





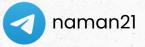
Daily **CURRENT AFFARS**

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A Cool and Wet May: Understanding India's Unusual Pre-Monsoon Weather in 2025

Introduction

May 2025 has surprised meteorologists and decision makers equally with the unexpected quiet and wet weather, which has turned away from the typical burning heat associated with Indian summer. India received 68.4% more rainfall, with 27 out of 36 meteorological subdivisions, while most parts of the country had no significant heat waves.



Why in the News?

- The month of May 2025 has defied climatic expectations, recording 68.4% more rainfall than average across India.
- Unlike typical pre-monsoon months characterised by rising temperatures and blistering heatwaves, this year witnessed cooler-than-usual conditions and an almost complete absence of heatwaves.
- With 27 out of 36 meteorological subdivisions receiving over 20% excess rainfall, this anomaly has triggered widespread interest among meteorologists, farmers, policymakers, and economists alike.

• The unusual weather pattern has immediate and long-term implications for the Indian monsoon, agricultural prospects, and food inflation.

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Background: What is the reason for the wet and quiet May in India?

- In May 2025, India's weather will be formed by a rare compilation of meteorological systems: UP-Normal rainfall: During May, the rainfall was quite above the long-term average.
- In many regions, including central and eastern India, continuous rainfall was recorded, which may be the most spectacular in recent decades.

Repeated moisturised winds: The recurring western disorders of the Mediterranean region, with moisture from the Bay of Bengal and the Arabian Sea, played an important role. These systems caused widespread intermittent thunderstorms, especially on the Indo-Fetic Plains, Northeast India and Deccan Plateau.

Heat wave suppression: Usually, May is characterised by excessive temperature, especially in the northwest and central India. However, repeated thunder and cloud cover stopped the temperature. As a result, no larger heat wave was reported, a significant departure from climate norms.

Function: Summer role at the beginning of the monsoon

• The formation of heat climbing over northwest India is an important precursor to the arrival and progress of the southwestern monsoon.



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- Stock suction for moist wind: warms up as a natural vacuum, which draws moist south-west wind in the subcontinent from the Indian Ocean. Their formation is important to introduce monsoon currents.
- The monsoon circulation drives: Monsoon Trough - an area with low pressure that facilitates monsoon rain. The shape is further strengthened with these heat climbers. A weak or delayed heat can interfere with the entire lower monsoon system.
- Affects the intensity and spread of rainfall: the intensity and spatial distribution of rainfall are random

Challenge: El Niño, Indian Ocean Dipole, and the Monsoon Equation

- India's monsoon is shaped by two large-scale oceanic patterns:
- El Niño (ENSO):
- Leads to warmer central and eastern Pacific Ocean waters. Weakens the monsoon circulation by reducing the temperature gradient between land and sea.
- **Historical impact:** The 2015 El Niño resulted in a 14% rainfall deficit, severely impacting agriculture and food inflation.
- Indian Ocean Dipole (IOD): A positive IOD means warmer waters near the western Indian Ocean (off Africa) and cooler ones near Indonesia, enhancing monsoon flow. In 2019, a strong positive IOD helped offset the impact of El Niño, leading to above-normal rainfall.
- Currently, climate models are indicating neutral to weak El Niño conditions transitioning toward La Niña and a mildly positive IOD.

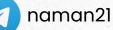
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SCO 173-174, Sector 17C Chandigarh • While this bodes moderately well for the monsoon, the weakened heat low formation in northwest India could act as a counterbalance.

Economic Implications: Monsoon and Food Inflation

- India's food security and price stability are intricately linked with monsoonal performance. A good or poor monsoon impacts:
- **Crop Yields:** Timely and adequate monsoon rainfall boosts sowing of kharif crops (rice, pulses, oilseeds), ensuring healthy harvests and stable food supplies. E.g., In 2022, a normal monsoon ensured a moderate cereal price rise, helping to contain food inflation.
- Import Dependency: Good rainfall reduces the need to import staple food items like pulses and wheat. Eg: In 2024, surplus wheat stock following adequate rains helped ease price pressure.
- Rural Demand and Price Volatility: Monsoon performance shapes rural incomes, influencing demand and supply chain stability. Eg: In 2021, a strong kharif output due to good monsoon led to a fall in vegetable prices.
- However, if the current wet May delays or distorts the monsoon onset, it may lead to replanting, increased input costs, and eventual food price volatility, particularly for perishables and short-cycle crops.

Further Way: Preparation for weather deviations and climatic instability With the climate pattern quickly uncertain, India should go against flexibility in both meteorological monitoring and agriculture.





Strengthen existing climate

agriculture: Promote drought and flood-flexible seed variants. Encourage micro-organisation, especially in rainy areas. Support crop diversification to reduce the risk of monsoon errors. **Increase weather forecast and communication:** Invest in real-time satellite-based monitoring systems and block-level forecasts. Farmers strengthen the spread of weather forecasts through mobile-based platforms.

