

WEEKLY UPDATES – (3rdDec-9thDec)

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ENVIRONMENT

Cyclone Michaung makes landfall

Context: Recent bird watching efforts by a network of 180 enthusiasts have documented rare 'pelagic' birds

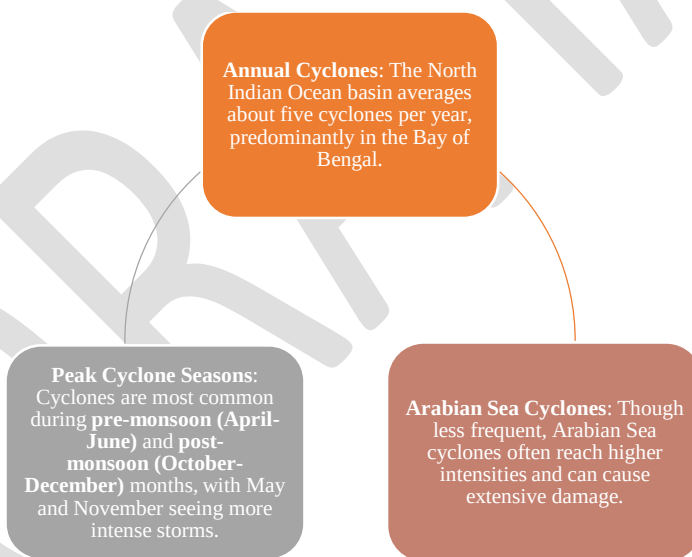
Central Idea

- Cyclone Michaung (name suggested by Myanmar) makes landfall in Tamil Nadu and Andhra Pradesh.
- Michaung is the fourth tropical cyclone over the Bay of Bengal this year.

About Cyclone Michaung

- **Uncommon Intensity:** December cyclones in the North Indian Ocean typically do not reach high intensities. Michaung, with its severe storm classification, is an exception.
- **Upgraded Intensity:** Initially predicted as a tropical cyclone, IMD upgraded Michaung to a 'severe' storm due to its unexpected intensification.
- **Heat Index Contribution:** The intensification is attributed to the above-normal heat index values off the southern Andhra Pradesh coast.

Indian Tropical Storms



Factors Influencing Storm Intensification

- **Ocean Heat:** Cyclones draw energy from warm ocean temperatures, typically around **26 degrees Celsius** or higher.
- **Tropical Cyclone Heat Potential (TCHP):** This oceanographic parameter is crucial in cyclone genesis and intensification.
- **Complex Atmospheric Conditions:** Various atmospheric factors like wind shear, convection, and air-sea interactions also play a role in cyclone development.
- **Coriolis Effect:** This effect influences cyclone formation in the northern hemisphere, causing air to move anticlockwise in low-pressure areas.

Back2Basics: Extratropical and Tropical Cyclones

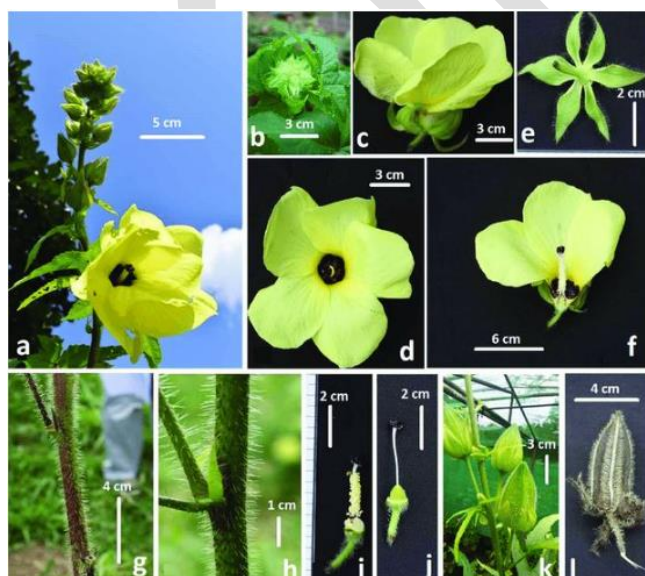
- **General Definition:** Cyclones are large-scale air systems rotating around a low-pressure center, often accompanied by violent storms.
- **Extratropical Cyclones:** Found outside the tropics, these cyclones have a cold core and gain energy from interactions between cold and warm air masses. They can form over both land and sea.
- **Tropical Cyclones:** These form in tropical regions and are powered by the condensation of water vapor. They lack associated warm or cold fronts and are known as hurricanes or typhoons in different regions.

