

Topics - MINDS MAPS included (Daily current affairs 16th December 2024

- Golan Height
- Olive Ridley Turtle Conservation
- Morocco's Strategic Position in Defense Exports
- Jalvahak Scheme:
- Understanding Light Echoes
- Chirality and Its Implications
- Erg Chebbi:
- One Candidate Contesting Multiple Constituencies (OCMC)
- India's Strategic Mineral Diplomacy: Securing the Future
- Empowering Women in India's Digital Revolution: Combating Technology-Facilitated Gender-Based Violence.
- The Rise of Carbon Markets: Insights from COP29 in Baku
- Polavaram Dam
- Greenfield port city
- Mains



By saurabh Pandey



THE HINDU

Target Mains -2025/26 -

Q → “The electoral landscape in India is often a tapestry woven with complex threads of tradition, law, and political maneuvering” Explain the statement in the context of one candidate multiple constituencies.

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**BY SAURABH
PANDEY SIR**

**Test -12 scheduled
on Monday - 9:30 am**

Israel to double population in occupied Golan Heights



Reuters

JERUSALEM

Israel agreed on Sunday to double its population on the occupied Golan Heights while saying threats from Syria remained despite the moderate tone of rebel leaders who ousted President Bashar al-Assad a week ago.

“Strengthening the Golan is strengthening the State of Israel, and it is especially important at this time. We will continue to hold onto it, cause it to blossom, and settle in it,” Prime Minister Benjamin Netanyahu said in a statement.

Israel captured most of the strategic plateau from Syria in the 1967 Six-Day War, annexing it in 1981.



Israel captured most of the strategic Golan Heights from Syria in the 1967 Six-Day War, annexing it in 1981. AFP

In 2019, then-President Donald Trump declared U.S. support for Israeli sovereignty over the Golan, but the annexation has not been recognised by most countries. Syria demands Israel withdraw but Israel refuses, citing security concerns. Various peace efforts have failed.

“The immediate risks to the country have not dis-

appeared and the latest developments in Syria increase the strength of the threat,” Defence Minister Israel Katz told officials examining Israel’s defence Budget. Mr. Netanyahu’s office said the government approved a more than 40-million-shekel (\$11 million) plan to encourage demographic growth in the Golan.



Carcasses of Olive Ridley turtles continue to wash ashore in Vizag



V. Kamalakra Rao

VISAKHAPATNAM

Carcasses of Olive Ridley turtles, which are currently in their breeding season, continue to wash ashore along the Visakhapatnam coast.

For the past few days, visitors continue to find the carcasses on the beaches in the city such as Mangamaripeta, near Bhimili. Eyewitnesses say that a number of carcasses were found on the beach on Saturday night.

Environmental experts say that a majority of the deaths are due to marine pollution and trawling activities for catching fish.

National Fisherfolk Forum general secretary A.



The carcass of an Olive Ridley turtle found at R.K. Beach in Visakhapatnam. K.R. DEEPAK

Dasu said, “We saw dead turtles on the city beaches where at least 10 carcasses were washed ashore on Saturday. During this season, the turtles come close to the shore, up to nearly 500 metres, to lay eggs.”

The Andhra Pradesh

State Forest Department usually takes up conservation of turtles every season. Officials say that this year too they have started four artificial hatcheries as part of the conservation measures.

“Four hatcheries (nest-

ing points) have been set up in areas such as R.K. Beach and Jodugullapalem,” said Visakhapatnam District Forest Officer Shambangi Venkatesh.


“We usually receive reports of dead turtles on city beaches. This happens when the turtles come to the surface of the sea to breathe and are accidentally caught by heavy fishing operations during trawling operations,” he said.


“Nobody will intentionally harm a turtle. However, we are continuously educating the fishing community and others to take special care of turtles in the deep sea during the breeding season,” Mr. Venkatesh told *The Hindu* on Sunday.


Topic → Olive Ridley Turtle Conservation Efforts in Visakhapatnam




Overview

 Carcasses of Olive Ridley turtles are being discovered along the Visakhapatnam coast during their breeding season.

 Multiple carcasses have been reported by eyewitnesses on beaches such as Mangamaripeta, with at least 10 found in a single night.

 Environmental experts cite marine pollution and trawling activities as the primary causes of turtle deaths.

 The Andhra Pradesh State Forest Department has initiated conservation efforts, including the creation of four artificial hatcheries.

🥚 These hatcheries are located at R.K. Beach and Jodugullapalem to support turtle nesting.

⚓ Officials note that turtles often get caught in fishing gear when they surface to breathe, especially during the breeding season.

📖 Continuous education efforts are being made to inform the fishing community about the importance of protecting turtles.

Conservation Initiatives

Artificial Hatcheries: Established to support nesting and increase hatchling survival rates.

Community Education: Ongoing efforts to raise awareness among local fishermen about the impact of their activities on turtle populations

Olive Ridley Sea Turtles 🐢



Overview 🌊

Species: Olive Ridley sea turtles are recognized by their heart-shaped shell.

Habitat: Found in warm and tropical waters, especially in the Pacific and Indian Oceans.

Nesting Behavior: Known for **arribada**, a mass nesting event where thousands of females lay eggs on the same beach.

Physical Characteristics 🐢

Size: Smaller than other sea turtles, weighing 77 to 100 pounds (35 to 45 kg).

Conservation Status

Threats: Classified as vulnerable due to:

Habitat loss

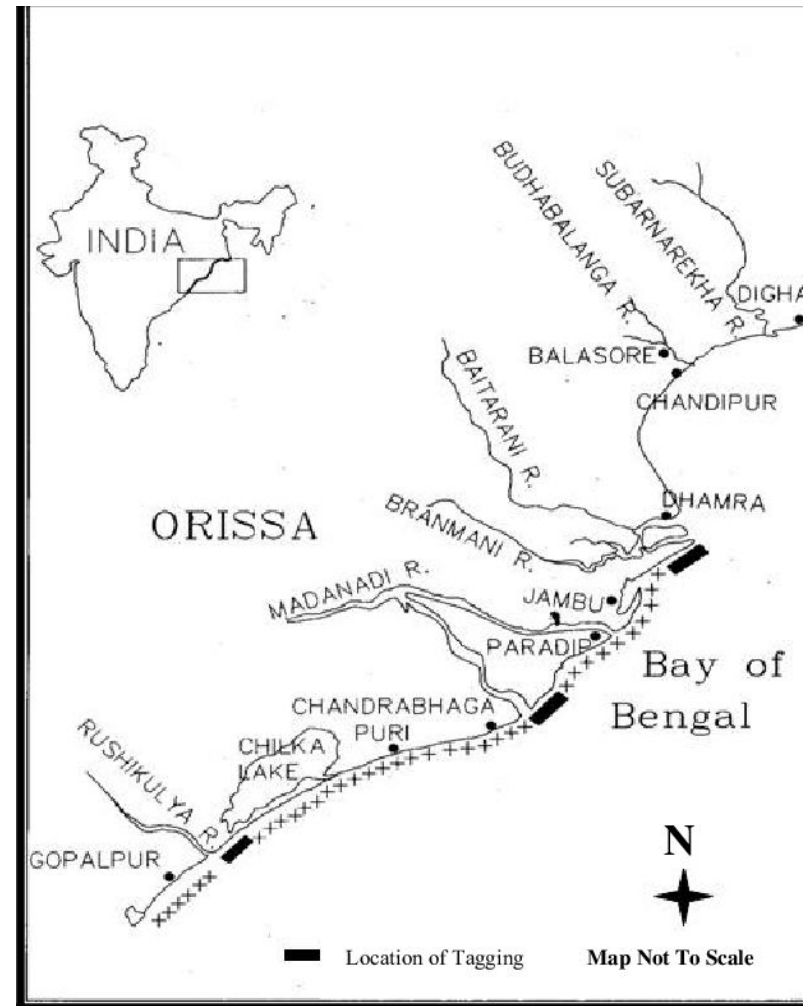
Poaching

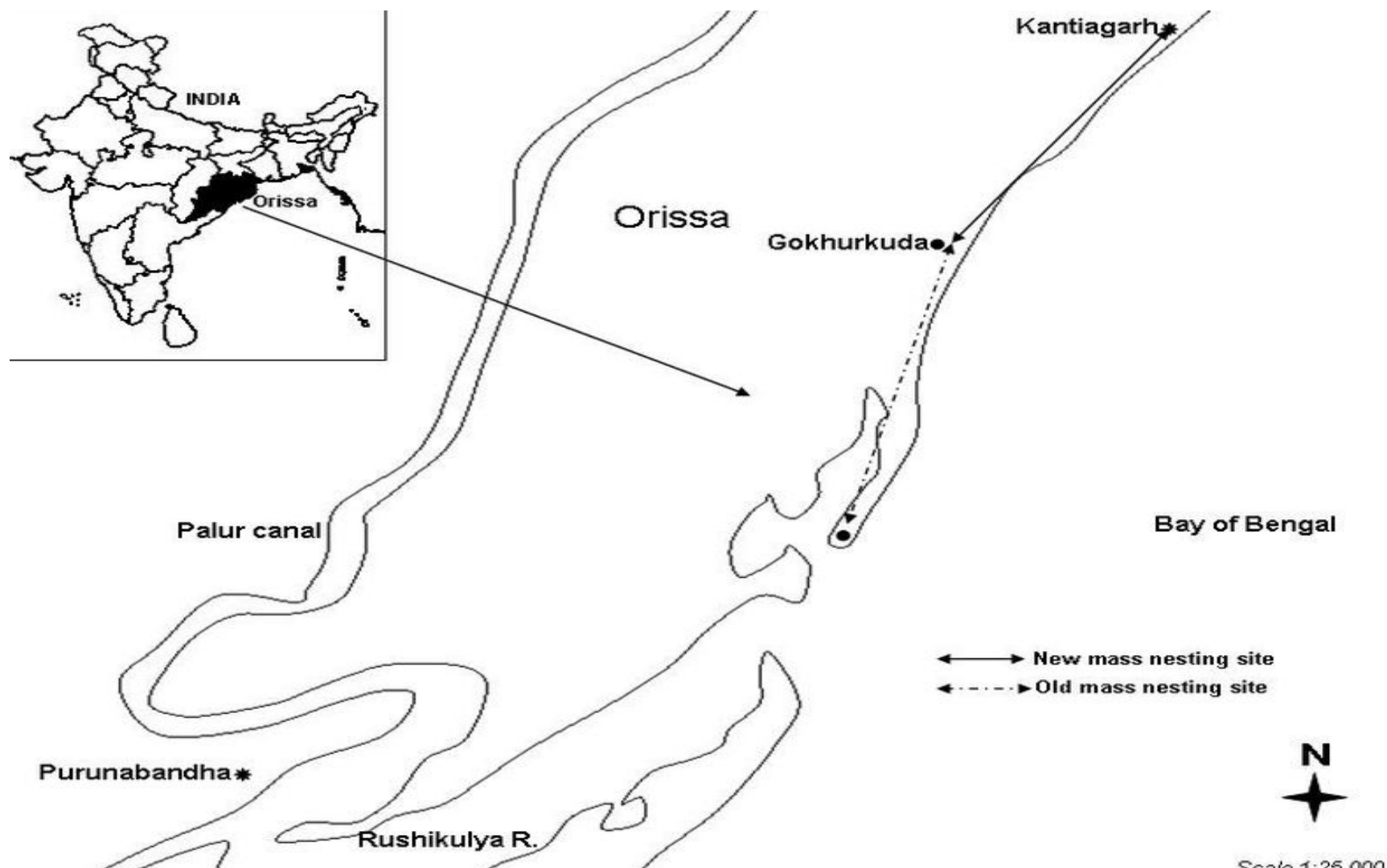
Accidental capture in fishing gear

Efforts: Conservation initiatives focus on:

Protecting nesting sites

Reducing bycatch in fisheries





Morocco welcomes Indian defence companies to set up production units

Dinakar Peri

NEW DELHI

Morocco is emerging as a springboard for India's ambitions to expand its footprint in Africa for defence exports. Pitching Morocco as a gateway to Africa and Europe for Indian companies, Abdeltif Loudyi, Morocco's Minister Delegate to the Head of the Government, and In-Charge of Administration of National Defence, said they would like "to offer state-of-the-art environment, zero bureaucracy, and profitability for Indian defence companies".