Strengthen the radical

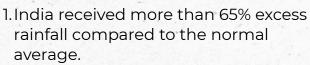
infrastructure: Expand cold chains and storage functions to reduce subsequent damage. Use the Food Price Stabilisation Fund to handle instability.

Institutional monsoon risk insurance: Make the access and efficiency of crop insurance schemes. Connect insurance payments with remote measurement data for timely compensation.

Conclusion

May 2025 has provided a living reminder that climate and weather patterns are no longer estimated in the traditional sense. While the absence of heat waves provides temporary relief to millions of people, long-term results guarantee on the monsoon system, agricultural productivity and food prices active political reactions. When India is moving towards a more climate-musical future, it is necessary to invest in scientifically led agriculture, dynamic forecast systems and to invest in rural infrastructure for livelihoods and food security.

Q. Consider the following statements regarding the unusual weather conditions in India during May 2025:



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- 2. The formation of heat lows over northwest India was stronger than usual, enhancing the early arrival of the monsoon.
- 3.No major heatwaves were recorded across central and north India during the month.
- 4. Western disturbances and moisture incursions from surrounding seas contributed to widespread thunderstorms.

Which of the statements given above are correct?

A. 1, 2 and 3 only B. 1, 3 and 4 only C. 2 and 4 only D. 1, 2, 3 and 4

Answer: B. 1, 3 and 4 only

Explanation:

- **Statement 1 is correct:** Rainfall was 68.4% above normal.
- **Statement 2 is incorrect:** Heat low formation was weaker than usual, not stronger.
- **Statement 3 is correct:** No major heat waves were reported.
- **Statement 4 is correct:** Western disturbances and sea-based moisture brought widespread rainfall.



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Introspecting Counter-Terrorism After Operation Sindoor

GS II (internal security)

Editorial

Introduction: After surgery, vermilion, anti-violation" is not just a reflective exercise, is a pressure strategic requirement. In May 2024, an antiterrorism operation as Operation Sindoor, in the Ravi district of Jammu and Kashmir, marked a significant point of conflict in India's anti-terrorism story.

Operation Sindoor and the Unfinished War Within: Rethinking Counter-Terrorism in J&K



Why is it in the news?

- On April 22, 2025, the Pahagam terror strike recently took place, followed by India's anti-retreat operation Sindoor, once again throwing the unstable dynamics of Jammu and Kashmir (J&K) into the national spotlight.
- While Operation Sindoor is in the form of a strategic and operational victory, the long-term strategic value is special in preventing Pakistan-related terrorism in uncertain times.

ntrospecting counter-terrorism after Operation Sindool

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| The Pabalgam terror strike, on April 22, prepretation by Pabsian provide, and indicor, on My, 7, how fundamentally altered as security landscape of the region. While the security landscape of the region. While security landscape of the region. While security landscape of the region with the region provide the strategic difficult of the region provide the strategic difficult of the informative provides of the strategic difficult of the strategic difficult of the remainistory of the external application of ulliary force. The aspects concerning and the strategic difficult of the strategic revelopment of the the strategic difficult on the remainistion of the strategic difficult on the result of understand that in the overall context, has always been about winning Kashmir rather san defecting Paksan. | Anatomic of the second | consolidation of the security grid, the systemmetry contexts to local populations and Pakistaria's diminishing capacity to wage a high intensity proy war. This point trajectory augusts that india's multitacted approach has challenges remain and more needs to be done in the context. Descring Pekistan Analysing termo-related families in J&K over the has decade above that lattice is cancer and startice 2009 have not describe Pakistan. SKPP witch 2006 Jam Mark and the Balakot aerial mice 2007 have not describe Pakistan. SKPP witch 2007 have not d | Anti-Fascist F name a few. T in the Jammu ratio that favo is the prevalet terrorists. Hu to have dried of terrorists of Pahalgam, wh Beyond kine The bipartisar J&K against th spontaneous : support press that must be c squandered ti such as demoi terrorists or m While the c |
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| The complex reality of terrorism in J4K is beyond any down that Pakishan bears albatania accountability for the security intation in J4K. Since Independence, Alman and Senter (1998), the security of the number of the predominantly indigenous memory of the predominantly indigenous remotists, around the mid-1990s. Sovinhistanding the foreign terrorists, a regierem analyses of patterns of terroristin receil inenfranchisement have played pivotal roles. Inserties that the interplay between external inentrankisement have played pivotal roles. Inserties unitarial valuerabilities creates a number of the interplay between external protonscing and internal valuerabilities creates a mplatic unitary solutions, internally or sternally. Since 1989, the security forces have achieved instantial progressing IdAK. Alia Social Asia. | In the focus on India's foreign policy and military force what is being missing out are the aspects that concern the internalisation of terrorism | surgical artices or Balakot, these may still not deter Pakasan. The government of Pakastan and the Pakastani goverple claim that they wont the B00 surges, and according to kyeshs. Skidlag, a Pakastani political scientist, military rationalism has been eviewed an Pakastani. Deterning Pakastani ni the particular classification. Deterning Pakastani ni the present, is very low no contrast to the Bardhan Wani daya. Even though foreign terrorists are more technologically savy and are relatively less dependent on local terrorists, the roke played by pakatification and the Bardhan Wani daya. Even though foreign terrorists are particular to the science agarctice have dependent on local terrorists, the roke played by pakatification of local terrorists with links to their foreign counterparts. | high-impact, t caveat here is from the prim commentary is suggests a cor the complex c potentially nu questions reg both external grievances. Operation growing prow but this must tools to establ against Pakist the multidims dynamics, wh 'people as the force. Sustain development complementor |