Cyclone Naming Process

- **Rotational Basis for Naming:** The naming of cyclones is done by countries on a rotational basis, following certain existing guidelines.
- **Responsibilities of RSMCs and TCWCs:** Worldwide, there are six regional specialized meteorological centers (RSMCs) and five regional Tropical Cyclone Warning Centers (TCWCs) mandated for issuing advisories and naming of tropical cyclones.
- **IMD's Role:** IMD is one of the six RSMCs providing tropical cyclone and storm surge advisories to 13 member countries under the WMO/Economic and Social Commission for Asia-Pacific (ESCAP) Panel.
- **Naming Authority of IMD:** RSMC, New Delhi, is also mandated to name the tropical cyclones developing over the north Indian Ocean, including the Bay of Bengal and the Arabian Sea.
- **Guidelines for Naming:** Some rules are to be followed while naming cyclones, such as being neutral to politics, religious beliefs, cultures, and gender, avoiding offensive or cruel names, and keeping the name short and easy to pronounce.
- **Future Naming:** After 'Michaung', the next cyclone as per India's suggestion will be named 'Tej'.

New species: *Abelmoschus Odishae*

Context: A scientist from the Indian Council of Agricultural Research (ICAR) recently discovered a new plant species of 'wild okra' named '*Abelmoschus Odishae*'.



Wild Okra (*Abelmoschus Odishae*)

- Its discovery occurred in a humid deciduous forest within the Banspal block of Keonjhar district, in Odisha.
- This plant holds potential for use in hybridization to develop improved varieties with enhanced disease resistance.
- It could significantly contribute to broadening the genetic diversity of okra.

Characteristics:

1. This perennial shrub reaches up to 5 meters in height and features a densely hispid, spiny stem with backward-facing hairs.

2. The plant is adorned with large, vibrant yellow flowers.
3. Its seeds are nearly kidney-shaped, with short, robust, non-spiral trichomes.
4. The seeds exhibit a high viability rate of 95 percent.

About Okra

- Commonly referred to as gumbo or ladies' fingers, okra is a vegetable favored in warm climates.
- Originating from the Eastern Hemisphere's tropics, it is now extensively grown or found naturally in the tropical and subtropical regions of the Western Hemisphere.
- Rich in minerals, vitamins, antioxidants, and fiber, okra is a nutritious choice.
- The vegetable is known for its mild flavor and distinctive texture, featuring a peach-like fuzz on its exterior and small, consumable seeds inside.

Specie in news: Mauritian Dodo

Context: Tsunami waves exceeding one meter in height struck central Japan on January 1, 2024, following a

Central Idea

- Mauritian authorities are now working to resurrect the human-caused extinct bird 'Dodo'.

About Mauritian Dodo

	Details
Scientific Name	Raphus cucullatus
Physical Characteristics	Large, flightless bird; about 1 meter tall, weighing 10-18 kg; large beak, stubby wings.
Habitat	Endemic to Mauritius, an island in the Indian Ocean; lived in forests and possibly coastal areas.
Discovery and Extinction	Discovered by Dutch Colonist in late 16th century; extinct by the late 17th century, last sighting around 1662.
Causes of Extinction	Human hunting and introduced species like rats, pigs, and monkeys.
Diet	Likely fruits, nuts, seeds, bulbs, and possibly small animals.
Behavior	Exhibited no fear of humans due to lack of natural predators.
Cultural Impact	Symbol of extinct and endangered species; featured in the phrase "as dead as a dodo."
Representation	Depicted in literature and art, notably in Lewis Carroll's "Alice's Adventures in Wonderland."

Science of De-Extinction

- **Genetic Blueprint:** The first step in de-extinction is obtaining a complete and accurate genome of the species.
- **Genome Sequencing:** Paleo-geneticists have successfully sequenced the dodo's genome using DNA from a museum specimen.
- **Comparative Genomics:** The dodo's genome is being compared with that of its closest extinct and extant relatives to identify unique dodo traits.

Process of Resurrecting

- **Editing Genetic Material:** The project involves editing the primordial germ cells (PGCs) of the Nicobar pigeon, the dodo's closest living relative, to express dodo traits.
- **Interspecies Surrogacy:** These edited PGCs will be inserted into chicken embryos, with chickens acting as interspecies surrogates to potentially birth a dodo offspring.
- **Physical Resemblance:** The aim is to create a bird physically indistinguishable from historical accounts of the dodo.

Challenges and Concerns

Scientific Hurdles:

Experts emphasize the complexity of recreating a species and the time required for selective breeding to achieve dodo-like characteristics.

Habitat Restoration:

Mauritius' transformed landscape poses challenges for reintroducing the dodo, necessitating the control or removal of invasive species.

Alternative Habitats:

The project considers reintroducing dodos to more pristine, uninhabited islands like Round Island and Aigrettes.