"Morocco and India enjoy excellent bilateral relations based on mutual respect, and have every potential to pursue their positive momentum in various fields, including defence," Mr. Loudyi said, addressing the India-Morocco defence industry seminar held in Rabat on December 9 and 10, and jointly organised by the Defence Ministries of the



Stronger ties: Officials at the first edition of the India-Morocco Defence industry seminar held in Rabat. X@SIDMINDIA

two countries, the Indian Embassy in Morocco, and the Society of Indian Defence Manufacturers. "We want you in Morocco; we will support you," he said. This seminar can only strengthen the historic ties between Morocco and India, two emerging economies with growing strategic cooperation in the defence sector, the Minister observed.

Mr. Loudyi said the launch of the strategic defence industry project placed Morocco at the

centre of attention as a defence development hub, and opened up promising prospects for investors interested in the defence and high-tech sectors, as demonstrated by the new strategic partnership signed between the National Defence Administration and the Tata Group, aimed at local production of the WhAP 8x8 ground combat vehicle. "The partnership between ADN and TASM is part of a broader drive to develop Morocco's defence industry, with the

aim of gradually building strategic autonomy," he observed.

The seminar offered opportunities for joint ventures, technology sharing, and procurement potential for Indian defence companies in Morocco, officials said.








"Presentations by Moroccan officials emphasised the country's investor-friendly climate; free zones, including the Atlantic Free Zone; and incentives for foreign investments. The Indian delegation also visited the Atlantic Free Zone, gaining a comprehensive understanding of Morocco's industrial landscape," the Society of Indian Defence Manufacturers said on social media platform X.

Bilateral trade between India and Morocco was approximately \$4.1 billion in 2023, with major exports from India including refined petroleum, vehicles, and various chemicals. India is the largest buyer of phosphate from Morocco.

Topic → Morocco's Strategic Position in Defense Exports



Morocco as a Gateway for Indian Defense Exports

-  Morocco is positioning itself as a key entry point for India's defense exports to Africa and Europe.
-  Abdeltif Loudyi, Morocco's Minister Delegate for National Defence, is advocating for Indian companies to invest in the country.
-  Morocco aims to provide a state-of-the-art environment for defense companies looking to expand.
-  The country promises zero bureaucracy to facilitate smoother operations for Indian firms.
-  Profitability is a key selling point for attracting Indian defense companies to Morocco.
-  Morocco is being marketed as a strategic gateway for Indian businesses in the defense sector.
-  The initiative reflects India's broader ambitions to enhance its presence in the African market.

Centre launches Jalvahak scheme for cargo movement via inland waterways

Dinakar Peri
NEW DELHI

The Centre on Sunday launched the Jalvahak scheme to boost long-haul cargo movement via inland waterways.

The scheme incentivises cargo transport on National Waterways 1 (Ganga), 2 (Brahmaputra), and 16 (Barak) and provides an opportunity for the trade interests to explore movement of cargo via waterways with positive economic value proposition, Union Minister for Ports, Shipping, and Waterways Sarbananda Sonowal said.

He flagged off cargo ships *MV AAI*, *MV Homi Bhaba*, and *MV Trishul* along with two dumb barges *Ajay* and *Dikhu* from the G.R. Jetty in Kolkata.

This marks the beginning of fixed scheduled sailing service of cargo vessels from Haldia for NW-1



New network: Sarbananda Sonowal, Minister for Ports, Shipping, and Waterways, flags off cargo vessels in Kolkata on Sunday. PTI

(Ganga) and NW-2 (Brahmaputra), the Ministry said in a statement.

“With its advantage of being an economical, ecologically sound, and efficient mode of transportation, we want to boost cargo movement via waterways to decongest the railways and roadways,” Mr. Sonowal said.

Further, the regular scheduled freight service,

which began from Kolkata, will ensure that the cargo is transported and delivered within a stipulated time frame, he said.

35% reimbursement

The Jalvahak scheme offers reimbursement of up to 35% of the total operating expenditure incurred, the Ministry said.

To encourage the business proposition of vessel


operators, the scheme encourages cargo owners to hire vessels owned or operated by government entities. “The incentive scheme is ideal for major shipping companies, freight forwarders, trade bodies and associations that handle bulk and containerised cargo. By opting for the scheme, it provides them an opportunity to optimise their supply chain network. The scheme is initially valid for three years.”


The fixed day scheduled sailing service will ply vessels between Kolkata-Patna-Varanasi-Patna-Kolkata stretch of NW-1 and between Kolkata and Pandu in Guwahati on NW-2 via Indo Bangladesh Protocol Route (IBPR), the Ministry said.


UltraTech Cement said it became the first cement company to leverage NW-1 for gypsum transport at scale.


Topic → Jalvahak Scheme: Enhancing Inland Waterway Transport




 **Launch of Jalvahak Scheme:** The Indian government launched the Jalvahak scheme to enhance long-haul cargo movement via inland waterways.


 **Targeted Waterways:** The scheme focuses on National Waterways 1 (Ganga), 2 (Brahmaputra), and 16 (Barak) to promote cargo transport.


 **Scheduled Sailing Service:** A fixed scheduled sailing service for cargo vessels has commenced from Haldia for NW-1 and NW-2.

 **Financial Incentives:** The Jalvahak scheme offers a reimbursement of up to 35% of total operating expenses to encourage cargo transport via waterways.

 Decongesting Transport: The initiative aims to reduce congestion on railways and roadways by promoting economical and eco-friendly waterway transport.



 Business Opportunities: The scheme is designed for major shipping companies, freight forwarders, and trade bodies to optimize their supply chain networks.

 First User: UltraTech Cement became the first cement company to utilize NW-1 for large-scale gypsum transport.

Summary: The Jalvahak scheme aims to boost cargo movement via India's inland waterways, offering financial incentives and a scheduled service to enhance efficiency and reduce transport congestion

Can we make black holes reveal themselves in echoes of light?



When light passes around a black hole, its path bends. So some parts of the light take a direct route to the viewer while others pass around the black hole a few times before getting back on the original path. In this way, light emitted by a distant source in the cosmos may reach the earth at different instances, creating light echoes

Qudsia Gani

When it comes to making sense of our universe, the importance of black holes is hard to understate. Scientists know that a black hole exerts a strong gravitational pull, so much so that any object that gets closer to its centre beyond a point can never get back out. The effects of black holes on their surroundings include the release of a tremendous amount of energy. These effects are crucial to determining the structures of the galaxies they occupy and how the stars around them evolved over time.

A study published in the *Astrophysical Journal Letters* on November 7 is notable in this wider context. It was carried out by astrophysicists from the Institute for Advanced Study in Princeton, New Jersey, and led by George Wong of the School of Natural Sciences at Princeton University. In their study, the researchers presented a new method to measure the properties of black holes by using the effects they have on light flowing around them.

Signatures in the light

When light passes around a very heavy object, like a black hole, its path bends. As a result some parts of the light may take a direct route to the viewer while others may pass around the black hole a few times before getting back on its original path. In this way, light emitted by a distant source in the cosmos may reach the earth at different instances, depending on its interactions with black holes on the way. When two beams of light emitted by the same source reach the earth at different points, the beam to arrive second will be an echo of the beam that arrived first. This phenomenon is thus called a light echo.

The manner and extent to which light circles around a black hole depends on the black hole's mass and radius. If the black hole is spinning (a.k.a., a Kerr black hole), it will also depend on the object's angular momentum. Thus, according to the study, scientists can use light echoes as a new and independent way to the masses and spins of black holes.

In general, the task of measuring a black hole's mass and spin is quite tedious because all the matter, hot gases, and the radiation swirling around the object complicate observations and make signals harder to extract from the noise. Light, fortunately, is affected differently and light echoes could offer a better signal-to-noise ratio.

An object that bends light is called a



A view of the M87 supermassive black hole in polarised light as captured by the Event Horizon Telescope and released in 2021. EHT COLLABORATION (CC BY 4.0)

lens. Black holes do this by the sheer strength of their gravity; thus, the phenomenon is called gravitational lensing. Scientists theorised long ago that gravitational lensing could create light echoes, but they have not been directly measured so far. To get around this issue, the new study proposes the use of a technique called long-baseline interferometry. The principle here is that the non-simultaneous arrival of two signals – like two light beams – could interfere with each other to create a new, unique signal.

To spot light echoes created by a black hole, one telescope could be placed on the earth and the other in space. While the number of instruments may seem modest, they will have to operate with supreme technical rigour.

The main motivation for the new study was the fact that some of the supermassive black holes in the centre of the Milky Way and the nearby M87 galaxies have been found to have bright rings of light at a frequency of 230 GHz around them. The structure of these rings is influenced by astrophysical forces and the spacetime geometry of black holes, and scientists have been keen to study them in detail using very long baseline interferometry techniques. One particular aspiration is to trace the black hole's

Albert Einstein's general theory of relativity also anticipated the phenomenon of light echoes. In particular the theory predicts the echoes will be achromatic, meaning light of all frequencies should be able to form echoes

shadow on these rings to understand spacetime around the black holes.

Independent of colour

The analysis in the new study essentially focused on a black hole at the centre of the M87 galaxy – an appealing object of study for light echoes since it's quite large in the sky. But the results are also applicable to other black holes. The baseline in 'long baseline interferometry' refers to the distance between the two telescopes that receive the light. According to the study, it should be at least 40 Gλ, where Gλ is a unit of measurement that refers to the telescopes' ability to collect signals at a specific frequency.

The Princeton team also carried out preliminary high-resolution simulations to test the credibility of their technique. For this, team members collected several thousand instantaneous images of light

traveling around the M87 black hole, located nearly 55 million lightyears away, using the Event Horizon Telescope. Then they estimated the time beams of light took to travel from the near end of the black hole to its far end, which, according to their idea, would depend on the black hole's mass and angular momentum, after adjusting for the angle at which the telescope was viewing it. From this simulated data, the team inferred the echo delay.

Albert Einstein's general theory of relativity also anticipated the phenomenon of light echoes. In particular the theory predicts the echoes will be achromatic, meaning light of all frequencies should be able to form echoes. (Since Gλ is inversely proportional to the frequency, building a telescope to detect the echoes is a separate headache.) Thus any approach to detect light echoes at multiple frequencies at the same time could provide a good test of the new technique. A positive result will also be yet another confirmation that the general theory of relativity provides an accurate description of black holes.