 Most of the current discourse concerns India's muscular foreign policy and kinetic military reactions. However, this heavy exterior focus risk is to overcompensate for a more pressure internal reality: deep and constant internalisation of terrorism in Jammu and Kashmir.

- Colonel Shakank Ranjan (retired), as an experienced terrorist expert, observes in a good way, is the real challenge is not only to defeat Pakistan, but to win the trust, trust and cooperation of the Kashmiri people.
- This asks for a fundamental change in strategic thinking-from seeing attention completely through crossborder lenses to accepting and addressing the complex internal ecosystem that maintains it.
- Identification crisis, political isolation and social fragmentation continue to provide a fire that any amount of air strikes or surgical strikes can extinguish on its own.

Background: The Evolving Landscape of Terrorism in J&K



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Post-Independence to the 1980s: Seeds of Discontent

 Since 1947, Pakistan has continually sought to destabilise J&K through a mix of propaganda, irregular warfare, and infiltration. However, until the late 1980s, J&K largely experienced sporadic and low-intensity unrest, with insurgency being more political than militant.

1989 Onwards: Rise of Militancy

 In 1989, militancy in J&K exploded, marking the beginning of a prolonged conflict. Initially driven by indigenous sentiments of political marginalisation and identity-related grievances, the movement was gradually hijacked by Pakistan-backed foreign terrorist elements in the mid-1990s.

Groups like Lashkar-e-Taiba (LeT), Jaishe-Mohammed (JeM), and Hizbul Mujahideen transformed what began as an internal uprising into a fullfledged proxy war.

• Pakistan's Inter-Services Intelligence (ISI) and its military provided training, arms, and ideological support, using terrorism as an instrument of state policy.

Characteristics of contemporary terrorism in J&K

• Hybrid threats and changed strategy: Modern terrorism in Jammu and Kashmir is no longer entirely dependent on foreign-affiliated jihadists. • In addition, new groups such as Resistance Front (TRF) and People's Anti-Family Front (PAFF) act as an authority for Ghem. They use social media to radical, recruit and promote stories, causing a powerful war of information.

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Geographical changes: south to north and now from Jammu

- While Sør-Kashmir was once unrestrained, security operations and local support reductions have forced terrorists to move their hiding places to Nord-Kashmir and Jammu.
- The **Poonch-Rajouri belt is now a hotspot,** which is aimed at the difficult terrain and the presence of a low squad, due to the redistribution with the Ladakh Post-Galwan.

Strategic sophistication of foreign terrorists

- Foreign terrorists, although in smaller numbers of numbers, are now more technically intelligent, are better trained and work with more autonomy.
- While the recruitment of local cadres has gone down compared to the Burhan Wani era, foreign terrorists appear quickly without relying on local support.

Local support and intelligence deficit

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- Despite the strategic benefits, human intelligence is weakened.
- Pahagam strikes criminals remain largely, the indication of local support networks is still active.





• Public silence, logistic help and timely absence of intelligence indicate maintaining sympathy between the blocks of the locals.

Operation Sindoor: Strategic success, strategic questions

- Operation: Between 7 to 10 May 2025, India launched Operation Sindoor, targeting terrorist camps in Pakistan-occupied Kashmir (POK).
- Reports suggest that India's ability and intentions are marked, using advanced drones, precisely controlled sages and electronic war.

After the operation, sindoor

- While Indian strategic circles welcomed the operation, Pakistan claimed it as a failed attempt, claiming that "Indian aggression was cancelled."
- The increase in height and domestic support from General Asim Munir for Field Marshal highlights the revival of military nationalism in Pakistan.

Strategic interval

- Despite its strategic talent, Operation Sindoor cannot stop Pakistan. Previous events strengthen it.
- After the Kargil victory in 1999, the violence increased. Post-Uri (2016) and Balkot (2019) strikes, real deadly growth in later years.
- The SATP data is growing up to 267 in 2015 to 267 in 2016, and remained at a high level continuously until 2019.

