization and emphasized diplomacy over conflict, reflecting India's position as a BRICS member and a participant in U.S.-led alliances.
- **Forum for Bilateral Issues**: The summit provided an opportunity for members to address regional tensions and bilateral issues, such as India-China discussions on the LAC standoff.

26th October 2024

[Can a popular weight-loss drug reduce risk of Alzheimer's?-Indian Express Explained](#)

Science

Easy Explanation

A recent study has revealed that **semaglutide**, the active ingredient in popular diabetes and weight-loss drugs like **Ozempic** and **Wegovy**, can significantly reduce the risk of **Alzheimer's disease (AD)** in individuals with **type 2 diabetes**. Published in *Alzheimer's & Dementia*, the research demonstrated a **40% to 70% lower risk** of AD diagnosis for those taking semaglutide compared to other diabetes drugs. The study tracked over a million U.S. patients and found that the most noticeable risk reduction was observed between those taking **semaglutide** and **insulin**. Semaglutide's benefits may stem from its potential to lower neuroinflammation, oxidative stress, and harmful protein buildup in the brain, all contributing factors to Alzheimer's. Experts

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suggest this new insight may offer dual-purpose benefits for diabetes management and AD prevention, especially significant for countries with high diabetes rates, like India.

Key Takeaways

- **Semaglutide's Role in Alzheimer's**: Reduces AD risk by 40-70% compared to other diabetes drugs.
- **Study Findings**: Strongest AD risk reduction seen between semaglutide and insulin users.
- **How it Works**: May lower neuroinflammation and toxic brain proteins, enhance brain energy use, and reduce harmful plaques.
- **Potential Dual-Purpose Use**: Offers benefits for diabetes management and Alzheimer's prevention.
- **Implications for India**: With high diabetes rates, semaglutide could provide significant preventative help against dementia.

The right to die with dignity-Indian Express Explained

Polity

Easy Explanation

In India, the right to die with dignity for terminally ill patients is shaped by Supreme Court decisions and subsequent guidelines from the Ministry of Health. Notably, the cases of **Aruna Shanbaug v. Union of India (2011)**, **Common Cause v. Union of India (2018)**, and a subsequent clarification in 2023 form the legal backdrop. These rulings have clarified that withholding or withdrawing life-sustaining treatment, such as ventilators or feeding tubes, is legal when these interventions only prolong the suffering of patients without potential recovery.

The guidelines issued provide a structured procedure involving the establishment of Medical Boards at hospitals to evaluate and make decisions on life-sustaining treatment for terminally ill patients. Living wills, where individuals can express their wishes regarding medical treatments in case they lose decision-making ability, are supported by legal frameworks ensuring these directives are respected.

Key Takeaways

1. **Legal Groundwork:** Supreme Court rulings, particularly in **Common Cause v. Union of India (2018)**, have recognized the right to die with dignity as a fundamental right under Article 21 of the Constitution. These decisions establish a legal framework for the use of advanced medical directives or living wills.
2. **Establishment of Medical Boards:** As per the guidelines, hospitals must set up Primary and Secondary Medical Boards responsible for the assessment of withholding or withdrawing life support, ensuring decisions are medically justified and ethically considered.
3. **Living Wills:** The legal provisions for living wills were solidified by the 2018 Supreme Court judgment, with further simplifications made in 2023 to reduce bureaucratic hurdles, making it easier for individuals to document their end-of-life care preferences.
4. **Ethical Medical Practice:** The guidelines stress ethical considerations, ensuring that decisions to withhold or withdraw treatment are not seen as abandoning the patient but as recognizing when treatments no longer benefit the patient and instead prolong suffering.

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5. **Historical Context:** The evolution from recognizing passive euthanasia in **Aruna Shanbaug (2011)** to simplifying the procedure for living wills and medical decision-making in **Common Cause (2023)** highlights India's progressive approach to dignified end-of-life care.

WHY 'PROTECTED' AREAS ARE SEEING FASTER BIODIVERSITY DECLINE-Indian Express Explained

Environment

Easy Explanation

A recent study conducted by the Natural History Museum (NHM) in London has highlighted a concerning trend: biodiversity is declining more rapidly within protected areas compared to regions that are not protected. This study, published in 2020, challenges the effectiveness of current conservation strategies and emphasizes that simply increasing the number of protected areas is insufficient for biodiversity conservation. The Biodiversity Intactness Index (BII) showed a global decline of 1.88 percentage points between 2000 and 2020, with protected critical biodiversity areas (CBAs) experiencing a slightly higher decline compared to non-protected ones.

The study attributes this faster decline within protected areas to several factors. Many protected areas are designated based on the preservation of specific species rather than the entire ecosystem, which does not adequately address overall biodiversity intactness. Furthermore, some of these areas might have been already undergoing degradation when they were declared protected, necessitating a more detailed, region-specific analysis to understand and address the causes of deterioration.

Additional pressures include exploitation from oil, gas, and mining concessions, such as in the Conkouati-Douli National Park in the Republic of the Congo. The impact of the climate crisis, manifesting as more frequent and severe droughts and wildfires, also contributes significantly to the degradation of these areas, as seen with the wildfires in Australia's national parks in 2019.

Key Takeaways

1. **Ineffective Protection Strategies:** Merely designating areas as protected does not guarantee improved outcomes for biodiversity, as evidenced by the higher rates of biodiversity decline within these areas.
2. **Focused Conservation Needed:** Conservation efforts need to prioritize entire ecosystems rather than specific species to maintain overall biodiversity intactness.
3. **Impact of External Threats:** Exploitative activities like oil, gas, and mining, along with severe environmental changes due to the climate crisis, are major threats to the integrity of protected areas.
4. **Need for Stringent Protections:** The study calls for more stringent and effective conservation measures within protected areas to combat the accelerated decline in biodiversity.
5. **Global Commitments:** Despite the challenges, the commitment to conserve 30% of the world's lands and oceans by 2030 (30x30 commitment made at Biodiversity COP15) remains crucial, but it requires enhanced focus and implementation strategies to be effective.

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SHRINKING POCKETS-Indian Express Editorial

Economy

Easy Explanation

Kanti Bajpai's commentary highlights a troubling trend of shrinking consumer spending among middle-income households, particularly in urban areas, which is impacting the sales of fast-moving consumer goods (FMCG). Notable companies like Nestle India, Hindustan Unilever, and Tata Consumer Products have observed a decline in demand, with Nestle reporting a minimal growth of 1.2% in domestic sales revenue for Q3 2024. This trend is evident across various sectors, with even Reliance Retail noting a drop in revenues due to weak fashion and lifestyle demand.

The slowdown, initially more visible in rural areas, is now pronounced in urban centers. This shift is attributed to various factors, including food inflation and stagnant real incomes, which restrict household spending capabilities. Despite some recovery in rural demand driven by improved agricultural outputs and government welfare schemes, urban demand remains subdued.

The government and the Reserve Bank of India (RBI) are called to address these challenges by managing inflation effectively and considering interest rate cuts to bolster consumer spending and support economic growth.

Key Takeaways

1. **Urban Spending Slowdown:** Middle-income urban households are reducing expenditures on FMCG products, affecting the main market segment for companies like Nestle India and Hindustan Unilever.
2. **Impact Across Sectors:** The decline in consumer spending is not isolated to FMCGs but extends to other sectors, including fashion and lifestyle, indicating a broader economic issue.
3. **Rural vs. Urban Demand:** While rural demand shows signs of recovery due to favorable agricultural conditions and government initiatives, urban demand continues to weaken.
4. **Inflation and Income Stagnation:** High food prices and stagnant incomes are major factors constraining consumer spending, affecting both urban and rural populations.
5. **Policy Recommendations:** There is a call for government action on managing inflation and for the RBI to consider cutting interest rates to support economic growth and enhance consumer spending capacity.

All the BRICS is a stage-Indian Express Editorial

International relations

Easy Explanation

The BRICS Summit in Kazan, Russia, serves as a prominent example of how international politics often plays out as public performances. This concept, drawn from Clifford Geertz's idea of the "theatre state," posits that such summits are not just meetings but are orchestrated to display power and legitimacy. The Summit acts as a platform for BRICS nations (Brazil, Russia, India, China, South Africa) to affirm their cohesion and significance

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on the global stage. The gathering is symbolic, demonstrating ongoing solidarity among the member states despite criticisms and skepticism about the tangible outcomes of their declarations.

Three key performances characterized the Summit:

1. **Affirmation of Cohesion:** Each BRICS Summit aims to reaffirm the group's unity and relevance, countering notions that it is a fleeting entity without substantial influence.
2. **Domestic Signaling:** The summits provide a stage for leaders to project competence and authority back to their respective domestic audiences, enhancing their political stature at home.
3. **Anti-Western Posture:** The summits often feature a strong anti-Western narrative, particularly anti-American sentiments, reflecting the member countries' collective and individual grievances against Western policies. This stance offers an alternative axis of power in global politics, challenging Western dominance.

The strategic communications and interactions at the Summit are less about immediate, actionable outcomes and more about the long-term positioning of BRICS nations in a multipolar world order. They signal to both global and domestic audiences that these countries are pivotal players in shaping an alternative global framework.

Key Takeaways

1. **Performance as Politics:** The BRICS Summit exemplifies international relations as performances where states enact their power, unity, and diplomatic stances rather than merely discuss policies.
2. **Significance of Solidarity:** Despite diverse internal agendas and external relations, BRICS nations use the Summit to project a unified front, enhancing their collective bargaining power on the global stage.
3. **Role of Anti-Western Sentiment:** The BRICS grouping leverages its summits to vocalize and organize against perceived Western hegemony, advocating for a balance of power that favors a multipolar world order.
4. **Implications for Smaller States:** The stance of BRICS provides strategic alternatives for smaller nations, offering them leverage and maneuverability in international relations overshadowed by larger powers.
5. **Theatrical Impact Over Tangible Outcomes:** The true impact of the BRICS summits lies in their ability to communicate and shape perceptions, influencing international politics through symbolism and rhetoric rather than concrete policy shifts.

Fair trade -The Hindu Editorial

Environment

Easy Explanation

As the 29th Conference of Parties (COP) in Baku, Azerbaijan approaches, India is gearing up to refine its policies on carbon markets, a key element under the 2015 Paris Climate Agreement's Article 6. This article sets the guidelines for trading carbon credits, which are earned through actions that reduce or remove carbon

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emissions, such as transitioning from fossil fuels to renewable sources or conserving carbon in ecosystems like forests.

Historically, carbon markets have faced criticism for lack of transparency and creating merely an illusion of emission reductions. However, the upcoming COP aims to resolve these issues, potentially starting the legal trading of verified carbon credits next year. India, with its commitment to generating 50% of its electricity from non-fossil sources by 2030, is well-positioned to benefit from these markets. The country is also seeing growth in private sector-led forestry projects that produce tradable carbon credits.

Yet, challenges remain, especially concerning the verification of carbon credits and ensuring compliance with emission standards in heavy industries like iron and steel, which are mandated to meet specific emission intensity standards by 2025. The complexity of calculating accurately saved carbon and ensuring rigorous regulatory enforcement poses significant hurdles.

Key Takeaways

1. **COP29 Focus:** The upcoming COP29 will concentrate on enhancing climate finance and clarifying rules around carbon markets under Article 6 of the Paris Agreement.
2. **India's Position:** India stands to gain significantly from carbon markets due to its substantial renewable energy goals and ongoing carbon reduction projects within its industries.
3. **Verification Challenges:** There is historical skepticism regarding the authenticity of emission reductions claimed through carbon credits, highlighting the need for clear verification mechanisms.
4. **Private Sector Involvement:** Increasing involvement by Indian private enterprises in projects that generate carbon credits points to a burgeoning voluntary carbon market.
5. **Policy Development:** India is urged to develop a transparent and fair carbon trade policy that aligns with international standards to effectively capitalize on carbon markets while ensuring environmental integrity and compliance.

27th October 2024

How will LAC agreement pan out on border?: TH FAQ

International Relations

Easy Explanation:

On October 21, India and China reached an agreement on patrolling arrangements along the Line of Actual Control (LAC), focusing on the Depsang and Demchok areas in eastern Ladakh. This marks progress in easing border tensions that escalated in 2020. Currently, both armies are removing temporary structures they set up in these disputed areas, aiming to finish by October 29. Patrolling is expected to resume at the end of October, with coordinated efforts to avoid future confrontations. The agreement was reached through multiple levels of discussions, addressing these two main friction points while leaving the buffer zones in other areas unchanged.