(Qudsia Gani is an assistant professor in the Department of Physics, Government Degree College Pattan, Baramulla. qudsiagan@gmail.com)

THE GIST

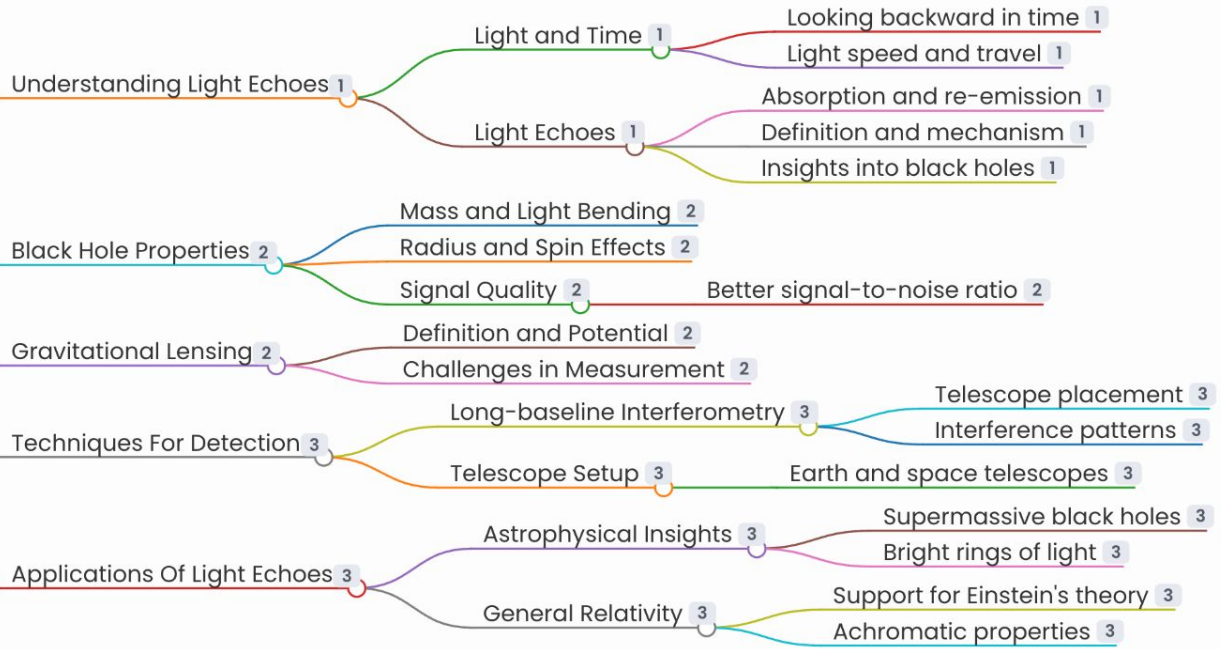
▼ The effects black holes have on their surroundings are crucial to determining the structures of the galaxies they occupy and how the stars around them evolved over time

▼ The mass and radius of a black hole impact the manner in which light behaves. The study claims that light echoes can be used as a new way to determine the masses and spins of black holes

▼ Researchers collected images of light travelling around the M87 black hole. They estimated the time light took to travel from the near end to its far end, which depends on its mass and momentum. From this data, the team inferred echo delay



Understanding Light Echoes and Black Holes





Topic → Understanding Light Echoes

- When we look outward into space, we're looking backward in time. That's because light moves at the speed of light. It takes time for the light to reach us
- But it gets even stranger than that. Light can be absorbed, reflected, and re-emitted by gas and dust, giving us a second look.
- They're called light echoes, and they allow astronomers another way to understand the universe around us.
- **Definition:** Light echoes occur when light emitted from a source is bent around a massive object, like a black hole, leading to different arrival times at the observer.
- **Mechanism:** Light can take direct or indirect paths, influenced by the black hole's gravity.
- **Significance:** Light echoes can provide insights into the mass and spin of black holes.

Key Factors Influencing Light Echoes

Black Hole Properties:

Mass: Heavier black holes bend light more significantly.

Radius: Determines the extent of light bending.

Spin: Kerr black holes have additional angular momentum effects on light paths.

Signal Quality:

Light echoes offer a better signal-to-noise ratio compared to other methods of measuring black holes.

Gravitational Lensing

Definition: The bending of light around massive objects.

Potential: Gravitational lensing can create light echoes, although direct measurements have been challenging.

Techniques for Detection



Long-baseline Interferometry:

Involves placing telescopes at great distances (minimum of $40 G\lambda$).

Captures non-simultaneous signals to create unique interference patterns.

Telescope Setup:

One telescope on Earth and another in space to capture light echoes.

Applications of Light Echoes

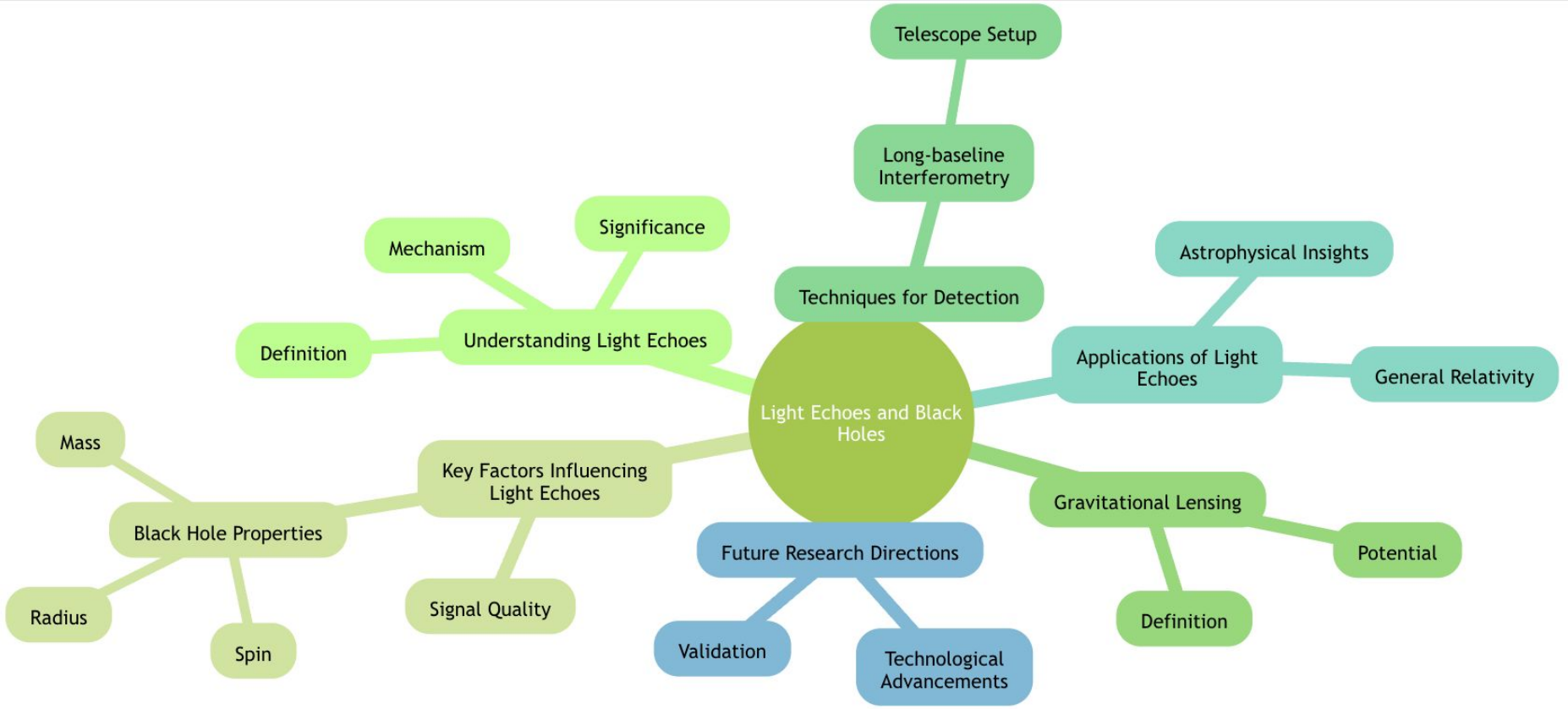
Astrophysical Insights:

Studying supermassive black holes in the Milky Way and M87.

Investigating bright rings of light around black holes at specific frequencies (e.g., 230 GHz).

General Relativity:

Light echoes support Einstein's theory, showing achromatic properties (light of all frequencies forming echoes).



Mirror life: a deadly geometry

In a mirror, left and right become swapped. While you unscrew a bottle cap anti-clockwise in the real world, in the mirror you'll be rotating it clockwise.

Anything that has a handedness — left or right — is said to be chiral.

Chiral molecules that are mirror images of each other are called enantiomers. A good example is the compound thalidomide. It was sold as a sedative for four years in the late 1950s before being withdrawn.

Scientists found that the right-handed enantiomer worked as a sedative, but the left-handed one caused severe birth defects.

In the human body itself, the amino acids used to make proteins are all left-handed whereas the DNA is right-handed (the double-helix twists to the right). The reasons are a mystery.

Scientists have been making and studying enantiomers in the lab for a long time, but recently a few of them have started on the road to creating 'microbes' — synthetic bacteria whose building blocks are enantiomers of their natural counterparts.



This illustration shows a DNA molecule twisting to the left. In our bodies, DNA twists to the right, and left-twisting DNA is absent. GETTY IMAGES

Earlier this month, an international group of scientists, including Deepa Agashe of the National Centre for Biological Sciences, Bengaluru, published a 300-page technical report and a commentary in the journal *Science* warning against efforts to build mirror life.

"Our analysis suggests that mirror bacteria would likely evade many immune mechanisms mediated by chiral molecules, potentially causing lethal infection in humans, animals, and plants," the commentary read.

- *The Hindu Bureau*




For feedback and suggestions

for 'Science', please write to science@thehindu.co.in with the subject 'Daily page'


Topic → Chirality and Its Implications





Key Concepts and Case Studies

 **Chirality Concept:** Objects can exhibit **handedness**, such as left or right, similar to how a mirror swaps left and right.


 **Enantiomers:** These are chiral molecules that are mirror images of each other. A well-known example is **thalidomide**.


 **Thalidomide Case:** Marketed as a sedative in the late 1950s, thalidomide's left-handed enantiomer caused severe birth defects, leading to its withdrawal from the market.

 **Amino Acids and DNA:** Proteins are composed of left-handed amino acids, while DNA is right-handed. The reason for this distinction remains unknown.

 **Synthetic Microbes:** Researchers are investigating the creation of synthetic bacteria using enantiomers, which may differ from natural bacteria.

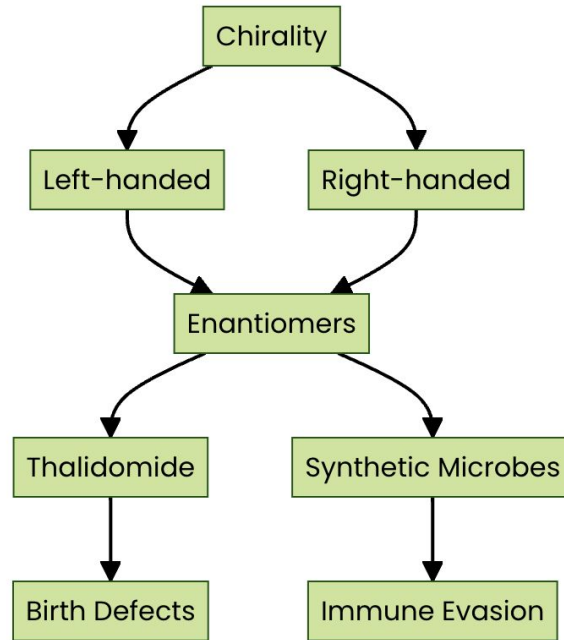


 **Warning Against Mirror Life:** A recent report highlights the risk that mirror bacteria could evade immune responses due to their chiral nature, posing threats to humans, animals, and plants.

