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7. Short News -

China's Shanxi Province Coal Mine Blast

Context - A major gas explosion at the Liushenyu coal mine in Shanxi Province, China, killed over 90 miners, prompting rescue operations and a high-level investigation.

Key Highlights of the Accident

1. **Massive Casualties and Rescue** - Around 247 workers were underground during the explosion; over 200 miners were rescued while many casualties were reported. Chinese President Xi Jinping ordered urgent rescue operations and accountability for those responsible.
2. **Cause** - Preliminary reports indicate a gas explosion, a common hazard in underground coal mining operations.

What causes Gas Explosion in Coal Mines?

Coal mine explosions typically require three elements - accumulated flammable gases, oxygen, and an ignition source.

1. **Methane Buildup** - Methane is naturally released during coal extraction. Inadequate ventilation or poor methane drainage systems can cause the gas to reach explosive concentrations in the air.
2. **Ignition Sources** - Sparks or flames from electrical equipment, blasting, friction from cutting machines, or open flames can instantly ignite the methane-air mixture.
3. **Coal Dust** - Fine coal dust suspended in the air is highly combustible.

If an initial methane explosion occurs, it often violently stirs up and ignites this dust, causing catastrophic coal dust explosions.

About China's Coal Production

1. China remains the world's largest producer and consumer of coal, heavily relying on it for electricity generation and industrial activity.
2. Coal continues to play a central role in China's energy mix despite increasing investments in renewable energy. Coal accounts for roughly 55% to 61% of China's total primary energy supply and about 50% to 60% of its total electricity generation.
3. Shanxi Province is China's leading coal-producing region, contributing nearly one-third of the country's annual coal output. The province contains extensive coal reserves and employs hundreds of thousands of miners.

Smart Border Project

Context - The Ministry of Home Affairs (MHA) will launch the Smart Border Project to strengthen surveillance and make India's borders with Bangladesh and Pakistan impenetrable and to eliminate illegal infiltration.

Key Points about the Smart Border Project

1. **Integrated Border Grid** - The government plans to create an impregnable border security grid within the next year under the Smart Border concept. The initiative reflects a move away from traditional border guarding methods towards technology-driven and information-based security operations.
2. **Technology Integration** - The project will deploy drones, radars, modern cameras and other advanced surveillance technologies for border management.

3. **Expanded BSF Jurisdiction** – The government has extended BSF jurisdiction from 15 km to 50 km along international borders to improve border management.
4. **Coordination-Based Security** – The project stresses stronger coordination among State Police, Central Armed Police Forces (CAPFs), intelligence agencies, district administrations and the Narcotics Control Bureau.
5. **Information-Driven Operations** – Authorities will map infiltration routes, identify smuggling networks and systematically shut down illegal entry channels.
6. **Community Participation** – BSF personnel have been encouraged to strengthen coordination with local communities, village-level officials and district administrations for effective border security.

Significance of the Smart Border Project

1. **Link with Vibrant Villages Programme** – Strengthens border-area development and security through convergence with the Vibrant Villages Programme.
2. The Vibrant Villages Programme is a Centrally Sponsored Scheme launched in 2023 to improve infrastructure, connectivity and livelihood opportunities in strategically important villages along India's northern border areas.

International Big Cat Alliance (IBCA)

Context – Saudi Arabia became the newest member of the International Big Cat Alliance (IBCA).

About International Big Cat Alliance (IBCA)

1. IBCA is an intergovernmental alliance dedicated to the conservation of seven major big cat species globally.
 1. The alliance focuses on Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma. Tiger, Lion, Leopard, Snow Leopard and Cheetah are found in India.
2. **Launch** – IBCA was launched on 9 April 2023 by Prime Minister Narendra Modi during the 50th anniversary celebrations of Project Tiger (1973)
 1. It formally became a treaty-based intergovernmental organisation in January 2025.
3. **Budget** – The Union government has allocated Rs 150 crore for the purpose from 2023-24 to 2027-28.

Objectives –

1. Foster international cooperation for the conservation of seven big cat species.
2. Enhance knowledge exchange on big cat threats and solutions.
3. Build the capacity of range countries for effective big cat management.
4. Raise global awareness and promote outreach activities about the importance of seven big cat conservation.
5. Mobilize resources and explore synergy with international bodies associated with conservation.
4. **Members** – Membership is open to all United Nations member countries, especially the 95 big cat range countries.
 1. As of May 2026, there are 26 members India, Bhutan, Nepal, Cambodia, Russia, Sri Lanka and Saudi Arabia are among the participating members.

Organisational Structure

2. **Assembly** – The Assembly is the highest decision-making body comprising all member states. The first Assembly meeting of IBCA was held in New Delhi to approve the framework agreement, governance structure and global conservation roadmap.
3. **Secretariat** – The permanent Secretariat and headquarters of IBCA are located in New Delhi, India.

4. Director-General – The Director-General serves as the chief executive and administrative head of the alliance.
5. **Significance** – IBCA strengthens India's global environmental leadership while promoting transboundary wildlife conservation, biodiversity protection and sustainable ecosystem management.

Goddard Astronautics Award 2026

Context – India's Chandrayaan-3 mission received the 2026 Goddard Astronautics Award for its historic achievements in lunar exploration and space technology.

About Goddard Astronautics Award

1. The Goddard Astronautics Award is among the highest international honours recognising outstanding achievements in astronautics and space exploration.
2. Legacy – It commemorates Robert H. Goddard, regarded as a pioneer of modern rocketry and liquid-fuel rocket technology.
3. Organised By – The award is presented annually by the American Institute of Aeronautics and Astronautics (AIAA).
It is generally conferred during the AIAA ASCEND (Accelerating Space Commerce, Exploration, and New Discovery) conference held in Washington, D.C.
4. Criteria – The award recognises individuals or teams for exceptional contributions to astronautics, space science and aerospace engineering.

About Chandrayaan-3

1. Chandrayaan-3 is India's third lunar exploration mission developed by the Indian Space Research Organisation (ISRO).
2. Launch – The mission was launched on 14 July 2023 from the Satish Dhawan Space Centre, Sriharikota.
 1. Chandrayaan-3 achieved a successful soft landing on the Moon on 23 August 2023.

Key Achievements of Chandrayaan-3

2. Historic South Pole Landing – Chandrayaan-3 became the first mission to achieve a soft landing near the Moon's south polar region.
3. India became the fourth country to successfully land on the lunar surface.
4. Discovery of Lunar Elements – The Pragyan rover confirmed the presence of sulphur and detected several elements including iron, calcium, aluminium and titanium.
5. Advancement in Space Technology – The mission validated India's capability in autonomous landing, navigation and rover mobility on rugged lunar terrain.
3. Scientific Importance of Lunar South Pole – The south polar region contains permanently shadowed craters believed to possess water ice and valuable resources for future lunar missions.