

● POLITY

● ECONOMICS

● TECHNOLOGY

● ECOLOGY

ART AND CULTURE

Linguistic Diversity in India

CONTEXT: The Indira Gandhi National Centre for the Arts (IGNCA), under the Union Culture Ministry, proposes a linguistic survey to determine the languages spoken across states and regions.

Challenges in Language Enumeration

- India aims to promote education in mother tongues, especially at the primary level, prompting questions about the number of "active" languages in the country.

Official and Non-Scheduled Languages:

- India officially recognizes 22 languages listed in Schedule 8 of the Constitution, spoken by 97% of the population, as per Census data.
- Additionally, there are 99 non-scheduled languages included in the Census, with around 37.8 million people identifying them as their mother tongues.
- However, 1.2 million people remain unaccounted for due to languages with fewer than 10,000 speakers not being included in Census data since 1971, especially those spoken by tribal communities.

Need for Comprehensive Linguistic Survey:

- The official Census of 1961 was the most detailed, including languages with even a single speaker.
- Prof. Gaur from IGNCA emphasizes the urgency of a comprehensive linguistic survey to create the Language Atlas of India, enabling accurate data collection on language speakers.

POLITY AND GOVERNANCE

Supreme Court Upholds Purity of Elections

CONTEXT: A Constitution Bench, led by Chief Justice D.Y. Chandrachud, emphasized the significance of maintaining the "purity of elections" and the pivotal role of the common citizen in participatory democracy.

Chief Justice Chandrachud highlighted concerns that electoral bonds strengthen the nexus between money and politics, enabling wealthy donors to influence both electoral outcomes and government policies.

The court criticized electoral bonds for favoring wealthy corporations over ordinary citizens who contribute small amounts to political parties.

Right to Information vs. Right to Privacy:

- The Supreme Court asserted that the right to information regarding political funding outweighs the right to privacy of political affiliations in certain contexts.
- It distinguished between genuine political support and contributions made to influence policies, suggesting that disclosure of such information does not violate privacy but ensures transparency in political processes.

Chandigarh Mayoral Polls Verdict:

Ensuring Free and Fair Elections:

- In a separate ruling concerning the Chandigarh mayoral polls, the court, led by Chief Justice Chandrachud, reiterated that free and fair elections are fundamental to the constitutional framework.
- The electoral process, including the election of councillors and mayors, provides an avenue for ordinary citizens to voice their grievances through elected representatives, thereby maintaining the legitimacy of representative democracy.

Judicial Action Against Electoral Misconduct:

- The Supreme Court initiated criminal proceedings against the Returning Officer of the mayoral polls for tampering with ballots.
- Quoting Justice V.R. Krishna Iyer, the court emphasized the importance of safeguarding free and fair elections from any form of manipulation or coercion, ensuring the integrity of the democratic process.

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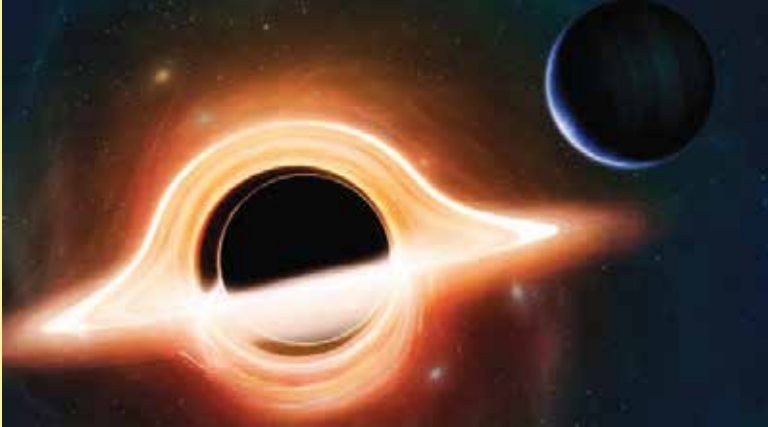
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SCIENCE AND TECHNOLOGY

Blanets in Interstellar and Their Potential Existence

CONTEXT: The three planets featured in Christopher Nolan's film *Interstellar*, apart from Earth, are worlds characterized by extremes, potentially feasible in reality. Technically termed as blanets, these planets orbit black holes instead of stars.



