Topics - MINDS MAPS included (Daily current affairs

) 18th November **2024**

SAURABH PANDEY
CSE
ESSE BIRCH UNFORMANIANT
PROMIANCE TO UPSE BRILLIANE

- Disease transmission among Pollinator
- World largest solar power plant
- Al Weight
- Daibetes
- Suspension of IAS Officer
- Willingdon Island
- MAINS



By saurabh Pandey



Target Mains -2025/26 -

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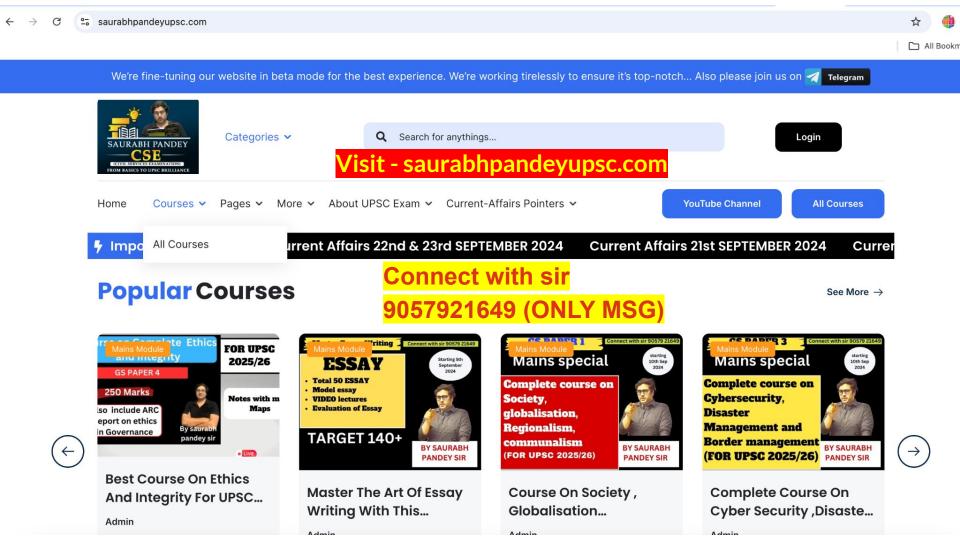
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New infectious diseases among bees threaten world's economies

Research has uncovered the transmission of pathogens between managed honey bees and wild pollinators, a process called pathogen spillover and spillback. Western honey bees are often viral reservoirs and can infect wild species when they share habitats. The emerging diseases also threaten the wider pollinator community

Rupsy Khurana BENGALURU

significant chunk of the world's agricultural productivity and nutritional security relies on small insect pollinators. More than 75% of food crops, fruits, and flowering plants need bees, wasps, beetles, flies, moths, and butterflies to vield successful harvests.

This is why threats to insect pollinators, including pesticides, pollution, and climate change, endanger the economies of entire countries. A new actor on this list is infectious diseases made worse by habitat loss.

While the declining populations of pollinators, particularly bees, has been well-documented in Europe and North America, data from biodiversity-rich regions like the Indian subcontinent are scarce. In fact, most of what scientists know about bees comes from research on managed western honey bees (Apis mellifera).

Diversity is better, again

"In many cases, wild bees are more efficient pollinators than the western honey bees. It is essential to study wild bee communities and look at their state of health," Corina Maurer, a postdoctoral researcher at ETH Zürich, wrote in an email to this reporter.

Research has uncovered the transmission of pathogens between managed honey bees and wild pollinators, a process called pathogen spillover and spillback. Western honey bees are often viral reservoirs and can infect wild species when they share habitats. These emerging infectious diseases also threaten the wider pollinator community.

Maurer and her team recently published a paper in Nature Ecology and Evolution exploring the presence of deformed wing virus and black queen virus in 19 wild bee and hoverfly species across different landscapes in Switzerland. They found higher loads of these pathogens in wild pollinators that used floral resources the honey bees accessed as well. The loads were 10-times higher among the wild pollinators in these shared habitats.

Based on these findings, the researchers suggested that diverse pollinator-friendly habitats with more floral resources lowered the chance of pathogens being transmitted between wild pollinators and managed western honey bees. Habitat loss, on the other hand, could force pollinators into smaller suitable habitats and increase the risk of disease transmission.