 **Research Publication:** An international team, including Deepa Agashe, published a comprehensive report in the journal Science, discussing the potential dangers of creating mirror life.

Visual Representation

Chirality and Enantiomers:



Summary

The exploration of chiral molecules and the potential creation of synthetic mirror bacteria raises significant safety concerns due to their ability to evade immune responses.

BIG SHOT



▲ A camel caravan moves along the Erg Chebbi dunes in the Sahara outside Merzouga, Morocco, on December 5. An extratropical cyclone brought heavy rain to parts of the Sahara, including the Erg Chebbi, in early September. The runoff from the deluge created ephemeral lakes in the desert, including around the Erg Chebbi. REUTERS

Topic → Erg Chebbi: A Majestic Dune System in the Sahara Desert



Overview



Erg Chebbi is a notable dune system in the vast Sahara Desert.



Located in southeastern Morocco, close to the town of Merzouga.



Dunes can soar up to 150 meters (around 490 feet) in height.

Tourist Attractions



A favored spot for camel trekking and immersive desert experiences.



Renowned for its breathtaking sunsets and starry night skies.



Visitors often stay in traditional Berber tents to embrace the desert lifestyle.



Offers exceptional photography opportunities, especially at sunrise and sunset.

Summary

Erg Chebbi is a magnificent dune system in southeastern Morocco, celebrated for its towering dunes, tourist activities, and awe-inspiring natural beauty.

Let's talk about 'one candidate, multiple constituencies'



Ever since the panel for 'One Nation One Election' led by the former President of India, Ram Nath Kovind, recommended simultaneous elections to the Lok Sabha and State Legislative Assemblies, much has been written on its positive and negative aspects, the practical considerations and of course the politics around the subject. Amidst all the political accusations and counter-accusations, another important issue has gone missing from attention. The matter is about one candidate contesting from multiple constituencies (OCMC) for the same office.

The background, the challenges

The Constitution of India provides for regular elections every five years to the Legislative Assembly and the lower House of Parliament. However, the Constitution, other than providing for the Election Commission of India (ECI), has empowered Parliament to regulate the manner of conducting the elections. Therefore, 'contesting from multiple constituencies' has been dealt with in the Representation of the People Act 1951. Under the Act, there was no limit on the number of constituencies a candidate could contest – until 1996. This resulted in candidates contesting from multiple constituencies, sometimes more than two, winning them and vacating all but one seat, in accordance with Section 70 of the same Act. This necessitated by-elections frequently.

Due to this, Parliament amended the Act in 1996 to limit the number of constituencies that a candidate can contest from, to two. The amendment intended to discourage one candidate from contesting from multiple constituencies. Despite this, the practice has continued. The numbers are even more frequent in State Legislative Assembly elections, leading to frequent by-elections – there were 44 by-elections for State Assemblies in November 2024 due to the resignation of sitting legislators.

Frequent by-elections due to candidates winning from multiple constituencies pose several challenges. First, they add to taxpayer costs. The administrative cost of the Lok Sabha elections is borne by the central government, and Legislative Assemblies by the State governments; in the 2014 general election, it amounted to ₹3,870 crore. Adjusted for 6% annual inflation, the 2024 general election is put at a cost of ₹6,931 crore, or ₹12.76 crore per seat. If 10 politicians win from two constituencies, the extra cost of holding a by-election would be around ₹130 crore. While this is relatively small when compared to overall election spending, the real issue lies in the massive expenditure by political parties, estimated at ₹1,35,000 crore for the recent general election, or about ₹250 crore per constituency, according to the estimates by the Centre for Media Studies. This burden ultimately



Santosh Kumar Dash

an Assistant Professor at the Institute of Rural Management Anand (IRMA), Anand, Gujarat



Santosh Kumar Panda

a PhD scholar in political science at the University of Hyderabad

If 'one person, one vote' is the core democratic principle for voters, it should be 'one candidate, one constituency' for politicians

falls on the public, and much of the funding comes from black money, which undermines financial transparency.

Second, the by-election necessitated by the vacation of a winning candidate within an initial six months tends to favour the ruling party. This is borne out in by-election trends across multiple States. This emanates from the fact the ruling party can mobilise resources and provide patronage to party workers. Such a scenario of a non-level playing field is skewed against the Opposition, which has negative implications for parliamentary democracy.

Third, the financial burden of organising a by-election disproportionately falls on the already defeated candidate and their party, forcing them to spend resources once again.

Fourth, the saying "Democracy is a government of the people, by the people, and for the people" suggests that elections should serve people's needs. However, a candidate contesting from multiple seats serves as a hedging mechanism against uncertainties and often prioritises the leader's interests, not the people's. This undermines democratic principles, placing politics above the public.

Fifth, OCMC is sometimes used to enhance the reach and message delivery of the leader, relying on their popularity for electoral success. This often reflects the leader's dominance within the party, particularly in family- or leader-centric parties. Moreover, OCMC goes against the fundamental right to freedom of speech and expression of citizens. A petition filed in 2023 (*Ashwini Kumar Upadhyay vs Union of India*) argued that when people elect a representative, they trust that person to be their voice. Contesting multiple constituencies, winning them, and vacating one for a by-election violates Article 19(D)(a) of the Constitution. This practice causes voter confusion and discontent, as seen in Wayanad, Kerala, when Rahul Gandhi vacated his seat in 2024, potentially leading to voter apathy. The voter turnout was 64.24% in the bypoll and 72.92% in the general election.

Some advantages

The OCMC is common in many countries. It may also have some practical considerations. First, contesting multiple seats provides a safety net for candidates, especially in tightly contested constituencies. Second, in a polity such as India, where politics is centered around the leader and family, OCMC smoothes the leader's continuation or transition in case a leader-centric party secures a majority in the elections but the leader of the party loses out. For instance, Mamata Banerjee lost the Nandigram seat in the 2021 West Bengal Assembly elections. To make way for her, another leader elected from the Bhabanipur constituency had to resign from the

Assembly. Similar things unfolded in the case of Pushkar Singh Dhami, Chief Minister of Uttarakhand in the 2022 Assembly elections.

International experience

OCMC is not unique to India. Pakistan and Bangladesh allow candidates to contest multiple constituencies but require them to relinquish all but one seat. Pakistan places no limit on the number of constituencies a candidate can contest, as seen in the 2018 elections when the former Prime Minister contested five seats and vacated four. Similarly, Bangladesh allowed candidates to contest up to five constituencies until 2008 but now limits it to three. The practice was once common in the United Kingdom but has been banned since 1983. Most European democracies have phased it out to promote clear representation and accountability.

The misuse of the OCMC far outweighs the benefits. There have been demands for reforms, and probable solutions may be considered. First, amend Section 33(7) of the RP Act 1951 to ban one candidate contesting from multiple constituencies for the same office. The ECI, in 2004, recommended the government ban the practice. The 255th Law Commission report in 2015 made the same recommendation.

Second, recovering the full cost of by-elections from the candidate vacating a seat can serve to discourage candidates from contesting simultaneously. The ECI recommended cost imposition on candidates contesting from multiple constituencies in 2004. However, the practice of OCMC will continue as the winning candidate or political party can afford to pay the cost.

Third, a more effective deterrent would be to hold the by-elections after a year, allowing voters ample time to make an informed decision and giving the defeated candidate sufficient time to recover and prepare strategically for another contest. This would also provide a more balanced and fair electoral process. This could be done by amending Section 151A, Representation of Peoples Act 1951 which provides for by-election within six months of the occurrence of vacancy.

Holding elections requires substantial financial resources from the state. Furthermore, with elections being a round-the-year affair in India, the frequent need for by-elections takes time and money – resources that could otherwise be better invested in the country's development. However, as the issue of OCMC is political, it requires political willpower and the support of the major parties to bring about change. However, unlike the One Nation One Election, it does not have many proponents in political parties. If "one person, one vote" is the core democratic principle for voters, it is time to enforce "one candidate, one constituency" for candidates.

One Candidate Contesting Multiple Constituencies (OCMC)

- Introduction 1
 - Complex electoral landscape in India 1
 - Controversy and implications for democracy 1
 - Financial burdens and voter engagement 1
- Background and Historical Context 2
 - Representation of the People Act 1951 2
 - 1996 Amendment: Limit to two constituencies 2
 - Frequent by-elections and financial implications 2
- Challenges Posed by OCMC 3
 - Taxpayer costs and administrative burden 3
 - Political imbalance favoring ruling party 3
 - Voter disillusionment and trust issues 3
- International Perspectives and Practices 4
 - Pakistan: No limit on constituencies 4
 - Bangladesh: Limit to three constituencies 4
 - UK: Ban since 1983 for accountability 4
- Proposed Reforms and Solutions 5
 - Amend Section 33(7) of RP Act 1951 5
 - Financial penalties for vacating seats 5
 - Delayed by-elections for informed decisions 5
- Conclusion 6
 - Reflection of deeper electoral issues 6
 - Drawbacks outweigh tactical advantages 6
 - Need for fair electoral process 6

Topic -- One Candidate Contesting Multiple Constituencies (OCMC)



Introduction

- The electoral landscape in India is often a tapestry woven with complex threads of tradition, law, and political maneuvering. Among the many topics that spark debate, One Candidate Contesting Multiple Constituencies (OCMC) stands out, particularly in the wake of the One Nation One Election proposal.
- This practice has stirred considerable controversy, raising questions about its implications for democracy, financial burdens, and voter engagement. Let's unravel the layers surrounding this issue and explore why it merits our attention

Background and Historical Context

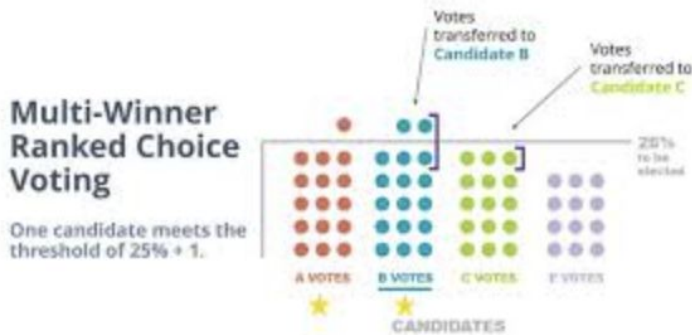
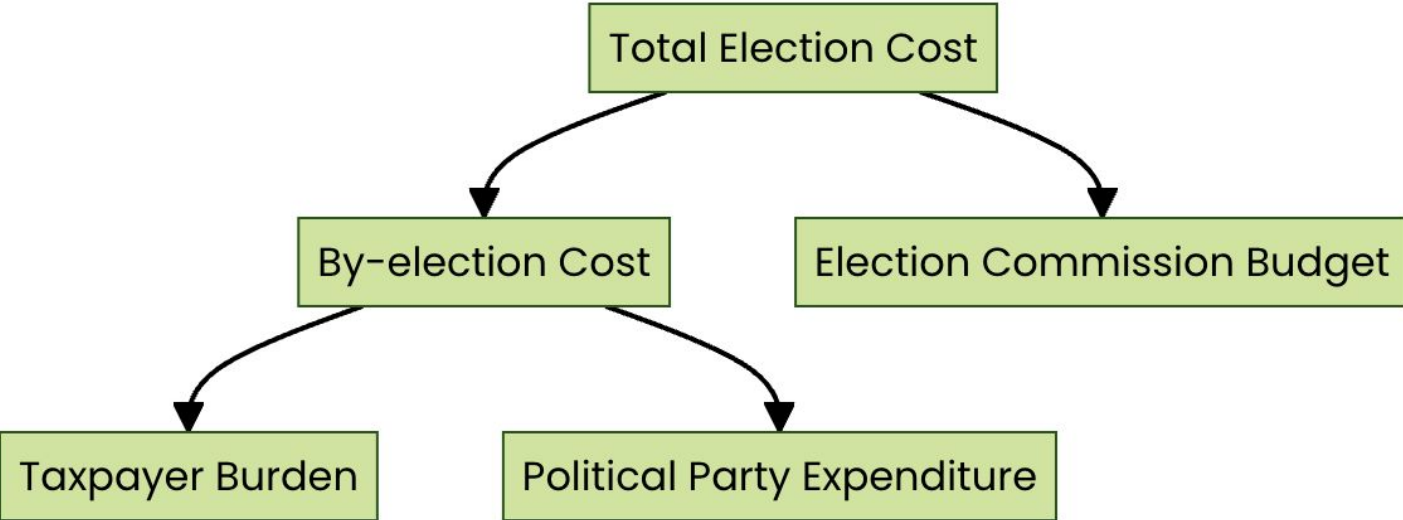