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Challenge with internalisation of terrorism

- Identification and separation: Many young people in Kashmir struggle with questions about identity, dignity and political agency.
- Their complaints are a fruitful country for Pakistan's promotion, which portrays them as victims of the state's oppression.
- It is important to address the perceptions of injustice to prevent bigotry.

Political vacuum: In 2019, Article 370 was cancelled as a water divide. While the integrated J&K is constitutionally, the political transition has left a leadership vacuum. The absence of local, democratic representation makes room for fringe and underground stories.

Development versus democracy: The government has continued the infrastructure and investment initiative in Jammu and Kashmir.

- However, development cannot replace political authority. People need to feel represented, heard and involved in governance.
- After Galwan, Troop relocation has diluted the look in some areas like Jammu. Terrorists have exploited these voids, which are currently working to their advantage. It is necessary to reinforce intelligence protection, Nexus.

The strategic opportunity after Palagam

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• Outstanding public condemnation: The spontaneous condemnation of the Pahagam massacre of Kashmiri-SIVIL SOCOM was unique.

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- This indicates a possible change in public feeling, away from the support of militants to adaptation to peace and justice.
- From the opportunity to change: Instead of relying on forced reactions such as demolition of houses or mass details, this moment requires strategic sympathy.
- Creative commitment to humans can catalyse permanent changes accept their grief and ambition.

The way forward:

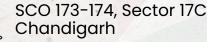
- Political commitment and democratic integration
- Strengthen fast-track choices and local democratic institutions.
- Attach traditional political parties with ground-level management.
- Make sure political dialogue remains inclusive, non-Pakistani and continuous.
- Intelligence, targeted operationsStrengthen Hamints through trust building and local partnership.
- Improve synergy between technical monitoring and basic intelligence. The address of infiltration of the cross-border with active border handling systems.
- History War, and CountersDistribute against -Propaganda on social media using local languages and affected people. Start social education that emphasises pluralism, democracy and constitutional rights. Family, teachers and religious leaders should be involved in de-redressal programs.

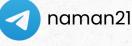
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- Legal habilitation and human rights
- Avoid excessive militarisation of civilian places. Make sure that the anti-terrorism act is in strict adherence to constitutional and human rights norms. Review and change laws to prevent abuse while maintaining efficiency.

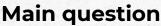
Conclusions: From revenge to resolution

- Operation Vermilion is an important milestone in India's antiterrorism strategy-significantly reflecting the right talent, accurate war capacity and political will. Still, as it shows history and data, such
- kinetic reactions, even though they are essential, are inadequate as standalone strategies.
- The firmness of terrorism in Jammu and Kashmir, despite many military victories - from Kargil to Balakot and now Sindoor a deep, structural reality: terrorism is not only imported in the region; It is internal.
- The developed nature of extremism, characterised by hybrid terrorists, moves geographical and sophisticated foreign managers, making the challenge more complicated than ever.
- But the real battlefield lies in the heads and hearts of the Kashmiri people. Internalisation of terrorism feeds the perception of a political vacuum, identity crisis and exclusion. Without addressing these causes, the external detention risk is reduced in the case of a temporary disruption.









Q. "Operation Sindoor has highlighted India's growing military capabilities, but the real challenge lies in addressing the internalisation of terrorism in Jammu and Kashmir." Critically examine this statement in light of recent developments. Suggest a comprehensive strategy for effective counter-terrorism that balances kinetic and non-kinetic approaches.

Q. Which of the following statements best captures the strategic paradox of India's counterterrorism approach in Jammu and Kashmir post-Operation Sindoor?

A. Despite successful kinetic strikes, India's counter-terrorism gains remain limited due to superior Pakistani military capabilities and technological edge.

B. India's counter-terrorism strategy has effectively neutralised all forms of terrorism, including both foreign and hybrid threats, due to advanced military operations.

C. High-impact military responses like Operation Sindoor generate shortterm tactical advantages, but fail to sustainably deter terrorism in J&K due to unresolved internal socio-political grievances.

D. Political integration and economic development have completely mitigated local terrorist recruitment, rendering foreign-sponsored terrorism the sole challenge in Kashmir.

Answer: C

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Explanation:

Option C best encapsulates the

nuanced paradox: while operations like Sindoor demonstrate tactical and technological strength, their long-term impact is diluted by persistent internal factors, identity issues, political alienation, and the internalisation of terrorism.

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Bridging the Oxygen Access Gap in Southeast Asia: A Public Health Imperative

(mains)

Introduction: The Oxygen access gap in Southeast Asia is not just a logical challenge -it is a public health mandate that lies in major questions about equity, flexibility and systemic preparation. The COVID-19 epidemic emphasised the deep errors in regional health systems, and appeared as both symbols and substances in the life-saving intervention of the medical oxygen. Still, for millions of people in Southeast Asia, access to medical oxygen is rare, incredible or ineffective.

"Breathing Unequal: Bridging the Medical Oxygen Access Gap in Southeast Asia



Why is it in the news?