Motivations behind the Project

- **Ecosystem Restoration:** Reintroducing the dodo could help restore mutualistic relationships in Mauritius' ecosystem, particularly in seed dispersal.
- **Conservation Technology:** The techniques developed could aid in conserving and restoring other endangered avian species.
- **Symbolic Value:** The project is driven by a desire to create 'conservation optimism', using the dodo as a symbol of hope in the face of human-caused extinctions.

POLITY

More people-friendly laws On Constitution Day

Context: The Indian government, led by Prime Minister Narendra Modi, is actively simplifying legal language to promote "Access to Justice," making legal texts more understandable for every citizen. This strategic initiative, aligned with constitutional principles, addresses historical ambiguities and leverages technology to enhance accessibility, contributing to global legal recognition and fostering a transformative journey toward inclusive justice.

Key Highlights:

Legal Language Simplification: The Indian government, led by Prime Minister Narendra Modi, is undertaking a mission to simplify legal language, aligning with the vision of “Access to Justice” and aiming to make legal texts more accessible to the common citizen.

Constitutional Principle: The initiative reflects the constitutional principle that legal language should be understandable to every citizen, emphasizing the importance of ensuring citizens comprehend their rights and responsibilities.

Correction of Ambiguities: The government is addressing historical ambiguities in legal language, such as those in Sections 213 and 214 of the IPC, to enhance legal precision and effective enforcement, eliminating potential loopholes.

Global Recognition: The government’s commitment to simplifying legal language has gained international recognition, positioning India as a forward-thinking adopter of progressive measures for legal accessibility.

Digital Transformation: The simplification efforts align with the Digital India campaign, leveraging technology to enhance accessibility, with online platforms and digital resources making legal information more readily available.

Key Challenges:

- **Historical Complexities:** Addressing historical intricacies in legal language poses a challenge, requiring thorough examination and correction of ambiguities that have persisted over time.
- **Public Engagement:** While seeking public input in the simplification process is a positive step, ensuring effective public engagement and capturing diverse perspectives can be challenging.

Key Phrases:

- **Access to Justice:** The overarching vision guiding the simplification initiative, aiming to remove barriers of legal complexity that hinder the common citizen’s understanding of legal texts.
- **Legal Empowerment:** The goal of simplification extends beyond language, aiming to empower citizens with legal knowledge, fostering a sense of legal empowerment among the diverse population.

Key Quotes:

“We must see that the constitution is not only passed by the Constituent Assembly but that it is also worked by the common people of the country.” – B R Ambedkar

“The government envisions a legal landscape where language is not a barrier but a bridge to justice.”

Critical Analysis:

- The reduction in legal disputes due to misunderstandings and misinterpretations underscores the positive impact of the simplification initiatives in fostering a clearer legal framework.

Way Forward:

- Continue the integration of plain language drafting principles into legal education to nurture a generation of legal professionals capable of navigating legal intricacies with clarity and precision.
- Sustain efforts to engage the public in the simplification process, ensuring diverse perspectives are considered for comprehensive legal accessibility.
- Monitor and evaluate the impact of simplification on reducing legal disputes and enhancing India's global economic competitiveness.
- Explore additional measures, such as comprehensive glossaries in multiple languages, to further enhance the understanding of legal language among citizens.

Kapil Sibal is wrong — judiciary's independence is not under threat

Context: The article discusses the challenge of legislators practicing law, particularly the dual role of legislator-lawyers, raising concerns about potential conflicts and the normalization of political intervention in the judiciary. It criticizes Kapil Sibal's confrontational approach, citing its impact on judicial independence, and emphasizes the delicate balance needed for an independent judiciary amid intertwining political and legal roles.

Key Highlights	
Dual Roles of Legislator-Lawyers	Legislators practicing law face a dilemma, mixing politics with the legal profession, raising concerns about potential conflicts of interest.
Normalization of Political Intervention	Allegations by Kapil Sibal suggest a trend of normalizing political intervention in the judiciary, using claims like "courts being on trial" to influence decisions.
False Equivalence with Emergency Era	Critique based on a false equivalence between the 1975 Emergency and present times, disregarding the unique historical context and the active role of the judiciary.

Critical Analysis:

- **Intertwining Roles Challenge:** The intertwining of political and legal roles challenges the delicate balance needed for an independent judiciary and erodes public trust.
- **Ethical Standards for Politician-Lawyers:** The need for politicians, especially legislator-lawyers, to adhere to ethical standards and maintain the delicate balance between political advocacy and judicial independence.
- **Impact on Democracy:** Actions perceived as undermining judicial independence can have a profound impact on democracy, influencing public perception and institutional respect.

