

The Hindu Important News Articles & Editorial For UPSC CSE

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Chief Justice of India Sanjiv Khanna on Friday said the idea of 'socialism' in India primarily meant a welfare state that provides equality of opportunity for all, and not a dictatorial dogma rammed down on citizens.

- ➔ Heading a Bench comprising Justice Sanjay Kumar, the Chief Justice of India reasoned that the concept of socialism in India did not negate the participation of private players or negate individualism.

Socialism in India means a welfare state, not a dictatorial dogma: CJI

Krishnadas Rajagopal
NEW DELHI

Chief Justice of India Sanjiv Khanna on Friday said the idea of 'socialism' in India primarily meant a welfare state that provides equality of opportunity for all, and not a dictatorial dogma rammed down on citizens.

Heading a Bench comprising Justice Sanjay Kumar, the Chief Justice of India reasoned that the concept of socialism in India did not negate the participation of private players or negate individualism.

The Supreme Court was hearing a batch of petitions, one of them by BJP leader Subramanian Swamy, challenging the inclusion of the words 'socialist, secular' in the Preamble of the Constitution in 1976 with retrospective application. The petitioners have

 Socialism here means that there should be equal opportunities for all; it never prevented the private sector from thriving here

SANJIV KHANNA
Chief Justice of India

challenged the validity of Section 2 of the Constitution 42nd Amendment Act of 1976, and particularly the change in the Preamble. One of the petitioners argued that the dogma of socialism cannot prevail over other ideas, and it was wrong to force upon the nation one particular economic theory.

Equality of opportunity
"Socialism here means a welfare state where there should be equality of opportunity for all. It has never prevented the private



sector from thriving here. We have all benefited from the private sector... The idea of socialism runs through many Articles of the Constitution," Chief Justice Khanna responded.

Advocate Ashwini Kumar Upadhyay, a petitioner, said the "Preamble is a statement of adoption of the Constitution by the Constituent Assembly on November 26, 1949, and cannot be changed as it is an unalterable fact". The inclusion in the Preamble was done without States' ratification, which reflect-

ed the "will of the people". Mr. Upadhyay contended that the changes made amounted to a "fraud on the Constitution". He pointed out that the 42nd Constitution Amendment Act was passed in the thick of the Emergency days when the "voice of the people was silenced".

But the Chief Justice firmly pointed out that socialism and secularism were part of the Basic Structure of the Constitution.

CPI leader and former Rajya Sabha member, Binoy Viswam, represented by advocate Sriram Parakkat, described the pleas as a ruse to remove 'socialist, secular' from the Preamble in order to campaign for votes in the name of religion. Mr. Parakkat said the top court had specifically banned seeking votes in the name of faith.

What is Socialism?

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➔ Definition:

- Socialism generally means the production of goods to fulfill the needs of people and not for trade to obtain profit which is an attribute of capitalism.
- Narayan defined socialism as the 'system of social reconstruction'. For him, socialism means reorganising economic and social life through the process of socialisation.
- This involves reorganisation of the means of production and promoting collective means of ownership thus abolishing private ownership.
- Russel defined socialism as 'the advocacy of communal ownership of land and capital'.
- By communal ownership means the democratic mode of ownership by the state which is for the common interest of all.
- According to M.K. Gandhi, socialism as a society is one in which 'members of society are equal none low, non-high'.

➔ Background:

- Socialism is a concept that has its roots in socio-economic doctrine. The term was coined by Saint Simon in the early 19th century in the West.
- Socialism, as an ideological and political movement, emerged as a response to the inequalities and injustices perceived in capitalist societies.
- Unlike capitalism, which champions private ownership and market competition, socialism advocates for common ownership of the means of production.
- Early socialism was not a monolithic ideology but rather a collection of values and beliefs that shared a common opposition to private ownership.

➔ Basic Notions of Socialism:

- Generally, the term socialism is used in two different yet interdependent ways:
- One is that socialism denotes values, ethics, and other principles of this sort of imagination. Socialism in this sense is characterised by the ideas of liberty, equality, fraternity, social justice, classlessness, cooperation, abundance, peace and so on.
- Second is that it signifies the practical aspects of socio-political institutions that also symbolise the socialist principles.

➔ What are the Prerequisites of Socialism?