 In May 2025, the World Health Organisation (WHO) regional director for Southeast Asia, focusing on a rapid lack of medical oxygen in the Southeast Asia region, focuses on the question of insufficient but inadequately addressed.

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- His recent spokesman, supported by the findings of the Lancet Global Health Commission on Medical Oxygen Protection, emphasised inequality in access to this lifesaving object and asked for a paradigm change for systemic preparation from crisis reaction.
- In countries that are infected, to strengthen the long-term health system from epidemic recovery, the oxygen access gap appears as a litmus test of both equity and the full extent of universal health care.

Bridgeing this oxygen gap means more than delivering cylinders - this

means reducing partitions in infrastructure, money, human resources and political will. When the countries in the region strive for universal health coverage, reducing the systemic neglect of the infrastructure of oxygen becomes a central pillar of public health policy. This article examines the extent of the challenge, the underlying structural barriers and the strategic road maps which is necessary to reduce inequalities that risk countless lives.

Background: Oxygen is an important medical object

• Medical oxygen is classified as an essential drug.

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- It plays an important role in the handling of hypoxia, a state of low blood oxygen that can be fatal when not treated.
- This includes diseases such as pneumonia (a large infectious killer of children under five), chronic obstructive pulmonary disease (COPD), newborn complications, trauma and now, especially, COVID-19 and other respiratory viruses.
- Despite its important role, oxygen has not received proportional attention in health policy, especially in lower and moderateor-Imic. Before COVID-19, the oxygen infrastructure for global therapy had been underdeveloped and less up, which is often seen as an operational detail instead of a public health priority.
- This lack of visibility during the epidemic changed, as oxygen deficiency led to death in hospitals in South Asia and other areas.
- WHO's 2022 report "COVID-19 is the title of practice and experiences in the South East Asia region to reach medical oxygen during the epidemic", said that a crisis occurred due to years of neglect, who the loss of thousands of people.
- The report further emphasised that when the epidemic covered some emergency interventionslike PSA (pressure swinging absorbent), the installation of oxygen plants and international donations remains slow and fragmented.

A medical oxygen access gap SE Asia must bridge



obal Health Commission on 500 security highlights a stark reality and East Asia and the Pacific unfulfilled demand for medical en service coverage gap in these 5% and 74% respectively), and du ugnet need for action to pandemic exposed

(Cs). While that crisis did trigger emergency rventions to alleviate the situation, long-term press has been slow. World Health Organization (WHO) report 20, "Promising practices and lessons learnt in south-East Asia Region in accessing medical

vailable where it is needed most. WHO's secress to Medical Oxygen Resolution and The neer Global Health Commission on Medical Sygen Security provide a road map for scaling solutions, but its implementation requires gent action. Governments, global health encies, industry and civil society must come gether to close the oxygen gap. This is an portunity to create lasting and equitable access.

veral systemic barriers hinder the availability of dical oxygen, preventing its integration into alth-care systems. The first is the shortage of aipment – only 54% of hospitals in LMICs have be comineters and 58% have access to medical sygen. Consequently, this gap in basic initioring and supply infrastructure leads to haven ble fazibilies a, deficiency with introdifies worthbe fazibilies a, deficiency with introdifies

ame pandemics, winnour use recessing growtic tools, health-care providers struggle to tect and manage oxygen deficiencies ctively. However, the issue extends beyond equipment liability. The financial burden associated with reasing oxygen access remains a major stack. Bridding the global oxygen gap requires Decentralised production can address supply imbalances and enhance last mit dedivery. Immorations such as portable exogen concertrators, solar-powered generators, boo pumps and community-based hulds can bridge accessibility gaps, especially in remote areas, integrating these solutions into health-care pd patient. Hower disruptions hinder oxygen production in South-Fast Ada, as in many LMCLs. In these low-resource settings, solar-powerd oxygen systems are a cont-flexive and low-maintenan Thiopia and Nigeria have successfully implemented solar-powerd oxygen delivery systems in remote health-care facilities, mproving access and saving lives. The South-E sia region should promote and invest in the outrastation of oxygen plants to ensure a stable apply amid energy insecurity and health crise

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trengthening oxygen ecosystems indiging the oxygen paperoalities a unlifed, unlife stakeholder approach. Governments should over the bubble operating oxygen excess into overselity bible setabilished to ensure the unanework should be established to ensure the uality and the safety of medical oxygen, along amaportation and distribution. These measures anapportation and distribution. These measures

roduction and supply chain optimisation, duttery physers have a crucial role indeveloping out effective, scalable solutions that cater to the section meets of LMCs. Turther, global health funding priority, facilitating financial support infrastructure development, equipment rocuerement and workforce training. Academia and research institutions can