"We cannot exclude the possibility of spillover if wild species are forced to share



Bee in the bonnet: A western honey bee rests on a clover flower in Frankfurt, Germany. ANDREY LARIONOV

species are transported into new habitats," Axel Brockmann, a retired professor who studied honey bee behaviour at the National Centre for Biological Sciences, Bengaluru, said.

Habitat overlap and native bees

India hosts more than 700 bee species, including four indigenous honey bees: Asiatic honey bee (Apis cerana indica), giant rock bee (Apis dorsata), dwarf honey bee (Apis florea), and the stingless bee (sp. Trigona). Western honey bees were introduced in India in 1983 to increase the country's honey yield.

In 1991-1992, a Thai sacbrood virus outbreak devastated around 90% of Asiatic honey bee colonies in South India and reemerged in 2021 in Telangana. The virus has been reported from other parts of the world, including China and Vietnam.

The Thai sacbrood virus is one of the greatest threats facing the Asiatic honey bee. The disease caused by the virus's infection kills the bees' larvae. The particular viral strain that attacks western honey bees is less virulent.

Importantly, researchers don't know how the virus is transmitted between bee populations. "Transmission of viruses from a

managed species, such as the honeybee, to wild pollinators could be a problem for the honeybee and wild pollinators," Maurer said. "The viruses spilling over from honeybees to wild pollinators could mutate in the wild pollinators and then spill back to honeybees in a more virulent form, ... being more detrimental to spaces due to loss of habitat or if managed honeybees. In the case of wild pollinators,

India hosts over 700 bee species. including four indigenous honey bees. Western honey bees were introduced in India in 1983 to increase the nation's honey yield

diseases which are not naturally occurring in wild pollinators but spill over from the managed honeybee may severely affect their health."

When bees migrate

"Since 2009, we have been surveying different states such as Gujarat, Madhya Pradesh and Maharashtra. In some of these areas, local bee populations are absent probably because they are on the migratory route of managed western honeybees," Sujana Krishnamoorthy. executive director of Under the Mango Tree Society, a non-profit organisation that trains small farmers to work with native honey bees, said.

When managed honey bees migrate, beekeepers carry their bee boxes along a specific route where there are more bee flora. In North India, for example, they move through the mustard or sunflower fields of Uttar Pradesh and Madhya Pradesh. In Jammu and Kashmir, the bees migrate from plains to apple orchards. where bumble bees live.

A study published in Scientific Reports in February estimated that 40% of bumblebee species in the Indian Himalava could lose more than 90% of their habitat by 2050, raising concerns about the competition for resources with

western honey bees. "During our surveys in Kolhapur in Maharashtra many years ago, conversations with local beekeepers and experts informed us that after a few western honey bee colonies were brought in, some disease completely decimated the indigenous pollinator populations," Krishnamoorthy said. "Kolhapur used to produce eight to 10 tonnes of forest honey but it struggled to produce even a tonne after that."

"There is no discussion about what these diseases could be."

Need for focused research

Experts agree that more research and surveillance are required to monitor emerging diseases in bees and other pollinators.

"Surveying wild pollinators is probably difficult and a huge effort, as there are so many species," Maurer said. "A better approach is to survey the managed honeybee colonies and control their diseases to minimise transmission to wild pollinators."

Dedicated research on viral threats like the Thai sacbrood virus is crucial for protecting the health of pollinators because it can pave the way for early warnings and help researchers and policymakers devise prevention strategies.

"Understanding the basic ecology of pollinators is key to conservation-oriented studies of how they will respond to threats such as climate change, habitat loss or infectious diseases," Brockmann

(Rupsy Khurana is Science Communication and Outreach Lead at the National Centre for Biological Sciences, Bengaluru)

THE GIST

The researchers suggested that diverse pollinator-friendly habitats with more floral resources lowered the chance of pathogens being transmitted between wild pollinators and managed western honey hees