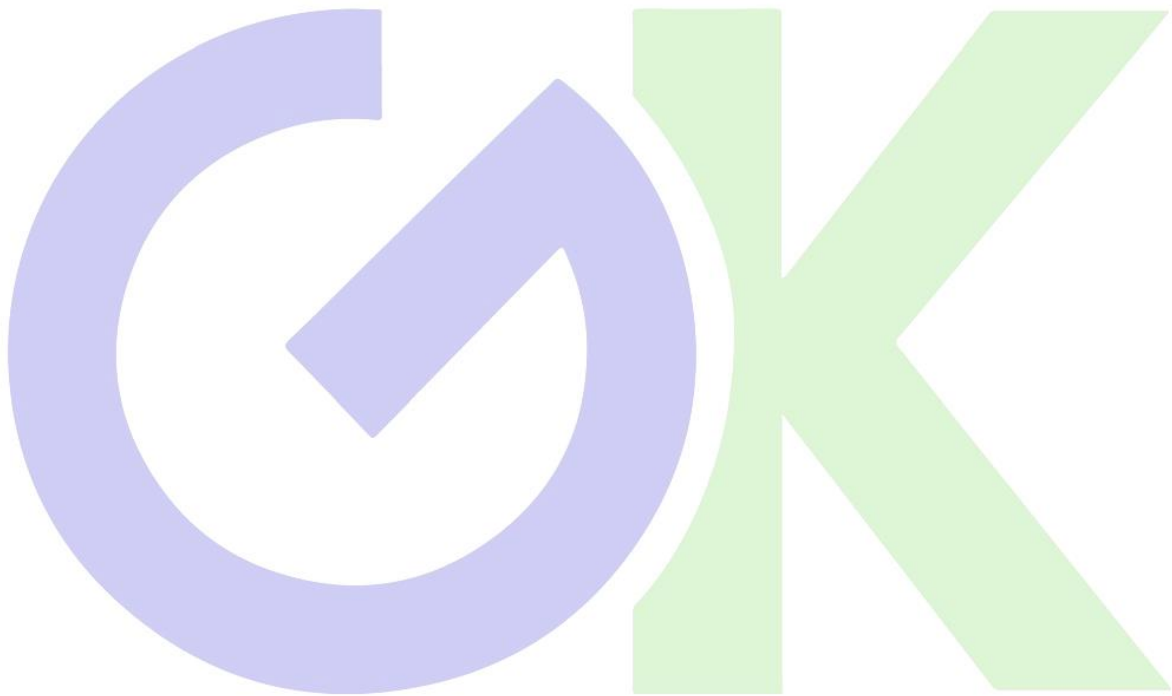
- **Emphasis on Society:** Socialism prioritises societal welfare over individual interests, promoting cooperation and collective benefits. It encourages production based on societal needs and ensures equal opportunity for everyone.
- **Socialism vs. Capitalism:** Socialists oppose capitalism due to its issues like class conflict and unequal distribution, which hinder social justice. They advocate for social justice, equality, and cooperation, rejecting capitalist profit-driven ownership.
- **Equality in Socialism:** Socialism aims to eliminate the inequalities found in capitalism, such as disparities in income and wealth. It fosters a system where production is controlled collectively, ensuring equal relationships between labor and resources.

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- **Abolition of Private Property:** Socialism abolishes private property, transferring ownership of production and distribution from individuals to society as a whole. This shift creates a more egalitarian system where all members share ownership and benefits.



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The Free Trade Agreement negotiations with India — expected to significantly boost the estimated GBP 42-billion a year bilateral trade partnership — will be relaunched early in the new year, Prime Minister Keir Starmer has informed the U.K. Parliament here.

FTA negotiations with India to restart in early 2025, U.K. PM Starmer tells Parliament

Press Trust of India

LONDON

The Free Trade Agreement negotiations with India — expected to significantly boost the estimated GBP 42-billion a year bilateral trade partnership — will be relaunched early in the new year, Prime Minister Keir Starmer has informed the U.K. Parliament here.

It came during his statement to update the House of Commons on Thursday about his G-20 Summit visit to Brazil, where he said he had a “good discussion” with Prime Minister Narendra Modi among other world leaders.

“I had a good discussion with Prime Minister Modi



Keir Starmer

about deepening our bilateral ties,” Mr. Starmer told the members of Parliament. “We agreed to raise the ambition of our U.K.-India comprehensive strategic partnership, which covers security, defence, technology, climate, health and education, building on the unique bonds and cul-

tural ties between our two countries.”

“Crucially, this work will start with trade and investment and I am pleased to say that we agreed to relaunch Free Trade Agreement negotiations early in the new year,” he said.

