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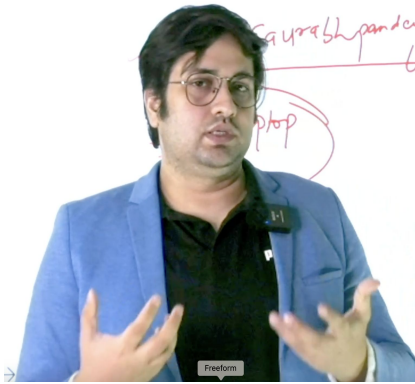


By saurabh Pandey

THE HINDU

Target Mains -2025/26 -

Q ‘’ What is strategic partnership? Explain the steps taken to promote strategic partnership between india and kuwait .

Q. Consider the following statements. (DTE)

1) Salinity stress can lead to crops yield losses of up to 70 per cent.

2) Currently ten countries account for 70 per cent of the world's salt-affected soils.

Which of the given statements is/are incorrect.

A) 1 Only

B) 2 Only

C) Both 1 and 2

D) Neither 1 or 2

India, Kuwait lift ties to 'strategic partnership'

The two sides sign a memorandum of understanding for exchange of defence personnel, exercises, supply of military equipment; they ink an MoU on cultural exchange and agreement on sports cooperation; Prime Minister holds discussions with Kuwaiti Amir, invites the Gulf country's investment body to 'look at new opportunities' in India

Kallol Bhattacherjee
NEW DELHI

India and Kuwait on Sunday signed a memorandum of understanding (MoU) on defence cooperation that will allow for exchange of defence personnel, joint exercises, and supply of military equipment.

The MoU was part of the outcomes firmed up during Prime Minister Narendra Modi's two-day visit to the energy-rich Gulf kingdom, which bestowed its highest honour on him.

Mr. Modi announced that the two sides had lifted the relationship to the level of "strategic partnership". The conversation between Mr. Modi and the Amir of Kuwait, Sheikh Meshal Al-Ahmad Al-Jaber Al Sabah, covered areas such as pharmaceuticals, IT, fintech, infrastructure, and security.

Earlier, India hosted the Foreign Minister of Kuwait, Abdullah Ali Al-Yahya, in New Delhi on December 3 and 4.

Economic ties

Mr. Modi met with the Prime Minister of Kuwait, Sheikh Ahmad Al-Abdullah Al-Ahmad Al-Sabah, and discussed ways to deepen economic ties.

He invited a delegation from the Kuwaiti Investment Authority and other notables in the Kuwaiti economy to visit India and "look at new opportunities in the fields of energy, defence, medical devices, pharma, foodparks," the External Affairs Ministry said in a press note.

Prime Minister Narendra Modi receiving Kuwait's highest honour from the Amir, Sheikh Meshal Al-Ahmad Al-Jaber Al Sabah. PTI

The two Prime Ministers witnessed the signing of the MoU on bilateral defence cooperation. The press note said the MoU will "institutionalize bilateral cooperation in the area of defence."

Apart from the MoU on defence, the two sides signed an MoU on cultural exchange and agreement on sports cooperation. They welcomed the recent sealing of the Joint Commission for Cooperation under which new Joint Working Groups in trade, investment, education, technology, agriculture, security and culture have been set up.

The two sides already have Joint Working Groups (JWGs) on health, manpower, and hydrocarbons.

Mr. Modi reached Kuwait on Saturday and visited the Gulf Spic Labour Camp where more than 90% of the inhabitants are from India.

Cultural connection

He also met translators Abdulla Al Baroun and Abdul Lateef Al Nesef who have translated the Ramayana and Mahabharata into Arabic. Over the decades, several Gulf and Arab countries have translated the Indian epics and the work of the two translators have added to that tradition.

"I am honoured to be conferred the Mubarak Al-Kabeer Order by His Highness the Amir of Kuwait, Sheikh Meshal Al-Ahmad Al-Jaber Al Sabah. I dedicate this honour to the people of India and to the strong friendship between India and Kuwait," Mr. Modi said after receiving the honour during the visit.

The honour is bestowed generally on Heads of state and foreign sovereigns and to members of foreign royal families as a sign of friendship. Former U.S. President Bill Clinton and King Charles were among the previous recipients of the honour.

Mr. Modi also met the Crown Prince of Kuwait Sheikh Sabah Al-Khaled Al-Hamad Al-Mubarak Al-Sabah.

Professor Zikrur Rahman, former diplomat who has served in multiple Arab countries, pointed out that Kuwait was the only Gulf Cooperation Council country that Mr. Modi had not visited earlier and the visit therefore was significant as Kuwait has maintained a friendly policy towards India over the past several decades.

"PM Modi has visited all other Gulf countries barring Kuwait and it was time that he also covered Kuwait. Starting with the end of the Cold War and the first Gulf war, Kuwait has maintained a positive attitude towards India and therefore the visit at this time will be helpful for India," said Prof. Rahman.

Topic → India-Kuwait Relations: A Strategic Partnership

Key Developments in India-Kuwait Relations

🇮🇳 Defense Cooperation MoU: India and Kuwait have signed a memorandum of understanding to enhance defense cooperation, which includes personnel exchange, joint exercises, and military equipment supply.

🤝 Strategic Partnership: The bilateral relationship has been elevated to a "strategic partnership" during Prime Minister Narendra Modi's visit to Kuwait.

💼 Sectoral Discussions: Key discussions between Mr. Modi and the Amir of Kuwait covered pharmaceuticals, IT, fintech, infrastructure, and security.

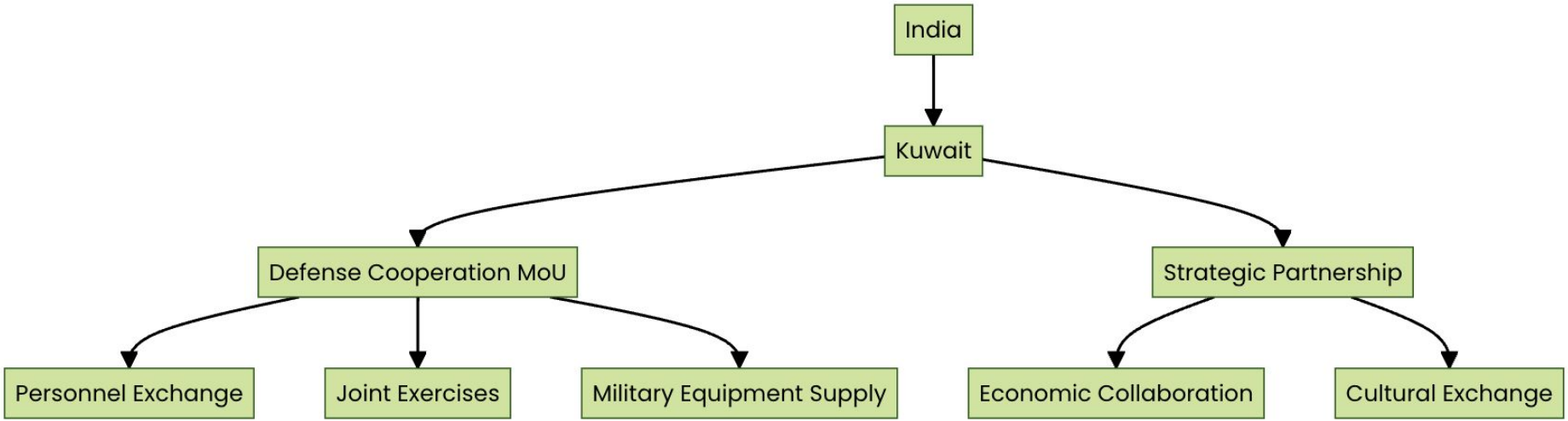
📈 Investment Opportunities: Mr. Modi invited Kuwaiti investors to explore opportunities in India's energy, defense, medical devices, pharma, and food parks sectors.