The practice of candidates contesting from multiple constituencies is enshrined within the Representation of the People Act 1951. Initially, there were no restrictions on the number of constituencies a candidate could contest from, leading to a chaotic electoral environment where candidates would secure multiple wins, vacating all but one seat.

1996 Amendment: To curb this trend, Parliament amended the Act, limiting candidates to contest from a maximum of two constituencies. Despite this, the practice persists, particularly in State Legislative Assembly elections.

Frequent By-Elections: The need for by-elections due to OCMC results in increased taxpayer costs and administrative strains, with significant financial implications.

Figure 1.1 Financial Implications of By-Elections:



Challenges Posed by OCMC



The ramifications of OCMC extend beyond mere financial considerations, touching the core of democratic integrity:

Taxpayer Costs: The administrative burden of conducting by-elections is borne by the public, leading to discontent and skepticism regarding electoral spending.

Political Imbalance: By-elections often favor the ruling party, creating an uneven playing field for opposition candidates.

Voter Disillusionment: The constant churn of candidates and seats breeds confusion among voters, diminishing their trust in electoral processes.

International Perspectives and Practices



India is not alone in grappling with the complexities of OCMC. Countries like Pakistan and Bangladesh allow candidates to contest multiple constituencies, though with varying regulations:

Pakistan: No limit on the number of constituencies, as exemplified in the 2018 elections.

Bangladesh: Initially permitted up to five constituencies but now limits candidates to three.

Historical Context in the UK: Once a common practice, it has been banned since 1983 to promote accountability.

The international perspective shows a trend towards limiting OCMC to enhance political accountability and representation.

Proposed Reforms and Solutions



Addressing the challenges posed by OCMC requires a multifaceted approach:

Amendment of Section 33(7) of the RP Act 1951: Ban candidates from contesting multiple constituencies.

Recovery of By-Election Costs: Imposing financial penalties on candidates who vacate seats can deter OCMC.

Delayed By-Elections: Holding by-elections after a year can provide voters with the necessary time for informed decision-making.

These reforms aim to restore the sanctity of electoral processes and ensure that representatives truly reflect the will of the people.

Conclusion

The persistent practice of One Candidate Contesting Multiple Constituencies is a reflection of deeper issues within the Indian electoral framework.

While it offers certain tactical advantages, the drawbacks—ranging from financial burdens to the erosion of democratic principles—far outweigh the benefits.

It's time for lawmakers to take decisive action to ensure a fair electoral process that prioritizes the electorate's needs over tactical political maneuvers.

India's firmer attempts at mineral diplomacy



As India seeks to expand its manufacturing and technological capability, critical minerals will become vital to fulfil this ambition. However, India, a major critical mineral importer, still depends on other countries, primarily China, for its mineral security, which has become a cause of strategic concern. Union Defence Minister Rajnath Singh, who voiced India's apprehensions at a defence think tank gathering, said, "While [the] scramble for resources for economic reasons has had a long history, their weaponisation by some nations for strategic reasons is a comparatively new phenomenon", hinting at Chinese attempts. To address India's mineral security challenge, which is aimed at reducing its strategic vulnerability, New Delhi has started an attempt to engage in mineral diplomacy.

Establishing joint ventures

This attempt is based on the pillars of: developing international engagement with mineral-producing countries, and establishing strategic partnerships with intergovernmental organisations. The first pillar focuses on building bilateral ties with resource-rich countries such as Australia, Argentina, the United States, Russia, and Kazakhstan to secure the supply of lithium and cobalt. To facilitate this vision, post-2019, India established the Khanij Bidesh India Ltd. (KABIL), a joint venture company with a mandate "to ensure a consistent supply of critical and strategic minerals to the Indian domestic market". The objective was to achieve mineral security by securing agreements, and acquisitions through government-to-government, government-to-business, and business-to-business routes.

In March 2022, KABIL signed a Memorandum of understanding with Australia for a critical mineral investment partnership, identifying two lithium and three cobalt projects. Latin America's Lithium Triangle, which constitutes Argentina, Chile, and Bolivia, has also attracted India's



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The moves are to reduce India's strategic vulnerability, but there are issues that need to be resolved

attention. In January 2024, India signed a \$24 million lithium exploration pact with a state-owned enterprise in Argentina for five lithium brine blocks. KABIL is also actively working to secure mineral supplies by facilitating the buying of assets from Bolivia and Chile. Apart from the government, India's private sector has also benefited. Altmin Private Limited signed an agreement with YLB, Bolivia's national company, to secure the raw material supply chain of Li-ion batteries.

Central Asia has also caught India's attention. Recently, India and Kazakhstan formed a joint venture, IREUK Titanium Limited, to produce titanium slag in India. This was one of India's first joint ventures with the Central Asian Republics. This attempt is aligned with New Delhi's proposal to establish an India-Central Asia Rare Earths Forum to leverage the region's rich resources.

Cooperative engagements

The second pillar of mineral diplomacy is international engagement, which is forging and strengthening partnerships with multilateral and multilateral initiatives related to mineral security, such as the Quad (Australia, Japan, India, the United States), the Indo-Pacific Economic Framework for Prosperity (IPEF), Mineral Security Partnership (MSP) and the G-7, for cooperation in the critical mineral supply chain. These cooperative engagements aim to align India with the global best practices in the critical mineral sector across its three segments – upstream, midstream, and downstream.

Additionally, they also facilitate knowledge sharing and capacity building, which is important for coordinating with international partners such as the U.S., the European Union (EU), South Korea, and Australia.

To further this collaboration with western partners, India's Ministry of Mines signed a MoU with the International Energy Agency to strengthen cooperation on critical minerals, helping India to "streamline its policies,

regulations, and investment strategies in the critical mineral sector, aligning them with global standards and best practices".

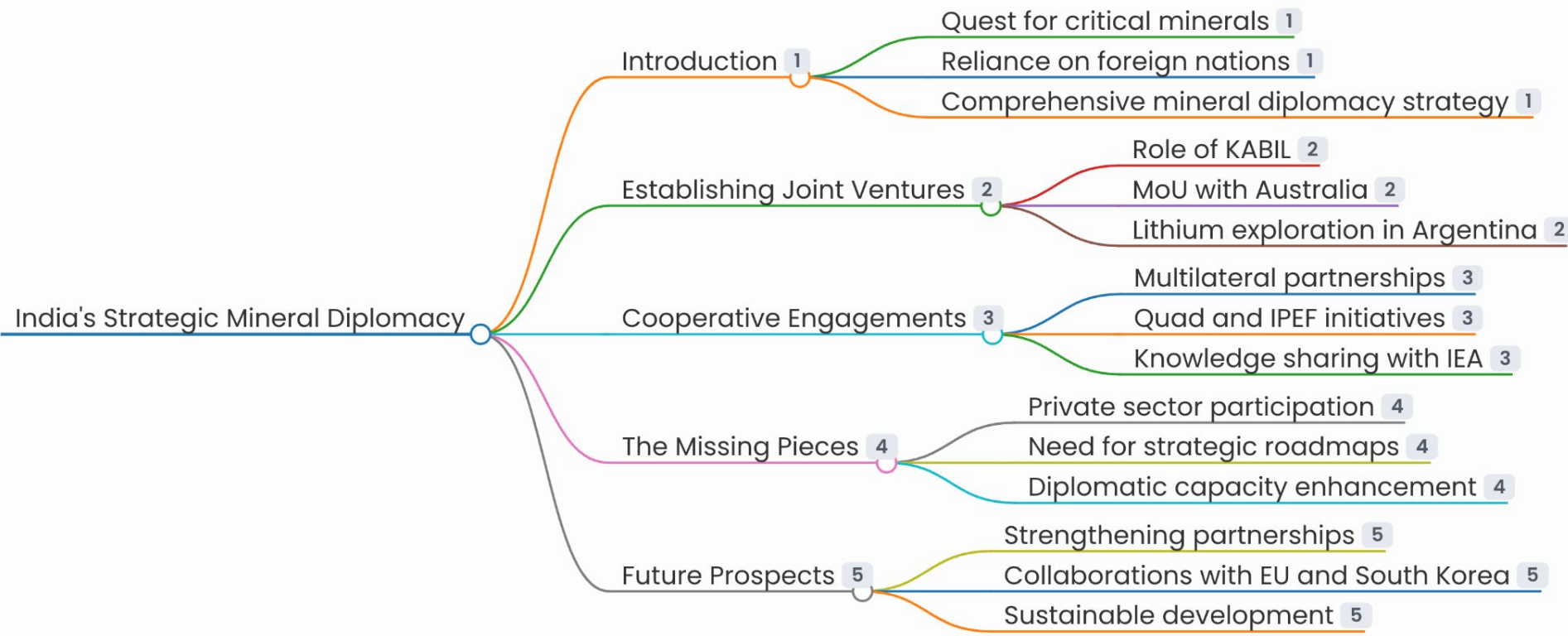
The missing pieces

India's attempt at mineral diplomacy has led to many positive outcomes, but still lacks three essential ingredients required for its international diplomatic engagement. These are: a lack of private sector participation; weak diplomatic capacity, and insufficient sustainable partnership. Also, India's private sector has largely been missing from the equation.

The absence of a critical mineral supply chain strategy and a clear road map for the private sector are two primary variables responsible for the lack of policy clarity, leading to their absenteeism. To address these, India needs to formulate a comprehensive approach for de-risking, considering the role of the private sector across the supply chain. An important step would be to have a supply chain strategy based on India's growth prospects and national security priorities.

Second, India must strengthen its mineral diplomacy engagement. Having a dedicated mineral diplomacy division within the Ministry of External Affairs, similar to the New and Emerging Strategic Technologies (NEST) division and a special position for mineral diplomacy in selected diplomatic missions can be the first step.