The talks had been paused in the 14th round as the general election cycles kicked in for both nations.

“Boosting economic growth is key to improving living standards for working people. A new trade deal with India will support jobs and prosperity in the U.K. — and represent a step forward in our mission to deliver growth and opportunity across our country,” Mr. Starmer said.

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What is the Background of India-UK Free Trade Agreement?

- ➔ In 2022, India and the UK had launched the formal Free Trade Agreement (FTA) negotiations. Until then, both countries are contemplating an interim free trade area, which will result in reducing tariffs on most of the items.
- ➔ Both countries agreed to an early harvest scheme or a limited trade agreement to lower tariffs on a small set of goods apart from easing rules for select services.
- ➔ Further, they agreed to avoid "sensitive issues" and focus on areas where there is more complementarity.
- ➔ The agriculture and dairy sectors are considered sensitive sectors for India in trade talks.
- ➔ Also, a target of doubling the trade between India and the United Kingdom (UK) by 2030 was also set.

What is a Free Trade Agreement?

- ➔ It is a pact between two or more nations to reduce barriers to imports and exports among them.
- ➔ Under a free trade policy, goods and services can be bought and sold across international borders with little or no government tariffs, quotas, subsidies, or prohibitions to inhibit their exchange.
- ➔ The concept of free trade is the opposite of trade protectionism or economic isolationism.
- ➔ FTAs can be categorized as Preferential Trade Agreement, Comprehensive Economic Cooperation Agreement, Comprehensive Economic Partnership Agreement (CEPA).

Page 09 : GS 3 : Environment – Environmental pollution and degradation

Ashtamudi Lake, a Ramsar site in Kerala, faces severe pollution from untreated sewage, plastic waste, and sedimentation.

➔ This has led to biodiversity loss, algal blooms, and declining livelihoods for fishers.

A lake ecosystem gasping for breath

A recent episode of fish kill in Ashtamudi Lake has once again brought to the fore the life-threatening issues of sewage contamination, plastic pollution, encroachments, and uncontrolled weed growth stalling the vital lake ecosystem, a protected site of international importance. **Navamy Sudhish** traces the reasons for the lake's ill health, which is deteriorating each day



Dead fish floating on Ashtamudi Lake at Kadavur in Kollam recently. According to a preliminary report submitted by the Kerala University of Fisheries and Ocean Studies, the mass mortality event was caused by an algal bloom, a phenomenon that occurs due to an overload of nutrients; (below) a view of the freshwater lake. C. SURESH/ANSA

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In the last week of October, Thambi, 58, a resident of Kadavur in Kollam, was returning from work when he found several dead fish floating near the banks of Ashtamudi Lake.

At first, he thought they were remnants of fishing with explosives and poison, locally known as 'thotta' and 'nandu', illegal practices still rampant in many parts of the lake that is spread over 5,700 hectares. It was designated by the Union Ministry of Environment, Forests and Climate Change (MoEFCC) as a Wetland of International Importance under the Ramsar Convention in 2002.

As Thambi took a hard look at the waterbody, he noticed species such as pearl spot and tilapia scattered over. It set the alarm bells ringing. "I felt a sense of foreboding as it was nothing like the sporadic deaths we have seen over the years," says Thambi.

By next morning, the Kuthirakadavu area of the lake was covered with a thick carpet of dead fish leaving a strong stench in the air. While the visuals of the fish kill went viral on social media and experts arrived to collect samples, the people living near the waterbody had no doubts about the cause. "They can no longer fool us with scientific mumbo jumbo as we know very well what led to the mass death of fish. Reckless discharge of effluents into the lake has made its water toxic," says R. Girija, a resident and homemaker. Her neighbour Rajani echoes her sentiment and says, "everything, including sewage and plastic waste, ends up in the lake. If you have any doubts, check the parts where the water is so slimy, and the colour is nearly black".

According to a preliminary report submitted by the Kerala University of Fisheries and Ocean Studies (KUFOS), the mass mortality event was caused by an algal bloom, a phenomenon that occurs due to an overload of nutrients. The proliferation of algae leads to oxygen depletion in water suffocating aquatic organisms. The study also found the presence of streptococci and E. coli in water pointing to sewage contamination in Ashtamudi.