🎖️ Recognition: Mr. Modi was awarded the Mubarak Al-Kabeer Order, Kuwait's highest honor, highlighting the strong friendship between the two nations.

🌍 Significant Visit: This visit marked Mr. Modi's first to Kuwait, the only Gulf Cooperation Council country he had not previously visited.

📚 Cultural Exchanges: Emphasis was placed on cultural exchanges, with MoUs signed for cultural and sports cooperation, and discussions on translating Indian epics into Arabic.

Strategic Partnership Overview:



Summary: India and Kuwait have strengthened their ties through a defense cooperation MoU and elevated their relationship to a strategic partnership during PM Modi's visit, which also included discussions on economic and cultural collaboration.

What is Strategic Partnerships??

🤝 Strategic Partnership: A formal alliance between two or more organizations to pursue shared objectives.

🎯 Leveraging Strengths: Focus on utilizing each other's strengths for mutual benefits.

📈 Enhancements: Can improve market reach, product offerings, and foster innovation.

🔄 Resource Sharing: May involve sharing resources, joint marketing, or collaborative R&D.

🛠️ Flexibility: Partnerships can evolve over time with changing business needs.

🌍 Industry Presence: Common in technology, healthcare, and finance sectors.

📊 Success Factors: Effective communication and trust are crucial.

Summary: A strategic partnership is a collaborative alliance between organizations aimed at achieving shared goals and mutual benefits

WHAT IS IT?

SpaDeX: meeting in space

SpaDeX is the name of a new mission to be flown by the Indian Space Research Organisation (ISRO). During the mission, two satellites will be launched into orbit around the earth, where they will demonstrate technologies to dock and undock while in motion.

ISRO needs to master in-space docking so that satellites launched in separate rocket launches can link up to perform more sophisticated tasks. The technology will be essential for the 'Bharatiya Antariksh Station,' a new India-made space station ISRO has begun work on.

If the SpaDeX test is successful, India will become the fourth country in the world to have a space programme capable of docking in space. The satellites for the SpaDeX mission will be launched onboard the PSLV C60 mission. The launch is expected to happen on December 30, 2024.

Each of the spacecraft weighs about 220 kg. The rocket will launch them simultaneously but independently into a 470-km-wide circular orbit at a 55° inclination, with a local time cycle of about 66 days.

The docking manoeuvre will be SpaDeX's primary objective.

The two satellites, dubbed 'Chaser' and 'Target', involved in the ISRO SpaDeX mission. ISRO

Once it has been accomplished, the two satellites will proceed to the secondary objectives: "the transfer of electric power between the docked spacecraft, which is essential for future applications such as in-space robotics, composite spacecraft control, and payload operations after undocking," per an ISRO statement.

With agency inputs

-The Hindu Bureau

Topic → SpaDeX Mission Overview

Mission Details

🚀 Mission Name: SpaDeX, a pioneering mission by the Indian Space Research Organisation (ISRO), focuses on demonstrating in-space docking technologies.

🌌 Satellite Launch: The mission involves launching two satellites into Earth's orbit, scheduled for December 30, 2024.

🔗 In-Space Docking: Achieving in-space docking is essential for connecting satellites launched separately, facilitating more complex operations and aiding the development of the Bharatiya Antariksh Station.

🌍 Global Standing: Success in this mission would position India as the fourth country to achieve in-space docking capabilities.

📦 Launch Vehicle: The satellites will be launched via the PSLV C60 mission, each with a weight of approximately 220 kg.

🌐 Orbit Details: The satellites will be placed in a 470-km-wide circular orbit at a 55° inclination, with a local time cycle of about 66 days.

⚡ Secondary Objectives: Post-docking, the satellites will transfer electric power, crucial for future applications like in-space robotics and payload operations.

Summary: The SpaDeX mission by ISRO is set to demonstrate in-space docking with two satellites, marking a significant leap in India's space capabilities.

The global warming fight has a challenge for India

D.P. Srivastava

a former Ambassador and Coordinator of the Vivekananda International Foundation (VIF) Task Force on India's Energy Transition in a Carbon-Constrained World

The outcome of the climate conference (COP29) in Azerbaijan has been disappointing. The meeting took place at a time of transition in American politics. While international climate negotiations remain stalemated, nature is moving inexorably towards becoming a hotter planet. The fight against global warming requires reducing emissions. Developed countries have accepted 2050, China 2060, and India 2070 as the deadline for energy transition to net zero emissions by 2070.

There are two developments that will cut short the transition time. The European Union's (EU) Carbon Border Adjustment Mechanism (CBAM), which will be effective from 2026, will result in penal customs duties on imports unless the carbon tax in exporting countries is hiked to the EU level. The second is increasing pressure to accept the 'peaking' of emissions. The G-7 Summit in Hiroshima last year, and Apulia in June 2024, called on the 'major economies' to accept the peaking of emissions by 2025. This was a reference to China and India as the EU and the United States have already accepted 'peaking'.

The incoming Donald Trump administration may take the U.S. out of the climate agreements again. Regardless of this, we must take action to achieve a clean environment, for our own sake. But we cannot ignore India's development imperative. We need more electricity to replace fossil fuels. India's electricity consumption is a third of the global average. While developed countries and China have to diversify to clean energy sources, India has to grow and diversify.

These twin challenges entail much higher costs and require a longer transition time. However, we do not have the luxury of waiting till 2070 as pressure mounts for the 'peaking' of emissions. The 'peaking' year is an intermediate stage where emissions plateau before declining to the net zero stage. China has accepted the goal of peaking by 2030. India cannot remain an outlier indefinitely. At the most, we may have a decade when our emissions will be capped. A more compressed transition schedule means that we have to depend upon existing technologies. Small modular reactors and hydrogen will take more than a decade to become commercially viable.

Ramp up generation

Can we escape pressure for early peaking? While targets in climate negotiations may be voluntary, they will be enforced through bilateral tariff measures and international financing conditions. The peaking level will determine the quantum of energy available for future growth. We need to rapidly ramp up electricity generation to establish our claim to an energy level that is sufficient to sustain future growth before we are constrained to accept the peaking of emissions. China has 200 GW of new coal-based power plants sanctioned or under construction.

India's development needs cannot be ignored; as it has to grow and diversify to clean energy sources, this would mean higher costs and a longer transition time

Reaching net zero emissions (NZE) will entail growth in demand for electricity based on clean sources, as new sectors such as transport and industry are brought under electrification. This increase will be of a much higher order of magnitude than existing trends which are derived from the power sector alone. What is the minimum quantum of electricity needed to reach NZE? Which is the cheapest generation mix needed to achieve the minimum level? A Vivekananda International Foundation (VIF) Task Force on India's Energy Transition in a Carbon-Constrained World mandated IIT Bombay to answer these two questions based on mathematical modelling.

It estimated the minimum quantum of demand for electricity as 21,000 Terawatt hours (TWh) by 2070. An International Energy Agency report has pegged India's energy demand at 3,400 TWh by 2040. Different timelines make a comparison difficult. But it is worth keeping in mind that India's energy consumption in 2020 according to NITI Aayog data was 6,200 TWh. Is it realistic to peg its energy demand two decades later at half the level of 2020, the pandemic year, when the economic activities were slow? This is a prescription for energy deficit and slow growth.

The Economist has suggested decoupling growth with energy. The West has not followed this paradigm. Will India's service economy minimise the need for energy? Server banks needed to power the digital economy require a huge amount of energy. Generative AI will increase energy demand exponentially. This is why Microsoft and other tech giants are turning to nuclear power, which is the only source of clean, firm power at scale.