Third, India's goal towards mineral security necessitates that New Delhi forge strategic, sustainable, and trusted partnerships with bilateral partners and multilateral forums. Among all its partners, working with EU, South Korea, and the other Quad members is critical to India's mineral security due to its domestic capabilities, diplomatic network and technological know-how. If these issues can be resolved, India's attempts at mineral diplomacy will gain strength and will be able to better complement New Delhi's domestic critical mineral initiatives, which are currently moving at a slow pace.



Topic → India's Strategic Mineral Diplomacy: Securing the Future



Introduction

The quest for critical minerals has become paramount in India's ambition to augment its manufacturing and technological prowess.

As a significant importer of these resources, India finds itself in a precarious position, heavily reliant on foreign nations—particularly China—for its mineral security.

This strategic concern has prompted the Indian government to initiate a comprehensive mineral diplomacy strategy aimed at reducing dependency and securing essential resources for the future

Establishing Joint Ventures



India's approach to mineral diplomacy is primarily centered around the establishment of joint ventures with resource-rich nations. The Khanij Bidesh India Ltd. (KABIL) plays a crucial role in this endeavor, tasked with ensuring a steady supply of critical minerals to the domestic market.

Bilateral Agreements:

In March 2022, KABIL signed a significant Memorandum of Understanding (MoU) with Australia focusing on lithium and cobalt projects.

In January 2024, India entered into a \$24 million lithium exploration pact with Argentina, securing five lithium brine blocks.

Focus on the Lithium Triangle:

Argentina, Chile, and Bolivia have become focal points for India's mineral diplomacy, as these nations boast vast reserves of lithium essential for battery production.

Cooperative Engagements



To strengthen its mineral security, India is actively engaging in cooperative endeavors with various international partners.

Formation of Multilateral Partnerships:

India has aligned itself with initiatives such as the Quad (comprising Australia, Japan, India, and the U.S.) and the Indo-Pacific Economic Framework for Prosperity (IPEF) to enhance cooperation in critical mineral supply chains.

Knowledge Sharing:

Collaborations with the International Energy Agency aim to streamline India's policies and align them with global standards, facilitating better capacity building and knowledge exchange.

The Missing Pieces



Despite the strides made in mineral diplomacy, India faces several hurdles that impede its progress.

Private Sector Participation:

The absence of a cohesive strategy for private sector involvement has left a significant gap in India's mineral supply chain.

Need for Strategic Roadmaps:

A comprehensive approach to risk mitigation and a clear roadmap for the private sector are essential to enhance policy clarity and participation.

Diplomatic Capacity:

Strengthening India's diplomatic capacity is imperative, with suggestions to establish a dedicated mineral diplomacy division within the Ministry of External Affairs.

Future Prospects



Looking ahead, India's mineral diplomacy holds promise, provided that critical challenges are addressed.

Strengthening Partnerships:

Collaborations with key international players like the EU and South Korea can bolster India's mineral security through shared technological expertise.

Sustainable Development:

Establishing strategic and sustainable partnerships is crucial for ensuring long-term resource security, which can significantly contribute to India's economic growth and technological advancement.

The digital frontier of inequality



India stands at a pivotal moment in its digital revolution, underpinned by an internationally recognised model of digital public infrastructure. Today, India has 1.18 billion mobile connections, 700 million Internet users, and 600 million smartphones.

While the narrowing of the digital gender divide is a sign of progress, as in many countries, a surge in gender-based violence (GBV), particularly tech-facilitated GBV, threatens to overshadow gains. In response, the Union Ministry of Women and Child Development recently launched 'Ab Koi Bahana Nahi (no more excuses)', a national campaign aligned with the global '16 Days of Activism Against Gender-Based Violence'. This annual campaign is led by UN Women.

The risks

India's digital transformation has unlocked immense opportunities for empowerment. The Pradhan Mantri Jan Dhan Yojana has increased account coverage almost four-fold since 2015, with women holding 55.6% of the accounts. Digital Jan Dhan-Aadhaar-mobile linkages enable direct benefits and cashless transactions, especially in rural areas. However, this increased connectivity has also exposed women to new risks.

In urban areas, online harassment is rampant, particularly targeting women in public-facing roles such as journalists and politicians. Rural India boasts 20% more Internet users than in urban areas (2021 Nielsen report). Already constrained by societal norms, many women and girls lack the digital literacy and skills to navigate online spaces safely. Compounding the issue, many women are also unaware of their rights or the mechanisms available to them for reporting abuse.

TFGBV takes many harmful forms. These include persistent harassment such as cyberstalking, online trolling, and the non-consensual sharing of intimate images. Impersonation



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Ensuring women's safety online is not only a moral obligation but also a critical pillar for India's progress

and fraud through fake profiles, voyeurism, and grooming further exploit vulnerable individuals. These often force women and girls to retreat from digital spaces.

India has taken important steps to combat TFGBV. Legal protections, including the Information Technology Act, 2000, and the Bharatiya Nyaya Sanhita, 2024, provide a strong foundation to address digital violence. Mechanisms such as the National Cyber Crime Reporting Portal enable anonymous reporting, while the government-led Information Security Education and Awareness Programme spreads digital safety awareness. Women-specific programmes, such as Digital Shakti, launched by the National Commission for Women, equip women with tools to navigate online spaces securely. These measures mark great progress in creating safer digital spaces, though some gaps remain.

India also actively engages in international negotiations and agreements, including the 67th Session of the Commission on the Status of Women where UN member states, including India, signed off on agreed conclusions that called for "adequate safeguards in order to promote an open, secure, stable, accessible and affordable information and communications technology environment for all women and girls". This underscores India's commitment to tackling TFGBV.

The way forward

Achieving truly safe digital environments for women and girls requires more focused and strategic efforts that can keep pace with this changing and evolving digital world.

The Global Digital Compact, adopted by world leaders including India, at the UN Summit of the Future earlier this year, further strengthens legal and policy frameworks "to counter and eliminate all forms of violence, including sexual and gender-based violence that occurs through or is amplified by the use

of technology". Therefore, combating TFGBV must be a top priority. This includes enforcing stricter laws against perpetrators of online violence, and swifter justice for survivors. Holding social media platforms accountable is an important part of the tool kit to reduce TFGBV.

Expanding digital literacy programmes, particularly in rural areas, is critical. Integrating safe online practices into school curriculums and conducting community workshops for women and men, young and old, can be empowering. Additionally, nationwide campaigns that challenge societal norms and actively engage men and boys as allies can foster respectful and inclusive digital spaces.

Collaboration with India's vibrant tech industry is essential. While many platforms have introduced safety features, these need further enhancement to proactively address online abuse. Leveraging artificial intelligence to detect and remove abusive content, yet retaining human oversight, alongside introducing user-friendly reporting mechanisms, can improve safety.

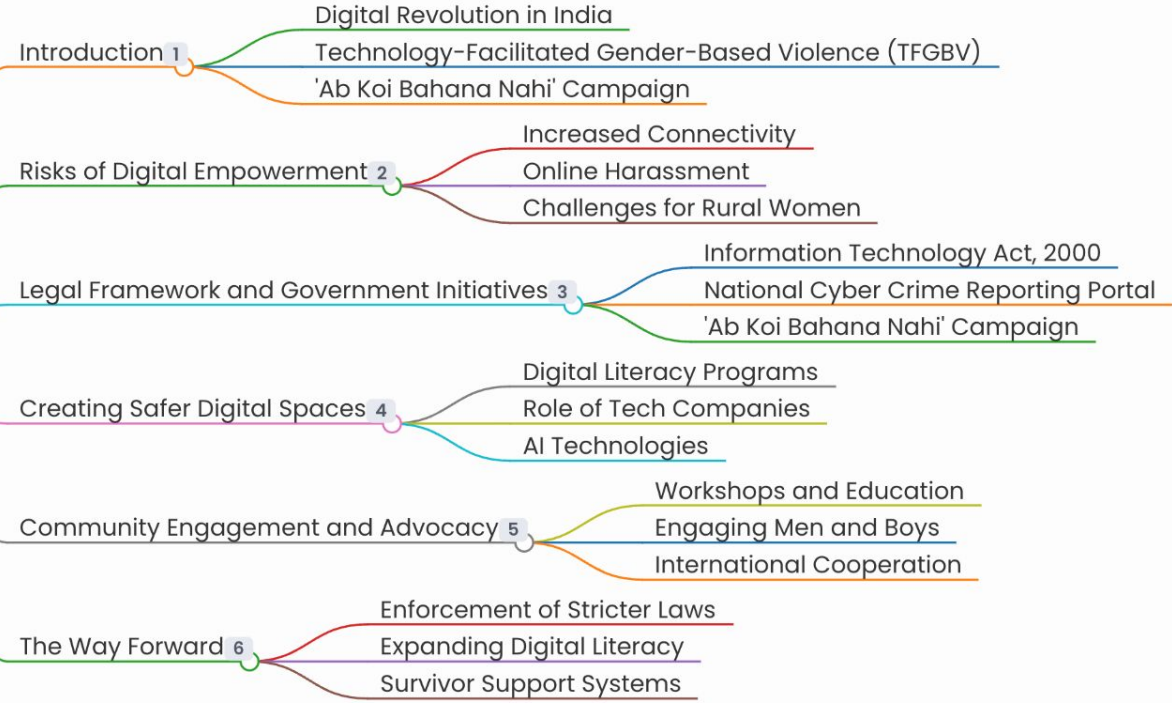
Just as important is the development of robust survivor support systems that offer accessible counselling, legal aid, and rehabilitation services. Expanding the capacity of helplines and initiatives such as TechSakhi, a helpline offering accurate information, empathetic support, and assistance, will ensure that survivors receive timely and effective assistance.

As we concluded observing the 16-Days of Activism that ends on International Human Rights Day every year, India's timely message is unequivocal: *Ab Koi Bahana Nahi*. Ensuring women's safety online is not only a moral obligation but also a critical pillar for India's progress.

Governments, tech companies, civil society groups, individuals, and international organisations have a role to play, and we in the UN Country Team are proud to be a partner in this journey.



Empowering Women in India's Digital Revolution





Topic → Empowering Women in India's Digital Revolution: Combating Technology-Facilitated Gender-Based Violence.



Introduction

India stands at a pivotal moment in its digital revolution, characterized by an impressive 1.18 billion mobile connections and 700 million internet users. While this connectivity heralds empowerment, it simultaneously ushers in a troubling surge in technology-facilitated gender-based violence (TFGBV). The Union Ministry of Women and Child Development's recent campaign, 'Ab Koi Bahana Nahi,' fortifies the fight against this burgeoning menace.

-  **Digital Landscape:** Acknowledges the dual nature of digital empowerment.
-  **Gender-Based Violence:** Highlights the urgent need for protective measures.

The Risks of Digital Empowerment



The digital transformation in India has unlocked immense opportunities for women, yet it has also exposed them to unprecedented risks.

Increased Connectivity: Women now hold 55.6% of accounts under the Pradhan Mantri Jan Dhan Yojana, which fosters financial independence.

Online Harassment: Urban women, especially in public-facing roles, are frequent targets of online harassment, such as cyberstalking and trolling.

Rural Women: Despite a higher number of internet users in rural areas, many women lack the digital literacy to navigate online spaces securely.

Legal Framework and Government Initiatives



India has laid the groundwork with robust legal protections against digital violence.

Information Technology Act, 2000: Establishes a legal framework for addressing cyber crimes.

National Cyber Crime Reporting Portal: Enables anonymous reporting of online abuse.