The new agreement restores India's ability to patrol certain strategic points in the Depsang region that had been off-limits since 2020. Patrolling is essential along the LAC as it helps India maintain its claim in disputed

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areas and counters gradual territorial shifts by China (a tactic known as "salami slicing"). In addition to patrolling, both countries agreed to let Chinese patrols continue in Yangtse in Arunachal Pradesh.

Looking forward, both sides hope to move from disengagement to de-escalation and eventually reduce the military presence. However, there's caution to ensure no side violates the agreed-upon buffer zones. To further resolve boundary issues, India and China plan to resume high-level talks soon.

Key Takeaways:

- **Disengagement at LAC**: India and China agreed on a plan to restore normal patrolling in eastern Ladakh, focusing on Depsang and Demchok areas, with disengagement by October 29.
- **Patrolling Points (PPs)**: The agreement allows Indian forces to patrol up to specific points (PP 10, 11, 11A, 12, and 13) that have been restricted since 2020.
- **Importance of Patrolling**: Patrolling in these areas counters gradual territorial shifts ("salami slicing") by China and is essential for India's security in strategic zones near Daulat Beg Oldie and the Darbuk-DBO road.
- **Arunachal Pradesh Patrols**: The agreement also maintains Chinese patrols in disputed areas like Yangtse in Arunachal Pradesh, aiming to avoid escalation.
- **Future Plans**: Following disengagement, India and China hope to advance to de-escalation, potentially reducing military presence on both sides. High-level talks are expected to continue for a long-term resolution.

Transplant recipients demystify the fate of donated stem cells: TH Science

Science tech

Easy Explanation:

A new study on long-term survivors of hematopoietic (blood-forming) stem cell transplants shows that transplanted stem cells from donors remain relatively stable over time, with mutation rates staying low even decades after transplantation. The study, published in *Science Translational Medicine*, analyzed 16 pairs of stem cell donors and recipients, some who had transplants as long as 46 years ago. Surprisingly, the mutation rate in both donors and recipients was found to be very similar. This suggests that even under the stress of regenerating a recipient's entire blood cell system, the transplanted cells do not experience a significant increase in harmful mutations, showcasing the stem cells' strong regenerative potential.

Key Takeaways:

- **Study Overview**: Research focused on 16 pairs of long-term stem cell transplant donors and recipients, analyzing how stem cells change over decades.
- **Mutation Rates**: Mutation rates in genes linked to myeloid cancers remained low and similar between donors and recipients, averaging 2% and 2.6% per year, respectively.
- **Stability of Transplanted Cells**: Findings indicate that stem cells maintain stability and do not show large-scale mutation-driven growth, even after decades.
- **Implications for Blood Cancer Patients**: This stability reassures patients that transplanted cells are unlikely to develop mutations that lead to cancers or chronic diseases over time.

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- **Future Research**: Insights pave the way for further studies on factors like donor age and preexisting cell changes to predict long-term outcomes for transplant recipients.

Meghalaya polio case details: TH Science

Science Tech

Easy Explanation:

In early August 2024, a two-year-old boy in Meghalaya's West Garo Hills district showed symptoms of polio. After testing by the ICMR (Indian Council of Medical Research) and WHO-approved labs, it was confirmed that the boy had a rare form of polio called type-1 vaccine-derived poliovirus (VDPV). This type of polio sometimes appears when the weakened virus used in oral polio vaccines (OPV) mutates and can cause illness, especially in children who aren't fully vaccinated. However, follow-up tests confirmed that the boy was otherwise healthy, and there was no evidence that this virus had spread to other people in his community.

The WHO received this information in August, yet, despite its usual practice, it has not shared the case publicly on its website. Similarly, the Global Polio Eradication Initiative (GPEI), which often reports cases like this, has not made an announcement. This delay contrasts with WHO's quicker response to similar cases in other countries, such as Israel and the U.S. in 2022, where information was shared within days.

While WHO typically publishes such updates to ensure public awareness, in this case, the delay has raised questions. In past cases, such as Zika virus infections in Gujarat, WHO reported within days, even when there was no active spread. The lack of transparency around the Meghalaya case leaves many wondering why this polio case hasn't been addressed publicly.

Key Takeaways:

- **Polio Case Discovery**: A two-year-old in Meghalaya was confirmed to have a type-1 vaccine-derived poliovirus (VDPV), a rare form that occurs when the vaccine virus mutates and causes illness, especially in unvaccinated children.
- **Non-Circulating Virus**: Follow-up tests showed that the virus was not spreading to others in the community, categorizing it as VDPV (vaccine-derived poliovirus) rather than the more concerning circulating VDPV (cVDPV).
- **WHO and GPEI Response**: Despite receiving detailed test results by mid-September, WHO and GPEI have not made a public announcement on this case, a surprising delay compared to faster reporting times in similar global cases.
- **Contrast with Other Reports**: In 2022, WHO and GPEI reported vaccine-derived polio cases in Israel and the U.S. within days of confirmation. WHO was also quick to report on Zika virus cases in Gujarat in 2017. The delay in reporting this case has led to questions about transparency.
- **Consistency in Public Health Reporting**: The silence from WHO, which often prioritizes prompt updates for health events, raises concerns about maintaining consistent transparency. Reporting cases promptly allows communities to stay informed and better prepared.

| Clear your doubts now.

28th October 2024

[Significance of the livestock census, species it will cover-Indian Express Explained](#)

Economy

Easy Explanation

The 21st Livestock Census, launched by Union Minister Rajiv Ranjan Singh, is a nationwide survey conducted every five years to count and gather data on India's livestock, including domesticated animals, poultry, and stray animals. The census, covering 30 crore households, will document various species like cattle, poultry, horses, and others, with details on breed, age, gender, and ownership. Its objectives are to measure the economic impact of the livestock sector, which contributes 4.7% to India's Gross Value Added (GVA), and to support Sustainable Development Goals (SDGs) like food security and genetic diversity. This census will be fully digital, with new data on pastoralist roles and livestock-reliant households.

Key Takeaways

1. **Purpose**: Gathers data on livestock every five years to support policy-making and sector growth.
2. **Animals Included**: Cattle, poultry, horses, camels, yaks, and more across 219 recognized breeds.
3. **Economic Contribution**: Livestock contributes 4.7% to India's GVA, influencing agricultural productivity.
4. **Digital Approach**: Uses mobile apps and GPS for efficient data collection across 30 crore households.
5. **New Additions**: Data on pastoralists, livestock-based income, and stray animal gender for better insights.

[HOW TARDIGRADES ARE ABLE TO RESIST HIGH LEVELS OF RADIATION-Indian Express Explained](#)

Science

Easy Explanation

A team of researchers has uncovered the genetic mechanisms that enable the newly identified tardigrade species, *Hypsibius henanensis*, to endure high levels of radiation. Published in the journal *Science*, the study reveals that thousands of genes in *H. henanensis* become highly active when exposed to radiation, safeguarding the organism's DNA from damage and facilitating repair. The research involved sequencing the tardigrade's genome, identifying 14,701 genes with 30% being unique to tardigrades, and exposing the species to gamma radiation levels lethal to humans. The findings highlight three key factors contributing to the tardigrade's radiation resistance: rapid DNA repair via the protein TRID1, a radiation-induced gene that produces proteins aiding mitochondrial synthesis and DNA repair, and the production of antioxidant pigments called betalains that neutralize harmful reactive chemicals. These discoveries hold potential applications in protecting astronauts from space radiation, cleaning up nuclear pollution, and enhancing cancer treatments by improving human cell resistance to radiation.

Key Takeaways

1. **Discovery of *Hypsibius henanensis*:**

| Clear your doubts now.

- ○ Identified six years ago from moss samples in Funiu Mountain, Henan province, China.
    - ○ Also known as water bears or moss piglets, renowned for surviving extreme conditions.
2. **Genomic Insights**:
    - ○ Genome sequencing revealed 14,701 genes, with 30% unique to tardigrades.
    - ○ Identified 2,801 genes involved in DNA repair mechanisms.
3. **Mechanisms of Radiation Resistance**:
    - ○ **TRID1 Protein**: Facilitates rapid repair of double-strand DNA breaks caused by radiation.
    - ○ **Radiation-Induced Gene**: Activates production of two proteins essential for mitochondrial synthesis and DNA repair.
    - ○ **Betalains**: Antioxidant pigments that neutralize reactive chemicals formed by radiation, protecting cellular integrity.
4. **Research Methodology**:
    - ○ Genome sequencing followed by exposure of *H. henanensis* to gamma radiation doses exceeding human survivability.
    - ○ Functional tests on human cells demonstrated that tardigrade betalains significantly improve survival rates post-radiation exposure.
5. **Potential Applications**:
    - ○ **Space Exploration**: Enhancing astronaut protection against cosmic radiation during missions.
    - ○ **Environmental Cleanup**: Aiding in the remediation of nuclear pollution sites.
    - ○ **Medical Advancements**: Improving radiation therapy outcomes by increasing human cell resistance to radiation-induced damage.
6. **Collaborative Efforts**:
    - ○ Researchers affiliated with multiple Chinese institutions led the study.
    - ○ The study underscores the importance of multi-omics approaches in understanding complex biological resilience mechanisms.
7. **Future Directions**:
    - ○ Further exploration of tardigrade genes and proteins for biotechnological and medical applications.
    - ○ Potential development of genetic or biochemical strategies to transfer radiation resistance traits to other organisms, including humans.

[Election & farm sector health-Indian Express Explained](#)

Economy

Easy Explanation

The upcoming Maharashtra state elections on November 20, 2024, are occurring in a more favorable agricultural environment compared to previous elections. Unlike the severe drought during the 2019 elections, the 2024 polls benefit from surplus monsoon rains across all major regions, replenishing reservoirs and groundwater. This improvement has reduced immediate farm distress, although challenges like low crop prices and rising cultivation costs persist. Agriculture remains a vital sector, contributing 11.2% to the state's GDP and employing 43.2% of its workforce. Maharashtra's diverse cropping profile, including sugarcane, jowar, onions, and grapes, plays a significant role in shaping voter sentiment. Government schemes targeting rural

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and landless laborers may influence the electoral narrative by addressing some underlying economic issues despite the overall better agricultural conditions.

Key Takeaways

1. **Improved Agricultural Conditions**:
   - **Surplus Monsoon Rains**: All four meteorological subdivisions in Maharashtra have received above-average monsoon rainfall, replenishing major reservoirs (Jayakwadi, Bhima, Mula, Pench) and groundwater aquifers.
   - **Hope for Rabi Season**: Enhanced water availability bodes well for the upcoming winter-spring crop season, alleviating previous drought-induced distress.

2. **Comparison with Previous Elections**:
   - **2019 Elections**: Held during a severe drought, particularly impacting Marathwada, Ahmednagar, and Solapur districts, leading to government-funded fodder camps and high fodder prices.
   - **2024 Elections**: Less agricultural distress due to favorable rains, though underlying issues like low crop prices and rising costs remain.

3. **Economic Significance of Agriculture**:
   - **GDP Contribution**: Agriculture accounts for 11.2% of Maharashtra's GDP (2023-24), below the national average of 17.7%.
   - **Employment**: Employs 43.2% of the state's workforce, slightly below the national average of 46.1%.

4. **Diverse Cropping Profile**:
   - **Sugarcane**: Maharashtra is the largest sugar producer in India, primarily grown in western regions and Marathwada.
   - **Other Major Crops**: Includes jowar (No.1), onions, grapes, pomegranates (No.1), cotton, soyabean, chana, and arhar/tur.
   - **Horticulture**: Significant regional concentrations with heavy investments in irrigation, planting material, fertilizers, and fungicides.

5. **Economic Challenges for Farmers**:
   - **Low Crop Prices**: Soyabean and cotton prices remain below the Minimum Support Price (MSP), impacting farmers' incomes.
   - **Rising Cultivation Costs**: Increased harvesting costs for cotton and lower milk prices add to financial strain.
   - **Labor Dynamics**: Government schemes like the Ladki Bahin Yojana have influenced labor availability and wages, affecting harvesting costs.