Cost and land

For energy transition, the choice lies between renewables and nuclear, the two forms of energy that are emission-free. But which of the two entails lower cost and land? The current renewables tariff does not fully take into account storage and transmission costs. A paper by the Central Electricity Authority last year acknowledged that the cost of renewables round the clock ranges from ₹4.95 per unit to ₹7.5 a unit (on the assumption of only six hours of storage). This is higher than the tariff for nuclear power at ₹3.80 a unit. The VIF-IIT Bombay study has also brought out that the renewable high option will cost the most ($15.5 trillion), while the nuclear high option will cost the least ($11.2 trillion) by 2070.

The VIF report has shown that the renewable high approach will require 4,12,033 square kilometres – double the total surplus land of 2,00,000 sq.km available in India. The nuclear high approach will require 1,83,565 sq.km. The renewable route for the production of green hydrogen will increase the demand for electricity for electrolysis and make land constraints worse.

On the margins of COP28 in the United Arab Emirates, a group of over 20 countries, including the U.S., France, and Japan have pledged to triple nuclear power by 2050. Nuclear power already provides 20% of electricity generation in the U.S. and 70% in France. Japan joined this group despite the legacy of the Hiroshima and Nagasaki bombings, and the Fukushima accident. In India's case, there is a need for a sharper increase, as the share of nuclear power in generation is as low as 3%.

Ramping up nuclear power requires government support, as resources on this scale cannot be internally generated by the Nuclear Power Corporation of India Limited (NPCIL). Nuclear power also needs to be given the status of green energy as it is emission-free. Besides operationalising existing joint ventures between the NPCIL and public sector units, public-private partnerships with industries in hard-to-abate sectors should be encouraged given the looming EU deadline for enforcing the CBAM. The bulk of the additional demand for generation will have to be met by larger 700 MW-1,000 MW reactors.

The issue of finance

At COP29, developed countries committed a paltry $300 billion per year from diverse sources by 2035 against the demand by developing countries for $1.3 trillion. Will this distant goal survive the Trump presidency? Most of this will be non-concessional finance. Many developing countries cannot absorb loans. Multilateral development banks have their statutes, which will require amendment.

Green finance from private sources will come only if the tariff is raised, and the health of DISCOMs is restored. The government cannot bear the fiscal burden of energy transition. The public has to be sensitised to steep hikes in tariffs given the investment in creating new-generation assets. This requires political consensus.

COP29 has finalised the rules for carbon trading. This amounts to rich countries buying the carbon entitlement of the poorer countries to cushion their lifestyle changes. If we cannot diversify to clean sources by the peaking year, we will need carbon for our growth rather than a trade-off.

The energy transition is a fight for limited carbon space. No major economy is likely to diversify to clean energy before the global carbon budget runs out in the next 10 years. An equitable share in the remaining carbon space is crucial for future growth. We must establish our claim by establishing high-generation capacity. The EU and the U.S. have already claimed entitlement to remaining carbon space by unilaterally establishing their peaking levels. China will keep expanding its claim till 2030.

Topic → The Disappointing Outcome of COP29

Context of COP29

The Political Landscape: A significant shift in American politics has influenced global climate negotiations, with potential U.S. withdrawal from agreements.
The Urgency of Climate Action: The need to reduce emissions is critical as the planet continues to warm. Developed countries target 2050 for net-zero, while China and India aim for 2060 and 2070

Emission Reduction Goals

Developed Countries' Commitments: Reaffirmed net-zero by 2050, but questions about the adequacy of these targets remain.
China's and India's Targets: China aims for emission peaking by 2030, India by 2070, highlighting disparities in global efforts

Key Developments Impacting Transition

The EU's Carbon Border Adjustment Mechanism: Set for 2026, it will impose duties on imports unless carbon taxes match EU levels.
Pressure for Emission Peaking: G-7 and upcoming summits push for 2025 peaking, especially targeting China and India.

India's Energy Needs and Challenges

Current Energy Consumption: India's electricity use is a third of the global average, necessitating increased production.
The Need for Growth and Diversification: India must balance growth with diversification, requiring significant investment

The Path to Net Zero Emissions

Understanding Emission Peaking: Emission peaking is crucial for India, requiring a cap within the next decade.
The Role of Technology: Leveraging existing technologies is essential, but development of new tech like small modular reactors is needed

The Energy Mix: Renewables vs. Nuclear

Cost Analysis: Nuclear power is often more cost-effective due to unaccounted storage and transmission costs in renewables.
Land Requirements: Renewables require significant land, while nuclear needs less, as per the VIF report.

Financing the Energy Transition

The COP29 Financial Commitments: Developed countries pledged $300 billion annually by 2035, far short of the $1.3 trillion needed.

The Role of Private Investment: Essential for transition, contingent on tariff increases and DISCOM health

Conclusion

The outcomes of COP29 were disappointing, but the fight against climate change continues. Balancing development with emission reduction is crucial for a sustainable future

Pointing the beacon at India's undersea warfare power

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The year 2024 started on a high note for the Indian Navy, with Operation Sankalp expanding from the Strait of Hormuz to the Red Sea to ensure the safety and the security of shipping from piracy and providing assistance to ships targeted by the Houthis. The Navy's continued response in addressing piracy, hijacking, and drone attacks on international merchant shipping has reinforced its status as a preferred security partner and first responder. In 2024, while several salient episodes marked the Navy's operational preparedness, an area that witnessed several critical developments was undersea warfare.

Pivotal developments

One key development was the commissioning of India's second indigenous nuclear-powered ballistic missile capable submarine (SSBN), INS *Arighaat*, in August 2024. Adding value to the third leg of India's nuclear triad – and hence nuclear deterrent value – the SSBN mirrors its predecessor, INS *Arihant*, in size and propulsion. The boat, as submarines are known colloquially, has a higher indigenous content than INS *Arihant*. The advanced sonar and propulsion systems and upgraded acoustic dampening are a distinctive addition to India's underwater warfare capabilities. These capabilities were emblematically enhanced by the recent testing of the K-4 submarine-launched ballistic missile (SLBM) from INS *Arighaat*, with a range of 3,500 kilometres. While the firing was successful, the results of the test parameters are awaited. Successful tests and the induction of the missile as a composite weapon package of SSBNs would place most of China under striking range.

About a month after the commissioning of INS *Arighaat*, the Cabinet Committee on Security cleared the long-pending Project-77 (P-77), giving its final approval to construct two nuclear-powered attack submarines (SSNs) at a cost of ₹40,000 crore. Delivery of the first SSN is scheduled for 2036-37 and the platform is expected to include over 90% indigenous content. The addition of the SSNs would enhance the Navy's underwater warfare capabilities, which essentially includes providing protection to deployed SSBNs. With the induction of the SSNs, India would become the only non-P5 nation operating SSBNs and SSNs.

The approach to enhance the Indian Navy's undersea capabilities highlights the government's move to ensure maritime stability and security

On conventional submarines

While nuclear boats open up new vistas of capabilities, conventional boats will always be relevant. In the past, there has been discussion in the U.S. about the re-induction of non-nuclear boats, as not all undersea missions require nuclear power. In India's case, Project-75, in collaboration with France, will see the commissioning of the sixth Scorpene boat, INS *Vaghsheer* soon. The Navy is looking to order three more such boats, which will add the required punch and help fill the void with the decommissioning of older boats. The efficacy of non-nuclear boats has increased with the advent of air independent propulsion (AIP). Therefore, Project 75(I), which seeks to induct AIP-enabled boats, involves Spain and Germany as contenders to build such boats, and is expected to reach its logical conclusion when the technical and financial evaluations are completed. In all cases, indigenous content is expected to increase. For example, the follow-on three Scorpene boats are expected to feature 60% indigenous content. In the case of Project 75(I), with the bidders, Germany's Thyssenkrupp Marine Systems (TKMS) and Spain's Navantia, accepting India's transfer of technology and indigenous content requirements, the first boat is likely to include a minimum of 45% indigenous content, rising to 60% in the sixth boat.