Way Forward:

- **Respect for Judicial Independence:** Emphasizing the crucial need to respect the delicate balance between political advocacy and judicial independence to safeguard the credibility of legal institutions.
- **Ethical Considerations:** Encouraging politicians, especially those with legal acumen, to consider ethical standards in their dual roles to avoid eroding public faith in the judiciary.
- **Public Perception Management:** Considering how opinions are presented to manage public perception and maintain institutional respect, ensuring a constructive dialogue between the legal and political spheres.

Broader ethical concerns raised by Moitra

Context: Mahua Moitra, a former investment banker turned politician, faced allegations of sharing her Parliament ID and password with an industrialist to post questions about a rival group. The Ethics Committee recommended her expulsion from Parliament, and on December 8, the motion for expulsion was adopted through a voice vote. Moitra admitted to sharing her ID and password, receiving gifts, and made broader allegations that many MPs do not draft their own questions.

Key Challenges:

- The credibility of Parliament is at stake due to false claims by Moitra and another MP, Giridhari Yadav, that MPs generally do not frame their own questions.
- The issue of MPs sharing their ID and password, a violation of rules, raises concerns about the security and integrity of parliamentary processes.
- The definition of “cash for query” is debated, involving considerations of gifts, hospitality, and other non-monetary benefits.

Key Terms:

- **Parliament Portal:** The online platform where MPs submit questions, Zero Hour submissions, and Special Mentions.
- **Ethics Committee:** A parliamentary committee responsible for examining matters related to the ethical conduct of MPs.
- **Cash for Query:** The alleged practice of accepting material benefits in exchange for asking questions in Parliament.
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Critical Analysis:

- False claims about MPs not framing their own questions undermine the reputation of Parliament.
- The issue of ID and password sharing raises questions about the security of parliamentary processes.
- The definition of “cash for query” is explored, considering various non-monetary benefits.

Way Forward:

- Strengthen security measures to prevent unauthorized access to parliamentary portals.
- Emphasize the importance of MPs independently framing their questions for the integrity of parliamentary proceedings.
- Address the broader ethical concerns raised by Moitra’s allegations to maintain the credibility of Parliament.

GOVERNANCE

NCRB 2022 Report on Crime in India

Context: The National Crime Records Bureau (NCRB) released its annual report on crime in India for the year 2022.

Background of NCRB Reports

- **Origin:** The National Crime Records Bureau (NCRB) was established in January 1986 under the Union Ministry of Home Affairs.
- **Purpose:** NCRB's primary role is to compile and maintain national crime statistics, acting as a central repository for criminal data.
- **Scope:** The reports encompass a wide range of criminal activities, including crimes against women, cybercrimes, economic offenses, and more.

Data Compilation Process

- **Sources:** Data is sourced from police forces of 36 states and Union Territories, and 53 cities with populations over 10 lakh as per the 2011 Census.
- **Validation:** Information recorded at local police stations undergoes validation at district and state levels before final verification by the NCRB.

Highlights from the 2022 NCRB Report:

Overall Crimes: The report registered a total of 58,24,946 cognizable crimes, including 35,61,379 IPC crimes.

Crime Rate: A decline in crime rate from 445.9 in 2021 to 422.2 in 2022 per lakh population.

Crimes Against Women: There were 4,45,256 cases, marking a 4% increase from 2021.

Cyber Crimes: A significant increase of 24.4% from 2021, totaling 65,893 cases.

Suicides: An increase of 4.2% in suicides, totaling 1,70,924 cases in 2022.

State-wise Data and Interpretation:

Chargesheeting Rate	Highest in Kerala (96.0%), Puducherry (91.3%), and West Bengal (90.6%).
Interpretation	High chargesheet rates do not necessarily indicate higher crime rates but could reflect more efficient law enforcement.

Challenges and Limitations of NCRB Data

- **Principal Offence Rule:** This rule might lead to underreporting of certain types of crimes.
- **Data Accuracy:** Local-level inefficiencies or gaps can affect the overall accuracy of the report.
- **Socio-Economic Factors:** The report does not capture the deeper socio-economic reasons behind crimes.
- **Underreporting Issues:** Fear of police response or societal stigma may lead to underreporting of crimes.

Conclusion

- Understanding the NCRB report requires recognizing its scope, methodology, and limitations.
- While it provides crucial insights into crime trends in India, interpreting the data with an awareness of these factors is essential for a comprehensive understanding of the country's crime dynamics.

SC approves extension of Delhi Chief Secretary

Context: The Supreme Court's approval of a six-month extension for Delhi's Chief Secretary, Naresh Kumar, sparks debates on judicial intervention in administrative decisions. Amid corruption allegations and public scrutiny, the extension raises broader questions about retirement age and the need for transparent benchmarks in recognizing exemplary service.