6. **Impact of Government Schemes**:
   - **Ladki Bahin Yojana**: Provides cash transfers to women from low-income families, leading to reduced labor availability and increased wages.
   - **Potential Political Implications**: These schemes may influence voter sentiment by addressing rural and landless laborers' needs, potentially offsetting some agricultural discontent.

7. **Future Outlook**:
   - **Bumper Harvests vs. Market Realities**: While good rains have led to bumper production, low crop prices and rising costs may still pose challenges for farmers.

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- ○ **Election Campaign Focus**: The electoral narrative may balance between showcasing improved agricultural conditions and addressing persistent economic issues faced by farmers.
  - ○ **Long-term Agricultural Health**: Continued focus on sustainable farming practices and supportive policies will be crucial for maintaining agricultural stability and voter support.
8. **Regional Agricultural Hubs**:
   - ○ **Western Maharashtra**: Major centers for sugarcane and milk production, with prominent cooperatives and private dairies.
   - ○ **Khandesh and Vidarbha**: Key regions for cotton, soyabean, arhar/tur, and chana cultivation.
   - ○ **Northern Maharashtra**: Specializes in onions, tomatoes, and grapes; Jalgaon in bananas; Solapur in pomegranates; Konkan in mangoes.

[Justice Sanjiv Khanna to be next CJI: how is the top judge of the SC appointed?-Indian Express Explained](#)

Polity

Easy Explanation

On October 24, the Union government appointed Justice Sanjiv Khanna as the next Chief Justice of India (CJI), following the recommendation of the outgoing CJI, D. Y. Chandrachud. Justice Khanna, the seniormost judge of the Supreme Court, will assume the CJI role on November 11, 2024, and serve until his retirement on May 13, 2025. The appointment adheres to the established convention and the Memorandum of Procedure (MoP), which mandates that the most senior Supreme Court judge is elevated to CJI. Historically, there have been exceptions to this convention, primarily influenced by political considerations. The MoP, established in 1999, outlines the procedure for appointing Supreme Court judges through the Collegium system, ensuring judicial independence despite attempts to reform the process, such as the now-defunct National Judicial Appointments Commission (NJAC).

Key Takeaways

1. **Appointment of Justice Sanjiv Khanna**:
   - ○ Justice Sanjiv Khanna has been officially appointed as the next Chief Justice of India.
   - ○ He will take office on November 11, 2024, succeeding Justice D. Y. Chandrachud.
   - ○ His tenure as CJI will last until his retirement on May 13, 2025.
2. **Appointment Process**:
   - ○ **Seniority-Based Selection**: By convention, the seniormost judge of the Supreme Court is appointed as CJI.
   - ○ **Memorandum of Procedure (MoP)**: Established in 1999, the MoP formalizes the seniority-based appointment process.
   - ○ **Recommendation and Approval**:
     - ■ The outgoing CJI recommends the next CJI to the Union Minister of Law, Justice, and Company Affairs.
     - ■ The recommendation is then forwarded to the Prime Minister, who advises the President for final approval.
3. **Historical Deviations**:

- ○ **Indira Gandhi Era**: The convention was broken twice by Prime Minister Indira Gandhi, appointing Justice A. N. Ray in 1973 and Justice M. H. Beg in 1977, bypassing more senior judges.
  - ○ **Political Influence**: These appointments were influenced by political favoritism, undermining judicial independence.
4. **Memorandum of Procedure (MoP)**:
   - ○ **Establishment**: Formulated after the Supreme Court's Collegium decisions in the 1980s and 1990s.
   - ○ **Collegium System**: Comprises the seniormost Supreme Court judges who recommend appointments and elevations.
   - ○ **Judicial Innovation**: The Collegium system operates without constitutional or legislative backing, making the MoP crucial for maintaining appointment procedures.
5. **Supreme Court Collegium**:
   - ○ **Composition**: Includes the seniormost judges of the Supreme Court.
   - ○ **Role**: Recommends appointments and elevations of judges to the Supreme Court and High Courts.
   - ○ **Independence**: Designed to preserve judicial autonomy from executive influence.
6. **Attempts to Reform**:
   - ○ **National Judicial Appointments Commission (NJAC)**: Introduced in 2015 to involve the government more in judicial appointments.
   - ○ **Supreme Court Ruling**: The NJAC was struck down in 2015, reinforcing the Collegium system.
   - ○ **MoP Renegotiation**: Following the NJAC ruling, the MoP was renegotiated in 2016 to solidify the Collegium's role.
7. **Significance of Adhering to the MoP**:
   - ○ **Judicial Independence**: Ensures that judicial appointments are based on merit and seniority, free from political interference.
   - ○ **Consistency and Transparency**: Provides a clear and consistent procedure for appointing the CJI and other Supreme Court judges.
   - ○ **Maintaining Integrity**: Upholds the tradition and stability of the Supreme Court's leadership structure.
8. **Future Implications**:
   - ○ **Reinforcement of Tradition**: Justice Sanjiv Khanna's appointment reaffirms the adherence to seniority and merit in judicial appointments.
   - ○ **Judiciary's Autonomy**: Continues to protect the judiciary's independence from executive influence.
   - ○ **Stability in Leadership**: Ensures a smooth transition and continuity in the Supreme Court's leadership.

Why is Delhi's air quality deteriorating?-The Hindu Text and Context

Environment

Easy Explanation

Delhi's air quality has sharply deteriorated during the winter months, with PM 2.5 levels surpassing 300, classified as 'very poor.' This decline coincides with the cessation of the southwest monsoon and the onset of

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winter, which reduce wind speeds and trap pollutants near the ground. A significant contributor to this pollution spike is the burning of agricultural stubble in Punjab and Haryana, a practice that releases large amounts of particulate matter into the atmosphere. Additionally, urban emissions from vehicles and secondary inorganic aerosols (SIA) further exacerbate the air quality crisis. Studies indicate that over half of Delhi's pollution originates outside its borders, highlighting the need for a coordinated, airshed-based approach involving multiple states to effectively combat the pollution problem.

Key Takeaways

1. **Seasonal Impact**:
   - **Winter Conditions**: Withdrawal of the southwest monsoon and onset of winter lead to reduced wind speeds, trapping pollutants near the ground and worsening air quality.
   - **PM 2.5 Levels**: Consistently exceed 300 during winter, categorized as 'very poor.'
2. **Stubble Burning**:
   - **Agricultural Practice**: Farmers in Punjab and Haryana burn rice stalks post-harvest to quickly prepare fields for winter wheat sowing.
   - **Pollution Contribution**: Studies estimate stubble burning accounts for 20%-35% of Delhi's PM 2.5 levels during peak burning periods.
   - **Health and Environmental Impact**: Releases significant particulate matter and harmful chemicals, affecting both health and air quality.
3. **Urban Emissions**:
   - **Vehicle Emissions**: Contribute approximately 17% of PM 2.5 levels in Delhi.
   - **Secondary Inorganic Aerosols (SIA)**: Formed from reactions of gaseous precursors like SO_2, NO_x, and NH_3, contributing around 32% to overall pollution.
   - **External Sources**: 55% of Delhi's pollution originates from outside the city, with SIA contributing the most.
4. **Pollution Dynamics**:
   - **Wind Patterns**: Wind from Punjab accounts for 54% of pollution spikes, while Haryana contributes 27%.
   - **AQI Fluctuations**: Increased stubble burning correlates with immediate drops in Air Quality Index (AQI), moving from 'moderate' to 'very poor.'
5. **Necessity for Coordinated Action**:
   - **Airshed Approach**: Effective pollution control requires collaboration among multiple states to address both agricultural and urban emission sources.
   - **Policy Measures**: Joint efforts are essential to implement sustainable farming practices, regulate vehicle emissions, and manage industrial pollutants.
6. **Long-Term Solutions**:
   - **Alternative Methods**: Promoting non-burning methods for stubble management, such as mechanical shredders or using stubble as biomass.
   - **Regulatory Framework**: Strengthening regulations on vehicle emissions and industrial discharges.
   - **Public Awareness**: Educating farmers and the public about the health impacts of air pollution and encouraging environmentally friendly practices.
7. **Research and Monitoring**:

- ○ **Advanced Monitoring**: Use of sophisticated instruments and modeling studies to accurately assess the contribution of various pollution sources.
- ○ **Data-Driven Policies**: Leveraging research findings to formulate effective policies aimed at reducing pollution levels.

[New rocket, plus moon and Venus missions, herald new beginnings-The Hindu Science](#)

Science and technology

Easy Explanation

ISRO is embarking on a new phase of space exploration with several ambitious projects. The Indian government has recently approved the development of the Next Generation Launch Vehicle (NGLV) and plans for new moon and Venus missions. These initiatives reflect India's growing capabilities and broader collaboration with the private sector in space technology. The new projects include four missions under the 'Gaganyaan' human spaceflight program, technology tests for India's first space station by 2028, and a scientific mission to Venus. Additionally, a collaborative lunar mission with Japan and the development of a third launch pad at Sriharikota highlight ISRO's strategic advancements. The private sector's role is also expanding, with developments in green propulsion systems and the assembly of satellites by private companies, signaling a significant shift towards a more inclusive space effort.

Key Takeaways

1. **Expanding Missions**:
   - ○ **New Launcher Development**: ISRO is developing the NGLV with a budget of ₹8,240 crore, which includes three development flights.
   - ○ **Moon and Venus Missions**: The government approved a mission to Venus and another Chandrayaan mission to the Moon. The Venus mission is scheduled for March 2028 and aims to study the planet's surface and atmosphere.
   - ○ **Joint Moon Mission with Japan**: The Lunar Polar Exploration Mission (LUPEX) involves developing a new moon lander for potential crewed missions.
2. **Collaboration with the Private Sector**:
   - ○ **Private Sector Involvement**: New Space India, Ltd. will select a private entity to commercialize the LVM-3 rocket. Private companies are also developing satellites and propulsion systems, indicating a significant shift towards industry participation in India's space efforts.
   - ○ **Innovative Technologies**: Manastu Space is testing a green propulsion system, and Ananth Technologies has become the first private Indian company to assemble and test satellites for ISRO.
3. **Infrastructure Development**:
   - ○ **Third Launch Pad**: Approval for a new launch pad at Sriharikota to accommodate the NGLV.
   - ○ **Space Based Surveillance Expansion**: ISRO and private companies will build a total of 52 satellites for the third phase of the Space Based Surveillance (SBS) missions.
4. **Human Spaceflight and Observational Missions**:
   - ○ **Gaganyaan Missions**: Four missions under the Gaganyaan programme aim to develop technologies for India's future space station.

- ○ **Astrosat Continuation**: India's first multi-wavelength space observatory continues to operate beyond its expected mission life, contributing to over 400 published papers.

5. **International Collaborations and Studies**:
   - ○ **NISAR and Proba-3 Satellites**: The collaboration with NASA for the NISAR satellite to study Earth and the European Proba-3 mission to study the Sun's corona further exemplify ISRO's increasing involvement in significant international projects.

ISRO's new initiatives and collaborations mark a significant phase in India's space exploration efforts. With an increased focus on advanced technologies, international partnerships, and private sector involvement, ISRO is poised to enhance its capabilities and contribution to global space research and exploration. These developments not only reinforce India's position in the aerospace sector but also promise to yield substantial scientific and technological dividends in the future.

29th October 2024

Why SC said Aadhaar cannot be used as proof of date of birth-Indian Express Explained

Polity

Easy Explanation

The Supreme Court of India recently held that the Aadhaar card cannot be used as proof of date of birth, especially when other official documents like a School Leaving Certificate are available. This ruling came in the context of a case determining compensation for a motor vehicle accident victim, where the age of the deceased was a crucial factor.

Background of the Case

- **Accident and Compensation Claim**: In August 2015, a man died in a motorcycle accident in Rohtak, Haryana. His family filed a claim with the Motor Accident Claims Tribunal (MACT), which awarded compensation based on his age being 45 years, as per his School Leaving Certificate.
- **High Court's Intervention**: The insurance company appealed, and the Punjab & Haryana High Court reduced the compensation. It considered the age of the deceased as 47 years, based on his Aadhaar card, thereby applying a lower multiplier for compensation calculation.
- **Appeal to the Supreme Court**: The deceased's family challenged this decision, arguing that the School Leaving Certificate should be the basis for determining age.