sogen solutions tailored for LMCs. Prioritising fordability, efficiency and adaptability will be exey. Using digital technologies for real-time ontoritoring, preclicice demand analytics and upply chain management can further enhance the efficiency of oxygen delivery systems. The oxygen efficiency systems are the efficiency of oxygen delivery systems. The oxygen efficiency systems are themands coordinated action, sustainable manacing, and strong political will. Our success stabiling PSA oxygen plants in countries

trose-border collaboration, and workforce ramine can yield progerm solutions. To maximise COVID-era investments in FSA sugger plastics, countries must ensure operations readiness, ledely, denors who have already mandemic should contraine to support engoing efforts. Surphic capacity should be distributed to sundersic ideal of the support engoing efforts. Surphic capacity should be distributed to the distributed with the support englishing and the support engoing efforts. Surphic support with the support medical capages encoursely mentions, access to medical capages encoursely mentions, access to medical capages encoursely mentions, access to medical capages encourse of the support hould never be a privilege but rather a indumental right of rath.

Feature: Oxygen access gap in Southeast Asia

- According to the Lancet Commission, the Lancet Commission, South Asia and East Asia and the Pacific have the world's highest incomplete demand for medical oxygen with 78% and 74% oxygen service coverage intervals, respectively.
- This means that most of the health services in these areas have a lack of infrastructure or resources to provide safe, reliable and cheap oxygen treatment.
- The problem is not just a logical or technical one. This reflects extensive systemic inequalities in health systems:
- Availability: LMIC only has sufficient medical oxygen in 58% of hospitals. Important tools such as a pulse oximeter are required to diagnose hypoxemia - only half (54%) are available in function.
- **Empowerment:** Economic costs for production, storage and distribution of medical oxygen are high.

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- South Asia alone requires an estimated \$ 2.6 billion to bridge the infrastructure difference of oxygen, which is outside a global claim of \$ 6.8 billion.
- **Quality**: In the absence of a strong regulatory structure, oxygen is often supplied by lower-standard purity, which damages patients.
- Human resources: A serious lack of biomedical engineers and technicians reduce the installation, maintenance and repair of oxygen systems.

Challenges: Systemic obstacles to oxygen access

- Economic obstacles and competitive priorities: Like those in Southeast Asia, LMICs often meet budget barriers.
- Many competitive requirements with health systems are cumbersome, from infectious diseases to nutrition and mothers' care - the infrastructure of oxygen is often impure.
- Emergency expenses during Covid-19, while significant, follow-up plan or a lack of continuous funds.
- Fragmented supply chain and import addiction: Many countries are very dependent on imported oxygen cylinders, concentrations and spare parts. This addiction increases costs and complicates logistics. For example, it is both expensive and incredible to take liquid oxygen to ground or island areas.
- Lack of effective labour: Even when governments buy advanced equipment, it often becomes useless due to a lack of trained personnel for maintenance and calibration.

• The absence of training programs for biomedical engineers and technicians ends this cycle.

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- Monitoring and a lack of computer system: Many Ministry of Health has a lack of real-time data on demand and supply of oxygen. Without
- effective surveillance equipment, it becomes difficult to allocate resources equally, plan an emergency or detect system errors.
- Poor integration in the primary health service: The use of oxygen is often limited to tertiary hospitals. Nevertheless, it is at the primary and secondary level - the social health station and district hospital - where the largest requirement exists, especially for mother and newborn emergency conditions.

Strategic Structure: Reduce Intervals

 WHO provides a strategic roadmap to its medical oxygen solution and the WHO oxygen scorecard. To implement these effectively, the following items are important:

National oxygen -pity schemes

- Countries should develop referencespecific upscaling strategies that correspond to the goals of the health system.
- These schemes should identify the gaps in the infrastructure, propose budget distribution and define the deadline.
- WHO and donor agencies can provide technical assistance and money.

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- Investment in local production:
- Governments should encourage the private sector to invest in local oxygen production, including PSA plants, oxygen concentrations and medical character cylinders. This will reduce import addiction and lower costs.
- Decentralisation and solarisation: Decentralised production models-as small-scale PSA, can increase the delivery of plant final miles at district hospitals. Solar-operated oxygen systems in the form of pilots in Ethiopia and Nigeria, especially suitable for energy-poor settings.
- Labour force capacity building: Training of biomedical engineers and health professionals should be institutionalised. One partnership between WHO and Nepal's National Health Training Centre - Joe Bhutan trained technicians - must be repeated throughout the region.
- Innovation and technology: It is important to invest in low-cost, energetic and portable oxygen technologies. Real-time tracking systems, Al-based demand forecasts, and a digital dashboard supply chain can improve accountability.
- Strong regulation and quality control: Governments should implement quality standards for oxygen and safety. Installation of clear guidelines for production, transport and storage can prevent abuse and ensure the patient's safety.

Regional cooperation: Many Southeast Asian countries have taken promising steps:

• India increased the PSA oxygen plant installation during the epidemic, with more than 1100 plants now in public facilities.

However, intervals remain under maintenance and monitoring.