'Ab Koi Bahana Nahi' Campaign: This initiative aligns with global efforts to combat GBV, providing resources and support to victims

Creating Safer Digital Spaces

The responsibility to foster safer online environments extends to various stakeholders.

Digital Literacy Programs: Initiatives like Digital Shakti equip women with essential skills to navigate online safely.

Tech Companies: Platforms must enhance safety features and introduce user-friendly reporting mechanisms to curb online abuse.

AI Technologies: The integration of AI can help detect abusive content while ensuring human oversight

Community Engagement and Advocacy



Creating awareness and engaging communities are pivotal in combating GBV.

Workshops: Community-led workshops can empower women and educate them about their rights.

Engaging Men and Boys: Involving them as allies fosters a culture of respect and accountability.

International Cooperation and Agreements

India's commitment to combating TFGBV is reflected in its participation in international agreements.

UN Initiatives: Engaging in global platforms reinforces the need for a collaborative approach to tackle GBV.

Legal Framework Enhancements: Strengthening laws at both national and international levels is essential for comprehensive protection

The Way Forward



To ensure a safer digital environment for women, concerted efforts from all stakeholders are paramount.

Enforcement of Stricter Laws: Holding perpetrators accountable must be a priority.

Expanding Digital Literacy: Programs must reach rural areas to empower all women.

Survivor Support Systems: Initiatives like TechSakhi provide critical support and resources.

How would a carbon market function?



What are carbon credits and how would they be traded between firms? Why do corporations not want the government to be involved in the issue of carbon credits? Who introduced the concept of carbon credits? Why are some experts critical of carbon offsets?

EXPLAINER

The Hindu Bureau

The story so far:

COP29, the ongoing climate conference in Azerbaijan's capital Baku, has given a fillip to the idea of using carbon markets to curb carbon emissions by approving standards that can help in the setting up of an international carbon market as soon as the coming year.

What is a carbon market?

A carbon market is a market that allows the buying and selling of the right to emit carbon into the atmosphere. Suppose a government wants to limit the amount of carbon emitted into the atmosphere. It can issue certificates called carbon credits that allow the holder of the certificate to emit a certain amount of carbon into the atmosphere. One carbon credit is equivalent to 1,000 kilograms of carbon dioxide. By limiting the number of carbon credits that are issued, governments can control how much carbon is released into the environment. It should be noted that anyone who doesn't hold carbon credits to their name would not be allowed to emit any carbon into the atmosphere. Carbon credits were first used in the 1990s in the U.S., which introduced the cap-and-trade model to control the emission of sulphur dioxide.

Individuals and firms that hold carbon credits but don't actually need them for any reason can sell their credits to interested buyers. The price at which these carbon credits are traded is determined by market forces, which in this case are the supply of carbon credits and the demand for these certificates. A carbon market can also include the trading of carbon offsets. In this case, a business that pollutes the environment for example, can purchase carbon offsets sold by an environmental NGO that promises to plant trees that suck a certain amount of carbon emissions out of the



ISTOCKPHOTO

atmosphere for each offset that it sells.

What is good about carbon markets?

Pollution of the environment and climate change caused by carbon emissions is a classic case of what economists call an externality. An externality is caused when the cost of an economic activity is not properly accounted for (or internalised) by the market price system due to the absence of well-defined property rights. For example, a business that uses raw materials such as iron will have to pay the supplier who owns the iron to be able to procure and use it, thus incurring a certain cost. But when the same firm emits carbon into the atmosphere, it doesn't usually have to pay any money to anyone. In other words, firms are generally able to emit their waste into the atmosphere for free. This of course leads to unhindered pollution of the

atmosphere as firms in this case have no financial incentive to curb their carbon emissions. Carbon markets in which the right to pollute is traded for a price can solve the problem by imposing a certain cost on firms for polluting the atmosphere, helping to curb emissions in the process.

The intersection of standardised accounting frameworks and technological advancements has improved the ability of corporations to monitor and report their carbon emissions. While, this is difficult for the vast majority of small businesses in the developing world, particularly in accurately capturing supply chain emissions, ongoing developments, like real-time data tracking of the energy sector, continue to enhance the granularity and reliability of corporate carbon accounting. However, corporations have preferred a voluntary

reporting system, like the Carbon Disclosure Project. They have been loathe to government interventions limiting carbon emissions, arguing that such budgeting may lead to output restrictions or rise in costs. They also point to varied production processes, some that might have diverse supply chains that might make it difficult to find the optimal carbon budget for their facilities. Large multinational corporations such as ExxonMobil and General Motors have advocated for carbon markets that allows free trading of carbon credits among firms at a price determined by market forces, that would allow these firms to purchase carbon credits from other firms, which don't need them as much. This they say, helps allocate carbon credits more efficiently than government diktat.

What can go wrong?

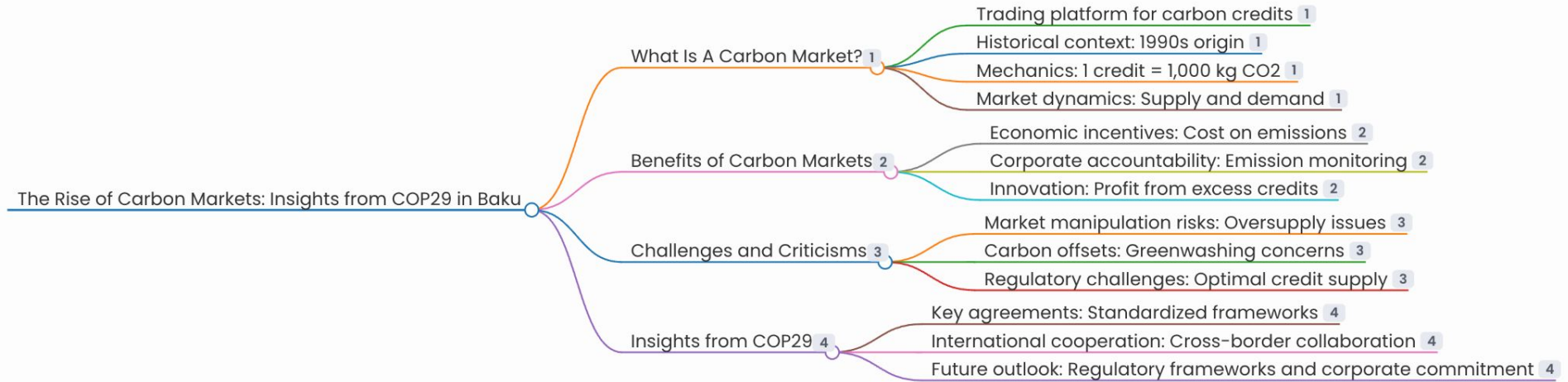
Even when there is a functioning carbon market, a government that is not very keen on reducing emissions may increase the supply of carbon credits and drive down the price of the right to pollute, leading to no noticeable drop in emissions. Others may keep a strict cap on the supply of carbon credits but allow firms to cheat by allowing them to illegally emit carbon. The success of carbon offsets also depends on the degree of personal incentive that firm owners possess to care about carbon emissions, which may often be very little. Critics claim that firms that purchase carbon offsets often do it for the sake of virtue signalling and may have little incentive to ensure that their investments in these instruments are actually helping offset carbon emissions. Meanwhile, other critics have raised more fundamental questions regarding how exactly a government would be able to arrive at the optimum supply of carbon credits. They argue that politicians, who do not incur any personal economic cost when they legislate emission reductions, may restrict the supply of carbon credits more than what is really necessary, leading to slower economic growth.

THE GIST

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What is a Carbon Market?

A carbon market serves as a trading platform for carbon credits, which are certificates representing the right to emit a specified amount of carbon dioxide (CO₂). This innovative mechanism allows governments and businesses to buy and sell these credits, creating a financial incentive for reducing greenhouse gas emissions.

Historical Context: The concept of carbon markets originated in the 1990s, driven by the need to address environmental externalities associated with carbon emissions. The U.S. introduced the cap-and-trade model to control sulfur dioxide emissions, setting a precedent for future carbon trading systems.

Mechanics of Carbon Credits: One carbon credit equates to 1,000 kilograms of CO₂. Governments issue a limited number of credits, incentivizing firms to innovate in emission reduction strategies.

Market Dynamics: The price of carbon credits fluctuates based on supply and demand. A scarcity of credits can drive prices up, thus encouraging more companies to invest in sustainable practices.

The Benefits of Carbon Markets



Carbon markets offer numerous advantages, primarily focusing on economic efficiencies and environmental accountability.

Economic Incentives: By assigning a cost to carbon emissions, firms are encouraged to reduce their output. This market-driven approach ensures that the most cost-effective solutions are prioritized.

Encouraging Corporate Accountability: Companies are now more motivated to monitor and report their emissions accurately. The intersection of technological advancements has enhanced data tracking, although some smaller businesses still face challenges.

Facilitating Innovation: The potential for profit from selling excess credits incentivizes firms to develop cleaner technologies and processes

Challenges and Criticisms of Carbon Markets



Despite their potential, carbon markets face significant challenges that can undermine their effectiveness.

Market Manipulation Risks: Inadequate regulations can lead to oversupply of credits, diminishing their value and effectiveness in curbing emissions.

Concerns Over Carbon Offsets: Critics argue that purchasing offsets can lead to "greenwashing," where companies invest in offsets without making substantial changes to their emissions practices.

Regulatory Challenges: Governments may struggle to establish optimal credit supply levels, risking either excessive restrictions or ineffective measures

Insights from COP29: Bridging the Gap



The recent COP29 climate conference in Baku highlighted pivotal agreements that may shape the future of global carbon markets.

Key Agreements: Delegates reached significant consensus on establishing standardized carbon trading frameworks, which can enhance transparency and efficiency in the market.

International Cooperation: The necessity of collaboration across borders has become increasingly apparent, as climate change knows no boundaries.

Future Outlook: Moving forward, the success of carbon markets will depend on robust regulatory frameworks and genuine corporate commitment to sustainability.



Why is the BJD opposing the Polavaram project?

What are the concerns of tribal communities residing in Odisha's Malkangiri district?

Satyasundar Barik

The story so far:

The Biju Janata Dal (BJD) has recently intensified its efforts to highlight the potential adverse impacts of the Polavaram Dam project, undertaken by the Andhra Pradesh government, on the tribal communities in Odisha's Malkangiri district. A delegation comprising BJD's Rajya Sabha members submitted a fresh memorandum to the Central Water Commission (CWC), the Ministry of Tribal Affairs, the National Commission for Scheduled Tribes and the Ministry of Environment, Forest and Climate Change stating that the impact of submergence due to 'unilateral' change in the design of the project has not yet been studied.

What is the status of the project?

Andhra Pradesh Chief Minister N. Chandrababu Naidu has vowed to

complete the Polavaram Project on River Godavari by 2027 as the interstate dispute involving mainly Odisha, Chhattisgarh and Andhra Pradesh has entered a crucial phase. The Union government has assured ₹15,000 crore in this year's budget for the completion of the project.

However, the BJD has alleged that the CWC had refused to conduct a backwater study for the revised design flood, despite the recommendations of experts and the Odisha Government's concerns regarding the safety of tribal populations. The BJD argued that various studies, including those by the Government of Andhra Pradesh and CWC, have shown different estimates for submergence levels. "A backwater study by AP in 2009 indicates that 50-lakh cusec flood will cause submergence up to 216 feet in Odisha, far exceeding the originally agreed maximum level of 174.22 feet. A report from IIT Roorkee in 2019 further estimates that a flood of 58 lakh cusecs would result in

submergence levels of Reservoir Level of 232.28 feet in Odisha," it said.