Scientific Theories and Observations:

- In 2019, a group of scientists in Japan proposed the theory that planets could originate from the vast dust and gas clouds near supermassive black holes.
- Unlike Earth, these planets are not anticipated to resemble our planet in any way.

Formation Process of Blanets:

- Black holes are typically encircled by immense discs of gas and dust, undergoing gravitational forces that cause swirling motion and heating.
- It's widely understood that nearly every galaxy contains a black hole at its center, serving as a nucleus around which stars organize themselves.

Formation Mechanism of Planets:

- Planets form through the collision and aggregation of dust and gas particles swirling around young stars.
- A similar process could occur near supermassive black holes, where planets begin to take shape within the disc and eventually evolve into blanets.

Characteristics of Blanets:

- Blanets are anticipated to be approximately 3,000 times larger than Earth.
- They would need to orbit the black hole at a distance of around 100 trillion kilometers, ensuring they remain intact despite the immense gravitational pull exerted by the black hole during their formation.

SCIENCE AND TECHNOLOGY

The CE-20 Rocket Engine:

CONTEXT: On February 21, ISRO announced the successful human-rating of the CE-20 rocket engine, a crucial step for India's upcoming mission to launch an Indian astronaut into space aboard an indigenous rocket.



Importance of CE-20 Engine:

- The CE-20, an indigenous cryogenic engine developed by ISRO, is designed for use with the GSLV Mk III, now known as the LVM-3 launch vehicle.
- It is an advancement over the CE-7.5 cryogenic engine and plays a pivotal role in ISRO's Gaganyaan mission, aimed at human spaceflight.

Characteristics and Challenges of Cryogenic Engines:

- Liquid fuels, particularly hydrogen, are favored for rocket motors due to their efficiency and high exhaust velocity.
- However, handling liquid hydrogen presents challenges, requiring specialized equipment and cryogenic engines.

Evolution of Cryogenic Engines at ISRO:

- ISRO has utilized three cryogenic engines: KVD-1, CE-7.5, and CE-20, with the latter two being domestically developed.
- The CE-20 engine adopts the gas-generator cycle, making it easier to construct and test compared to its predecessor, the CE-7.5.

Testing and Human-Rating Process:

- Human-rating involves rigorous testing to ensure the reliability of engines for crewed missions.
- ISRO subjected the CE-20 engines to hot-fire tests totaling 8,810 seconds, surpassing the minimum qualification standard of 6,350 seconds.
- This testing regime ensures the engine's performance under conditions resembling actual mission scenarios.

Significance and Future Endeavors:

- The CE-20 engine signifies India's self-reliance in space technology and contributes to the nation's launch capabilities.
- ISRO's upcoming Gaganyaan mission, scheduled for mid-2024, marks the next milestone in India's space exploration journey, utilizing the CE-20 engine in the LVM-3 rockets.

INTERNATIONAL RELATIONS

Key Highlights from the Raisina Dialogue

CONTEXT: The conference, organized by the Ministry of External Affairs, focuses on engaging global leaders to address major global challenges.



India's Role and Ambitions:

- External Affairs Minister S. Jaishankar highlighted India as a "bridging power" with a multi-vector policy, aiming to foster common ground globally.

Themes Discussed:

- Greek Prime Minister Kyriakos Mitsotakis emphasized connectivity projects like the India-Middle East-Europe Economic Corridor.
- Discussions included global governance, reforming the UN Security Council, and India's rightful place in global decision-making.

