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Ambrosia Beetle–Fungus Threat to Rubber Plantations

Identification of the Problem Kerala's rubber trees are facing severe leaf fall and drying due to a pest attack. The culprit: Ambrosia beetle (Euplatypus parallelus) and two fungi Fusarium ambrosia and Fusarium solani. This is the first time F. solani has been found associated with adult ambrosia beetles. Beetle-Fungus Mutualism Ambrosia beetles live symbiotically with certain fungi called ambrosia fungi. The beetles bore tunnels (galleries) into tree bark and introduce fungi there. The fungi feed on the wood and release nutrients; beetles and their larvae feed on fungal mycelia. Fungi also release enzymes that weaken the wood, allowing deeper penetration.

Damage to Rubber Trees Structural weakening of wood and xylem blockage. Severe leaf fall, drying of the trunk, and in some cases, tree death. Decline in latex production, leading to economic losses for farmers. Control and Management Challenges Fungal infections are hard to control because: They reach deep inside the plant tissues. Chemical fungicides/insecticides often don't reach these internal areas. Infections block the xylem vessels, hampering nutrient transport. Treatments used include: Use of antifungals. Removal and destruction of infected parts. Trapping beetles as a preventive measure. Wider Impact and Host Range E. parallelus is an invasive species, capable of infecting over 80 species of broadleaf trees. This includes economically important crops like cashew, teak, coconut, coffee, and mango. The fungi can evolve to infect more species, broadening their impact.

Health and Ecosystem Risks Fusarium fungi are opportunistic pathogens affecting not just plants, but also humans, frogs, spiders, etc. They can be dangerous for plantation workers with weak immunity. National Economic Concern India ranks 6th globally in rubber production; Kerala accounts for 90% of it. Damage to rubber plantations threatens livelihoods and export potential. Current phytosanitary strategies (used for conifers) may not be effective for broadleaf trees like rubber.

Where is the Centre of the Universe?

No Defined Centre: The universe does not have a centre, top, bottom, or middle. Every point in the universe appears to be moving away from every other point. Expanding Universe: The universe is expanding uniformly in all directions. Galaxies that are millions of light years away are all moving away from Earth, and Earth is also moving away from other points in space. Big Bang Misconception: People often wrongly assume the Big Bang happened at a central point. In reality, space itself began expanding everywhere at once not from a single location in pre-existing space.

Not Inside a Bigger Space: The universe is not expanding into something else. There

is no outer space where the universe resides space and time are part of the universe itself. Perception vs. Reality: The human brain is used to three-dimensional spaces, where objects have shapes, edges, and centres. This leads people to expect the universe to behave like a bubble or a sphere with a centre.

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Medog Hydropower Station

Officially named the Medog (Motuo) Hydropower Station, it is located on the Yarlung Tsangpo River in Mêdog County, Tibet Autonomous Region, near the Arunachal Pradesh border Situated in the Yarlung Tsangpo Grand Canyon—the deepest land canyon globally, with a drop of 2,000 m over 50 km, ideal for hydropower generation Located in a seismically active Himalayan zone, prone to earthquakes and landslides. Reservoir-induced seismicity is a major concern Controls the flow of Brahmaputra essential for irrigation, fisheries, livelihoods in India/Bangladesh. Disruption of sediment and water f low could lead to reduced agricultural yields, biodiversity loss, and water insecurity downstream.

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Spiritual Geopolitics in the Himalayas: India vs. China

Overview of the Conflict The real geopolitical tension between India and China is playing out not in oceans but in the Himalayas, centered around Buddhism. Religious institutions and figures are now strategic assets, particularly in Ladakh, Tawang (Arunachal), Bhutan, and Nepal. China's Strategy: Buddhist Statecraft Since the 1950s, China has systematically tried to dominate Tibetan Buddhism: Marginalising or exiling independent lamas. Claiming exclusive rights to recognize reincarnations of lamas (e.g., Dalai Lama). In 2007, China made it official: only the state can approve any "Living Buddha". China maintains a state-run database of reincarnate lamas, monitors monasteries, and uses Buddhist diplomacy to increase influence in borderlands. Builds infrastructure (e.g., roads, shrines) to support its soft power expansion