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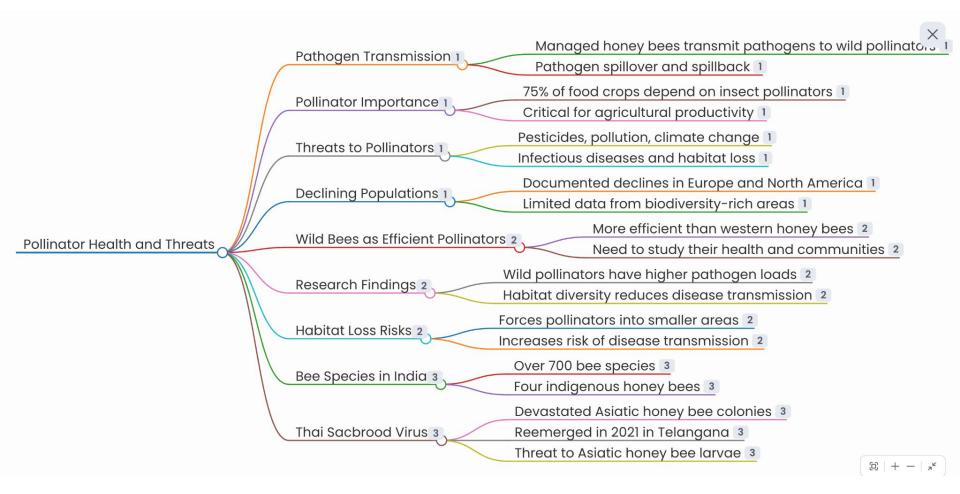
Topic -Disease transmission among Pollinator

- Pathogen Transmission: Research shows that managed honey bees can transmit pathogens to wild pollinators, a process known as pathogen spillover and spillback.
- Pollinator Importance: Over 75% of food crops and flowering plants depend on insect pollinators, highlighting their critical role in agricultural productivity and nutritional security.
- Threats to Pollinators: Insect pollinators face multiple threats, including pesticides, pollution, climate change, and now infectious diseases exacerbated by habitat loss.
- Declining Populations: While declines in pollinator populations are well-documented in Europe and North America, data from biodiversity-rich areas like the Indian subcontinent is limited.



- Wild Bees as Efficient Pollinators: Wild bees are often more efficient pollinators than western honey bees, emphasizing the need to study their health and communities.
- Research Findings: A study in Switzerland found that wild pollinators in shared habitats with honey bees had 10 times higher pathogen loads, suggesting habitat diversity can reduce disease transmission.
- Habitat Loss Risks: Loss of habitats can force pollinators into smaller areas, increasing the risk of disease transmission and spillover between species.

- India hosts more than 700 bee species, including four indigenous honey bees: Asiatic honey bee (*Apis cerana indica*), giant rock bee (*Apis dorsata*), dwarf honey bee (*Apis florea*), and the stingless bee (sp. *Trigona*). Western honey bees were introduced in India in 1983 to increase the country's honey yield.
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Topic → **World largest solar power plant**

indonesia has inaugurated the largest floating solar power plant in Southeast Asia.

The solar power plant is located in Purwakarta, a region in West Java province.

→ This initiative highlights Indonesia's commitment to renewable energy sources.

The floating solar plant aims to contribute to sustainable energy solutions in the region.

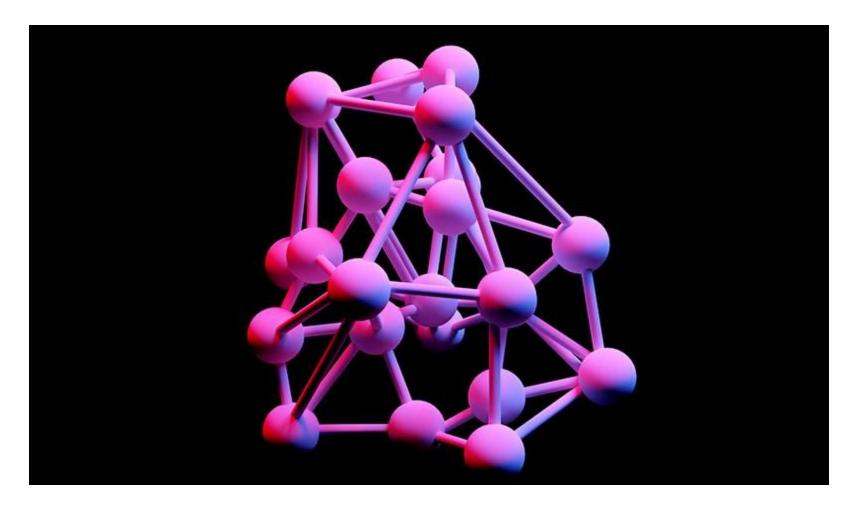
The project reflects advancements in solar technology and infrastructure development.

The plant is expected to support environmental conservation efforts.

This development may enhance Indonesia's energy independence and reduce reliance on fossil fuels.

Summary: Indonesia has launched Southeast Asia's largest floating solar power plant in Purwakarta, West Java, marking a significant step towards renewable energy.