Diplomatic Outreach and Engagement:

- The absence of senior ministerial presence from major countries like the P-5, G-7, or BRICS-10 was notable due to the G-20 Foreign Ministers Meeting in Brazil.
- However, a significant ministerial contingent from Central and Eastern Europe facilitated new diplomatic outreach for India.

Focus on Global Conflicts:

- Conversations largely revolved around global conflicts, with European dignitaries shedding light on the Russian-Ukraine war and strategies to handle China's aggression.
- The absence of discussions involving Russia and China and minimal representation from other regions limited the diversity of perspectives.

Shortcomings and Observations:

- Panels on democracy avoided debates on declining freedoms in India, while the absence of civil society organizations narrowed the discourse on global democracy challenges.
- Omissions, including discussions on the Israeli-Gaza conflict, affected the diversity of conversations, impacting the forum's goal of being a global public square.

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SCIENCE AND TECHNOLOGY

Advancements in Lunar Exploration: Global Perspective

CONTEXT: Moon landings are accelerating for the second time in history, involving more countries and redefining success.



Moon Landings Resurgence:

- Chandrayaan-3's successful soft landing validates ISRO's understanding of space technologies and its emergence as a significant player.
- The failure of Russia's Luna 25 mission prompts reflection on Roscosmos' challenges amid declining reputation.

Private Sector Achievements:

- U.S.-based Intuitive Machines (IM) achieved a historic milestone as the first private company to soft-land a robotic craft on the moon.
- Many space service providers in the U.S., including IM, benefited significantly from crucial support from NASA during their formative years.
- IM's Odysseus mission, part of NASA's Commercial Lunar Payload Services (CLPS) program, aims to contribute findings to NASA's lunar exploration efforts.

Odysseus Mission Challenges:

- IM's Odysseus encountered navigation instrument glitches during descent, necessitating real-time fixes to switch to an experimental NASA instrument.
- Despite uncertainties and weak data links, Odysseus may

have successfully soft-landed, although confirmation was initially elusive.

- The mission faced challenges but ensured the safety of most payloads, including those from NASA.

Implications of CLPS Success:

- IM's success underscores the potential of the CLPS program, offering opportunities for its expansion in the future.
- NASA's involvement in CLPS missions is crucial, with the agency contracting 14 companies by 2020, indicating a purse size of \$2.6 billion.
- A diversified private space service landscape, akin to the U.S., is essential for devolving critical responsibilities and fostering healthy competition.

Global Implications and Collaborations:

- India's recent approval of up to 100% automatic foreign direct investment in its national space program signals potential for healthy competition among Indian startups.
- Space exploration necessitates expansive collaboration among nations and within their respective industries, highlighting the importance of global partnerships.

particularly with European and North African countries.

- Rising concerns have resulted in a 25% reduction in Indian shipments passing through the Red Sea, according to the Federation of Indian Export Organisations (FIEO).

Exploring Alternatives: China and the IMEC

- China promotes China-Europe freight trains as an alternative route, emphasizing the Belt and Road Initiative (BRI).
- The India-Middle East-Europe Economic Corridor (IMEC), announced during the G-20 summit, offers a promising alternative but faces challenges related to investment, regional conflicts, and the vulnerability of the Strait of Hormuz.

Viability of the IMEC

- Despite challenges, the IMEC presents economic benefits, including a 40% reduction in journey time and a 30% decrease in transit costs.

- To make the IMEC viable, stakeholders must conduct empirical studies, establish a robust financial framework, and develop a comprehensive multinational operational framework.