 Nepal and Bhutan have introduced training across the border of biomedical technicians, which enables continuous operation, in collaboration with the WHO.

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- Indonesia has conducted a socially based oxygen hub with success on remote islands.
- Sri Lanka utilised its well-integrated primary health system to supply oxygen to rural areas through mobile devices.
- Furthermore, the Construction of a flexible oxygen ecosystem
- To switch to flexible health systems from reactive interventions, an approach to more interest is required.

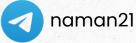
Way forward: For governments

- Integrates access to oxygen into the Universal Health Coverage (UHC) framework.
- Assign a dedicated budget for medical oxygen under the health sector scheme.
- Include oxygen infrastructure in emergency preparation and reaction strategies.
- Who and for global health agencies.
- Provide technical and financial assistance to national oxygen schemes.
- To promote regional cooperation and knowledge sharing.
- Develop global procurement platforms to reduce the cost of oxygen units.
- For the private sector
- Invest in R&D for low-cost, scalable oxygen technologies.



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- Collaboration with governments on a public-private participation model (PPP) for production and distribution.
- Create a strong supply chain and offer services after installation.
- For civil society and the media
- Attorney for oxygen's equity as a matter of health justice.
- Monitor government actions and keep stakeholders responsible.
- Increase awareness of the importance of timely oxygen access at the social level.

Conclusions:

Oxygen is right, not a privilege Covid-19 epidemic only highlights the delicacy of global oxygen supply systems and the tragic consequences of the undercut. But it also provided a rare opportunity, not as a commodity, but the reconstruction of a human right. The immediate call for style was expected not only from decision makers, but also from all residents. Access to oxygen should never depend on geography, income or situation. It is the basis for the emergency room, a determinant for the child's survival and an important promoter of flexible health systems.

Mains Question

Q.. "Oxygen access is not just a clinical necessity but a structural determinant of health equity." In the context of the Southeast Asian region, critically examine the systemic causes of the medical oxygen gap. Suggest robust structural and policy-level interventions to build an equitable and resilient oxygen ecosystem. (250 words)

Q. About the Lancet Global Health Commission and WHO reports on medical oxygen access in Southeast Asia, consider the following statements:

- 1. According to the Lancet Commission, over 75% of hospitals in Southeast Asia meet WHO oxygen purity standards.
- 2. The WHO has recommended decentralised, solar-powered oxygen production models for energy-poor settings.
- 3.Sri Lanka's primary healthcare system failed to extend oxygen support to rural areas during the COVID-19 pandemic.
- 4. WHO's 2022 report attributes the oxygen crisis during COVID-19 to a structural neglect over many years, not just logistical failures.

Which of the above statements are correct?

- A. 2 and 4 only B. 1, 2 and 3 only C. 2, 3 and 4 only
- D. 1 and 4 only

Answer: A. 2 and 4 only

Explanation:

• Statement 1 is incorrect: The Lancet Commission highlighted oxygen service coverage gaps, stating that only 58% of LMIC hospitals have sufficient medical oxygen. Far from meeting WHO purity standards in over 75% of hospitals, the actual availability is lower, and purity is a concern due to regulatory gaps.





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- Statement 2 is correct: WHO encourages decentralised and solar-powered oxygen systems, citing successful pilot examples from Ethiopia and Nigeria, especially for energy-deficient settings.
- Statement 3 is incorrect: On the contrary, Sri Lanka leveraged its well-integrated primary health system to supply oxygen even in rural areas using mobile devices, which was noted as a best practice.
- Statement 4 is correct: WHO's 2022 report explicitly states that the crisis during the pandemic was a result of years of systemic neglect, not just an immediate supply-chain problem.

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Six new sites join FAO's Globally Important Agricultural Heritage Systems (GIAHS)

In a world with climate change, loss of biodiversity and food security, the revival and recognition of traditional agricultural systems provides a lighthouse of hope. Inherent in centuries-old indigenous people's knowledge and organic balance, these systems not only ensure food sovereignty and societal flexibility but also preserve cultural heritage.

Globally Important AGRICULTURAL HERITAGE Systems

In this context, the Food and Agricultural Organization (FAO), recently recognized by the Food and Agricultural Organization (FAO) marks six new places as globally important, a significant progress towards permanent agriculture and inclusive rural development.

Why is it in the news?

FAO has recently nominated six traditional agricultural systems from Brazil, China, Mexico and Spain as globally important agricultural heritage systems (Giahs).

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SCO 173-174, Sector 17C Chandigarh These inclusions emphasize the relevance of indigenous peoples' agricultural knowledge and its ability to meet modern organic and food challenges.

