

SPADEX MISSION



Recently, The Indian Space Research Organisation (ISRO) has successfully completed the second docking of its two satellites — SDX01 (Chaser) and SDX02 (Target) — under the SpaDeX (Space Docking Experiment) mission.

- **SpaDeX** (Space Docking Experiment) is a technology demonstration mission developed by ISRO to validate the **capability of docking and undocking** two small satellites in **low-Earth orbit**.
- The mission involved two **small satellites**, each weighing around **220 kg**: **SDX01 (Chaser)**, **SDX02 (Target)**
- These satellites were launched by **PSLV-C60** into a **460 km circular orbit** with an inclination of **45 degrees**.

Objectives of the SpaDeX Mission

- **Primary objective:** To develop and demonstrate the capability for **rendezvous, docking, and undocking** of spacecraft in **orbit**.
- **Secondary objectives:**
 - To demonstrate the **transfer of electric power** between docked spacecraft — a crucial component for future **in-space operations**.
 - To develop and validate **composite spacecraft control systems**.
 - To test **payload operations after undocking** — important for deep-space missions.
- With this achievement, **India becomes the fourth country** after the **United States of America, Russia, and China** to successfully **conduct satellite docking operations**.

ARTICLE 355 OF THE INDIAN CONSTITUTION



- It is a **part of emergency provisions** contained in **Part XVIII** of the Constitution of India, from Article 352 to 360.

- It empowers the Centre to take necessary steps to **protect a state from any kind of threat**, be it internal or external.
- It allows the Centre to **take charge of a state's law and order enforcement without dismissing the government**, and is considered a **step below the President's rule**, which gives full control to the President.
- The provision is designed to **ensure that the government can act swiftly** and decisively in the event of any disturbance or threat to the peace and security of the country.

Exact definition:

- The exact definition of Article 355 in the Constitution of India is, “It shall be the **duty of the Union to protect every State against external aggression and internal disturbance** and to ensure that the government of every State is carried on in accordance with the provisions of this Constitution.”

JUDICIARY AND CONSTITUTIONAL BOUNDARIES: VICE-PRESIDENT'S REMARKS SPARK NATIONAL DEBATE

Recent Remarks by Vice-President Dhankhar

- At a recent public event, Vice-President **Jagdeep Dhankhar** voiced serious concerns regarding various facets of the Indian judiciary's functioning, leading to widespread discussion.
- His observations covered five core aspects:
 - **Transparency in Judicial Inquiries:** He criticized the opaque nature of internal inquiries into judicial misconduct, especially referencing an incident involving recovery of large amounts of cash from a Delhi High Court judge's residence.

- **Judicial Directives to Constitutional Authorities:** VP questioned a recent Supreme Court judgment that directed timelines for action by Governors and the President on pending state legislation. The court had issued a writ of mandamus, holding high constitutional offices accountable in cases of undue delay.
- **Accountability Deficit:** The Vice-President emphasized that unlike the executive and legislature, the judiciary lacks a mechanism to be directly answerable to the public.
- **Size of Constitution Benches:** He suggested re-evaluating the provision under **Article 145(3)**, which mandates a minimum of five judges to adjudicate constitutional questions, noting the current strength of the Supreme Court is 34, unlike just 8 when the Article was framed.
- **Use of Article 142:** The Vice-President opined that the sweeping powers under Article 142 are sometimes used in ways that undermine the principles of representative democracy.

Mixed Reactions and Constitutional Interpretation

- The Vice-President's statements have triggered divided reactions across the political and legal spectrum.
- While some see this as overreach from a high constitutional office, others view it as a long overdue criticism reflecting broader public sentiment.

Judicial Independence and Constitutional Sovereignty

- The Indian constitutional system blends British-style Parliamentary sovereignty and American-style judicial supremacy.
- The Indian judiciary, through judicial review, upholds constitutional supremacy, enabling it to examine the legality of legislative and executive actions.
- This synthesis is foundational to Indian democracy. While transparency and inclusiveness in appointments (via a potential reformed National Judicial Appointments Commission) may help restore public faith, it must not come at the cost of judicial independence.