Supreme Court's Ruling

- **Preference for School Leaving Certificate**: The Court held that the School Leaving Certificate is a more reliable document for determining age compared to Aadhaar.
- **Legal Basis**: Citing Section 94 of the Juvenile Justice (Care and Protection of Children) Act, 2015, the Court emphasized that matriculation certificates are primary evidence for age determination.
- **Nature of Aadhaar**: Referring to its own judgment in *K.S. Puttaswamy vs Union of India* (2018), the Court reiterated that Aadhaar's primary purpose is to establish identity, not age or date of birth.

| Clear your doubts now.

- **UIDAI's Stance**: The Court also mentioned a 2023 circular from the Unique Identification Authority of India (UIDAI), which states that Aadhaar is not proof of date of birth.
- **Outcome**: `The Supreme Court recalculated the compensation using the appropriate multiplier for age 45 and increased the award to ₹15 lakh.`

Key Takeaways

1. **Aadhaar as Identity Proof**: Aadhaar is intended to serve as proof of identity, not as proof of age or date of birth.
2. **Legal Precedence for Age Determination**: Official educational documents like the School Leaving Certificate hold primacy in legal matters involving age determination.
3. **Judicial Consistency**: The ruling aligns with previous High Court judgments that prefer educational certificates over Aadhaar for age verification.
4. **Implications for Legal Proceedings**: This decision sets a precedent for future cases where age determination is crucial, ensuring that more reliable documents are given preference.
5. **Clarification of Aadhaar's Scope**: The judgment reinforces the limitations on the use of Aadhaar, as established in the 2018 Supreme Court ruling on its constitutionality.

[The next Census-Indian Express Explained](#)

Governance

Easy Explanation

The Government of India is reportedly preparing to conduct the long-delayed Census, which was postponed from its scheduled 2021 date due to the COVID-19 pandemic. Expected to begin next year, the Census will play a pivotal role in shaping two significant outcomes:

1. **Delimitation of Parliamentary Constituencies**: Adjusting the number and boundaries of constituencies based on the latest population data.
2. **Implementation of Women's Reservation**: Enacting the 128th Constitutional Amendment, which reserves 33% of seats in the Lok Sabha and State Assemblies for women, contingent upon delimitation.

Background

- **Delay in Census**: The 2021 Census was the first since 1881 to miss its decadal schedule. Despite the pandemic receding by 2022, the government delayed the Census, possibly to align it with forthcoming delimitation exercises.
- **Delimitation Suspension**: Delimitation, mandated by the Constitution to ensure equal representation based on population, has been on hold since 1976 due to political disagreements, particularly concerning disparities in population growth among states.

Delimitation Challenges

- **Population Disparities**: Southern states, having effectively controlled population growth, risk losing parliamentary seats if delimitation proceeds strictly on current population figures.

- **Constitutional Provisions**: The 84th Constitutional Amendment (2001) postponed delimitation until after the Census conducted post-2026, implying that even if the Census occurs soon, delimitation may legally proceed only after 2031 unless another amendment is made.
- **Political Consensus**: Achieving agreement among states and political parties remains a significant hurdle due to the potential redistribution of seats affecting regional representation.

Census Process and Timeline

- **Two-Phase Approach**:
  - **House-listing and Numbering**: Scheduled before the Census year, typically between April and September.
  - **Population Enumeration**: Conducted in February of the Census year, capturing the population as of March 1.
- **Data Release**: Preliminary results are usually available within a few months, with full data released over one to two years.

Implications for Women's Reservation

- **128th Constitutional Amendment**: Passed to reserve one-third of seats for women but stipulates implementation only after delimitation.
- **Potential Delays**: Without timely delimitation, the enactment of women's reservation may be postponed, affecting gender representation in legislative bodies.

Caste Census Considerations

- **Demand for Caste Data**: Political parties have called for a caste census to better understand social dynamics and address inequalities.
- **Historical Context**: Caste data was collected until 1941 but discontinued post-Independence, except for Scheduled Castes and Tribes.

Key Takeaways

1. **Imminent Census Execution**: The Indian government is preparing to conduct the delayed Census, potentially starting next year.
2. **Delimitation's Constitutional Mandate**: Delimitation aims to ensure equitable representation but faces challenges due to population growth disparities among states.
3. **Legal Hurdles for Delimitation**: The 84th Amendment restricts delimitation until after a Census conducted post-2026, possibly necessitating a new constitutional amendment for earlier action.
4. **Women's Reservation Linked to Delimitation**: The implementation of the 33% reservation for women in legislative bodies is dependent on the completion of delimitation.
5. **Political Challenges**: Achieving consensus on delimitation is complex, with southern states concerned about losing representation unless compensatory measures are provided.
6. **Caste Data Inclusion**: The upcoming Census may include caste data collection to meet the demands for a comprehensive understanding of India's social fabric.
7. **Role of the Finance Commission**: Recommendations from the 16th Finance Commission, expected next year, could influence the financial dynamics between the Centre and states, impacting discussions on delimitation.

| Clear your doubts now.

Why the C-295 transport planes matter for the IAF-Indian Express Explained

Science and technology

Easy Explanation

On Monday, Prime Minister Narendra Modi and Spanish Prime Minister Pedro Sanchez inaugurated a new manufacturing facility in Vadodara, Gujarat, where Tata Advanced Systems Ltd (TASL) will produce the C-295 transport aircraft for the Indian Air Force (IAF). This plant marks India's first private sector final assembly line for military aircraft, signifying a major milestone in the country's aerospace and defense industry.

About the C-295 Aircraft

- **Origin and Manufacturer**: The C-295 is a versatile transport aircraft originally developed by a Spanish company, now integrated into Airbus. It is traditionally manufactured at Airbus's facility in Spain.
- **Capabilities**:
    - **Payload Capacity**: Can carry 5-10 tonnes of cargo.
    - **Speed**: Maximum cruising speed of 480 km/h.
    - **Design Features**: Equipped with a rear ramp door for quick deployment of troops and cargo, including para-dropping capabilities.
    - **Operational Flexibility**: Capable of short take-offs and landings on semi-prepared surfaces, enhancing its utility in diverse terrains.

The 2021 Procurement Deal

- **Contract Details**: In September 2021, India signed a ₹21,935 crore deal with Airbus Defence and Space to procure 56 C-295 aircraft.
- **Purpose**: To replace the IAF's ageing Avro-748 fleet, which has been in service since the early 1960s, thereby bolstering the IAF's medium-lift tactical capabilities.

Current IAF Fleet and the Need for Modernization

- **Existing Aircraft**: The IAF currently operates Soviet-origin An-32 aircraft, inducted in the 1980s, many of which are nearing the end of their service life due to wear and tear.
- **Gap Bridging**: The induction of the C-295 will address the shortfall in transport capabilities, ensuring efficient troop movement and material transport across the country.

Manufacturing and 'Make in India' Initiative

- **Production Plan**:
    - **First 16 Aircraft**: To be delivered in 'fly-away' condition from Spain.
    - **Remaining 40 Aircraft**: To be manufactured in India by TASL under an industrial partnership, aligning with the 'Make in India' initiative.
- **Timeline**:
    - **First Indian-Made Aircraft**: Expected rollout in September 2026.
    - **Completion**: All 56 aircraft to be delivered by August 2031.
- **Facilities and Components**:

| Clear your doubts now.

  - **Hyderabad Factory**: Established in 2022 to produce major airframe components starting from 2023.
  - **Vadodara Facility**: Responsible for assembling critical components, testing, and preparing aircraft for delivery.

Indigenous Development and Technology Transfer

- **Electronic Warfare Suite**: All aircraft will be equipped with an indigenous electronic warfare suite developed by Bharat Electronics Ltd and Bharat Dynamics Limited.
- **Technology Transfer**: Airbus will transfer manufacturing technology to TASL for most components except the engine and avionics, aiming for 95% indigenous content in the coming years.
- **MSME Participation**: The program will involve contributions from private Micro, Small, and Medium Enterprises (MSMEs), enhancing the domestic defense manufacturing ecosystem.

Key Takeaways

1. **Enhancement of IAF Capabilities**: The induction of the C-295 aircraft will significantly boost the IAF's medium-lift tactical transport capacity, replacing outdated fleets and meeting contemporary operational requirements.
2. **Strategic Industrial Collaboration**: The partnership between Airbus and TASL exemplifies effective international collaboration, fostering technology transfer and self-reliance in defense manufacturing.
3. **Advancement of 'Make in India'**: Establishing the first private sector final assembly line for military aircraft underscores India's commitment to the 'Make in India' initiative, promoting domestic production and reducing dependency on imports.
4. **Technological Advancements**: Incorporation of indigenous electronic warfare systems highlights India's growing proficiency in developing advanced military technologies.
5. **Economic and Industrial Growth**: The project is poised to stimulate economic growth by involving MSMEs, creating jobs, and building a robust supply chain within the country's aerospace sector.
6. **Future Prospects**: With plans to achieve 95% indigenous manufacturing, India is positioning itself as a significant player in the global aerospace industry, potentially opening avenues for exports and further collaborations.

HANG UP-Indian Express Editorial

Internal security

Easy Explanation

The prevalence of online frauds, particularly "digital arrests," has seen a significant uptick, targeting unsuspecting individuals across various demographics in India. These scams have led to substantial financial losses and have prompted a national conversation about enhancing cybercrime awareness and enforcement.

Recent Incidents

- A 73-year-old man from Pune was defrauded of Rs 45 lakh by individuals posing as Mumbai police officers, accusing him of drug trafficking and money laundering.

| Clear your doubts now.

- Other reported cases include a man in southwest Delhi and a retired university professor who were duped of Rs 19 lakh and Rs 75 lakh respectively, along with an industrialist who lost Rs 7 crore.

Scale of the Issue

- The Prime Minister of India, Narendra Modi, highlighted the severity and sophistication of these frauds in his monthly radio address, Mann Ki Baat.
- Between January and April of the reporting year, over 7.4 lakh complaints were registered with the National Cybercrime Reporting Portal, involving various types of scams including trading, investment, and romance/dating scams.

Financial Impact

- Indians lost approximately Rs 120.3 crore in digital frauds and significantly more in trading and investment scams within just the first four months of the year.
- The perpetrators of these crimes are often based overseas, with many traced back to Myanmar, Laos, and Cambodia.

Government and Public Response

- The Prime Minister has stressed the importance of the National Cyber Coordination Centre, which coordinates activities among various agencies to combat these crimes.
- There is a growing need for increased public awareness and education to prevent these scams, alongside more robust investigative responses to bring perpetrators to justice.

Key Takeaways

1. **Widespread Impact**: Digital frauds have affected a broad spectrum of victims, demonstrating that no demographic is immune.
2. **Increasing Sophistication**: Scammers are utilizing more advanced and convincing tactics, including the impersonation of law enforcement and financial authorities.
3. **Financial Losses**: Substantial amounts of money are being lost to these scams, impacting individuals' financial stability and well-being.
4. **Government Involvement**: Enhanced coordination and action from government agencies are essential to address and mitigate the impact of these crimes.
5. **Need for Awareness**: Educating the public on the modus operandi of these fraudsters is critical to safeguard against potential scams.

The burgeoning expenditure of elections-The Hindu Text and Context

Polity

Easy Explanation

Elections globally have witnessed a significant surge in expenditures, raising concerns about democratic integrity and equitable participation. In India, the escalation of election spending poses challenges to fair

| Clear your doubts now.

competition and fosters corruption, while international comparisons highlight varying approaches to election financing. This analysis delves into the differences in election expenditure limits between candidates and political parties in India, examines the United States' election financing mechanisms with a focus on Super PACs, and underscores the importance of curbing illegal cash distribution to voters.

Election Expenditure Limits in India

- **Candidate Spending Limits**:
    - **Lok Sabha (Parliamentary) Elections**:
        - **Larger States**: ₹95 lakh per constituency.
        - **Smaller States**: ₹75 lakh per constituency.
    - **Legislative Assembly Elections**:
        - **Larger States**: ₹40 lakh per constituency.
        - **Smaller States**: ₹28 lakh per constituency.
    - These limits are periodically updated by the Election Commission of India (EC).
- **Political Party Spending**:
    - **No Legal Limits**: Political parties in India face no restrictions on their overall expenditure during elections, allowing for potentially unlimited spending.