Another domestic development in niche undersea naval technologies is the approval of building 100-tonne Unmanned Underwater Vehicles (UUVs) at a cost of ₹2,500 crore. UUVs would add to India's undersea capabilities as a low-cost option with a high return on investment. This project is symbolic of India's positioning of niche technologies as strategic enablers to address increasingly complex and evolving threats in the maritime space.

Some of the hurdles

The approach to enhance the Navy's undersea capabilities in tandem with surface and aviation elements underscores the importance placed at various levels of the Indian government on ensuring maritime stability and security. This approach would create a balanced blue water force. However, this calls for addressing long-drawn budgetary issues to manage the mismatch between planned acquisitions and modernisation allocations and excessive time delays. Sustained funding for projects with long gestation periods, streamlined processes on specifying requirements, shortlisting original equipment manufacturers, and issuance and evaluation of tenders would require focus. A balanced force would ensure fulfilling the Navy's strategic and operational requirements, which are indispensable for addressing the threats, challenges, and risks emanating from the maritime domain while also taking advantage of the opportunities that arise.

These opportunities, especially cooperation and collaboration with strategic partners and other friendly maritime nations, would augur well not only for India's growth as a maritime nation but also support India's maritime visions of Security and Growth for All in the Region (SAGAR) and a free, open, and inclusive Indo-Pacific.

Topic → The Indian Navy in 2024: A New Era of Undersea Warfare

Introduction

2024 marks a significant leap for the Indian Navy in operational capabilities and strategic posture.

Operation Sankalp expands, reinforcing the Navy's role in maritime security.

Operation Sankalp: A Commitment to Maritime Security

Expanding Operations: From the Strait of Hormuz to the Red Sea, ensuring vital shipping lane safety.

Addressing Piracy and Threats: Indian Navy as a preferred security partner against piracy and drone attacks

Pivotal Developments in Undersea Warfare

Commissioning of INS Arighaat: Enhances India's nuclear deterrence with advanced systems.
Project-77: Construction of two nuclear-powered attack submarines with high indigenous content

The Role of Conventional Submarines

Project-75 and Scorpene Class: Commissioning of INS Vaghsheer to fill gaps left by older boats.
Air Independent Propulsion (AIP): Enhances conventional submarines' stealth and range.

Advancements in Unmanned Underwater Vehicles

Strategic Importance of UUVs: Construction of 100-tonne UUVs with a budget of ₹2,500 crore

Challenges Ahead

Budgetary Constraints: Need for alignment between acquisitions and modernization allocations.
Need for Streamlined Processes: Essential for creating a balanced blue-water force.

Conclusion

The Indian Navy is poised to become a formidable force in undersea warfare, integrating cutting-edge technologies for a secure maritime future.

Are Manipur militants using Starlink devices?

Why has the recovery of a Starlink satellite antenna and router in Manipur in mid-December sparked concerns? Does Starlink have regulatory approval in India? How exactly does Starlink prevent users, in regions which do not have authorisation, from accessing their satellites?

EXPLAINER

Sahana Venugopal

The story so far:

Billionaire Elon Musk has denied claims that his space company SpaceX's satellite internet technology, Starlink is being used by militants in Manipur. This came after the Indian Army and police seized weapons and what looked like a Starlink-branded satellite router and antenna. Starlink is still pending approval in India, though it will be starting in Bangladesh and Bhutan in 2025.

What is Starlink?

Starlink uses an extensive low Earth orbit satellite constellation to deliver broadband internet that has high speeds and low latency. This means that rather than restricting users to essential or emergency functions, they can also stream content, play games online, make video calls, or carry out other high data rate activities, per the company. It is a popular choice for users worldwide in remote areas, sea vessels, disaster-struck regions, or places where oppressive regimes have throttled access to more mainstream internet services. There are thousands of satellites in the Starlink system, and they orbit Earth at around 550 km. Though they cover the entire globe, per SpaceX, the company is not authorised to provide its services to users in some regions.

What is the controversy?

The Spear Corps of the Indian Army on December 16 shared photos on Elon Musk-owned X of guns, ammunition, and country-made mortars that the army and police units had seized in Manipur. X users spotted a small satellite device and router, with the latter bearing the SpaceX logo. In response to an X user who claimed that Mr. Musk's technology was being used by terrorists, the billionaire replied, "This is false. Starlink satellite beams are turned off over India." The Starlink device also had "RPF/PLA" written on it, which refers to a Myanmar-based Meitei extremist group that is banned in India. Per Starlink's website and coverage map, the service date for Myanmar is unknown.

Remote connection: A Starlink satellite internet system set up on a boat in Brazil in July. REUTERS

However, this is not the first time SpaceX has become embroiled in controversy in India. Last month, smugglers were caught by the Andaman and Nicobar islands police with over 6,000 kg of meth and a Starlink device that was allegedly used for navigation and communication, despite service being prohibited in Indian waters. Furthermore, in August, Starlink equipment was seen being sold on B2B platform IndiaMART.

Can Starlink internet be controlled?

International borders are not solid and it is not easy to refine satellite internet coverage to such a precise degree that service is activated or halted exactly in line with a nation's border. An additional complication is that many international borders are contested or unclear, while satellites moving above them are continuously transmitting encrypted signals. This encryption stops satellites from being hacked by militants or other malicious actors trying to intercept the service. The key question then is whether militants in Manipur can effectively use Starlink satellite internet within India.

"If these [Starlink] boxes have been purchased from outside of India, by whatever means, they can be used because then, that box is authorised. The only thing is, do they have a position location feature? In that case, yes, if you buy a [Starlink] terminal in the U.S. and bring it to India, because of the geographical location change, it might not work. But that is provided the terminal has a built-in geographic location identifier," theorised former Indian Space Research Organisation (ISRO) engineer, Arup Dasgupta. To help visualise how Starlink stops users in prohibited regions from accessing its satellite internet, Mr. Dasgupta used the analogy of a set-top box that does not let TV watchers access some channels while others who have access can watch these channels.

With regards to seized Starlink devices, Mr. Dasgupta pointed out that by tracking the unique identification code of the Starlink terminal, it might be possible to find the buyer. However, this too could prove difficult due to shadow companies obfuscating the trail of illegal buyers. In essence, more information is needed from SpaceX and Mr. Musk to understand how the company ensures that Starlink satellite internet does not reach the countries yet to allow Starlink.

The Hindu was also able to download the Starlink app from the Google Play Store in India and go through the set-up process up to the point a plugged-in Starlink device was needed. This is in stark contrast to banned apps like TikTok, which are unavailable on the app store.

Mr. Musk in February this year also trashed news reports claiming that Starlink devices were being sold to Russia, and later explained that Starlink satellites would not close the link in Russia.

What does Indian law state?

India strictly regulates and restricts the use of satellite-based communication devices, even by Indian civilians and citizens in conflict-free zones. Everyday gadget users within the country would have noticed that even key satellite-based emergency features on premium phones that are easily available for users overseas are not enabled for use in India. Under Section 6 of the Indian Wireless Act and Section 20 of the Indian Telegraph Act, the use of thuraya/iridium satellite phones is illegal in the country. These restrictions are in place to combat militancy and terrorism.

THE GIST

- The Spear Corps of the Indian Army on December 16 shared photos on Elon Musk-owned X of guns, ammunition, and country-made mortars that the army and police units had seized in Manipur. X users spotted a small satellite device and router, with the latter bearing the SpaceX logo.
- India strictly regulates and restricts the use of satellite-based communication devices, even by Indian civilians and citizens in conflict-free zones.
- International borders are not solid and it is not easy to refine satellite internet coverage to such a precise degree that service is activated or halted exactly in line with a nation's border.