Artificial Neural Networks (ANNs): ANNs are machine-learning models that have significantly impacted various fields, including language preservation and drug discovery.

© Components of ANNs: Each ANN consists of three main components: nodes (like neurons), edges (connections between nodes), and weights (mathematical representations of connection strength).

Learning Mechanism: ANNs learn by adjusting the weights of edges, which influences how signals are transmitted and processed, similar to how the human brain learns.

Q Open Source AI Definition: The Open Source Initiative (OSI) has introduced a controversial definition of "open source AI," which allows for the training data of ANNs to remain hidden.



Concerns in Medical AI: While transparency is crucial, there are contexts, such as medical AI, where keeping training data confidential is necessary for safety and privacy.

Proposed Solution: Security researcher Bruce Schneier suggests renaming the OSI's definition to "open source weights," allowing the weights to be public while keeping the training data private.

Implications of Open Source Weights: This approach would enable transparency in how ANNs process data without compromising the confidentiality of the training data.

Summary: ANNs are transformative machine-learning models with a complex structure that can benefit from a proposed shift towards "open source weights" to balance transparency and data privacy



Topic -> Daibetes



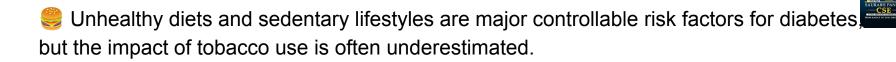
The global number of people with diabetes has increased from 200 million in 1990 to over 800 million in 2022, with adult prevalence rising from 7% to 14%.

India has the highest number of diabetes cases at 212 million, followed by China with 148 million.

Note: Note:

₫ The increase in diabetes cases is partly due to improved data collection methods that include various diagnostic criteria, capturing

more individuals with the condition.



Cigarette smoking increases the risk of developing diabetes by 30%-40% and negatively affects insulin production and regulation.

With 133 million undiagnosed cases, India must enhance diabetes diagnosis to meet the WHO's 2030 targets for diabetes management.



Why were the Kerala IAS officers suspended?

What do the conduct rules specify? Does it adequately cover the usage of social media? Do civil service rules need to be reviewed? What does 'unbecoming of an officer' mean?

Rangarajan. R

The story so far:



erala has suspended two IAS officers, N. Prashant and K. Gopalakrishnan, citing violation of service rules.

What are the charges?

The charge against N. Prashant is that he had made 'derogatory statements' on social media against A. Jayathilak IAS, Additional Chief Secretary, that amounted to grave indiscipline and undermining the public image of the administrative machinery of the State. The government order stated that these remarks were 'unbecoming of an officer' borne in the Indian Administrative Service (IAS). Mr. Prashant alleged that Jayathilak had orchestrated baseless news reports against him. He refuted these allegations.

K. Gopalakrishnan has been suspended

for allegedly creating a religion-based WhatsApp group – 'Mallu Hindu Officers' – that sowed disunity and created communal formations within the IAS cadre. He had claimed that this group was created after his mobile phone was hacked. However, the suspension order stated that the police inquiry found no evidence of such hacking and that the officer had done a 'factory reset' of the phone before handing it over to police.

What do the rules state?

The All-India Services (Conduct) Rules, 1968 (AIS rules) governs the conduct of IAS, IPS and Indian Forest Service officers. The AIS rules provide a code of conduct for the officers. Some of the rules relevant for the current issue are briefly summarised here. Officers should maintain high standards of ethics, integrity, honesty, political neutrality, accountability and transparency. They

should uphold the supremacy of constitutional values. They can participate or contribute in public media in the bonafide discharge of their duties. They shall not in any communication over any public media adversely criticise the policies of the government. They shall not have recourse to any court or press for the vindication of official act, that has been subject matter of criticism, without the previous sanction of the government. It also contains an omnibus rule that the officers shall do nothing which is 'unbecoming of a member of the service.'

What are the issues?

There are certain overall issues that need to be addressed. First, the rules don't have explicit guidelines with respect to communication through social media. Second, the rules have been amended from time to time by including various new conduct guidelines that regulate both

the private and official life of officers. The term 'unbecoming of a member of the service' however continues as an omnibus rider that can be misused/misinterpreted. It must also be borne in mind that invariably in all cases, it is the senior officers and government who enforce these rules against junior officers and hence the latter need to be protected from any such misuse.

What can be reviewed?