International Standards: The United States and the United Kingdom

- **United States**:
    - **Election Financing Sources**:
        - **Individuals**: Limited contributions to candidates and parties.
        - **Corporations**: Subject to contribution regulations.
        - **Political Action Committees (PACs)**: Groups that collect contributions to support candidates.
        - **Super PACs**: Independent entities that can raise and spend unlimited funds to influence elections but cannot coordinate directly with candidates.
    - **Expenditure Estimates**:
        - **2024 Elections**: Approximately $16 billion (₹1,36,000 crores) expected in total.
        - **Presidential Election**: Around $5.5 billion.
        - **Congressional Elections**: Approximately $10.5 billion.
    - **Role of Super PACs**: They play a pivotal role by injecting substantial funds without spending caps, often sourced from large donors and organizational contributions.
- **United Kingdom**:
    - **Political Party Spending Limits**:
        - **Per Constituency**: £54,010.
        - **Overall Limit**: £35 million for parties contesting all constituencies.
    - **Candidate Spending Limits**:
        - **Long Campaign Period**: £46-49,000 per constituency.
        - **Short Campaign Period**: £17-20,000 per constituency.
    - These regulations aim to maintain financial fairness and reduce undue influence in elections.

Challenges in Election Financing

| Clear your doubts now.

- **Global Perspective**:
  - **Rising Costs**: Increasing expenditures create financial barriers, limiting access for well-meaning candidates without substantial backing.
  - **Nexus Between Politicians and Donors**: Large donations can lead to favoritism, undermining democratic principles.
- **India-Specific Issues**:
  - **Exceeding Limits**: Major parties frequently breach spending caps, with reported expenditures far surpassing official declarations.
    - **2019 Election**: `Officially declared expenditures by BJP and Congress were ₹1,264 crore and ₹820 crore, respectively, but actual spending was estimated at ₹50,000 crore.`
  - **Lack of Party Spending Limits**: Absence of expenditure caps on political parties exacerbates financial imbalances.
  - **Illegal Cash Distribution**: Approximately 25% of election spending is estimated to be illegally distributed among voters, fueling corruption and undermining electoral integrity.

Importance of Curbing Illegal Cash Distribution

- **Prevention of Corruption**: Reduces the influence of money on voter behavior and candidate favoritism.
- **Ensuring Fair Competition**: Creates a level playing field for all candidates, irrespective of their financial backing.
- **Strengthening Democratic Institutions**: Enhances the credibility and legitimacy of electoral outcomes by minimizing undue external influences.

Potential Reforms to Address Election Expenditure Issues

1. **State Funding of Elections**:
   - **Proposals**: Advocated by the Indrajit Gupta Committee (1998) and the Law Commission (1999).
   - **Mechanism**: Government partially finances the election expenditures of candidates from recognized parties.
   - **Challenges**: Feasibility and implementation complexities in the current political landscape.
2. **Simultaneous Elections**:
   - **Objective**: Reduce overall campaign and publicity spending.
   - **Challenges**: Constitutional amendments and adherence to federal principles are required.
   - **Effectiveness**: Limited impact without addressing illegal cash distribution.
3. **Legislative and Regulatory Measures**:
   - **Amendments to the Law**:
     - Ensure political party financial assistance to candidates adheres to expenditure limits.
     - Impose a ceiling on overall party expenditures based on candidate limits.
   - **Judicial Support**:
     - Appointment of additional judges in High Courts to expedite election-related cases and deter violations.
   - **Electoral Commission Reforms**:
     - Implement recommendations from the EC's 2016 report on 'Proposed Electoral Reforms' to create a more equitable financial environment.

Key Takeaways

1. **Disparity in Spending Limits**:
    - India enforces strict expenditure limits for individual candidates but lacks comprehensive regulations for political party spending, leading to significant financial imbalances.
2. **Influence of Super PACs in the U.S.**:
    - Super PACs facilitate unlimited fundraising and spending, heavily influencing election outcomes and contributing to the high cost of U.S. elections.
3. **Global Comparisons Highlight Diverse Approaches**:
    - The U.S. and U.K. have distinct mechanisms for regulating election financing, each with its own set of challenges and implications for democratic processes.
4. **Excessive Election Spending in India**:
    - Vast discrepancies between official and actual expenditures highlight systemic issues, including corruption and the undermining of fair electoral competition.
5. **Crucial Need to Curb Illegal Cash Distribution**:
    - Tackling the illicit flow of money to voters is essential to maintain the integrity of elections, prevent corruption, and ensure fair representation.
6. **Potential Reforms and Their Challenges**:
    - While proposals like state funding and simultaneous elections offer solutions, their implementation is hindered by political, legal, and structural obstacles.
7. **Role of the Election Commission**:
    - Strengthening the EC's regulatory framework and enforcement capabilities is vital to control election expenditures and uphold democratic standards.

[What challenges does India face in fertilizer imports?-The Hindu Text and Context](#)

Economy

Easy Explanation

India faces significant challenges in meeting its fertilizer demand due to inadequate domestic production capacity and increasing global prices influenced by geopolitical conflicts, particularly the ongoing crises in Ukraine and Gaza. These challenges threaten agricultural productivity and food security, necessitating urgent policy interventions and enhancements in domestic fertilizer manufacturing.

Current Fertilizer Import Scenario in India

- **Dependence on Imports**:
    - **Urea**: Approximately 20% of India's domestic urea requirement is met through imports.
    - **Diammonium Phosphate (DAP)**: 50-60% of DAP demand is satisfied via imports.
    - **Muriate of Potassium (MOP)**: India relies entirely (100%) on imports for its MOP requirements.
- **Demand-Supply Gap**:
    - **2021-22 Consumption**: Total consumption of major chemical fertilizers was around 579.67 lakh metric tonnes (LMT), including 341.73 LMT of urea, 92.64 LMT of DAP, 23.93 LMT of MOP, and 121.37 LMT of NPK.

○ **Production Shortfall**: Domestic production was 435.95 LMT, resulting in a shortfall of 143.72 LMT against demand.

Changes in India's Fertilizer Production

- **Production Trends**:
    ○ **2021-22 Production**: India produced 250.72 LMT of urea, 42.22 LMT of DAP, 89.67 LMT of NPK, and 53.34 LMT of Single Super Phosphate (SSP).
    ○ **Growth Over Years**: From 2014-15 to 2021-22, total fertilizer production increased marginally by about 50 LMT, highlighting insufficient growth to meet rising demand.
- **Urea Production**:
    ○ **2019-20**: Produced 244.58 LMT vs. consumed 336.96 LMT.
    ○ **2020-21**: Produced 246.05 LMT vs. consumed 350.51 LMT.
    ○ **2021-22**: Produced 250.72 LMT vs. consumed 341.72 LMT.
- **Subsidy Allocation**:
    ○ **2023-24 Budget**: Total fertilizer subsidy allocated was ₹1.79 lakh crore.
        ■ **Indigenous P&K Fertilizers**: ₹25,500 crore.
        ■ **Imported P&K Fertilizers**: ₹18,500 crore.
        ■ **Indigenous Urea**: ₹1,04,063.20 crore.
        ■ **Imported Urea**: ₹31,000 crore.

Impact of Global Conflicts on Fertilizer Market

- **Ukraine and Gaza Crises**:
    ○ **Raw Material Prices**: Conflicts have escalated the prices of petroleum-based chemicals essential for fertilizer production.
    ○ **Market Instability**: Ongoing instability has disrupted supply chains, leading to volatile fertilizer prices globally.
    ○ **India's Import Sources**: Historically, India imports fertilizers from China, Russia, Saudi Arabia, UAE, Oman, Iran, and Egypt. The conflicts jeopardize these imports, exacerbating the supply-demand gap.

Challenges Faced by India in Fertilizer Imports

1. **Inadequate Domestic Production**:
    ○ Limited growth in domestic fertilizer production fails to keep pace with increasing agricultural demand.
2. **Reliance on Imports**:
    ○ High dependence on imports for critical fertilizers like DAP and MOP makes India vulnerable to global market fluctuations.
3. **Geopolitical Risks**:
    ○ Conflicts in key supplier regions disrupt import flows and inflate costs, impacting agricultural productivity.
4. **Supply Chain Disruptions**:
    ○ Global instability affects the timely and cost-effective availability of fertilizers, risking crop yields and food security.

| Clear your doubts now.

Potential Solutions and Policy Recommendations

- **Enhancing Domestic Production**:
  - **Increase Capacity**: Expand existing fertilizer manufacturing units and establish new plants to reduce reliance on imports.
  - **Technology Adoption**: Implement advanced technologies such as nano urea and promote natural farming practices to optimize fertilizer use.
- **Policy Initiatives**:
  - **Investment Facilitation**: Create a conducive environment for investments in public, cooperative, and private fertilizer sectors.
  - **Subsidy Optimization**: Reallocate subsidies to support domestic production and reduce dependency on imported fertilizers.
- **Infrastructure Development**:
  - **Modernize Facilities**: Upgrade existing fertilizer plants to enhance efficiency and output.
  - **Logistics Improvement**: Strengthen the supply chain infrastructure to ensure timely distribution of fertilizers.
- **Regulatory Reforms**:
  - **Incentivize Production**: Offer incentives for domestic production of fertilizers, including tax breaks and subsidies.
  - **Import Regulation**: Implement strategic reserves and regulate imports to stabilize the market and prevent price hikes.

Key Takeaways

1. **High Import Dependency**:
   - India relies heavily on imports for critical fertilizers like DAP and MOP, with significant portions of urea also being imported.
2. **Inadequate Domestic Production**:
   - Despite incremental growth, domestic fertilizer production remains insufficient to meet the growing agricultural demand, resulting in a substantial supply gap.
3. **Global Conflicts Escalate Costs**:
   - The ongoing conflicts in Ukraine and Gaza have disrupted global fertilizer markets, driving up raw material prices and exacerbating India's import challenges.
4. **Economic and Food Security Risks**:
   - Rising fertilizer prices and supply shortages threaten agricultural productivity, potentially impacting food security and increasing reliance on government subsidies.
5. **Urgent Need for Policy Reforms**:
   - Enhancing domestic production capacity, adopting advanced technologies, and implementing strategic policy measures are crucial to mitigate dependency on imports and stabilize the fertilizer market.
6. **Strategic Diversification of Import Sources**:
   - Reducing reliance on a limited number of countries by diversifying import sources can enhance resilience against geopolitical disruptions.
7. **Investment in Public and Private Sectors**:
   - Facilitating investments in both public and private fertilizer sectors is essential to boost production capabilities and ensure a stable supply.

| Clear your doubts now.

8. **Adoption of Sustainable Practices**:
   ○ Promoting sustainable farming practices and efficient fertilizer usage can reduce overall demand and enhance long-term agricultural sustainability.

Catastrophic warming is still on the cards-The Hindu Science

Environment

Easy Explanation

The United Nations has warned that current national pledges to reduce greenhouse gas emissions are inadequate to prevent catastrophic global warming. As global leaders prepare for upcoming climate negotiations at COP29 in Baku, Azerbaijan, the urgency for enhanced climate commitments is paramount. The U.N. report underscores the need for countries to ramp up their climate targets to meet the Paris Agreement's goal of limiting global temperature rise to 1.5 degrees Celsius.

Current National Commitments

● **Nationally Determined Contributions (NDCs)**:
   ○ Current NDCs aim for a 2.6% reduction in global emissions from 2019 to 2030, an improvement from last year's 2% but far below the required 43% cut by 2030 to meet the Paris target.
   ○ The deadline for countries to submit more ambitious NDCs is February next year, marking a crucial turning point in global climate action.

Challenges and Opportunities at COP29

● **Key Negotiations**:
   ○ Nearly 200 countries will discuss a new global emissions trading system and a proposed $100 billion annual financial package to support developing nations in achieving their climate objectives.
   ○ Some nations may leverage their NDCs as negotiating tools, seeking increased financial aid in return for stronger climate pledges.

Greenhouse Gas Levels and Dangerous Feedback Loops

● **UN and WMO Findings**:
   ○ The World Meteorological Organization (WMO) reported record-high carbon dioxide concentrations of 420 parts per million (ppm) in 2022, marking an 11.4% increase over the past 20 years.
   ○ Dangerous "feedbacks," such as wildfires, are now accelerating greenhouse gas accumulation. For example, Canada's wildfires in 2022 released more carbon than the yearly emissions of several major countries, signaling a worsening climate crisis.