HC directive to clear encroachments

While there has been consistent dumping of plastic, poultry waste, and abattoir waste, sewage lines from many households also open to the lake. In July 2024, the Kerala High Court had directed the Kollam district administration to remove illegal encroachments in and around the waterbody and take immediate steps to prevent waste and effluents from polluting the Ramsar site. "It is high time that we need to secure this joyful pourahob for future generations and also ensure free flow of water in Ashtamudi Lake," the court had observed.

A study by the Department of Aquatic Biology and Fisheries, University of Kerala, revealed dan-

gerous levels of microplastic pollution in the aquatic ecosystem of Ashtamudi Lake. The presence of microplastics was detected in fish, shellfish, sediment, and water samples with the highest percentage found in macrofauna at 60.6%, fish at 19.6%, and shellfish at 40.9%. While MP (microplastic) types detected are fibres, fragments, and films, the study also identified the presence of a range of polymers, including nylon and polypropylene.

The analysis found five polymers from shellfish, five from fish guts, four in sediment, and four in water samples. According to the study, the existence of these plastic polymers and heavy metals, including barium and iron in samples, poses a threat to vulnerable biota.

Microplastic pollution

"This investigation of MPs in Ashtamudi Lake highlights the system's susceptibility to plastic pollution and the bioavailability of smaller MPs to aquatic organisms," says the study. The lake's fringes are used as dumping grounds for municipal solid waste, a primary source of plastic pollution in the aquatic ecosystem. Key sources of microplastics in the lake include fishing and aquaculture activities, untreated sewage, unscientific solid waste management in lake watersheds, and unsustainable tourism practices. The National Green Tribunal (NGT) had taken a suo motu case on microplastic pollution in Ashtamudi Lake based on the study.

Later, the Central Pollution Control Board (CPCB) reported that the water quality data at four locations of the lake were non-complying with respect to Primary Water Quality Criteria for Bathing notified under The Environment (Protection) Rules, 1986. "Algal blooms may be a natural phenomenon but anthropogenic stressors, especially land-based activities, can significantly amplify their frequency and intensity. The presence of harmful substances like heavy metals in fish tissues can affect public health through consumption. Also, the neurotoxins in

harmful algal blooms may impact animal and human health. So, implementing proper waste management measures and sustainable practices are integral to protect waterbodies like Ashtamudi Lake and prevent future fish kills," says A. Bijukumar, Professor and Head of the Department, Department of Aquatic Biology and Fisheries, University of Kerala.

An earlier survey conducted by the Kerala State Pollution Control Board (KSPCB) had indicated that the lake was under pollution stress due to indiscriminate discharge of sewage and dumping of solid waste from households and establishments. It was also revealed that numerous drainage channels laden with waste empty into the lake at the southern end. The survey was carried out in Kollam Corporation and the grama panchayats of Perinad, West Kallada, East Kallada, Munroe Tharuth, Panayam, Kundara, Thrikkaru, Thevalakkara, Thekkumbhagam, Chavara, and Neendakara.

As per the survey, 65% of the residents dispose of their sewage through septic tanks and soak pits, 15% use toilet pits, and 18% of residents dispose of directly into the lake. Yards operating illegally and houseboat operators, who do not adhere to responsible waste management practices, also aggravate the problem.

Following an intervention of the Environment Committee of the Kerala Legislative Assembly, panchayats along the borders of the lake were asked to prepare projects on a war footing to ensure proper waste management. The local self-government institutions concerned were asked to construct sewage plants for treating waste and ensure all houses near the lake have septic tanks. It was recommended to set up floating septic tanks in Munroe Tharuth, a group of inland islands, with the help of modern technology, and strengthen surveillance measures to prevent septic, abattoir, and houseboat waste from reaching the lake.

"Though instructions and guidelines have been issued multiple times, discharge of septic waste continues in many parts. While some houses were sanctioned biotoilets, there are still many houses that lack proper septic management facilities," says a senior official from the Fisheries department.

While the Kollam Corporation had launched several programmes, including the ambitious Jeevanam Ashtamudi Jeevikkanam Ashtamudi (Ashtamudi is life, Ashtamudi should live), to protect the Ramsar site and restore its biodiversity, they are still in the absence of consistent follow-ups.

"We had made allocations for getting rid of all outlets from the Ashtamudi Lake and providing free biogas toilets to the BPL families. Scientists say the recent fish kill in Ashtamudi lake is a dramatic phenomenon. While pollution levels have considerably decreased compared to

the past, the Corporation remains committed to keeping the lake clean. Since the launch of Jeevanam Ashtamudi Jeevikkanam Ashtamudi, 160 tonnes of plastic has been removed from the lake, with 120 tonnes already handed over to Clean Kerala Company Limited. Additionally, a sewage treatment plant (STP) which can process 500 tanks of sewage waste a day has been completed, though the connecting pipelines are yet to be installed," says Mayor Prasanna Sarma.