Key Highlights:

- **Supreme Court's Approval:** The Supreme Court sanctioned a six-month extension for Delhi's Chief Secretary, Naresh Kumar, deeming it compliant with existing rules.
- **Common Practice:** Granting extensions to top officers is not new and offers a sense of continuity and familiarity for the government.
- **Legislation and Justification:** The All India Services Act permits exceptions for extensions, and the impending general elections in Delhi provide justification for the decision.
- **Legal Considerations:** The legality of the 2023 amendment to the NCT Act, determining authority over services, remains under scrutiny by the Supreme Court.

Background on ULFA

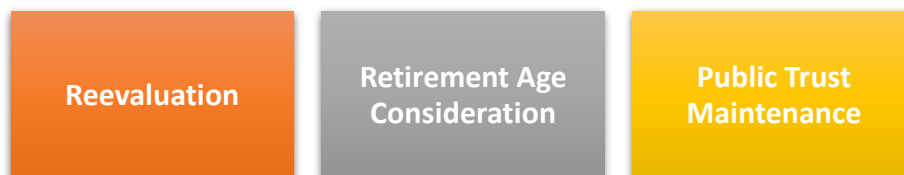
The United Liberation Front of Assam (ULFA) is an armed militant organization operating in Assam, seeking to establish an independent, sovereign nation state for the indigenous Assamese people through armed struggle.

Critical Analysis:

The extension of Chief Secretary Naresh Kumar's term, while legally sound as per the Supreme Court, has ignited debates about the judiciary's role in administrative matters. Corruption allegations and public perception challenges highlight the complexities of such decisions. The practice of extensions triggers

broader discussions on retirement age and the necessity for transparent criteria to recognize exemplary service.

Way Forward:



- **Reevaluation:** Reassess the practice of extensions, considering transparent benchmarks and criteria for recognizing exceptional service.
- **Retirement Age Consideration:** Explore the potential of pushing up the retirement age for All India Services.
- **Public Trust Maintenance:** Address public concerns and strike a balance between administrative decisions and judicial scrutiny.

National Deep Tech Startup Policy (NDTSP)

Context: The Principal Scientific Advisor has announced the government's plan to present a new policy, the National Deep Tech Startup Policy (NDTSP), to the Union Cabinet in the coming weeks for approval. A draft of the policy was unveiled in July 2023, and after public feedback, a final version is reportedly prepared.

Nine Themes of PDI:

1. Poverty-Free and Enhanced Livelihood in Village
2. Healthy Village
3. Child-Friendly Village
4. Water-Sufficient Village
5. Clean and Green Village
6. Village with Self-Sufficient Infrastructure
7. Socially Just and Secured Villages
8. Village with Good Governance
9. Women-Friendly Village

About Panchayat Development Index (PDI)

- PDI is a comprehensive, multi-domain, and multi-sectoral index designed to assess the holistic development, performance, and progress of panchayats.
- It incorporates various socio-economic indicators to measure the well-being and development status of local communities under a panchayat's jurisdiction.
- PDI is crucial for evaluating performance and tracking progress in the localization of Sustainable Development Goals in rural areas.
- The Index is based on a framework of local indicators encompassing nine themes related to sustainable development in villages.

Ranking and Grading System

Panchayats are ranked based on their scores and categorized into four grades:

1. **Grade A+:** Scores above 90%
2. **Grade A:** Scores between 75-90%
3. **Grade B:** Scores between 60-75%

4. **Grade C:** Scores between 40-60%
5. **Grade D:** Scores under 40%

Significance of the Panchayat Development Index

- **Insightful Analysis:** PDI provides critical insights into areas needing improvement in rural jurisdictions.
- **Identifying Disparities:** It helps in pinpointing disparities and the achievement of development goals.
- **Policy Formulation:** The Index aids in creating targeted policies and interventions to enhance the well-being and quality of life in rural communities.

INTERNATIONAL RELATIONS

Credibility crisis faced by India in the realm of covert operations

Context: The article explores the credibility crisis faced by India in the realm of covert operations, focusing on recent legal challenges and a lack of trust with the U.S. The key themes include the impact on international relations, the dynamics of intelligence sharing, and the need for a balanced diplomatic approach to maintain India's global image.

Key Highlights:



Key Challenges:

- **Credibility Crisis:** Impact on New Delhi's credibility in covert capacities and public messaging.
- **Trust Deficit:** Lack of trust and information sharing between India and the U.S.
- **Diplomatic Balancing Act:** Juggling international engagements and addressing concerns from western allies.

Critical Analysis:

- **Credibility Concerns:** Questions raised about India's credibility in covert operations and international engagements.
- **Trust Dynamics:** Ongoing trust deficit between India and the U.S. impacting information sharing.
- **Image Management:** Balancing India's image globally, considering hard and soft power approaches.