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NEW PATHWAYS FOR INDIA'S CREATIVE ECONOMY

India's Creative Economy: Promise and Paradox

- India has already demonstrated **its capacity to contribute meaningfully to the global creative economy.**
- In 2019, the country's creative goods and services exports totalled around **\$121 billion**, with creative services comprising the bulk at nearly \$100 billion.
- Within goods, **the design sector accounted for 87.5% of exports**, while traditional arts and crafts contributed approximately 9%.
- As of 2024, **India's creative industry is valued at \$30 billion and employs about 8% of the workforce.** Creative exports grew by 20% in the previous year, generating more than \$11 billion.
- While urban centres attract substantial investment in traditional creative sectors, **there remains a disconnect between rural creativity and its translation into scalable innovation.**

Understanding Creativity and Innovation

- **Creativity is a precursor to innovation**, the spark that ignites novel ideas.
- Research categorises creativity into four types: **deliberate-emotional, deliberate-cognitive, spontaneous-emotional, and spontaneous-cognitive.**
- Furthermore, **creativity may be endogenous (internally motivated) or exogenous (externally triggered), and can arise episodically during crises or climate events.**
- **Local innovations** in India often stem from the deliberate and spontaneous cognitive domains.
- However, **the conversion of creative concepts into impactful innovations is stymied by a lack of institutional support** and investment.
- While creativity can thrive independently, **innovation demands a structured ecosystem for development, scaling, and market integration.**

The Way Forward

- **Bridging the Creativity-Innovation Gap**
 - India's creative wealth is evident, but its **potential is often left unrealised due to the absence of a robust mechanism** to convert ideas into tangible innovations.
 - Grassroots organisations like the **Grassroot Innovations Augmentation Network (GIAN)** have made **laudable efforts** to spotlight local ingenuity, from pedal-powered washing machines to the **MittiCool** clay refrigerator.
 - Yet, **many such initiatives remain isolated successes without broader institutional or commercial backing.**
- **Policy Interventions**
 - **Enhanced Investment:** Direct more capital towards grassroots and informal innovations, including those tackling climate adaptation and sustainable development.
 - **IPR Reform:** Strengthen intellectual property rights (IPR) frameworks to protect indigenous and community-led innovations.
 - **District-Level Initiatives:** Expand the successful "**One District One Product**" initiative to include a parallel "**One District One Innovation**" program.
 - **Public-Private Collaboration:** Facilitate partnerships between local innovators, private investors, research institutions, and government bodies to foster innovation pipelines.
- **Community-Driven Creativity**
 - Despite the climate tech sector in India receiving **nearly \$2.85 billion in 2023**, **grassroots innovation receives a disproportionately small share.**
 - **Redirecting even a fraction of these funds** toward community-driven creativity could yield **transformative socio-economic and environmental outcomes.**



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INDIA, CHINA AT 75 — A TIME FOR STRATEGY, NOT SENTIMENT

- As India and China commemorate 75 years of diplomatic relations, **the occasion marks more than a ceremonial milestone; it represents a pivotal inflection point** in both Asian and global geopolitics.
- **The bilateral relationship**, once nurtured by idealistic visions of pan-Asian solidarity, has evolved into a strategic balancing act shaped by contested borders, economic interdependence, and geopolitical rivalry.
- Yet, **despite the deep mistrust, the India-China equation remains layered with opportunities for cooperation**, demanding a nuanced and forward-looking policy framework.

Indian Foreign Policy Challenges with Respect to China

- **The China Lens: A Structural Challenge**
 - China has emerged as the most consequential external factor shaping Indian foreign policy.
 - Nearly every strategic decision, ranging from border security to trade diversification, is **influenced by what is termed the China lens**.
 - This relationship is **defined by a duality: the need to deter aggression while preserving diplomatic channels; safeguarding sovereignty while acknowledging economic entanglements**; and navigating competition while maintaining coexistence.
 - **The legacy of the 1962 war**, compounded by the **deadly 2020 Galwan Valley clash**, has left deep scars and **recalibrated India's China policy**.
 - Today, the Line of Actual Control (LAC) remains tense and heavily militarised, **with more than 60,000 troops stationed in Eastern Ladakh**.
 - **Infrastructure buildup on both sides reflects a long-term military posture**, underscoring that engagement cannot obscure the reality of persistent strategic divergence.