Meanwhile, inland fishers, the frontline victims of aquatic contamination, say they have been witnessing the changes in the estuarine ecosystem for a while. "There are around 17 canals and channels from the estuary, but right now, they are full of sediments and debris. Lack of flow has affected the ecosystem, and many parts need dredging. Some 15 years back freshwater prawns from Ashtamudi contributed 12% of total exports from the State. Now it has diminished to less than 5% while many species have gone extinct. Sediment build-up is a serious issue affecting the health of the waterbody and the livelihood of thousands of fishers," says Henry, a fisherman.

Water hyacinth another challenge

At the same time, fishers from the Daluvarapuram area are facing another challenge as water hyacinth is spreading in the area and making it impossible to cast their nets in areas covered with the invasive aquatic plant. "This rapidly spreading plant limits our fishing area and often damages our gear," fishu, a clam collector. He says the algal bloom had a devastating impact on their livelihood and many cage farmers also suffered huge losses.

"There were no takers for fish for several days and even now regular customers are refusing to buy from us. Cage farmers lost thousands of ready-to-harvest fish in a single day," he says.

Xavi, a fisher from Thekkumbhagam, says the authorities are doing nothing for the long-term health of the lake. "We have watched many species vanish from the backwater and the size of some varieties, including the Kanjirode pearl spot which is said to be the most delectable, is shrinking. Random clean-up drives will not suffice, as we need consistent efforts," he says.

While fishers have been complaining about low yields for the past few years, scientific studies point to habitat degradation and the rise in anthropogenic disturbances. "Septic tanks and wastewater pipes from most households on the bank open to the lake and this is no secret. Encroachments are also common and a cruise through the backwaters will prove these are not mere allegations. Just look at the volume of waste washed ashore next to the Kollam KSTC stand in the heart of the city. If this continues, the lake will be beyond redemption very soon," says Jackson Neendakara, district secretary of the Masyathalali Congress

Deterioration of Ashtamudi Lake Ecosystem:

➔ Water Pollution

- The lake suffers from untreated sewage discharge, with many households directing septic waste and toilet pits into the water.
- Plastic waste, poultry refuse, and abattoir by-products are frequently dumped into the lake, contributing to its pollution.
- Microplastic pollution is a significant concern, with high levels detected in fish, shellfish, sediment, and water samples. Polymers like nylon and polypropylene, along with heavy metals such as barium and iron, pose risks to aquatic life and public health.

➔ Algal Blooms and Fish Mortality

- Excessive nutrient inflow from pollutants has led to frequent algal blooms, depleting dissolved oxygen levels in the water.
- Algal blooms suffocate aquatic organisms, resulting in mass fish mortality.
- Streptococci and E. coli bacteria, indicators of sewage contamination, have also been found in the lake water.

➔ Habitat Degradation

- Sediment buildup in canals and channels impedes water flow, disrupting the estuarine ecosystem.
- Invasive species like water hyacinth have spread rapidly, restricting fishing activities and damaging equipment.

➔ Impact of Anthropogenic Activities

- Illegal encroachments along the lake's banks disrupt natural water flow and exacerbate waste accumulation.
- Unsustainable tourism practices and unregulated aquaculture activities contribute significantly to the lake's deterioration.

➔ Threats to Biodiversity and Livelihoods

- Habitat degradation has led to the extinction of several fish species and reduced yields for fishers.
- Contamination of fish tissues with harmful substances, including heavy metals, threatens public health and aquatic biodiversity.
- Fishers and cage farmers face declining livelihoods due to pollution, sediment buildup, and invasive plant growth.

Ashtamudi Lake

➔ **Location:** Ashtamudi Lake is in Kollam district, Kerala, India.

➔ **Significance:** It is the second-largest estuarine ecosystem in Kerala and a Ramsar Wetland of International Importance.

➔ **Name Origin:** "Ashtamudi" translates to "eight braids" in Malayalam, referring to the lake's eight arms or channels.

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- ➡ **Biodiversity:** Rich in flora and fauna, the lake supports mangroves, fish, and bird species, vital for local livelihoods.
- ➡ **Economic Role:** It sustains fishing, coir-making, and tourism. Houseboats and backwater cruises are key attractions.
- ➡ **Ramsar Site:** Designated in 2002, it underscores the lake's ecological and cultural value..