India's Response: Buddhist Diplomacy India hosted the Dalai Lama and Tibetan government-in-exile since 1959, gaining moral ground. Serious engagement with Buddhist diplomacy only started in the last decade: Promotes heritage as Buddha's birthplace. Funds pilgrimage circuits and Buddhist events. India's efforts are fragmented compared to China's centralized state strategy. Dalai Lama Succession Crisis The current 14th Dalai Lama, who turned 90 in July, intends to reincarnate outside Chinese control, likely in India. China plans to appoint its own Dalai Lama via the "Golden Urn" method. This could result in two rival Dalai Lamas: One recognised by the exile community and global Buddhists. One installed by Beijing in Lhasa under military control. This split may force Buddhist communities in the Himalayas to choose sides, altering regional loyalties.

Territorial Implications In Arunachal Pradesh, China claims Tawang as Tibetan

territory, using spiritual logic. In Nepal, China is heavily investing in Buddhist infrastructure, especially Lumbini. In Bhutan, China is quietly cultivating monastic ties. Internal Buddhist Disputes as Strategic Fronts The Karma Kagyu school has two rival Karmapas, backed respectively by China and India. The Dorje Shugden sect, banned by the Dalai Lama, receives Chinese support to weaken the exile influence. Strategic Significance Spiritual allegiance = political alignment in remote Himalayan areas. Soft power is equivalent to hard power in high-altitude regions where conventional influence is hard to project. A monastery changing sides or a lama's loyalty shift can alter the strategic balance in a region.

Looking Ahead Post-Dalai Lama succession will be a global geopolitical issue. Countries like Mongolia, Sri Lanka, Nepal, and Bhutan may be drawn into the conflict. Hosting the next Dalai Lama would be a strategic win for India, but may provoke intense Chinese retaliation. Conclusion The Himalayas are the new front of India-China rivalry. Buddhist institutions, once purely religious, are now key players in strategic statecraft. The next chapter in this contest could be determined not by military might, but by spiritual legitimacy and religious diplomacy.

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India's Nuclear Energy Plans

Ambitious Target Set in Union Budget 2025-26 Goal: Achieve 100 GW nuclear power capacity by 2047 (currently at 8.18 GW). Aligned with: Viksit Bharat 2047 vision. India's Net Zero by 2070 commitment. Nuclear Energy Mission & Small Modular Reactors (SMRs) ₹20,000 crore allocated to develop at least 5 indigenously designed SMRs by 2033. SMRs will enhance efficiency, reduce costs and deployment time. Private and foreign investment essential, but current legal structure needs reform.

Legislative & Regulatory Framework Changes Needed Amendments proposed to: Atomic Energy Act, 1962. Civil Liability for Nuclear Damage Act (CLNDA), 2010. Reforms required in: Ownership norms. Liability clauses. Tariff regulation. Independent safety oversight. Historical Background: India's Nuclear Journey 1954: Homi Bhabha proposed 8 GW by 1980. 1956: Apsara, Asia's first research reactor. 1963: Tarapur power reactors set up. India stayed out of NPT and conducted 1974 PNE test. Global isolation & technology denial slowed progress. Indigenous development of PHWR (220 MW) → scaled to 700 MW (Kakrapar, 2024).

Post-1998 Era: Global Engagement India gained acceptance as a responsible nuclear power. Got NSG waiver to import fuel/reactors. CLNDA created issues with external suppliers (except Russia at Kudankulam). Energy Demand & Climate Goals India needs: Per capita income to rise from $2,800 to $22,000. Electricity capacity to grow 5x from current 480 GW. Current capacity split: 50% fossil fuels, 50% renewables. Renewables contributed only 240 TWh of 2030 TWh in 2024. Coal accounts for 75% of power generation.

Global Push for Nuclear Energy COP28 Declaration (Dubai, 2023): Triple nuclear capacity. IAEA & World Bank (2024): Agreement to support nuclear in developing countries. World Bank recognizes nuclear as base load power critical for modern economies. India's 3-Track Nuclear Strategy SMR Development: Using standardised PHWR design. Scale-up 700 MW PHWRs: Fast track NPCIL projects (e.g., land acquisition, licensing). Restart talks with France & US: Revive 15-year stalled negotiations. Challenges in Financing & Policy Nuclear projects costlier upfront: ~$2 million/MW vs. $1 million/MW for coal. NPCIL budget is only $1.2 billion annually. Need private/foreign investment to meet 100 GW target.