The Way Forward

- **Towards a Coherent China Policy**
 - **Military Readiness** – Ensuring deterrence along contested borders without provoking escalation.
 - **Economic Diversification** – Reducing critical dependencies while maintaining trade where beneficial.
 - **Diplomatic Engagement** – Sustaining dialogue through multilateral platforms and bilateral mechanisms.
 - **Narrative Control** – Shaping regional and global perceptions through strategic communication.
 - As Foreign Secretary Vikram Misri has articulated, the path forward must be guided by the “**three mutuals**”—mutual respect, sensitivity, and interest.
- **A Moment for Strategy, Not Sentiment**
 - As India and China mark 75 years of bilateral ties, **nostalgia must give way to strategic clarity**.
 - **China will remain a structural challenge**, but it also functions as a mirror, reflecting India’s aspirations, capabilities, and constraints.
 - **India’s objective must be to carve out an autonomous, influential role** in a world defined by flux and rivalry.

Conclusion

- In managing its relationship with China, **India must not see itself hemmed in by competition but empowered by it**.
- The framework of ‘**competitive coexistence**’ offers a realistic and responsible **roadmap**, one that acknowledges rivalry while working to prevent friction from igniting conflict.
- **In that delicate balance lies the opportunity for India to lead, not just react**, in a reshaped global order.



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YAK



- **Scientific Name:** Wild yak: *Bos mutus*; Domesticated yak: *Bos grunniens*
- **Habitat:** Wild yaks inhabit alpine tundra at altitudes of 5000 to 7000 meters. They thrive in environments such as alpine meadows, alpine steppes, and desert steppes.
- **Geographic distribution:** Found throughout the Himalayan region, Tibetan plateau, Mongolia, and parts of South-Central Asia.
 - In India, yaks are reared in Arunachal Pradesh, Sikkim, Himachal Pradesh, Uttar Pradesh, and the union territories of Jammu & Kashmir and Ladakh.

Physical Characteristics of Yak

- Wild yaks are around 2 meters tall at the shoulder, while domesticated yaks are smaller. They have long, shaggy hair for insulation and curved horns, with larger horns in males.
- Their lung capacity is nearly three times that of cattle, with smaller red blood cells, making them highly adapted to high-altitude, low-oxygen environments.
- Yaks are herbivorous, feeding on grasses and alpine plants.
- **Uses and Socio-Economic Importance:**
 - Domesticated yaks are used for milk, meat, and as pack animals, transporting goods across mountain passes.
 - They are also used in climbing and trekking expeditions, capable of ascending up to 20,000 feet.
 - Yaks are often crossbred with domestic cattle to produce dzo or chauri gai, which are adaptable hybrids used in agropastoralism.
- **Conservation Status:** Wild yaks are listed as 'Vulnerable' on the IUCN Red List, indicating the need for urgent conservation efforts to protect their habitats and genetic diversity.

BULLSEYE GALAXY



- The galaxy's **distinct ringed structure** is believed to have formed approximately **50 million years ago** due to a **head-on collision** with a **blue dwarf galaxy**.
- This **head-on collision** is believed to have caused **rippling gas waves**, leading to **star formation** in ring-like patterns.
- This discovery was termed “**serendipitous**” as ringed galaxies usually have only two or three rings.
- **Observed Through Multiple Telescopes:**
 - The **Hubble Space Telescope** confirmed **eight rings**.
 - The **M. Keck Observatory** in Hawaii confirmed a **ninth ring**, revealing the full structure.
- The Bullseye Galaxy spans **250,000 light-years** in diameter — nearly **5 times larger** than the Milky Way. Despite a current separation of **130,000 light-years**, a **thin trail of gas** still connects it to the colliding dwarf galaxy.
- The Bullseye may evolve into a **Giant Low Surface Brightness (GLSB) Galaxy**, a **rare, massive galaxy type** believed to hold **clues about dark matter**.
- **Giant Low Surface Brightness (GLSB) Galaxy features:**
 - Composed of **diffuse, low-density stellar disks**.
 - Contain **large amounts of neutral hydrogen** but exhibit **low star formation rates**.
 - Include examples like **Malin 1**, which is **5 times wider** than the Milky Way.
- **GLSB galaxies** are believed to be **rich in dark matter**, and their **unusual mass distribution** challenges the **Standard Model of Cosmology**.
- These galaxies display a **uniform central mass** instead of a dense core, suggesting discrepancies in current models.