UPSC Mains Practice Question

Ques : Discuss the ecological challenges faced by Ramsar wetlands in India, with specific reference to the causes and consequences of pollution in Ashtamudi Lake. Suggest measures for sustainable wetland management.



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The news highlights Bali's Rejang Dewa festival, showcasing sacred dances by pre-pubescent girls as part of a thanksgiving ritual.

It explores cultural pride amid concerns about youth migration threatening these traditions.

Young Balinese girls preserve traditional Rejang Dewa festival

Associated Press
BALI

Ketut Nita Wahyuni lifts her folded hands prayerfully to her forehead as a priest leads the temple gathering. The 11-year-old is preparing to perform the Rejang Dewa, a sacred Balinese dance.

The rituals are part of the two-week-long Ngusaba Goreng, a thanksgiving festival for a rich harvest. "Ngusaba" means a gathering of the gods and goddesses.

There are various forms of rejang performed during different occasions and rituals in Bali. Ms. Wahyuni and her friends have an im-

portant role during the festival. Rejang Dewa and Rejang Pucuk, performed on two separate days, are reserved only for girls who have not yet attained puberty.

"Being a rejang started when she lost her tooth until pre-puberty. We believe they are still pure to present dance to God during this time," her father Nyoman Subrata says.

'Proud' father

As traditional chief of Geriana Kauh village, Mr. Subrata says he is proud to see his daughter participating in this ritual. Mr. Subrata is committed to the responsibilities of maintaining reli-



Sacred dance: Young girls during the Rejang Pucuk in at Geriana Kauh village in Bali, Indonesia on Thursday. AP

gious traditions that have passed down through generations.

Balinese Hinduism brings together Hindu philosophy and local animist traditions with some Budd-

hist influence. It is a way of life, building a connection between the people, their heritage, and the divine.

A day later, Ms. Wahyuni's mother Kadek Krisni picked fresh flowers from

their garden and prepared an elaborate headdress while her daughter was in school. Today is Rejang Pucuk Day, one of the most sacred forms of Rejang. It was routine as usual in the morning. The latter half of the day will be spent in the temple. This is life in Bali.

Ms. Krisni says she participated in the same rituals as a child and is "happy there there is someone in the family continuing the ritual."

There is apparent pride even in someone as young as Ms. Wahyuni in offering her service to the temple. Her friends are also part of the group and there is excitement as they share

their experiences.

But despite the strong roots, there is also a fear for these traditions' place in the future. Mr. Subrata expresses concern that the younger generation is opting to leave the village for the city or overseas in search of work. He stresses the importance of being pragmatic and finding ways to maintain the Balinese traditional heritage without it being an impediment to the economic growth of the people. "It is natural they grow up and make their own choices, but I hope they don't forget the place where they were born and cultural traditions," he says.

Rejang Dewa Festival Information

- ➔ **Purpose:** The Rejang Dewa is part of the Ngusaba Goreng festival, a two-week-long thanksgiving celebration for a rich harvest in Bali.
- ➔ **Meaning of Ngusaba:** "Ngusaba" refers to a gathering of gods and goddesses, central to the festival.
- ➔ **Sacred Dance:** Rejang Dewa is a sacred Balinese dance performed by young girls who have not yet reached puberty, signifying purity.
- ➔ **Ritual Significance:** It is performed as an offering to the gods, emphasising the connection between the people, their heritage, and the divine.
- ➔ **Rejang Forms:** Various forms of Rejang are performed, with Rejang Dewa and Rejang Pucuk reserved for young girls.
- ➔ **Concerns for Tradition:** There is a growing concern that younger generations may move to cities, risking the fading of these traditions.

In News : Trishna Wildlife Sanctuary

Tripura Forest Department officials recently detained an autorickshaw driver near Trishna Wildlife Sanctuary for alleged involvement in a deer poaching racket.



About Trishna Wildlife Sanctuary:

- It is situated in South Tripura District.
- Occupying an area of 197.7 sq. km., it was established in 1988.
- **Vegetation:** Three types of forests are found in the Sanctuary: Tropical Semi Evergreen Forest, Moist Mixed Deciduous Forest, and Savanna woodland.
- Apart from the forest, the sanctuary has a number of perennial water rivulets, waterbodies, and grasslands.