Way Forward:

- **Transparent Investigations:** Address credibility concerns through thorough and transparent investigations.
- **Enhanced Information Sharing:** Strengthen trust and information-sharing mechanisms with international partners.
- **Adaptive Diplomacy:** Evaluate and adjust India's approach to covert operations to align with international norms.
- **Diplomatic Outreach:** Enhance diplomatic efforts to manage relationships with western allies and neighbors.

HEALTH

World Malaria Report

Context: Context: The World Malaria Report highlights India's success in reducing malaria cases and deaths, with a 30% decline in cases and a 34% decline in mortality in 2022 compared to the previous year.

Key factors contributing to this success include a focus on primary healthcare in remote areas, digital data-backed surveillance, and effective management of extreme weather events.

Investments in insecticide mosquito nets, antimalarial drugs, and point-of-care tests, along with urbanization reducing mosquito breeding grounds, have played crucial roles.

Challenges include resistance **issues**, especially drug and insecticide resistance, and addressing vivax malaria, which requires a 14-day treatment course often not completed

About Malaria:

It is a life-threatening disease caused by a parasite. The parasite is spread to humans through the bites of infected female Anopheles mosquitoes

Malaria vaccines have been in development for almost 60 years. The first approved vaccine is RTS,S, also known as Mosquirix. The WHO recommends two malaria vaccines:

- RTS,S/AS01
- R21/Matrix-M

Sci & Tech

Six Exoplanets found in the Coma Berenices Constellation

Context: Six exoplanets have been discovered orbiting HD 110067, a bright star in the Coma Berenices constellation, approximately 100 light-years away.

The planets' radii range between that of Earth and Neptune, classifying them as 'sub-Neptunes'.

About Sub-Neptune Exoplanets:

Prevalence

- Sub-Neptunes are commonly found in close-in orbits around more than half of all Sun-like stars.

Mystery

- Despite their prevalence, the composition, formation, and evolution of these planets remain largely unknown.

Observational Details

- **TESS Observations:** NASA's Transiting Exoplanet Survey Satellite (TESS) observed dips in HD 110067's brightness in 2020 and 2022.
- **CHEOPS Contribution:** Additional observations from the CHAracterising ExOPlanets Satellite (CHEOPS) helped confirm the presence of six planets transiting the star.
- **Orbital Calculations:** The study calculated the orbits of all six planets, ranging from about nine days for the innermost planet to approximately 54 days for the outermost planet.

Characteristics of the Planets

- **Mass and Density Estimates:** The planets have relatively low densities, suggesting the presence of large, hydrogen-rich atmospheres.
- **Resonant Orbits:** All six planets are in resonant orbits, indicating regular gravitational interactions among them.
- **System's Age:** The resonant orbits suggest that the system has remained largely unchanged since its formation, estimated to be at least four billion years ago.

HD 110067's Uniqueness

- **Brightness and Host Status:** HD 110067 is the brightest star known to host more than four transiting exoplanets.

- **Potential for More Discoveries:** There is a possibility of additional planets within or beyond the star's temperate zone, though such observations have not yet been made.
- **Learning Opportunity:** The HD 110067 system presents a unique opportunity to study sub-Neptunes and understand how such planetary systems form and evolve.

Population-Level Genome Sequencing and Its Impact

Context: India has joined the international mega-science project, the Square Kilometer Array Observatory (SKAO), which is set to become the world's largest radio telescope. The inclusion of India in the project is notable as it brings the country's Giant Metrewave Radio Telescope (GMRT) into the collaboration.

About 'deCODE' Initiative

- **Inception:** Launched in Iceland in 1996, deCODE genomics enrolled most of the Icelandic population for genetic studies.
- **Contributions:** The initiative enhanced disease genetics understanding and set standards for handling genomic data, integrating medical records with genealogies.

Merit of Large-Scale Sequencing

Disease Research and Understanding:

Large-scale genome sequencing allows researchers to identify genetic variations associated with various diseases. This information is crucial for understanding the genetic basis of diseases, including rare genetic disorders and complex conditions like cancer.

Personalized Therapies:

With a better understanding of an individual's genetic makeup, it becomes possible to develop personalized and targeted therapies.