Key Policy & Legal Issues Who will own/operate nuclear plants? NPCIL only, or private players too? Fuel supply & waste management: Who is responsible? Amend CLNDA liability clauses affecting suppliers/operators. Tariff setting: Need clarity under Electricity Act vs Atomic Energy Act. Safety regulator (AERB) needs to be made a truly independent statutory body. Financing & Incentive Structure Nuclear energy not considered renewable → ineligible for green subsidies. Suggested reforms: Reclassify nuclear as green/low-carbon energy. Tax incentives, viability gap funding, FDI up to 49%. Long-term power purchase agreements

Joint Ventures & Way Forward NPCIL revived JV with NTPC to build four 700 MW units in Rajasthan. Land acquisition underway. JV with Rural Electrification Corporation (REC) also planned. Both are government-owned → still lack private sector dynamism. Conclusion Nuclear energy is essential for India's energy security and climate targets. Government needs to implement bold reforms in laws, investment policy, and regulation. Private and foreign sector entry is key to scaling up from 8 GW to 100 GW by 2047.

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India-U.S. Trade Deal Talks – Agriculture Is the Main Obstacle

Deadline approaching: The U.S. and India have been negotiating a trade deal, with an informal deadline of August 1. However, agriculture remains a major roadblock. India's stand: India does not want to open up its agriculture sector to foreign imports, as it could hurt Indian farmers. U.S. interest: The U.S. is pushing India to open its agriculture market, as this deal could set an example for its future trade agreements with the EU and Japan. Negotiation status: Indian officials say they've put forward all that India can offer. Now it's up to the U.S. to decide. Talks are not dead, and a surprise deal is still possible.

Why agriculture matters: The issue is not just about trade. If the U.S. makes a deal with India that excludes agriculture, it might affect future negotiations with the EU and Japan, which the U.S. wants to avoid. U.S. actions in other countries: In past deals with Indonesia and Vietnam, the U.S. President announced unexpected agreements after direct phone calls, surprising local negotiators. Something similar could happen with India too. Bigger agreement in progress: While the mini-deal

might not happen before August 1, India is aiming for a larger Bilateral Trade Agreement (BTA) by September or October. Other hurdles: Besides agriculture and dairy (from India's side), the U.S. is unwilling to cut tariffs on auto parts, which is another challenge in finalizing the deal

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"Towards Resilient and Prosperous Cities in India" (World Bank Report)

Urban Potential & Growth Indian cities are expected to contribute 70% of new jobs by 2030. Urban population projected to double by 2050 to 951 million. India will need 144 million new homes by 2070 to meet urban housing demand. Risks from Extreme Weather Heatwaves and Urban Heat Islands: City centres already record 3–4°C higher temperatures than surrounding areas. Urban flooding risk: Rapid construction is reducing cities' capacity to absorb storm water. Extreme weather could cause billions of dollars in future economic losses if unaddressed

Cities Studied 24 Indian cities studied in detail, including: Chennai, Indore, New Delhi, Lucknow, Surat, and Thiruvananthapuram. Urban Infrastructure Opportunity More than 50% of 2050 urban infrastructure is yet to be built. This provides India with a critical opportunity to develop green and resilient infrastructure

Key Recommendations : Invest in green and climate resilient development: Sustainable housing Climate-smart transport Enhanced municipal services Implement programs to address: Extreme heat (cool roofs, green spaces) Urban floods (storm water drainage, early warning systems) Focus on protecting vulnerable populations from climate risks. Encourage policy reforms and governance to support resilience planning.

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Transitory' Inflation Meaning

Transitory inflation means a temporary rise in prices of goods and services. It is not expected to last long and usually fades away on its own as supply-demand imbalances settle. Key Features of Transitory Inflation: 1. 2. 3. Short-term in nature – Happens due to temporary disruptions (e.g., oil price spike, supply chain issues). Does not require strong policy changes – Central banks usually wait and watch rather than increase interest rates. Linked to specific events – Like natural disasters, wars, or sudden reopening of economies after lockdowns.

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