Topic → The Controversy Surrounding Starlink in India

Introduction

The satellite internet landscape is abuzz with Starlink, a project by Elon Musk.

Recent events in India have sparked controversy, with allegations of misuse by militants in Manipur.

What is Starlink?

Starlink is a satellite internet constellation by SpaceX, offering high-speed broadband globally.
Operates via thousands of low Earth orbit satellites, providing low latency and high-speed access.
Especially beneficial for remote areas, sea vessels, and regions with limited traditional internet.

How Starlink Works

Satellites orbit Earth at ~550 km, creating a global network.
Allows internet access without traditional ground infrastructure.
Not authorized in certain regions, including India.

Benefits of Starlink

Offers high-speed internet and low latency.
Connects areas where other services fail.
Ideal for gamers, remote workers, and streamers.

The Recent Controversy

Indian Army seized weapons and a Starlink-branded device in Manipur.
Raised concerns about potential misuse by militants.

The Seizure Incident

On December 16, Indian Army shared images of seized items, including a SpaceX-branded router.
Sparked outrage and concern over Starlink's misuse.

Elon Musk's Response

Musk denied allegations, stating Starlink beams are off over India.
Aimed to clarify non-operational status despite seized device.

Can Starlink Internet Be Controlled?

Complex issue of controlling satellite internet within borders.
Devices may function if not properly restricted, even if service is prohibited.

The Challenge of International Borders

Satellite coverage doesn't align perfectly with national boundaries.
Devices purchased abroad may still work if unrestricted.

The Role of Geographic Location

Devices may work unless they have a geographic location identifier.
Similar to set-top boxes restricting channels based on location.

Previous Controversies Involving Starlink

SpaceX has faced scrutiny in India before.

Smuggling Incidents

Smugglers caught with meth and a Starlink device in Andaman and Nicobar Islands.
Highlights challenges of regulating satellite technology.

Equipment Sales on IndiaMART

Starlink equipment spotted for sale on IndiaMART.
Raises questions about availability and legality in India.

Understanding Indian Law on Satellite Communication

India has strict regulations on satellite communication devices.

Regulations and Restrictions

Indian Wireless Act and Indian Telegraph Act make satellite phones illegal.
Laws combat potential misuse by militants, ensuring secure communication.

Conclusion

Starlink controversy raises questions about technology, regulation, and security.
Musk denies misuse claims, but satellite internet complexities remain.
Future impact on Starlink in India as it plans launches in neighboring countries.

What are the new interception rules and safeguards?

What do the new Telecommunications (Procedures and Safeguards for Lawful Interception of Messages) Rules, 2024 state? Will it override Rule 419A of the Indian Telegraph Rules, 1951?

R.K. Vij

The story so far:

The Union Government, on December 6, notified the Telecommunications (Procedures and Safeguards for Lawful Interception of Messages) Rules, 2024 which empower some enforcement and security agencies to intercept phone messages under certain conditions. These rules supersede Rule 419A of the Indian Telegraph Rules, 1951.

What do the new rules state?

The new rules authorise the Union Home Secretary and the Secretary to the State government in-charge of the Home Department as the competent authority to order the interception of any message or class of messages. An officer not below the rank of a Joint Secretary to the Union Government, may also issue such order of interception in 'unavoidable circumstances' (without defining such circumstances). The Central Government may also authorise any law enforcement or security agency to intercept messages for reasons specified under Section 20(2) of the Telecommunications Act, 2023.

'In remote areas or for operational reasons', the head or the second senior most officer of the authorised agency at the central level, and head or the second senior most officer of the authorised agency (not below the rank of IG Police) at the State level may also issue an order of interception, but the officer will have to submit such an order to the competent authority within three working days of the date of its issuance. If such order is not confirmed by the competent authority within seven working days from the date of issue, such interception shall henceforth cease. The rules also mandate the destruction of records relating to interception every six months by the authorised agency and review committee (unless required for functional requirements or court directions).

How are the new rules different?

First, the condition of interception by authorised agencies only in 'emergent cases', has been relaxed. Interception by authorised agencies is now possible if it is not feasible for the competent authority to issue orders in 'remote areas or for operational reasons'. Second, under Rule 419A, there was no limit for the number of IGP rank officers at the State level who could be authorised for interception. But now, in addition to the head of the authorised agency, only (one) the second senior most officer can be authorised for interception. Third, in case the interception order by an authorised agency is not confirmed within seven days, any messages intercepted shall not be used for any purpose, including as evidence in court.

The Indian Telegraph Act of 1885 had provided the Union Government to make rules for 'the precautions to be taken for preventing the improper interception or disclosure of messages', but no such safeguards were framed for a long time. The safeguards and procedure of interception under Rule 419A were notified only in March, 2007, consequent to the directions issued by the Supreme Court in *People's Union for Civil Liberties (PUCL) versus. Union of India and Another* in 1996. The Supreme Court, in this case, not only elaborated the terms 'public emergency or in the interest of the public safety', but also held that the right to privacy cannot be curtailed arbitrarily without laying down safeguards which are just, fair and reasonable.

What are concerns about new rules?

While the pre-requisite of 'emergent cases' for interception by authorised agencies has been relaxed without additional checks, the rules are criticised for not fixing any accountability for the wilful misuse of powers of interception by authorised agencies. The rules are silent about punitive actions if any authorised agency abuses the powers of interception for a period up to seven days, before its confirmation by the competent authority.

R.K. Vij is a former Indian Police Service officer.

THE GIST

- The new rules authorise the Union Home Secretary and the Secretary to the State government in-charge of the Home Department as the competent authority to order the interception of any message or class of messages.
- The Indian Telegraph Act of 1885 had provided the Union Government to make rules for 'the precautions to be taken for preventing the improper interception or disclosure of messages', but no such safeguards were framed for a long time.
- The rules are silent about punitive actions if any authorised agency abuses the powers of interception.

Topic → The New Telecommunications Rules: A Deep Dive

Introduction

On December 6, 2024, the Union Government introduced the Telecommunications (Procedures and Safeguards for Lawful Interception of Messages) Rules, 2024.

These rules empower certain enforcement and security agencies to intercept phone messages under specific conditions.

The implications for the average citizen are significant

What Are the New Rules?

The new rules replace Rule 419A of the Indian Telegraph Rules, 1951.
They introduce a more structured approach to message interception.

Key Authorities Involved

Union Home Secretary and State Home Department Secretary are designated as competent authorities.
An officer not below the rank of a Joint Secretary can issue interception orders in 'unavoidable circumstances'.

Conditions for Interception

Authorized under Section 20(2) of the Telecommunications Act, 2023.
In remote areas or for operational reasons, senior officers can issue orders, but must confirm within three working days.

Changes from Previous Rules

Relaxation of Conditions: Interception can occur without waiting for competent authority in certain situations.
Limitations on Authorized Officers: Only the head of the agency and one other senior officer can authorize interceptions.
Confirmation of Interception Orders: Orders must be confirmed within seven days, or intercepted messages cannot be used.

Historical Context

The Indian Telegraph Act of 1885: Allowed rule creation to prevent improper interception.
Supreme Court's Influence: 1996 PUCL case emphasized the need for safeguards against privacy violations.

Concerns and Criticisms

Lack of Accountability: Critics argue there's no accountability for misuse of interception powers.
Potential for Misuse: Relaxed conditions could lead to unauthorized surveillance.

Conclusion

The 2024 rules mark a significant shift in message interception regulation in India.
While introducing safeguards, they raise concerns about misuse and lack of accountability.
Citizens must stay informed about the impact on privacy and rights.