Firstly, specific rules may be added with respect to the use of social media. This may include guidelines for the nature of official content that can be posted as well the right to defend against any defamatory campaign concerning official work. Secondly, an illustrative list may be provided for the term 'unbecoming of a member of the service,' based on past instances where action had been taken on this basis. Officers, especially youngsters, should remember that anonymity is an important trait of civil servants. In the present day and age, social media is a powerful medium for providing publicity to various governmental initiatives. It educates citizens when used judiciously. However, officers should exercise responsible anonymity while discharging their functions and disseminating information about the same.

Rangarajan. R is a former IAS officer and author of 'Polity Simplified'. Views expressed are personal.

THE GIST



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Topic → **Suspension of IAS Officer**

Derogatory Statements by N. Prashant

Overview of the Case

Charge: Derogatory statements against A. Jayathilak IAS Implications: Grave indiscipline & undermining public image Government Stance: Remarks deemed "unbecoming of an officer"

All-India Services (Conduct) Rules, 1968

Governing Body: IAS, IPS, Indian Forest Service Key Principles:

High standards of ethics, integrity, honesty Political neutrality, accountability, transparency Upholding constitutional values



Social Media Guidelines:

Allowed to participate in public media for duties
Prohibited from criticizing government policies publicly
No recourse to court/press without government sanction
Omnibus rule: No conduct "unbecoming of a member".

Issues Identified

Lack of Explicit Guidelines: No specific rules for social media usage Misinterpretation: "Unbecoming of a member" can be misused Enforcement Discrepancy: Senior officers enforcing rules against juniors



Suggestions for Review

New Rules for Social Media: Guidelines for official content and defense against defamation

Clarification of "Unbecoming": Illustrative list based on past instances Importance of Anonymity: Responsible anonymity in civil service communication

Positive Use of Social Media: Educating citizens and promoting governmental initiatives

Willingdon Island: A delayed restart to rejuvenation

V. Sajeev Kumar

cial operations.

KOCHI

Island, once a bustling hub for port-related activities, has taken centre stage in discussions at trade union forums, with calls for measures to restart its commer-

Rejuvenation of Willingdon

Constructed in the 1920s by Sir Robert Bristow, the man-made island in the heart of Cochin Port saw operations diminish after container terminal activities shifted to Vallarpadam island, 11 km away, in 2011 under a build-operatetransfer agreement.

Trade union leaders and other stakeholders have submitted representations to Cochin Port Authority for a comprehensive revival plan. The objective is to re-purpose the island for new business ventures, bolster revenue, protect workers, and generate job

opportunities.
The Cochin Port Employees Organisation

(CPEO), which is celebrating its golden jubilee, has urged the port management to take decisive steps towards the revival of Willingdon Island.

C.D. Nandakumar, CPEO general secretary, criticised the management for failing to explore new business avenues after the transfer of container terminal operations. He advocated for the reintroduction of

jiv Gandhi Container Terminal, noting that provisions in the licence agreement support this.

coastal and defence cargo

handling at the former Ra-

Mr. Nandakumar said the size of Willingdon Island makes it ideal to establish cold storage facilities and a godown network, which could be profitable for the port too. He also suggested extending the container freight station to attract more cargo.

He calls for flexible land lease regulations to facilitate renting of properties to manufacturing units,



Cochin Port Authority for a comprehensive revival plan. H. VIBHU bunkering businesses, and ed as a major cruise d

storage units.

Tourism magnet

Prakash Iyer, chairman of Cochin Port Users Forum, says the vast land holding in the port can be used for commercial activities that cater to the needs of sectors such as hospitality, tourism, and the entertainment industry.

The waterfront location of Willingdon Island lends itself to tourism-related activities, especially given that Kochi is being projected as a major cruise destination, he says.

To woo investments, Mr. Iyer suggests amending the leasing policy in favour of users. The port's container freight station at Willingdon Island should be repurposed as a repair hub for machinery and equipment, he adds.

Cochin Chamber of Commerce and Industry, among the region's oldest trade bodies, rues that the island's diminished vibrancy is throwing its future into uncertainty. It believes that initiatives to enhance tourism, infrastructure, and business opportunities can breathe new life into this iconic location and restore it to its former glory. Chamber president S.P.

Kamath says that the redevelopment of Willingdon Island to attract cruise liners, luxury yachts, and tourists would give a fillip to local businesses in the tourism and hospitality sector. Activities such as water sports, wellness retreats, and nature walks can turn the island into a sought-after destination.