Key Takeaways

1. **Inadequate National Commitments**: Current NDCs fall short of achieving the 43% emissions cut needed by 2030 to limit global warming to 1.5°C, according to U.N. scientists.

| Clear your doubts now.

2. **Impending Climate Negotiations**: COP29 in Baku is a pivotal opportunity for nations to strengthen their NDCs and agree on financial support mechanisms for developing countries.
3. **Increasing Greenhouse Gas Levels**: Carbon dioxide levels have reached historic highs, with accelerating accumulation driven by climate-driven feedbacks, such as wildfires.
4. **Financial Support as a Catalyst**: Some countries may demand financial aid as a condition for adopting more ambitious climate targets, making funding a critical aspect of upcoming negotiations.
5. **Urgency for Action**: Without robust action and financial cooperation, the risks of devastating global warming impacts will continue to grow, affecting economies, ecosystems, and human livelihoods worldwide.

The under-representation of women in the judiciary-The Hindu Editorial

Polity

Easy Explanation

The under-representation of women in India's judiciary remains a significant concern, particularly at higher levels of the judicial system. While entry-level initiatives have increased the number of women entering the legal profession as lawyers and judges, these measures alone are insufficient to ensure their retention and advancement. A comprehensive approach addressing both entry barriers and systemic challenges is necessary to promote gender equality within the judiciary.

Current State of Women's Representation

- **Lower Judiciary**: According to the Supreme Court of India's "State of the Judiciary" report (2023), women constitute 36.3% of judges in the district judiciary. In 14 states, over 50% of the candidates recruited as civil judges (junior division) were women, indicating progress at the entry level.
- **Higher Judiciary**: As of January 2024, women comprise only 13.4% of judges in the High Courts and 9.3% in the Supreme Court. Several High Courts, including those in Bihar, Chhattisgarh, Jharkhand, Manipur, Meghalaya, Odisha, Tripura, and Uttarakhand, have either no women judges or just one, highlighting significant disparities.
- **Legal Profession (Bar)**: Women account for approximately 15.31% of all enrolled advocates, with even lower representation among senior advocates, advocates-on-record, and Bar Council representatives. This under-representation creates a "funnel effect," limiting the pool of women eligible for elevation to higher judicial positions.

Challenges and Policy Gaps

- **Entry Barriers**:
  - **Continuous Practice Requirement**: Judicial Service Rules in many states mandate a minimum period of continuous legal practice for elevation to the bench. Women often face interruptions in their careers due to family responsibilities, making it challenging to meet this criterion.
  - **Lack of Support**: The absence of maternity benefits and minimum stipends further exacerbates difficulties for women advocates seeking elevation.
- **Retention and Advancement Barriers**:
  - **Unsupportive Work Environment**: A discouraging atmosphere that does not account for women's specific needs hampers career growth.

| Clear your doubts now.

- **Harsh Transfer Policies**: Rigid transfer policies insensitive to women's roles as primary caregivers contribute to a diminishing pool of women eligible for elevation to higher courts.
- **Infrastructural Deficiencies**:
  - **Basic Amenities**: Many courts lack dedicated washrooms for women. A 2019 survey by the Vidhi Centre for Legal Policy found nearly 100 district courts without such facilities.
  - **Family-Friendly Facilities**: Inadequate provisions for feeding rooms and crèches limit support for women with familial responsibilities. Existing facilities often have restrictive policies, such as age limits for children in crèches.

Need for Course Correction

- **Integrated Solutions**: Addressing women's under-representation requires solutions that tackle both entry and retention challenges simultaneously rather than in isolation.
- **Public-Private Divide**: Drawing on Carole Pateman's theory, the public sphere (judiciary) often fails to adapt to the needs of women transitioning from private spheres, resulting in environments not conducive to their success.
- **Female Gaze in Policy Implementation**:
  - **Recognizing Differential Needs**: Employing a feminist lens to identify and address the unique challenges faced by women.
  - **Overcoming Male-Centric Perspectives**: All-male administrative committees may inadvertently perpetuate policies that indirectly discriminate against women.

Prioritizing Women's Needs

- **Addressing Unconscious Bias**: Former Supreme Court judge Justice Hima Kohli highlighted that unconscious gender biases often sideline women judges in administrative duties.
- **Inclusive Representation**:
  - **Administrative Roles**: Few women serve on High Court Building Committees or in other influential positions, leading to de-prioritization of women's infrastructural needs.
  - **Policy-Making**: Limited representation in High Court Registries and judicial academies means women's perspectives are often overlooked in policy formulation.
- **Implementing Women-Centric Policies**:
  - **Infrastructure Improvements**: Prioritize the development of facilities that cater to women's needs within court complexes.
  - **Gender-Sensitive Recruitment and Transfer Policies**: Adapt policies to be more accommodating of women's familial responsibilities.
  - **Training and Support**: Provide adequate training and resources to support women's career progression within the judiciary.

Key Takeaways

1. **Significant Under-representation in Higher Judiciary**: Despite improvements at the entry level, women remain vastly under-represented in High Courts and the Supreme Court.
2. **Barriers to Entry and Advancement**:
   - **Continuous Practice Requirements** hinder women's eligibility for judicial positions due to career interruptions from familial responsibilities.

- ○ **Unsupportive Work Environments** and **rigid transfer policies** impede women's career growth and retention.
3. **Infrastructural Deficiencies**:
   - ○ Lack of basic amenities like dedicated washrooms and family-friendly facilities in courts negatively affects women's participation.
4. **Need for Women-Centric Policies**:
   - ○ **Employing a Female Gaze** in policy implementation can help recognize and address the specific needs of women.
   - ○ Inclusion of women in administrative and policy-making roles is crucial for developing inclusive policies.
5. **Addressing Unconscious Gender Bias**:
   - ○ Recognizing and mitigating biases that sideline women in administrative duties can promote equal opportunities.
6. **Holistic and Integrated Solutions Required**:
   - ○ Solutions should address both entry-level and systemic challenges concurrently to be effective.
7. **Empowering Women Enhances the Judiciary**:
   - ○ Prioritizing women's needs and perspectives not only benefits women but strengthens the judiciary's capacity to deliver justice equitably.

30th October 2024

[Why swing states have outsize importance in US elections-Indian Express Explained](#)

International relations

Easy Explanation

In the U.S. presidential election, swing states play a crucial role because they are neither consistently Democratic (blue) nor Republican (red). Candidates focus on these states, as they could "swing" the outcome of the election by deciding the Electoral College's balance of power. Although Americans vote for their preferred candidate, the President is ultimately chosen by electors from each state in the Electoral College. Larger states have more electors based on population, and a candidate needs 270 out of 538 votes to win. This year, seven swing states—Pennsylvania, Arizona, Georgia, Michigan, Nevada, North Carolina, and Wisconsin—are pivotal due to their combined 93 electoral votes. Each state's unique demographics and political dynamics make the race competitive and open to shifts over time.

Key Takeaways

1. **Swing State Impact**: Swing states can shift election outcomes, making them crucial targets for campaign efforts.
2. **Electoral College System**: Citizens' votes guide state electors, who then formally select the President.
3. **Focus on Key States**: Pennsylvania, Arizona, Georgia, Michigan, Nevada, North Carolina, and Wisconsin are the primary swing states this election.
4. **Local Dynamics Matter**: Factors like demographics, political history, and party campaigns drive changes in state alignment over time.

| Clear your doubts now.

5. **Importance of Demographics**: Non-white voters and well-organized local strategies (e.g., Stacey Abrams' work in Georgia) can significantly influence election outcomes.

Delimitation, women's quota-Indian Express Explained

Polity

Easy Explanation

The upcoming Census in India, scheduled for completion by 2026, is set to influence two pivotal electoral reforms: the delimitation of constituencies and the implementation of a women's reservation in elected bodies. Delimitation will adjust electoral boundaries based on new population data, potentially increasing the number of legislative seats. Concurrently, a constitutional amendment passed in 2023 mandates a 33% reservation for women in the Lok Sabha and state assemblies, contingent upon the outcomes of delimitation. These changes face political challenges, especially from regions that may lose representation due to slower population growth, and require significant legislative cooperation to implement.

Key Takeaways

1. **Delimitation of Constituencies**: Post-2026 Census, delimitation will update electoral boundaries, likely increasing the number of seats in legislative bodies to reflect current population figures.
2. **Women's Reservation**: The 33% reservation for women in legislative bodies will activate after delimitation, aiming to enhance gender representation in politics.
3. **Legislative and Political Challenges**: Adjusting seat allocation based on population growth presents challenges, particularly from states with controlled growth. Constitutional amendments necessary for these changes will need broad political support.
4. **Impact on Political Landscape**: Increased legislative seats could mitigate the impact of the women's reservation on existing male politicians by maintaining or expanding their representation opportunities.

What is the UN agency for Palestinian refugees that Israel has banned?-Indian Express Explained

International relations

Easy Explanation

The Israeli Parliament recently passed two bills banning the United Nations Relief and Works Agency for Palestine Refugees (UNRWA) from operating within Israel and Palestinian territories, and labeling it a terrorist organization. UNRWA was established in 1949 to assist Palestinians displaced by the 1948 Arab-Israeli war and currently serves around 5.9 million Palestinian refugees across the Middle East, providing education, health, and emergency services. Israel accuses UNRWA of perpetuating the Palestinian refugee issue and obstructing peace, further alleging that some UNRWA staff participated in attacks against Israel. These accusations have led to the recent legislative actions, which could severely impact aid distribution in Gaza and the West Bank where UNRWA is pivotal.

Key Takeaways

| Clear your doubts now.

1. **UNRWA's Establishment and Role**: The United Nations Relief and Works Agency for Palestine Refugees (UNRWA) was established in 1949 to assist Palestinian refugees displaced during the 1948 Arab-Israeli war. It provides vital services such as education, health care, and emergency aid across several regions including Gaza, the West Bank, Lebanon, Syria, and Jordan.
2. **Israeli Legislation**: The Israeli Parliament has passed two bills that ban UNRWA from operating within Israel and the Palestinian territories and label it as a terrorist organization. This marks a significant shift in Israel's policy towards the agency.
3. **Accusations Against UNRWA**: Israel accuses UNRWA of perpetuating the Palestinian refugee problem and alleges that some of its employees, particularly in Gaza, have participated in terrorist activities against Israel.
4. **Impact on Aid Distribution**: The legislation could severely disrupt UNRWA's operations in Gaza and the West Bank, areas where nearly 2 million Palestinians rely on the agency for basic necessities such as food, water, and medical supplies.
5. **Potential Relocation of UNRWA**: The new laws may force UNRWA to relocate its headquarters from East Jerusalem and reassess its operational strategies in the region.
6. **Broader Implications**: The move sets a precedent that could deepen the suffering of Palestinians and intensify the humanitarian crisis in the area. It also escalates tensions in the Israeli-Palestinian conflict, potentially affecting international relations and aid dynamics in the Middle East

The credibility challenge-Indian Express Editorial

Economy

Easy Explanation

Finance Minister Nirmala Sitharaman's inquiries about low investment levels in India despite favorable conditions highlight deep-rooted issues in the economy. Despite growth figures and incentives, private and foreign investments remain sluggish. The Reserve Bank of India's optimistic statements about investment prospects contrast starkly with the actual slow pace of capital expenditure and investment in the country. Several credibility gaps in India's economic framework, including overestimated middle-class size, regulatory unpredictability, concentrated capital, and inconsistent government narratives, dampen investor confidence and impede economic progress.

Key Takeaways

1. **Investment Paradox**: Despite positive economic indicators and government efforts, investments in India are not meeting expectations, raising questions about underlying issues.
2. **RBI's Optimism vs. Reality**: The RBI reports encouraging signs for private investment but acknowledges ongoing challenges, revealing a mismatch between expectations and economic realities.
3. **Credibility Gaps**: Key credibility issues include inconsistent economic data interpretation, regulatory unpredictability, and a concentrated capital market dominated by a few large firms.
4. **Regulatory Challenges**: Complex laws, compliance burdens, and an unpredictable business environment continue to complicate the ease of doing business in India.
5. **Economic Concentration**: Policies like GST have disproportionately impacted small businesses, increasing capital concentration among the top firms, which raises concerns about market fairness and regulatory integrity.

| Clear your doubts now.