Flora:

- The sanctuary is dotted with 230 tree species, 400 herbs, 110 shrubs, and 150 climbers.
- Medicinal plants can also be seen here. Some of the prominent medicinal plant species are Kurcha, Tulsi, Vasak, Sarpaganda, Rudraksha, Bel, etc.
- One species of Bamboo *Oxytenanthera nigrociliata*, locally known as Kaillai, is common here, leaves of which are liked by Gaur.

Fauna:

- The great attraction of this sanctuary is a sizable population of Gaur or Indian Bison.

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Daily News Analysis

- It is also the home to highly endangered only ape species of the Indian subcontinent i.e, the Hoolock Gibbon, and primates like Capped Langur and Golden Langur.
- Other animals include Leopards, Wild cats, Pheasants, Lalmukh Bandars, Wild Boars, etc.
- **Source** : One arrested for poaching deer near Tripura's Trishna Wildlife Sanctuary.



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Democratising AI needs a radically different approach

The growing power and influence of Big Tech companies is a concern for policymakers worldwide. To break Big Tech's hold over the Artificial Intelligence (AI) ecosystem and democratise AI development, India, like many other countries, is investing in sovereign cloud infrastructure, creating open data platforms and supporting local start-ups. However, these efforts are unlikely to be enough and may even deepen Big Tech's dominance.

Challenges of Big Tech dominance

The enormous computational costs of building deep learning models make it nearly impossible for smaller players to compete. Deep learning is now the popular form of AI because it has generalised capabilities. But this is precisely also what makes it computationally expensive. As of 2023, Gemini Ultra was the most costly model, costing about \$200 million to train. To make it affordable, any new entrant would necessarily be beholden to Big Tech companies for compute credits. These costs also incentivise Big Tech companies to keep advocating for deep learning as the future and pushing out larger and larger models – it locks in their position as the dominant actors and provides the primary revenue stream through which they can recover their costs.

Some recent policy proposals suggest investing in public compute infrastructure or developing a federated model, taking a leaf out of India's Digital Public Infrastructure model. However, it is not enough just to provide alternate infrastructure. This infrastructure also has to be competitive with the Big Tech offering. Big Tech companies offer a wide range of developer tools which make workflows easier and more efficient, and these tools are optimised for their cloud infrastructure. Along with access to cloud infrastructure, they give companies access to the latest algorithmic models, making tasks such as



Urvashi Aneja

the Founder and Director of Digital Futures Lab

Not aiming to compete with or replicate the Big Tech model is essential; it should even look at championing 'small AI'

image or video analysis far easier, along with tools to simplify data preparation and labelling. Big Tech's end-to-end service offering makes development cheaper and easier and drives up the costs of switching to other providers.

Big Tech's data monopoly is even harder to contend with. These companies access a continuous data stream across various domains, social interactions and geographies. This "data intelligence" is likely to be more sophisticated than what other players can achieve, giving them a substantial competitive edge. Unsurprisingly, many smaller AI companies find their end game is to sell to Big Tech, further entrenching the cycle of dominance. While public data initiatives aim to democratise data access and create a more equitable playing field, they often fall short. Open data initiatives are prone to commercial capture, where the better-resourced actors – here, Big Tech with its advanced computational infrastructure and data intelligence – are positioned to best leverage these open data architectures.

The shift toward deep learning as the most popular form of AI has also meant that commercial firms, particularly Big Tech, now dominate AI, and academia has a diminishing role. Industry players now have more academic publications and citations and are shaping the direction of AI research.

Prioritising a theory of change

We need a radically different approach to AI development that does not aim to compete with or replicate the Big Tech model but changes the rules of the game altogether. As long as we are locked into a 'big-data' and 'larger is better' imagination of AI, we will only keep chipping away at an exploitative model of commercial surveillance and even a wasting of precious public resources.

A model of AI development whose starting

point is a theory of change, i.e., understanding the causal mechanisms through which various factors link together and developing hypotheses about how potential interventions may contribute to change.

In this model, domain expertise and lived experience guide AI development rather than statistical patterns in Big Data alone. This knowledge and experience are harnessed to develop theories of change and build purpose-driven and smaller models that reflect frameworks for progressive change. Data collection is then targeted and curated to test and further refine the theory of change. By championing "small AI", firmly anchored in a theory of change, we can carve out a space for AI development that is inherently more democratic and effective.