However, he points out that any commercial activity on the island must be undertaken through a multifaceted approach that addresses infrastructure, investment, and safety concerns.

Equally important is the need to upgrade the region's transportation and logistics infrastructure

logistics infrastructure.

Improvements in road conditions, public transport, and other utilities

cive environment for businesses, Mr. Kamath says.
The current sub-leasing terms of the Cochin Port

terms of the Cochin Port Authority may be a barrier for local businesses and must be relooked to lower the levies to incentivise companies to remain on the island or relocate to it, he adds.

Binu K.S., president of

will help create a condu-

Kerala Steamer Agents Association, calls on the port management to utilise the available land on Willingdon Island to set up more infrastructure facilities for the proposed outer harbour project as well as temperature-controlled warehouses and container freight stations.

Even as multiple voices clamour for the revival of Willingdon Island, the Cochin Port Authority has largely remained silent on its next moves for what is arguably the most valuable real estate asset in Kerala.

(The writer is with The Hindu businessline)

Willingdon Island



Overview

Location: Willingdon Island, Kochi, India

Significance: Major logistics and tourism hub

Attractions: Scenic beauty, water transport, cultural heritage





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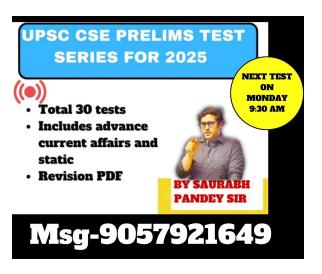
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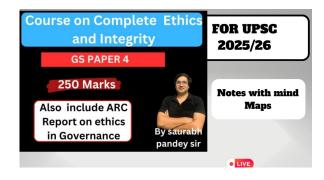
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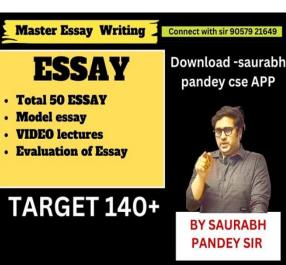
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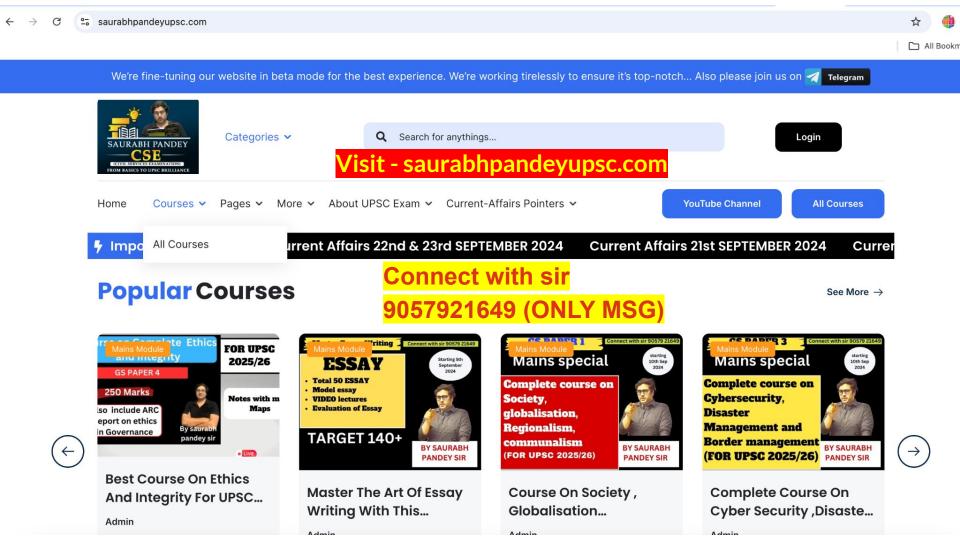












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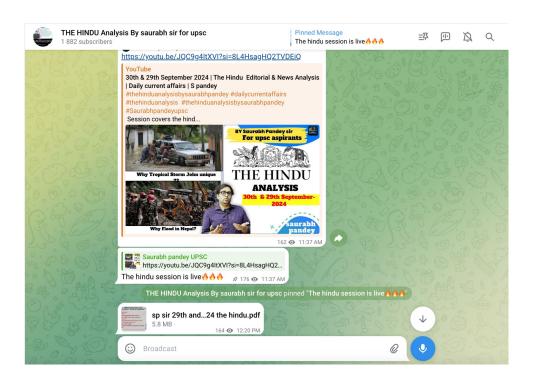
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