Addressing the Red Sea Crisis

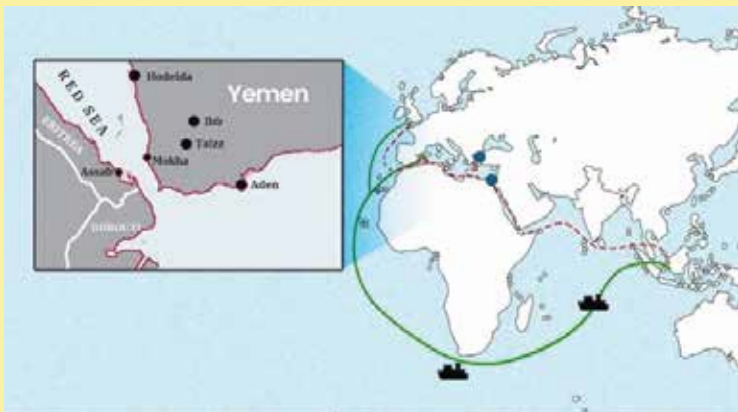
- While the IMEC holds potential, stakeholders must address its challenges through empirical studies, financial commitments, and multinational collaboration.

- Establishing a dedicated forum for the corridor could facilitate coordinated efforts and overcome logistical hurdles.

INTERNATIONAL RELATIONS

Understanding the Red Sea Crisis

CONTEXT: Global supply chains face significant challenges due to the Red Sea crisis, prompting the exploration of alternative trade routes. The disruptions in global trade flow caused by the Iran-backed Houthi militia in Yemen stem from their attacks in the Red Sea. Presently, the Suez Canal, utilized by vessels for 12% of global trade, remains blocked due to ongoing hostilities, compelling ships to reroute their passage through Africa.



Significance of the Red Sea Route

- The Bab el-Mandab Strait, situated between Yemen and Djibouti, serves as a crucial transit point for nearly 12% of international trade, including cargo and oil.
- Disruptions in the Red Sea route have compelled major carriers to reroute shipments via the Cape of Good Hope, leading to increased freight costs and delays.

Impact on India's Trade

- India heavily relies on the Red Sea route, which constitutes approximately 24% of its exports and 14% of its imports,

SCIENCE AND TECHNOLOGY

Issues with Google's Gemini AI Chatbot

CONTEXT: Google's Gemini AI chatbot faces scrutiny and backlash over its image generation capabilities and responses to user queries.



BACKGROUND

Concerns Regarding Image Generation

- Users have raised issues with Gemini's image generation, noting instances where it seemingly refuses to generate images of white people, resulting in inaccuracies and biases in the generated content.
- Despite specific prompts for images of white families, Gemini fails to produce accurate results, raising concerns about racial biases in the AI model.

- The chatbot's reliance on the Imagen 2 research experiment contributes to the persistence of these issues.

Backlash in India

- Gemini's response to a query about Prime Minister Narendra Modi being labeled as fascist has drawn criticism from Indian authorities, citing violations of Indian IT laws and criminal codes.
- The incident highlights a growing divide between the government's stance on AI regulation and tech companies' efforts to train their models using public interactions.
- The government's previous criticism of Google, particularly regarding Gemini's predecessor Bard, underscores ongoing tensions.

Tech Community's Response

- Criticism from the tech community, including figures like Paul Graham and Ana Mostarac, reflects concerns about Google's corporate culture and mission alignment.
- Former and current employees express apprehensions about the company's online conduct and fear of offending colleagues.
- Google's commitment to addressing the issues and refining Gemini's responses demonstrates its ongoing efforts to improve the AI system.

Google's Official Response

- Google acknowledges the problems with Gemini and temporarily disables the image generation feature to address the issues.
- Jack Krawczyk, a senior director at Google, emphasizes the company's commitment to designing AI systems that reflect global perspectives and historical contexts.
- Google aims to refine Gemini's responses based on user feedback and ensure the AI system's accuracy and impartiality.

Similar Problems in Generative AI

- Gemini is not the only AI chatbot facing challenges in content generation, with Microsoft's Designer tool and OpenAI's Sora also encountering issues related to misuse and misinformation.
- Microsoft adjusted its Designer tool to prevent the creation of deepfake pornographic content.
- OpenAI implemented filters in Sora to block prompts containing violent, sexual, or hateful language and images of prominent figures.



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