Will satellite broadband services truly be a game-changer?

As the race to provide satellite Internet heats up, questions on cost, pricing, spectrum allocation, viability and potential pop up; back in India, Forrester Research said satcom may be dead by the time it arrives in 2025, stating companies may be hard pressed to compete in terms of pricing

NEWS ANALYSIS

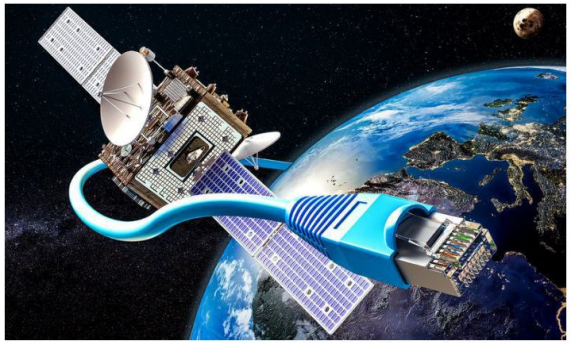
Vallari Sanzgiri

India is 48% lacking in terms of broadband penetration today, even after 25 years of terrestrial mobile services. If we continue to behave the way we are (blocking the entry of new players), we will remain in this state for another 25 years and Viksit Bharat can go out of the window – Debashish Bhattacharya, Senior Deputy Director General, Broadband India Forum (BIF)

"What they want is that existing operators pay for this spectrum through the nose, invest a lot of capex but the new operator should be given a red carpet, free spectrum to start competing. This kind of demand should not have come." – Ravi Gandhi, regulatory executive, Reliance Jio Infocomm Ltd.

The race to provide satellite broadband connectivity in India is leading to some fiery exchanges. Mr. Gandhi and Mr. Bhattacharya were but two of the voices heard during the Telecom Regulator of India's (TRAI) open house discussion in November. The heated discussions centred over spectrum allocation for satellite-based communication (satcom) services.

There are a whole set of other discussions too on satcom starting from cost, pricing, spectrum allocation to even voices asking about if was really viable.



Costly space: Satcom services' price economics can throw spanner in the works. GETTY IMAGES/ISTOCK

Answer to digital divide

Lt. Gen. A.K. Bhatt (retd.), Director General, Indian Space Association (ISpA) takes on the question on the need for satcom. "It can overcome the digital divide in difficult geographies where the cost of putting fibre is too high. Satellites are like fibre in space. In urban areas, it is useful for backhaul services, for additional capacities." Satcom technology connects various points on the Earth using the satellites orbiting in space, able to reach remote hinterlands of the world.

On the issue of spectrum allocation, the feelings run high because of the enormous investments gone in. A KPMG report of 2023 stated satcom had reached a valuation of $2.23 billion and was predicted to reach $20 billion by 2028. Even legacy telcos like Bharti Airtel Ltd. referred to the "lakhs of crores of rupees" of investment made by them over the past three decades. It is this investment that made the legacy players push for auction of spectrum, citing concerns of an uneven playing field and undue advantage to new players like Elon Musk's Starlink or Amazon's Kuiper.

> A KPMG report in the year 2023 stated that satcom had reached a valuation of $2.23 billion and was predicted to reach $20 billion by the year 2028

Administrative method

Meanwhile, those against the idea of auction point out that world over spectrum is authorised by the administrative method. For now, it appears the government is leaning in favour of allocating spectrum. Yet, it is worth asking whether the technology deserves all the fanfare considering satcom is to be complementary to existing fibre or wireless connections rather than compete with existing services. Even Sateliot, one of the first satellite operators based in Spain to offer IoT connectivity, has been working since 2018 and is only hoping to go commercial in 2025.

In the U.S., companies like AT&T state that satellites can complement the existing terrestrial services but not work in isolation. As it explained in an investor call, ""For a customer to only use satellite-based service, one needs enough satellites in space that are engineered with that amount of radio frequency. Also, the antenna array of those satellites needs to be large and strong enough to ensure the level of service a customer expects. The cost per bit is also very high currently for satellite-based services to make it operationally viable."

Hence, AT&T plans to offer satellite as a complementary to fiber/wireless service to its customers. This is a company that has so far launched five commercial satellites, called BlueBirds.

Use cases, potential

Back in India, Forrester Research has stuck its neck out and said that satcom may be dead by the time it arrives in 2025, stating while many companies are warming up to the idea of satcom, they will be hard pressed to compete in terms of pricing. The research firm predicted that its use cases in India will be limited to aviation, shipping, connecting remote locations, NDMA.

"Considering the 5G coverage in India is widespread, the space that we have for satellite coverage to grow is very limited. The second thing, if you look at the space, it is price economics. If you come to retail, things start to fall apart. In Kenya, when Starlink launched, it struggled to get any customers. In one or two years, they got around 4,500 customers. In India, customers are equally pricey. It's very, very difficult for something like this to grow," said Ashutosh Sharma, VP and research director, Forrester.

However, Pranav Roach, president of Hughes Network Systems India Ltd. disagreed stating that even in the U.S., satellites still accounts for 20-25% of the network utilisation.

"From a consumer point of view, availability increases tremendously. So, there will be a significant uptake for satcom. But it will coexist with other technologies. Technical feasibility and cost is a function of the options available and what you need to do in case of an emergency.

"Right now, we're still waiting for rules from TRAI for spectrum allocation. Once that comes out, we can determine the cost and prices," said Mr. Roach.

Similarly, Sateliot, said satcom as an affordable solution could prove to be a game-changer for India.

(The writer is with The Hindu businessline)

Topic → The Broadband Dilemma in India: A 25-Year Journey

Understanding the Current State of Broadband in India

48% Broadband Penetration Gap: Nearly half of India's population lacks broadband access, limiting economic growth and access to essential services.

Role of Terrestrial Mobile Services: Despite advancements, mobile networks alone are insufficient for India's vast and diverse landscape.

Voices from the Industry: A Heated Debate

Debashish Bhattacharya's Concerns: Stagnation risk without new market entrants.
Ravi Gandhi's Perspective: Existing operators bear financial burdens; new entrants receive preferential treatment.

The Race for Satellite Broadband Connectivity

Spectrum Allocation: A controversial topic with high stakes for India's broadband future.
Need for Satellite Communication: Essential for bridging the digital divide in remote areas

Bridging the Digital Divide

Lt. Gen. A.K. Bhatt's Insights: Satellites as "fiber in space" for enhanced connectivity.

The Financial Landscape of Satcom

KPMG's Valuation Report: Satcom sector valued at $2.23 billion, projected to reach $20 billion by 2028.
Legacy Telcos vs. New Players: Concerns over fair spectrum auction processes.

The Administrative Method of Spectrum Allocation

Global Perspectives: Many countries use administrative methods for spectrum management, raising questions about India's approach.

The Future of Satellite Communication in India

Use Cases and Potential: Vast potential but faces challenges in pricing and competition.
Challenges in Pricing and Competition: High costs and competition from existing technologies.

Conclusion: The Path Forward for Broadband in India

A collaborative approach is essential to bridge the digital divide and achieve a Viksit Bharat.

Why green deposits failed to take-off in India

Piyush Shukla

Considering the threat that climate change poses globally, the Reserve Bank of India (RBI) in April last year issued a comprehensive framework for lenders to accept green deposits. The regulator's intent was noble: to enable lenders and customers to further the green cause. However, more than 20 months after the framework has been issued, lenders have made little to no progress in garnering green deposits.

What is green deposit?

Green deposits are essentially interest-bearing deposits, received by the lenders for a fixed period and the proceeds of which are earmarked for being allocated towards green finance. Lenders shall issue cumulative/non-cumulative deposits. On maturity, the deposits would be renewed or withdrawn at the option of the depositor. The deposits shall be denominated only in Indian rupees as per RBI norms.