Genetic Counseling:

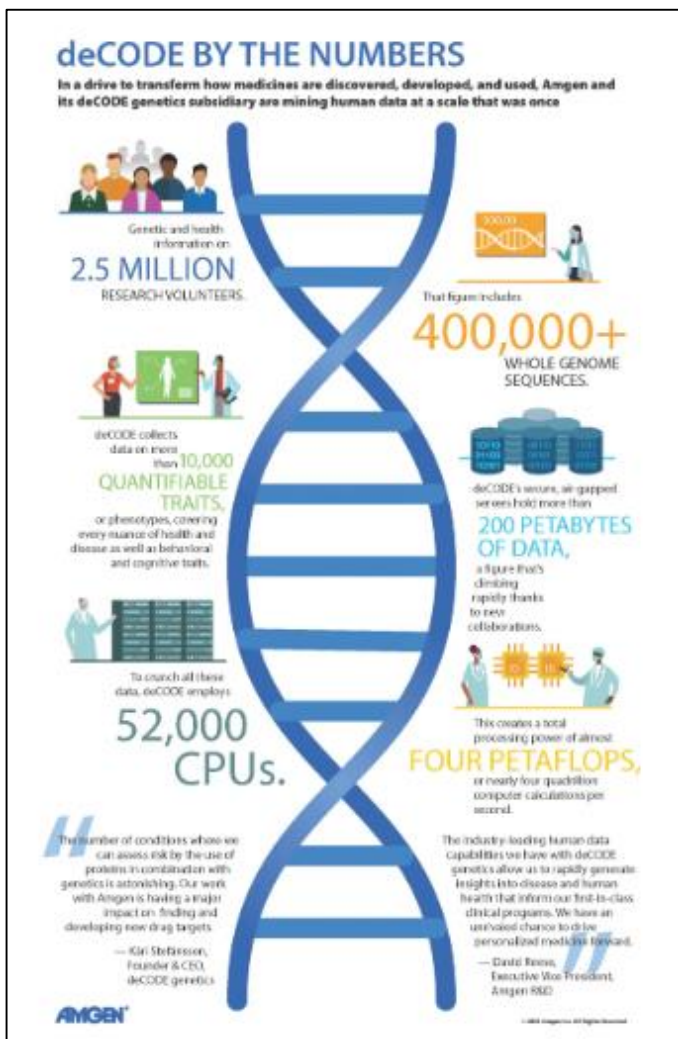
Large-scale genome sequencing provides valuable information for genetic counseling, helping individuals and families understand their risk for certain genetic conditions.

Identification of Rare Variants:

Large-scale sequencing efforts contribute to the identification of rare genetic variants that might be responsible for certain diseases. These discoveries are essential for expanding our knowledge of the genetic landscape and improving diagnostic capabilities.

Population Genetics and Evolution:

Genome sequencing on a large scale allows researchers to study the genetic diversity within populations. This information is valuable for understanding human evolution, migration patterns, and population-specific genetic traits.



Ethical and Regulatory Challenges

- **Privacy Concerns:** Genome sequencing generates highly sensitive and personal information. There is a risk that genetic data could be misused or lead to privacy breaches.
- **Informed Consent:** Obtaining informed consent for genome sequencing is complex due to the vast amount of information generated and the potential for incidental findings.
- **Data Ownership and Control:** Balancing individual rights with the need for research and medical advancements requires careful consideration of data sharing, ownership, and access policies.
- **Genetic Discrimination:** Concerns about genetic discrimination in areas such as employment, insurance, and education may discourage individuals from undergoing genome sequencing.
- **Access to Genetic Services:** Disparities in access to genetic services and genomic technologies may exacerbate existing healthcare inequalities.
- **Ethical Use of Genetic Data in Research:** Researchers must adhere to ethical standards when using genetic data in research. This includes obtaining proper consent, ensuring data security, and transparently communicating the purpose and potential risks of the research.

Long-Term Impact and Future Prospects

- **Beyond Individual Health:** Population-scale genomics will enhance our understanding of human evolution, migration, and adaptation.
- **Personalized Medicine:** It paves the way for personalized healthcare based on individual genetic profiles.
- **Billion Genome Project:** The possibility of sequencing a billion genomes in a single project is on the horizon, alongside individuals' rights to access and understand their own genomic data.

Conclusion

- Population-scale genomics is at the forefront of a genomic revolution, with the potential to transform healthcare, deepen our understanding of human biology, and shape our approach to medicine and biology.
- This evolving field promises to bring personalized, precise treatments and a richer comprehension of our genetic heritage.

Conclusion

In summary, India's inclusion in the SKAO signifies collaboration on a global scale in advancing radio astronomy, with the GMRT playing a significant role in this endeavor.

Google unveils ‘Gemini AI Model’

Context: Google has introduced Gemini, a new multimodal general AI model, available globally through Bard. It is seen as Google’s response to ChatGPT, offering advanced capabilities in the realm of GenAI.

What is Google Gemini?

- Unlike ChatGPT, Gemini can process and operate across various formats including text, code, audio, image, and video.
- Google claims Gemini Ultra surpasses current models in academic benchmarks and is the first to outperform human experts in massive multitask language understanding (MMLU).