6. **Overall Economic Confidence**: The combination of these factors contributes to a general lack of confidence in India's economic management and its future prospects, emphasizing the need for comprehensive and consistent policy execution.

A picture of a growing economic divide in India-The Hindu Editorial

Economy

Easy Explanation

The Economic Advisory Council to the Prime Minister's report titled 'Relative Economic Performance of Indian States: 1960-61 to 2023-24' sheds light on the economic disparities across Indian states. The paper highlights the varying contributions of states to the national economy and their relative per capita incomes. States like Maharashtra contribute significantly due to affluent areas like Mumbai, despite having regions of extreme poverty. The report identifies a growing economic divide, particularly noting that southern and western states have performed better post-liberalization in 1991, while eastern and some northern states have lagged behind. This disparity is linked to different levels of investment, infrastructure quality, and governance. The richer states attract more private investment, furthering the divide. The paper also touches on threats to federalism as states with higher contributions to the national revenue feel shortchanged in the distribution of resources.

Key Takeaways

1. **Economic Disparities**: The report points out significant economic disparities across Indian states, with wealthier regions like Mumbai overshadowing poorer ones like Vidarbha within the same state.
2. **Regional Performance**: Western and southern states have shown consistent economic growth, whereas eastern states and some northern states like Bihar have underperformed.
3. **Investment Distribution**: Investment, both public and private, tends to flow into states with better infrastructure and governance, enhancing their economic performance relative to poorer states.
4. **Impact of Liberalization**: The economic liberalization policies initiated in 1991 have disproportionately benefited states that were already better off, contributing to increased regional disparities.
5. **Threats to Federalism**: The economic imbalance is fostering resentment among richer states, threatening the spirit of federalism as these states demand a fairer share of national resources.
6. **Policy Recommendations**: Addressing these disparities requires focused policies on improving governance, infrastructure, and investment in poorer states to ensure equitable growth across all regions.

A collective effort towards peace in Myanmar-The Hindu Editorial

International relations

Easy Explanation

The 44th ASEAN Summit, held from October 6 to 11 in Vientiane, Laos, brought renewed focus on Myanmar's ongoing crisis since the 2021 military coup. The summit underscored ASEAN's struggles with maintaining its non-interference stance while attempting to stabilize Myanmar through the Five-Point Consensus, which demands an end to violence and promotes dialogue. Despite efforts, the military junta's non-cooperation and continued violence have led to a humanitarian disaster. ASEAN's credibility as a peace-promoting regional bloc

is challenged by the crisis, highlighting the need for a more effective and inclusive approach. Furthermore, the summit saw ASEAN attempting to re-engage Myanmar by inviting a Myanmar official, reflecting a pragmatic shift in strategy.

Key Takeaways

1. **Continued Turmoil in Myanmar**: Myanmar remains engulfed in a civil war between the military and resistance groups, with significant humanitarian impacts affecting over 18.6 million people.
2. **ASEAN's Limited Progress**: ASEAN's Five-Point Consensus on Myanmar, established in 2021, has seen limited success, challenging the bloc's effectiveness and approach to the crisis.
3. **Myanmar's Participation at ASEAN**: After years of exclusion, Myanmar sent a senior official to the ASEAN Summit, indicating a potential openness to dialogue but also highlighting ASEAN's pragmatic shift towards re-engagement.
4. **Divergent ASEAN Member Responses**: ASEAN members are divided in their approach to Myanmar, with countries like Indonesia pushing for action and others like Thailand maintaining closer ties with the junta.
5. **India's Role and Policies**: During the 21st ASEAN-India Summit and the 19th East Asia Summit, held concurrently with the ASEAN Summit, Prime Minister Narendra Modi emphasized ASEAN's centrality and the Five-Point Consensus, balancing India's strategic interests with support for democratic processes in Myanmar through regional connectivity projects and diplomatic engagements.
6. **Need for Inclusive Dialogue**: Effective resolution in Myanmar will require engaging all stakeholders, including non-state actors and opposition groups, to ensure a comprehensive and sustainable peace process.

31st October 2024

[Why some Haryana EVMs showed 99% charge after counting-Indian Express Explained](#)

Polity

Easy Explanation

During the recent Haryana Assembly elections, Congress raised concerns regarding some EVMs (Electronic Voting Machines) showing a high battery charge (99%) even after the voting process was completed, suggesting possible irregularities. Congress alleged that EVMs with higher battery levels seemed to favor BJP candidates and submitted complaints to the Election Commission (EC). In response, the EC explained that the EVMs use non-rechargeable alkaline batteries designed for long, reliable use, which don't drain as quickly as rechargeable batteries. The "99%" reading on these EVMs' displays indicates a high voltage range (8.2V to 7.4V) but doesn't mean the battery is at full capacity. Only when the voltage dips below 7.4V does it show a lower percentage. The EC assured that each battery change and EVM process step is supervised, recorded, and overseen by candidate representatives.

Key Takeaways:

1. **Allegations:** Congress questioned the counting process, especially the 99% battery charge on some EVMs post-counting.

2. **Battery Type:** EVMs use durable, non-rechargeable alkaline batteries that maintain a high voltage without quick depletion.
3. **Battery Display Explanation:** The 99% battery display reflects a specific voltage range, not the actual percentage remaining.
4. **Assurances:** The EC confirmed all procedures, including battery changes, are conducted transparently under party supervision.
5. **EC's Stand:** The EC dismissed the allegations as unfounded and explained EVM design choices aimed at reliability and transparency.

The Electoral College in US-Indian Express Explained

International relations

Easy Explanation

The United States employs a unique electoral system for presidential elections known as the Electoral College. In this system, when citizens vote for a presidential candidate, they are actually voting for a slate of electors pledged to that candidate. These electors then cast the official votes for the President and Vice President. The Electoral College consists of 538 electors, and a candidate needs at least 270 electoral votes to win the presidency.

Each state is allocated a number of electors equal to its total number of Senators and Representatives in Congress. Most states use a "winner-takes-all" approach, where the candidate who wins the popular vote in that state secures all its electoral votes. Exceptions include Maine and Nebraska, which use a proportional system.

The article discusses the origins of the Electoral College, highlighting that it was a compromise between electing the President by Congress and by direct popular vote. Arguments in favor of the system include preventing domination by populous regions and ensuring a distribution of popular support. Criticisms center on the possibility of a candidate winning the popular vote but losing the election, the disproportionate influence of smaller states, and the focus on swing states during campaigns.

Key Takeaways:

1. **Function of the Electoral College:** In the U.S., the President is elected not by direct popular vote but through the Electoral College, where electors vote based on the popular vote in their respective states.
2. **Composition:** The Electoral College has 538 electors. Each state's number of electors equals its total number of Senators and Representatives. A majority of 270 electoral votes is required to win the presidency.
3. **Election of Electors:** Political parties nominate electors before the election. Voters indirectly vote for these electors when they cast their ballots for a presidential candidate.
4. **Winner-Takes-All System:** Most states award all electoral votes to the candidate who wins the state's popular vote, amplifying the focus on swing states and potentially disregarding minority votes within states.
5. **Arguments For and Against:**
   ○ *For:* It encourages candidates to gain widespread support across diverse regions, preventing domination by populous areas.

| Clear your doubts now.

- ○ *Against:* It can lead to a candidate winning the presidency without winning the national popular vote, diminishes the value of individual votes in larger states, and places disproportionate emphasis on swing states.
6. **Historical Instances:** There have been at least four elections where the candidate who won the popular vote did not become President, most recently in 2000 and 2016.
7. **Criticism and Calls for Reform:** Critics argue the system is outdated, undermines democratic principles like "one person, one vote," and have called for its abolition in favor of direct popular elections.

SC ruling on child marriage:why it's important to go beyond just punishment-Indian Express Explained

Polity

Easy Explanation

The recent Supreme Court judgment in the case of *Society for Enlightenment and Voluntary Action v. Union of India* has shifted the approach to addressing child marriage in India. Instead of solely focusing on penalizing criminal actions related to child marriage, the judgment emphasizes the need to address the harm experienced by victims. It advocates for comprehensive measures that go beyond prevention and prosecution, including support systems to help individuals in child marriages regain their autonomy and reintegrate into society. Despite a significant decline in child marriage rates from 47.4% in 2005 to 23.3% in 2021 among women aged 20-24, the United Nations' Sustainable Development Goal of eliminating child marriage by 2030 remains ambitious. The judgment underscores the importance of holistic strategies, such as skill development, vocational training, economic support, and sex education, to effectively combat child marriage and support its victims, moving away from an over-reliance on criminal prosecution.

Key Takeaways:

1. **Shift in Judicial Focus:**
   - ○ The Supreme Court has redirected the focus from merely punishing those involved in child marriages to addressing the actual harm inflicted on the victims.
   - ○ Emphasis is placed on supporting victims to reclaim their agency and rebuild their lives.
2. **Declining but Persistent Issue:**
   - ○ Child marriage rates among women aged 20-24 have decreased significantly from 47.4% in 2005 to 23.3% in 2021.
   - ○ Achieving the UN's goal of eliminating child marriage by 2030 remains challenging and requires intensified efforts.
3. **Legal Framework under PCMA:**
   - ○ The Prohibition of Child Marriage Act, 2006 (PCMA) defines child marriage as one where the husband is under 21 or the wife is under 18.
   - ○ Such marriages are "voidable," allowing the child party to annul the marriage, with states like Karnataka and Haryana declaring all child marriages void from the outset.
4. **Annulment vs. Divorce:**
   - ○ **Annulment:** Treats the marriage as if it never existed, requiring only proof of a child marriage.
   - ○ **Divorce:** Recognizes that a valid marriage existed and ends it based on specific grounds like cruelty or adultery.

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5. **Concerns with Criminalization:**
    ○ Criminalizing activities related to child marriage can inadvertently harm victims by targeting entire families and creating barriers to accessing essential services like healthcare.
    ○ Studies indicate that criminal provisions are more frequently used in cases of self-initiated marriages, often involving individuals seeking to escape adverse conditions.
6. **Comprehensive Support Measures:**
    ○ The SC judgment advocates for skill development, vocational training, economic stability programs, rehabilitation services, and monitoring support to aid women exiting child marriages.
    ○ Emphasizes the importance of sex education to empower adolescents with the knowledge and skills to navigate their relationships effectively.
7. **Holistic Approach Over Punishment:**
    ○ A balanced strategy that includes both preventive measures and robust support systems for victims is deemed more effective than relying solely on criminal prosecution.
    ○ Such an approach addresses the root causes and complexities of child marriage, fostering long-term societal change.
8. **Institutional Response and Future Directions:**
    ○ Historically, efforts to combat child marriage have focused on prevention and prosecution, such as mass arrests in Assam.
    ○ The new judicial perspective calls for a more nuanced and supportive response, recognizing the need for victims' rehabilitation and empowerment.

Towards a new federalism-Indian Express Editorial

Polity

Easy Explanation

The article explores the concept and evolution of federalism in India, emphasizing that constitutional choices impact every citizen, not just legal experts. It outlines how India's federal structure was shaped by historical contexts such as Partition and concerns over secession, leading to a unique system where the central government and states share powers without the states being subordinate. The author discusses how federalism is not a fixed concept but a dynamic dialogue that can involve both cooperation and friction between the Union and the states.

The Supreme Court's role in interpreting the Constitution has led to shifts in the balance of power over time. The article identifies two eras: a centripetal era before the *S.R. Bommai v. Union of India* case, where interpretations favored centralization, and a centrifugal era after, where interpretations enhanced state autonomy. The author argues that modern challenges like climate change and cybercrimes transcend traditional federal boundaries, necessitating a cooperative approach that upholds constitutional ideals of equality, liberty, dignity, and fraternity. The future of Indian federalism lies in the ability of the Union and states to work synergistically to address these issues while respecting their constitutional boundaries.

Key Takeaways:

1. **Federalism Affects Everyone:**
    ○ Constitutional choices, including the federal structure, impact all citizens, not just legal scholars.

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○ Understanding federalism is essential for democratic participation.

2. **Historical Context of Indian Federalism:**
   ○ India's federal system was influenced by Partition and concerns about national unity.
   ○ The Constitution uses the term "Union" to emphasize the indestructible nature of India.