Capital raised via green deposits can be used in funding projects related to solar, wind, biomass, and hydropower energy projects that integrate energy generation and storage. Further, the funds can be used in sectors which enable energy efficiency, clean transportation, climate change adaptation and sustainable water and waste management. Green deposits also can be used for funding green buildings, projects relating to coastal and marine environments, certified organic farming, among others.

No so green: Despite noble intentions, green deposits have failed to take off due to many reasons. GETTY IMAGES/ISTOCK

To ensure compliance, the regulator said that allocation of funds raised through green deposits during a financial year shall be subject to an independent third-party audit done on an annual basis.

In an interaction with *businessline*, C.S. Setty, Chairman, SBI said while there is obviously some interest in green deposit, it is not very significant. He said currently there is not much traction in the deposits and the price differential will take time to grow.

"Philosophically somebody should align. As we go forward, people are trying to create awareness but currently the attraction is not there.

Green deposits at our bank currently is less than ₹100 crore. I think we need to see various ways of engaging with the GenZ on this product," he said.

HDFC Bank, meanwhile, has not even raised green deposits on or after June 1, 2023 based on the RBI's framework for the acceptance of green deposits, according to its FY24 annual report.

While most public sector banks have started accepting green deposits, private banks are slow adopters to such deposits.

During the SBI Banking & Economics Conclave last month, Department of Financial Services (DFS) Secretary M. Nagaraju was asked about steps the government is taking to promote green deposits.

Challenges ahead

He responded by saying demand is not lower just for green deposits, but for a country the size of India, bond issuances too have minimal volumes. Accordingly, mobilising higher green deposits is "some time away", he said.

"We need a framework about measuring which industry and activity is green, and how to account for that. These are the questions which we need to finalise. Before that, we also have our own priorities, every year we have about millions of people coming for jobs, small and medium businesses also need funds. I think we need to prioritise our lending," he said.

Another core challenge bankers face in mobilising green deposits is lower rate of interest. For instance, SBI offers 7% for general pubic on 2-3 year tenor retail domestic term deposit, whereas if a customer opts for green deposit at a similar tenor, they get 6.65%.

"Customers usually do not consider the nature of deposit, they need higher returns," says a senior official at a mid-sized bank. The bank is yet to launch a comprehensive green deposit product.

Bankers say a reduction in cash reserve ratio (CRR) requirement for green deposit will help them garner more customers. "We have asked (the regulator) for a reduction in CRR for green deposits and second, if at all as a policy it can be incorporated," former SBI Chairman Dinesh Khara had said earlier this year.

Besides, more customer awareness is required to boost volumes.

"All large corporate have medium to long term environmental, social and governance (ESG) commitments to fulfil.

"By parking ESG funds in green deposits with banks, lenders can on-lend to green field projects which will further the green cause, and help corporates meet ESG requirements," according to a senior public sector banker.

(The writer is with The Hindu businessline)

Topic → Green Deposits in India: A Pathway to Sustainable Financing a Missed Opportunity?

Introduction to Green Deposits

- Green deposits are a burgeoning concept in the financial sector, representing a commitment to sustainability.
- These are essentially interest-bearing deposits that banks accept for a fixed period, with the proceeds earmarked for financing environmentally friendly projects.
- The Reserve Bank of India (RBI) has mandated that these deposits be denominated only in Indian Rupees, targeting funding towards initiatives like solar, wind, and hydropower energy projects.

The Reserve Bank of India's Initiative

In April of last year, the RBI issued a comprehensive framework aimed at encouraging lenders to accept green deposits. The initiative's noble intent was to mobilize resources for green finance, enabling both banks and customers to contribute to environmental sustainability. However, despite more than 20 months since its launch, progress has been sluggish, with many lenders still hesitant to fully embrace green deposits.

Key Features of the RBI Framework:

Independent Audits: All funds raised through green deposits must undergo annual third-party audits to ensure compliance and proper allocation.
Project Funding: Capital raised can fund projects related to energy efficiency, clean transportation, and sustainable water management, among others.

Challenges in Mobilizing Green Deposits

The journey towards widespread adoption of green deposits is fraught with challenges. One significant hurdle is the lower interest rates associated with these deposits compared to traditional savings accounts, which often offer higher returns.

Challenges Identified:

- **Interest Rates:** For example, SBI offers 7% for a general deposit of 2-3 years while the green deposit rate stands at 6.65%. This disparity discourages customers who prioritize higher returns.
- **Lack of Awareness:** Many potential investors are unaware of the benefits of green deposits, limiting the market's growth.

Bankers suggest that reducing the cash reserve ratio (CRR) requirement for green deposits might incentivize more customers to invest.

The Future of Green Deposits

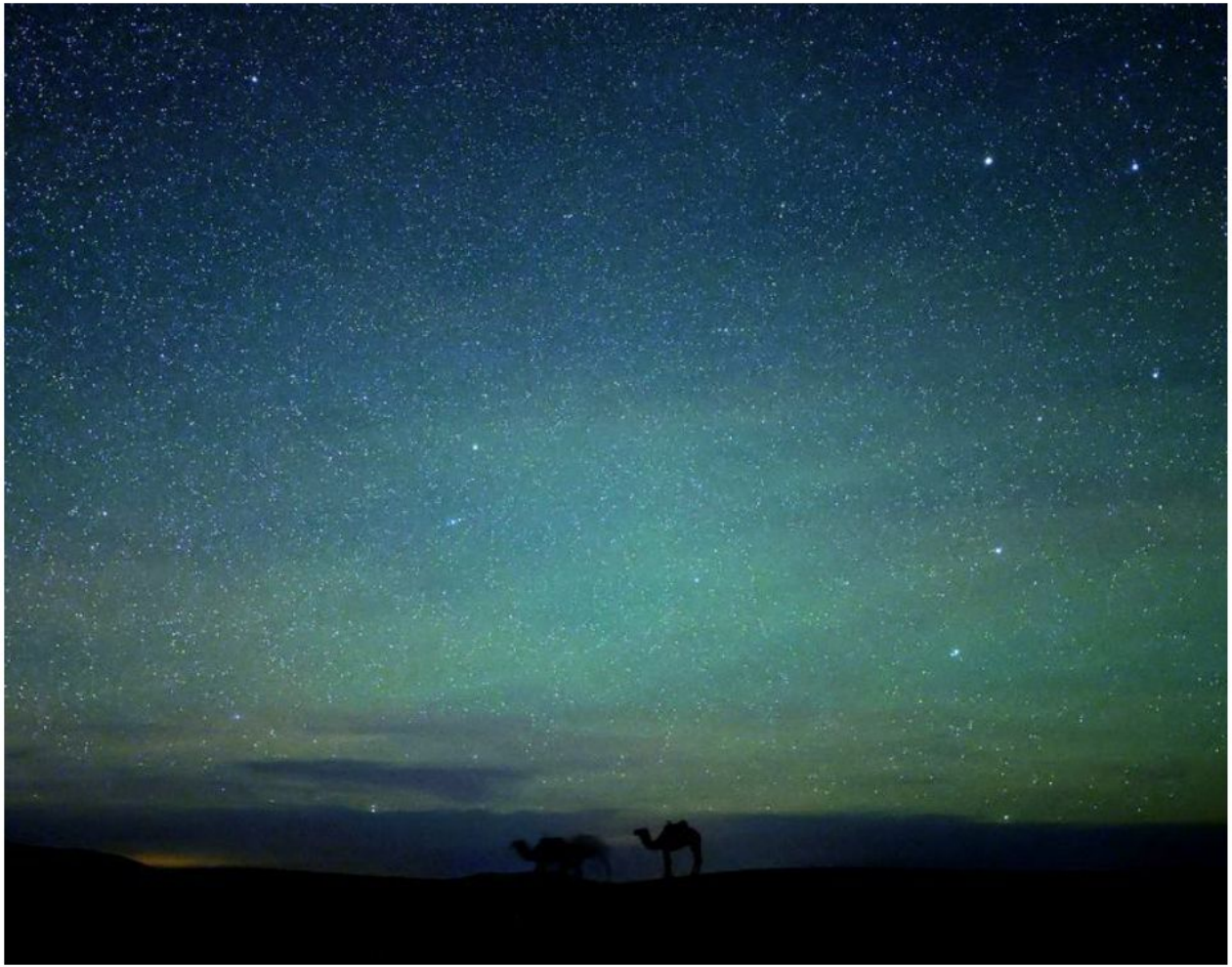
Looking forward, there is potential for green deposits to become a vital tool in sustainable financing. Banks must innovate and engage with younger generations, particularly Gen Z, who are more environmentally conscious.