How did the project start?

The Polavaram Irrigation Project on the river Godavari was conceived as a part of the recommendations of the Godavari Water Disputes Tribunal (GWDT). Andhra Pradesh, Madhya Pradesh and Odisha had entered into an agreement dated April 2, 1980, where the project was to be executed by Andhra Pradesh. As per the Andhra Pradesh State Reorganization Act (APRA), 2014, the Polavaram Irrigation Project was declared as a national project.

In response to an RTI query, the Ministry of Jal Shakti said that the maximum height of the concrete dam of Polavaram Project, measured from the deepest foundation level (-18.50m) to the top of bridge is 72.60 metre. The initial project cost was ₹10,151.04 crore in 2005-06 which reached ₹55,548.87 crore in 2019.

What are the concerns?

Though no comprehensive study has been carried out with regards to the likely submergence of the Malkangiri district by backwaters due to the Polavaram project, the Odisha State government in the year 2016 submitted to the NCST that the project was going to submerge 7,656 hectares of land, including forestland, and displace more than 6,800 people including 5,916 tribals in Malkangiri.

The Ministry of Jal Shakti said that as per the Water Resource Department of Andhra Pradesh, by providing remedial measures such as constructing protective embankments for a length of 30 kms along Sileru and Sabari River in Odisha, and 29.12 km along Sabari River in Chhattisgarh, the submergence in both Odisha and Chhattisgarh could be avoided completely. In August this year, the Ministry had asked the State Pollution Control Boards of Odisha and Chhattisgarh to conduct a public hearing for the construction of protective embankments without further loss of time as the project is in an advanced stage of construction. The Odisha State Pollution Control Board is yet to hold a public hearing. The Odisha government had earlier expressed its reservation over the high protective embankment saying it was not feasible. "The construction of an embankment requires the diversion of forestland and creates flooding in Odisha territory."

THE GIST

▼
The Biju Janata Dal (BJD) has recently intensified its efforts to highlight the potential adverse impacts of the Polavaram Dam project, undertaken by the Andhra Pradesh government, on the tribal communities in Odisha's Malkangiri district.


▼
The Polavaram Irrigation Project on the river Godavari was conceived as a part of the recommendations of the Godavari Water Disputes Tribunal (GWDT).

▼
The Odisha State government in the year 2016 submitted that the project was going to submerge 7,656 hectares of land, including forestland, and displace more than 6,800 people including 5,916 tribals in Malkangiri.


Topic → Polavaram Dam Concerns and Developments




BJD's Concerns

 The Biju Janata Dal (BJD) is raising alarms about the Polavaram Dam's potential negative effects on tribal communities in Odisha's Malkangiri district.

Memorandum Submission


 A BJD delegation submitted a memorandum to various central authorities, highlighting the lack of studies on the impacts of the dam's design changes.

Project Status


 Andhra Pradesh Chief Minister N. Chandrababu Naidu aims to complete the Polavaram Project by 2027, with ₹15,000 crore allocated in the current budget.

Disputed Estimates




 The BJD claims that different studies show varying estimates for submergence levels, with some suggesting levels could exceed previously agreed limits.

Land and Displacement


 The Odisha government estimates that the project could submerge 7,656 hectares of land and displace over 6,800 people, including 5,916 tribals.

Remedial Measures



 The Ministry of Jal Shakti proposed protective embankments to mitigate submergence, but the Odisha government has reservations about their feasibility.

Historical Context

 The Polavaram Project was initiated based on a 1980 agreement among Andhra Pradesh, Madhya Pradesh, and Odisha and was declared a national project in 2014.

Summary: The BJD is actively opposing the Polavaram Dam project due to concerns over its impact on tribal communities and land in Odisha, while the Andhra Pradesh government pushes for its completion by 2027.

Polavaram Project Overview



Project Overview

Multi-purpose Initiative: The Polavaram Project is a significant irrigation project on the Godavari River in Andhra Pradesh, currently under construction.

National Project Status

Central Government Recognition: Designated as a National project, underscoring its importance.

Reservoir Reach

Backwater Extension: The reservoir extends approximately 150 km upstream on the main river and 115 km on the Sabari River, impacting regions in Chhattisgarh and Odisha.

Tourism Boost

Enhancement in Tourism: Expected to boost tourism in the Godavari Districts, especially near Papikonda National Park.

Hydroelectric Development

Hydroelectric Project: The Polavaram hydroelectric project is being constructed alongside the irrigation project.

National Waterway 4

Water Transport Development: Includes the development of National Waterway 4 on the river's left side.

Proximity to Key Locations

Strategic Location: Located 40 km upstream from the Sir Arthur Cotton Barrage and 25 km from Rajahmundry Airport.

Summary: The Polavaram Project is a crucial multi-purpose irrigation initiative in Andhra Pradesh, enhancing tourism and hydroelectric power while affecting neighboring states



Gujarat aims to complete 500 sq. km greenfield port city project by 2047

With a massive port capable of handling 500 mtpa at its core, the project seeks to integrate port-related industries, marine activities, residential complexes, industries and recreational activities; the State government is now in the process of identifying a site from four shortlisted options

NEWS ANALYSIS

Avinash Nair

Drawing inspiration from international port cities such as Rotterdam, Dubai, and Antwerp, the Gujarat government is revisiting a decade-old idea of building India's first greenfield port city spread over 500 sq km. It targets completion by 2047 with a cumulative investment of ₹1.5 lakh crore, giving the State a maritime edge countrywide.

With a massive port, capable of handling 500 million tonnes per annum (MTPA), at its core, the project seeks to integrate port-related industries, marine activities, residential complexes, industries and recreational activities. "It is a long-term project. We are in the process of identifying a site from the four shortlisted sites," says a senior State government official.

Gujarat currently accounts for 66 % of the cargo handled by non-major ports in the country, followed by Andhra Pradesh (14%) and Maharashtra (9%) at a distant second and third. This year alone, non-major ports in Gujarat (which include the private ports of Mundra and Pipavav) handled 229 million tonnes of cargo during



Healthy growth: Gujarat's cargo handling capacity has risen five times in the last 20 years. FILE PHOTO

April-October 2024. By 2047, Gujarat targets handling 2,200 MTPA, almost four times its existing capacity.

Gujarat Maritime Board (GMB), which is spearheading the port-city project, has appointed global real-estate consultants Cushman and Wakefield (C&W) to prepare a master plan for the project. "The development (of the project) will be spread over a couple of decades," says an executive from C&W.

Porbandar, Bhavnagar, Surat, and Valsad are the four shortlisted sites for the planned port-city. These locations were selected based on key factors



We are not looking to retrofit an existing city or port. We are looking to build the entire port-city from scratch

A Cushman and Wakefield executive

such as proximity to deep-water access, availability of waterfront space, connectivity to robust road and rail networks, and potential to support sustainable industrial growth.

Government insiders say the strongest contender among the four sites is Maroli/Nargol in Valsad

district. Bhavnagar's strengths include its deep draught and strategic location, while Surat – located near the industrial powerhouse of Hazira – finds favour for its established infrastructure and close links to major ports and industries, making it ideal for both industrial and port-led development.

Decades-old idea

In 2013, Gujarat had first mooted the idea for the development of two port cities at Mundra in Kutch district and Pipavav in Saurashtra, respectively. GMB had prepared a concept plan for a ₹6,000 crore, 500 sq. km Mundra

port city, scheduled for completion by 2041 and capable of housing 15 lakh people. Later, the diversified conglomerate GVK Group had also proposed to build a port city at Dahej in South Gujarat.

The proposed site was thereafter shifted to Okha on the western end of the State. None of those projects took off.

Challenges

While the key hurdle is in identifying a suitable site, an even bigger challenge is in finding a 500 sq. km contiguous land parcel. "We are not looking to retrofit an existing city or port. We are looking to build the entire port-city from scratch," the C&W executive says.

Another challenging task involves the construction of a 500 MTPA port, which roughly equals the 48 existing non-major ports in Gujarat with 593 million tonnes capacity. State government officials say this is feasible as Gujarat's cargo handling capacity has risen five times in the last 20 years. From 84 million tonnes in 2002-03, cargo handled by Gujarat's non-major ports rose to 415 MTPA in 2022-23. However, most of it is handled by two private ports, Mundra and Pipavav. Gujarat's maritime ecosystem has 48 non-major ports, of which only 20 are functional, according to data tabled in

the Lok Sabha in 2021.


The concept for developing a port city also finds mention in GMB's Vision 2047 document, which was released during the Vibrant Gujarat summit earlier this year. Currently boasting a ship turnaround time of 70 hours, Gujarat targets cutting it to 40 hours. The lone major port in Gujarat, Kandla, had a turnaround time of 54 hours in 2023-24, while another major port in neighbouring Maharashtra – Jawaharlal Nehru Port – comes in at an impressive 26 hours.

The development of state-of-the-art port facilities is fundamental to the success of any port city. With the continuous increase in the size and depth of sea-going vessels, demand is set to grow for larger, deep-draught terminals with longer quays and advanced mechanisation. Gujarat's proposed port city is expected to have deep-draught multipurpose terminals, shipbuilding and repair facilities, marina, water sports and more. It will include industrial units, exim zones, warehouses, cold storage, hi-tech parks and multimodal connectivity.

Once the master plan and the location are finalised, tenders will be floated, inviting developers for the port city.

(The writer is with The Hindu businessline)

Topic → Green field port city


 The Gujarat government is inspired by international port cities like Rotterdam, Dubai, and Antwerp.


 A decade-old proposal is being revisited to build India's first greenfield port city.

 The planned port city will cover an area of 500 square kilometers.

 Target completion year for the project is set for 2047.

 The project aims for a cumulative investment of ₹1.5 lakh crore.


 The initiative is expected to enhance Gujarat's maritime capabilities on a national level.


 Four potential sites for the port city include Porbandar, Bhavnagar, Surat, and Valsad.


Summary: Gujarat plans to develop India's first greenfield port city by 2047, inspired by global counterparts, with a significant investment and four potential locations.


What are greenfield ports??



 Definition: Greenfield ports refer to new port developments that are constructed on undeveloped land, as opposed to expanding or upgrading existing ports.

 Construction: These ports are built from the ground up, allowing for modern designs and technologies to be implemented.

 Location: Greenfield ports are often situated in strategic locations to enhance trade and shipping efficiency.

 Environmental Considerations: The development of Greenfield ports typically involves environmental assessments to minimize ecological impact.

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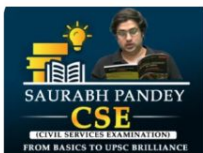
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Week -3 -Ethics and integrity

Week -4 - Ethics and integrity

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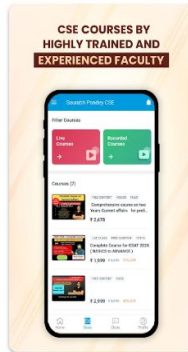
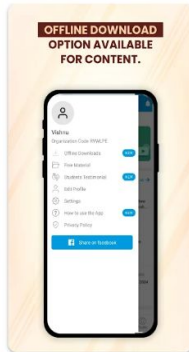
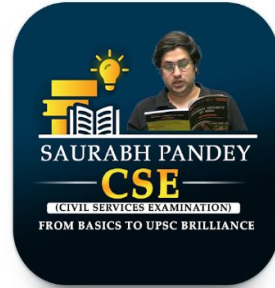
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