Historically, significant advancements in medicine, aviation, or weather forecasting typically relied on theory-driven models, where hypothesis testing and scientific rigour in fields such as biology, physics, and chemistry were prioritised over sheer volumes of data. In our obsession with 'bigger is better' we seem to have forgotten this entirely.

Another missed opportunity

We need to change course urgently, and we cannot do that as long as we keep viewing Big Data and deep learning as the holy grail. On this current path, we only increase our dependence on Big Tech. The recently signed Global Development Compact is a missed opportunity to re-think the current paradigm. While it makes all the right noises about democratising AI, it ultimately falls back into the same trap of assuming that if countries build large enough data sets and are given access to computational power, we will magically be able to achieve the Sustainable Development Goals and address Big Tech monopolies.

GS Paper 03 : Science and Technology

UPSC Mains Practice Question: Examine the challenges posed by Big Tech's dominance in the AI ecosystem and critically evaluate the role of policy measures in addressing these issues. Suggest alternative approaches to ensure a more equitable AI development framework. (150 Words /10 marks)

Context :

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Daily News Analysis

- ➔ The dominance of Big Tech in the AI ecosystem stems from their vast computational resources, data monopolies, and end-to-end service offerings.
- ➔ Current approaches, like open data platforms and public infrastructure, fail to address these entrenched advantages.
- ➔ A paradigm shift toward smaller, theory-driven AI models is crucial to democratize AI development effectively.

Concerns Over Big Tech's AI Dominance

- ➔ Big Tech companies hold significant power over the AI ecosystem due to their extensive computational resources, tools, and data access.
- ➔ Efforts by countries like India to democratize AI development through sovereign cloud infrastructure, open data platforms, and support for local start-ups may inadvertently reinforce Big Tech's dominance.

Challenges of Big Tech Dominance

- ➔ **High Computational Costs:**
 - Deep learning, the dominant form of AI, requires significant computational resources.
 - Training advanced models is prohibitively expensive; for instance, Gemini Ultra cost \$200 million in 2023.
 - New entrants often rely on Big Tech for compute credits, perpetuating dependency.
- ➔ **Advocacy for Larger Models:**
 - Big Tech promotes deep learning and larger models to solidify its dominance and generate revenue streams.
- ➔ **Comprehensive Service Offerings:**
 - Big Tech's tools, optimized for their cloud infrastructure, simplify development workflows and reduce costs.
 - They provide end-to-end services, including data preparation, labelling, and access to the latest AI models, making it difficult for competitors to match.
- ➔ **Data Monopoly:**
 - Big Tech benefits from continuous and diverse data streams, creating unparalleled "data intelligence."
 - Smaller AI companies often end up selling to Big Tech, further entrenching its monopoly.
- ➔ **Declining Role of Academia:**
 - With the shift toward deep learning, industry players have overtaken academia in AI research, publications, and citations, shaping the field's direction.

Shortcomings of Current Policy Proposals

- ➔ Investments in public compute infrastructure and federated models, inspired by India's Digital Public Infrastructure, are insufficient.

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- ➔ These initiatives need to be competitive with Big Tech's offerings and address its entrenched advantages in tools, algorithms, and data.
- ➔ Open data platforms often face "commercial capture," where Big Tech leverages its superior resources to dominate.

Need for a Radical Approach: Prioritising a Theory of Change

- ➔ A paradigm shift is required to break away from the "bigger is better" mindset of Big Data and deep learning.
- ➔ **AI development should prioritize:**
 - Theory-driven Models: Rely on causal mechanisms and hypothesis testing rather than statistical patterns from large datasets.
 - **Purpose-driven AI:** Smaller, targeted models informed by domain expertise and lived experiences.
 - **Progressive Change Frameworks:** Data collection should be curated to test and refine theories of change, enabling more democratic AI development.
 - Historical advancements in fields like medicine and aviation relied on hypothesis-driven approaches, demonstrating the importance of scientific rigour over sheer data volume.

A Missed Opportunity to Challenge Big Tech

- ➔ The Global Development Compact aimed to democratise AI but failed to reimagine the paradigm.
- ➔ It adhered to the flawed assumption that large datasets and computational power would address Big Tech monopolies and achieve Sustainable Development Goals.
- ➔ Without rejecting the deep learning-centric approach, dependence on Big Tech will only increase.

Conclusion

- ➔ To counter Big Tech's dominance, AI development must embrace smaller, theory-driven models aligned with democratic and progressive goals.
- ➔ Urgent action is needed to change the current AI trajectory and prevent further monopolisation by Big Tech.