Potential Strategies:

Increased Engagement: Banks need to find innovative ways to connect with customers, particularly younger demographics.
Technology Utilization: Leveraging technology to enhance customer experience and provide better information about green deposits could drive growth.

Ultimately, aligning with corporate environmental, social, and governance (ESG) commitments will be essential for banks to attract more deposits.

Burning bright



Star-lit Sahara: Camels at the Erg Chebbi sand dunes in the Sahara desert under the night sky outside Merzouga, Morocco. REUTERS

Topic → Erg Chebbi: A Desert Marvel

Overview

🏜️🌵 Location: Erg Chebbi is a notable sand dune area in the vast Sahara Desert.

🌍 Geography: Known for its towering sand dunes, some reaching up to 150 meters, making it one of Morocco's highest.

🌞 Climate: Characterized by extreme temperatures, with scorching days and cooler nights typical of desert environments.

🐫 Tourism: A favored spot for tourists interested in camel trekking and experiencing the desert's allure.

🌌 Scenic Views: Offers breathtaking vistas, particularly at sunrise and sunset, drawing photographers and nature enthusiasts.

🏕️ Cultural Significance: Inhabited by Berber communities, adding to its cultural depth and heritage.

🚶 Activities: Visitors can enjoy activities like sandboarding, quad biking, and stargazing.

Summary: Erg Chebbi is a magnificent sand dune region in the Sahara Desert, celebrated for its towering dunes, harsh climate, and vibrant cultural experiences

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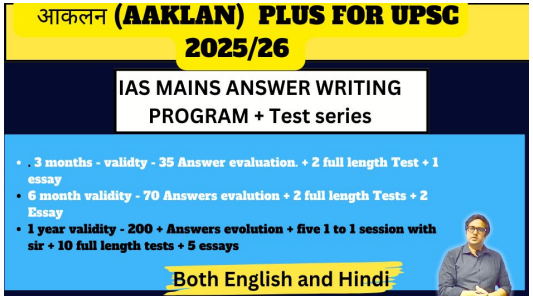
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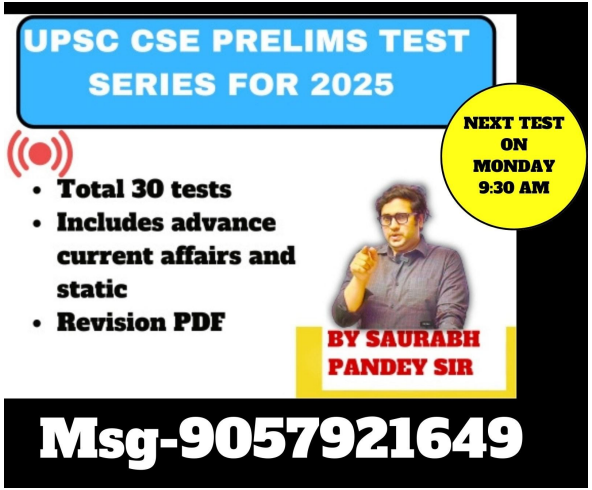
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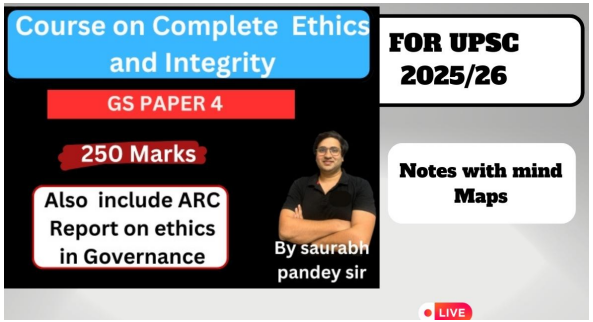
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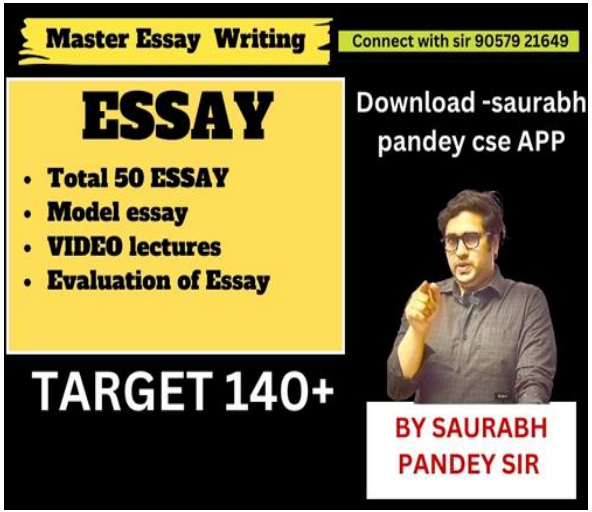
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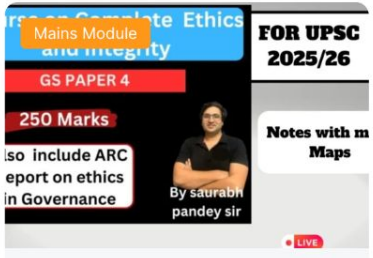

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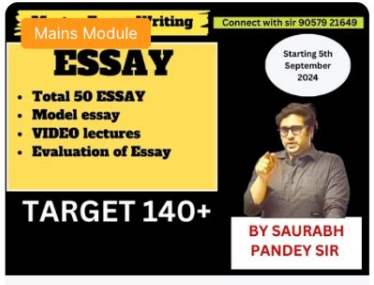

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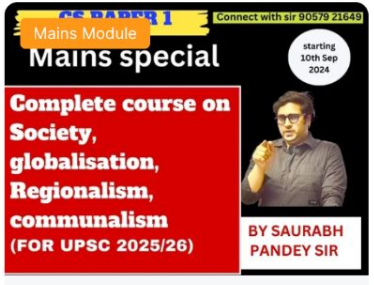

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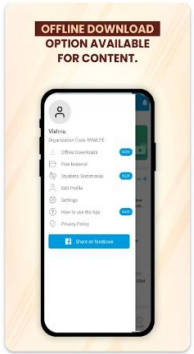

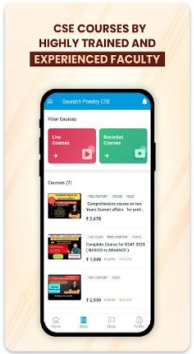

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1) Salinity stress can lead to crops yield losses of up to 70 per cent.

2) Currently ten countries account for 70 per cent of the world's salt-affected soils.

Which of the given statements is/are incorrect.

A) 1 Only

B) 2 Only

C) Both 1 and 2

D) Neither 1 or 2

Ans: D

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Q ‘’ What is strategic partnership? Explain the steps taken to promote strategic partnership between india and kuwait .