3. **Unique Federal Structure:**
   ○ The Centre and states are independent in their legislative spheres and are not subordinate to each other.
   ○ Federalism in India combines self-rule with shared rule among diverse states.

4. **Federalism Is Not Monolithic:**
   ○ It encompasses both cooperation and friction between the Union and states.
   ○ Healthy disagreements can strengthen federalism by fostering dialogue and balance.

5. **Judicial Influence on Federalism:**
   ○ The Supreme Court has played a pivotal role in interpreting federal principles.
   ○ Two eras identified:
     ■ **Centripetal Era (Pre-*S.R. Bommai*):** Interpretations favored centralization.
     ■ **Centrifugal Era (Post-*S.R. Bommai*):** Interpretations enhanced state autonomy.

6. **Cooperative vs. Dialogic Federalism:**
   ○ Cooperative federalism involves the Centre and states working together to resolve issues.
   ○ The author advocates for a dialogic approach, recognizing that both cooperation and friction are vital.

7. **Asymmetric Federalism:**
   ○ Acknowledges that each state has a unique relationship with the Union.
   ○ Allows for diversity in how states interact with the central government.

8. **Modern Challenges Require New Approaches:**
   ○ Issues like climate change, AI, and cybercrime transcend traditional federal boundaries.
   ○ The Union and states must collaborate beyond conventional legislative subjects.

9. **Governor's Role and Federal Balance:**
   ○ The Governor's powers should not undermine state autonomy.
   ○ Indefinite withholding of assent to state bills by Governors erodes federal principles.

10. **Federalism Upholds Constitutional Ideals:**
    ○ It should foster democracy and uphold equality, liberty, dignity, and fraternity.
    ○ Both the Union and states must act within constitutional limits to address contemporary issues.

11. **Future of Indian Federalism:**
    ○ Success depends on synergy and mutual respect between the Union and states.
    ○ Addressing modern challenges is the litmus test for the effectiveness of India's federal system.

12. **Constitution as a Transformative Document:**
    ○ Meant to adapt to changing times and challenges.
    ○ Federalism must evolve to remain relevant and effective in promoting constitutional goals.

Why is there an upward rally in gold prices?-The Hindu Text and Context

Economy

Easy Explanation

| Clear your doubts now.

Gold prices have recently surged to record highs, reaching $2,758.37 per ounce due to geopolitical tensions and economic uncertainty. This increase is mirrored in India, where gold is priced at ₽7,513.37 per gram, significantly higher than last year. Gold is considered a "safe haven" asset, appealing to investors during times of instability because it has a lower correlation with other assets. Its prices often rise inversely with interest rates; when rates are low, gold becomes more attractive as it offers no yield. Central banks also purchase gold to hedge against global uncertainties, with net purchases amounting to 8 tonnes in August alone.

In India, gold demand peaks during the festive and wedding seasons, particularly in the second half of the year. However, high prices and an inauspicious purchasing period in mid-September led to a temporary dip in demand. Looking ahead, experts predict that while international gold prices may fluctuate, overall demand is expected to rise, especially from rural areas benefiting from better crop yields and spending power. This increase in rural demand is supported by favorable monsoons and improved incomes, alongside the impact of reduced import duties on gold.

Key Takeaways

Record High Gold Prices:

- Gold reached a peak of $2,758.37 per ounce on October 23 amid geopolitical tensions and economic uncertainty. In India, prices surged to ₽7,513.37 per gram, up 40% from the previous year.

Gold as a Safe Haven:

- Investors and central banks view gold as a reliable asset during instability because it doesn't closely correlate with other investments, providing a safety cushion in uncertain times.

Interest Rates and US Dollar Impact:

- Gold prices generally rise when interest rates are low and the US dollar is weak. Higher interest rates can make gold less attractive, but factors like inflation and geopolitical events can also influence prices.

Seasonal Demand Peaks in India:

- Gold demand in India spikes in the second half of the year during festivals and weddings, boosting prices. An inauspicious period from mid-September to October can temporarily reduce demand.

Rising Rural Demand:

- The World Gold Council expects increased gold purchases from rural areas in India due to better incomes, favorable monsoons, and higher crop yields, enhancing spending power in these regions.

Reduced Import Duties Boost Demand:

- Lowering gold import duties in July has made gold more affordable in India, increasing consumer accessibility and driving higher sales.

Positive Market Outlook:

- Experts predict that gold prices may continue to rise long-term despite short-term fluctuations. Strong investment interest, cultural buying patterns, and growing rural demand are expected to support ongoing price increases.

[Recognising the economic value of unpaid work in India-The Hindu Text and Context](#)

Economy

Easy Explanation

The article highlights the significant economic value of unpaid work in India, particularly the contributions of women through domestic chores and caregiving, which are largely invisible in national accounts like GDP. Using data from the Consumer Pyramids Household Survey (CPHS), the authors estimate that unpaid household work contributed between ₹49.5 lakh crore (24.6% of GDP) and ₹65.1 lakh crore (32.4% of GDP) in 2019-20. The COVID-19 pandemic amplified these figures due to shifts in household labor dynamics. Women bear a disproportionate burden of unpaid work, affecting their participation in the formal labor force. Recognizing and valuing this unpaid labor is crucial for formulating policies that address gender inequity, redistribute care responsibilities, and enhance women's labor force participation, potentially boosting India's GDP by up to 27%. The article underscores the need for further research and policy reforms to effectively acknowledge and address these disparities, aligning with global efforts like the UN's Sustainable Development Goals.

Key Takeaways:

1. **Invisibility of Women's Unpaid Work:**
   - Women's substantial contributions through unpaid domestic and care work are largely unrecognized in national economic accounts, despite their significant monetary value.
2. **Quantifying Unpaid Labor:**
   - Using CPHS data and valuation methods (GOC and RCM), unpaid household work in India was estimated to contribute between 24.6% and 32.4% of GDP in 2019–20.
3. **Gender Disparities in Unpaid Work:**
   - Women spend considerably more time on unpaid work than men—over seven hours daily for women not in the labor force versus less than four hours for unemployed men.
4. **Impact of COVID-19:**
   - The pandemic increased the proportion of unpaid work in the economy, with contributions rising to 27.2% (GOC) and 42.3% (RCM) of GDP in 2020–21, highlighting shifts in household labor dynamics.
5. **Global Recognition Efforts:**
   - International initiatives like the UN's SDG 5 aim to recognize and value unpaid care and domestic work, emphasizing its importance in achieving gender equality.
6. **Economic Implications:**
   - Addressing the imbalance in unpaid labor could significantly boost India's GDP by enhancing women's participation in the labor force, potentially increasing GDP by up to 27%.
7. **Policy Recommendations:**

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- ○ The authors advocate for policies that acknowledge the economic value of unpaid work, promote equitable recognition, and encourage the redistribution of care responsibilities to improve women's labor force participation.

8. **Need for Further Research:**
   - ○ There is a call for future studies to refine valuation methodologies and develop effective policies to address gender inequities associated with unpaid labor.

Rohini Godbole: indomitable passion for high-energy physics, gender equity-The Hindu Science

Science

Easy Explanation

The article pays tribute to Prof. Rohini Godbole, a distinguished Indian theoretical physicist renowned for her work in high-energy particle physics and her advocacy for gender equity in science. Born into a middle-class family in Pune, she pursued her master's degree at IIT Bombay and completed her PhD at the State University of New York at Stony Brook. Despite facing gender bias and professional challenges upon returning to India, she remained undeterred, continuing her research with passion and determination.

Prof. Godbole made significant contributions to collider physics, interpreting experimental data from leading laboratories like Fermilab and CERN, and proposing experimental signatures for theoretical models in particle physics. She was instrumental in paving the way for future Indian physicists in international academia. Beyond her scientific achievements, she was a mentor and role model, particularly for women in science. She co-founded the 'Women in Science Panel' of the Indian Academy of Sciences and co-edited "Lilavati's Daughters," a compilation highlighting the careers of Indian women scientists. Prof. Godbole passed away on October 25 at the age of 71, leaving behind a legacy of scientific excellence and a commitment to fostering gender equality in the scientific community.

Key Takeaways:

1. **Pioneering Physicist in Collider Physics:**
   - ○ Prof. Rohini Godbole was a leading figure in high-energy particle physics, contributing significantly to the interpretation of experimental data from major particle colliders and proposing theoretical models for testing.
2. **Educational Trailblazer:**
   - ○ She pursued higher education during a time when Indian students faced challenges abroad, helping pave the way for others by excelling at Stony Brook University and later encouraging fellow Indian students.
3. **Overcoming Gender Bias:**
   - ○ Faced with professional condescension and gender discrimination upon returning to India, she persisted with resilience, ultimately gaining international recognition for her work.
4. **Advocate for Women in Science:**
   - ○ Prof. Godbole was a staunch supporter of gender equity in science, co-founding the 'Women in Science Panel' and co-editing "Lilavati's Daughters" to inspire and support women scientists.
5. **Mentorship and Generosity:**

| Clear your doubts now.

- ○ Known for her warm personality and willingness to help others, she mentored many young researchers and was instrumental in encouraging women from developing countries to pursue scientific careers.

6. **Global Recognition and Influence:**
   - ○ She served on international panels and working groups, received numerous awards, and was invited as a keynote speaker at major conferences, reflecting her status in the global scientific community.

7. **Legacy of Excellence and Inspiration:**
   - ○ Prof. Godbole's life exemplifies dedication to scientific pursuit and commitment to addressing gender disparities, leaving an enduring impact on both the scientific field and efforts toward gender equality.

China sends new crew to its Tiangong space station-The Hindu Science

Science and technology

Easy Explanation

China has launched a new three-person crew to its Tiangong space station, marking another significant step in its expanding space exploration efforts. The crew, consisting of two men and one woman—mission commander Cai Xuzhe, and first-time astronauts Song Lingdong and Wang Haoze—successfully docked with the space station. They are set to replace the previous crew who have been aboard for six months, conducting experiments and maintaining the station. The new crew is expected to remain until April or May of the following year.

The Shenzhou-19 spacecraft carrying the astronauts was launched from the Jiuquan Satellite Launch Center atop a Long March-2F rocket. China's advancement in space technology comes amid a backdrop of competition with the United States and other nations, especially after being excluded from the International Space Station due to U.S. concerns over military involvement in China's space program. China aims to land a person on the moon by 2030, potentially making it the second nation to do so after the U.S. The new crew will perform spacewalks and install equipment to protect the station from space debris, a growing concern due to past satellite collisions and destructions.

Key Takeaways:

1. **Successful Launch of New Crew:**
   - ○ China launched the Shenzhou-19 mission, sending two men and one woman to the Tiangong space station to replace the current crew.
2. **Crew Composition:**
   - ○ Mission commander Cai Xuzhe has prior space experience from the Shenzhou-14 mission in 2022.
   - ○ Song Lingdong and Wang Haoze are first-time astronauts, part of the third wave of Chinese astronaut recruitment.
3. **Extended Mission Duration:**
   - ○ The new crew is expected to stay aboard the Tiangong space station until April or May of next year.

| Clear your doubts now.

4. **Advancements in China's Space Program:**
   - China continues to expand its space exploration capabilities, aiming to land a person on the moon by 2030.
   - The country has achieved significant milestones, including landing an explorer on Mars and placing a rover on the far side of the moon.
5. **International Competition and Exclusion:**
   - China's space station was developed after being excluded from the International Space Station due to U.S. concerns over military involvement.
   - The advancement highlights the growing space exploration rivalry between China, the U.S., and other nations like Japan and India.
6. **Space Debris Mitigation Efforts:**
   - The crew will install new equipment to protect the station from space debris, addressing issues caused by previous satellite collisions and destructions.
7. **Role of Female Astronauts:**
   - Wang Haoze becomes the third Chinese woman to participate in a crewed space mission, serving as the crew's payload specialist.
8. **Significance of the Long March-2F Rocket:**
   - The Long March-2F rocket serves as the backbone of China's crewed space missions, demonstrating reliable launch capabilities.
9. **Ongoing Space Ambitions:**
   - China's goals include building a research station on the moon and continuing to develop independent space exploration missions.
10. **Global Space Exploration Landscape:**

While China makes strides, the U.S. plans to return astronauts to the moon by 2026, maintaining its leadership in space exploration.