Different versions available:

Three Variants: Gemini comes in three sizes – Ultra, Pro, and Nano – each designed for specific levels of complexity and tasks.

Gemini Ultra

- Intended for highly complex tasks, currently in a trial phase with select users.

Gemini Pro

- Available in Bard for general users, offering advanced reasoning and understanding, and accessible to developers via Google AI Studio or Google Cloud Vertex AI.

Gemini Nano

- Focused on on-device tasks, already integrated into Pixel 8 Pro, and soon available to Android developers via AI Core in Android 14.

Addressing Challenges of Hallucinations and Safety

- **Factuality and Hallucinations:** While improvements have been made, Gemini, like other LLMs, is still prone to hallucinations. Google uses additional techniques in Bard to enhance response accuracy.
- **Safety Measures:** Google emphasizes new protections for Gemini’s multimodal capabilities, conducting comprehensive safety evaluations, including bias and toxicity assessments.
- **Ongoing Safety Research:** Google collaborates with external experts to stress-test models and identify potential risks in areas like cyber-offence and persuasion.

Hallucination: Asking a generative AI application for five examples of bicycle models that will fit in the back of your specific make of sport utility vehicle. If only three models exist, the GenAI application may still provide five — two of which are entirely fabricated.

Comparing Gemini and ChatGPT 4:

- **Flexibility and Capabilities:** Gemini appears more versatile than GPT4, especially with its video processing and offline functionality.
- **Accessibility and Cost:** Unlike the paid-access ChatGPT4, Gemini is currently free to use, potentially giving it a broader user base.

Art & Culture

Garba makes it to UNESCO Intangible Cultural Heritage list

Context: Central Idea

- Garba, a traditional dance form from Gujarat, was included in the UNESCO list of Intangible Cultural Heritage.
- This recognition makes Garba the 15th cultural item from India to be featured on the UNESCO list, following Kolkata's Durga Puja, which was added two years ago.



About UNESCO Intangible Cultural Heritage (ICH)

- ICH means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated with them that communities, groups and, in some cases, individuals recognize as a part of their cultural heritage.
- Furthermore, its importance is not in the cultural manifestation itself, but in the wealth of knowledge, know-how and skills that are transmitted from one generation to the next.
- The adoption of the Convention for the Safeguarding of the ICH by the General Conference of UNESCO in 2003 was a crucial step towards preserving intangible heritage.

- UNESCO's list of Intangible Cultural Heritage of Humanity was established in the year 2008.

What is it?: Garba is a traditional dance form from Gujarat, India, primarily performed during the Navratri festival to worship the Hindu goddess Durga.

Origins and Meaning: The term "Garba" comes from "Garbha" (womb) and "Deep" (lamp). The dance is performed around a central lamp or a representation of the Goddess, symbolizing life, death, and rebirth.

Dance Style: Garba is characterized by energetic, circular movements, clapping hands, and intricate footwork, reflecting the cyclical nature of life.

Music and Instruments: The dance is accompanied by rhythmic music, traditionally using instruments like the dhol (drum), harmonium, and flute, with modern adaptations including electronic instruments.

Traditional Attire: Women wear a chaniya choli (a colorful, embroidered skirt set) and men don a kediyu and dhoti or pajama, often embellished with mirrors and embroidery.

Dandiya Raas Association: Garba is often followed by Dandiya Raas, another dance form using sticks (dandiyas), especially after the Aarti (worship ritual).

Inclusivity and Community Aspect: The dance is inclusive, attracting people of all ages and backgrounds, and emphasizing community participation.

Criteria for the selection

- There are three criteria for an intangible cultural heritage to be inscribed in the United Nations list.
- The entity must-
 1. be recognized by communities, groups and, in some cases, individuals as part of their cultural heritage,
 2. be transmitted from generation to generation and be constantly recreated by communities and groups in response to their environment, their interaction with nature and their history and
 3. provide them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity

India's ICH on the UNESCO list

- Sangeet Natak Akademi is the nodal organisation which looks after this function, and files nominations of intangible cultural entities from India, for evaluation by the international body.
- ICG from India include Kolkata's Durga Puja (2021), Kumbh Mela (2017), Navroz (2016), Yoga (2016), traditional brass and copper craft of utensil-making among coppersmiths of Punjab (2014), Sankirtana, a ritual musical performance of Manipur (2013), and the Buddhist chanting of Ladakh (2012).
- Before 2011, the list included Chhau dance, Kalbelia folk songs and dance of Rajasthan, and Mudi yettu, a dance drama from Kerala (2010), Ramman, a religious festival and theatre performance of Garhwal in the Himalayas (2009), and Kutiyattam or Sanskrit theatre, and Vedic chanting (2008).
- Ramlila, a traditional performance of Ramayana, was also included in 2008.