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Background: Understand Giahs

- **Definition:** Giahs are dynamic agricultural systems that have evolved through joint components in a society with the environment. They maintain agariboodyvarsity, traditional knowledge systems, flexible ecosystems and cultural values.
- Original: Launched in 2002 at the World Summit on Sustainable Development in Johannesburg, the Giahs initiative is run by the UN FAO.
- **Objective:** Security and support for the traditional agricultural system. Protection of biodiversity and genetic resources. Sustainable development and promotion of livelihoods in the countryside. Recognise and preserve the cultural landscape and heritage.

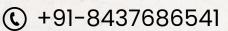
Global: Identification and recognition of websites

National: Politics, Support, and Integration in Development Structure

Local: Empowerment and Empowerment of Communities for Permanent Resource Use bout recently renowned GIAH's sites (2024).

Decking Pearl Musel Fisheri, China, 800 years 800-year-old system that integrates pearl farming with rice and silk production. Improves water purification, biodiversity and eco-tourism

Funding White Tea Culture, China Biodiversity is associated with local rituals and livelihoods, 18 tea and 41 botanical variants at home.







Galan Pear Bagh, China, 600 years old,

Drainland Agricultural-Practical with the Yellow River. The native crop produces 2 million kilos of bulbs annually through coordination.

Erva met Agrophorrestry, Brazil Indigenous farming under Aroucaria forests ARVA-MATE (YERBA MATE) preserves biodiversity by ensuring economic livelihood through agriculture. re

Metpantal Terrace, Mexico 3000 -Year -Od Nahua Terrace Farming System Food supports sovereignty and protects more than 140 indigenous species Lanzarote sand farming, Spain: Innovative use of volcano and sea sand for the cultivation of crops without watering. Practised in one of the dry climates in Europe

India's Contribution to GIAHS

- Koraput Traditional Agriculture, Odisha: Practised by tribal communities in the Eastern GhatsConserves over 1,200 indigenous rice varietiesIntegrates millets and pulses with organic and community-driven seed systems.
- Kuttanad Below Sea Level Farming, Kerala.Unique polder-based farming system in the Vembanad wetland.Utilises bunds and rice-fish rotation techniques to grow paddy below sea level.
- Saffron Heritage of Kashmir, UT of Jammu & Kashmir: Traditional saffron cultivation on Karewa soils at high altitudes. Renowned for superior quality saffron with high aroma, colour, and crocin content

Significance of GIAHS Recognition

- Agrobiodiversity Conservation: Protects indigenous crops, livestock, and associated flora/fauna.
- Food and Nutritional Security: Promotes diverse, local, and climate-resilient food systems.
- **Cultural Identity:** Preserves centuries-old traditions, rituals, and agricultural customs.
- Sustainable Livelihoods: Supports rural economies through ecotourism, local markets, and resilient farming.
- **Climate Adaptation:** Encourages low-carbon, water-efficient, and regenerative practices in harmony with local ecology.

The way forward

Community's participation and capacity building: Strengthen local authorities and farmer institutions for effective protection. To promote the transfer of knowledge and training across intergenerational.

Economic and technical assistance: CSR, dedicated money dedicated to Giah's websites during climate financing and government programs. Support for market connection, branding and global GI tag recognition. **Politics and research support:** Increase political consistency between the ministries for agriculture, the environment, culture and tourism. Encourage educational research, influence assessment and sustainable innovations in traditional systems. Global cooperation: Strengthen South-South collaboration and knowledge sharing between Giah's websites around the world.







Conclusion

- As the world wants an environmental decline, food security and complex crises of cultural erosion, the traditional agricultural system provides time -written and general models for stability.
- The recognition of the FAO on the new Giahs websites not only draws global attention to these invaluable heritage systems, but also emphasises the urgent need to keep them safe.
- For a country like India, where traditional knowledge is deeply inherent in its rural clothes, it is both an opportunity and a responsibility, for example, to lead the agricultural heritage as a path for permanent development.

Main Question:

Q. Discuss the significance of the FAO's Globally Important Agricultural Heritage Systems (GIAHS) programme in promoting sustainable agriculture and preserving cultural heritage. Highlight India's contributions under the GIAHS framework.

Q. The GIAHS system of Lanzarote Sand Farming in Spain is remarkable for:

A. Using hydroponics in coastal greenhouses

B. Cultivating rice below sea level

C. Growing crops using volcanic and sea sand without irrigation

D. Reclaiming desert land through borewell irrigation

Answer: C. Growing crops using volcanic and sea sand without irrigation

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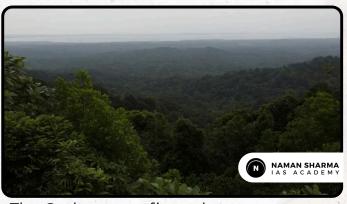


Zudpi Jungle and Forest Law: A New Chapter in Protection Juris Prize

(Prelims + mains)

Introduction

By providing environmental protection and a significant boost for the forest regime, the Supreme Court in India recently decided that the jungles join the eastern part of Maharashtra qualify as forest land under Indian law. This historical decision is e.g. confirms the inclusive interpretation of the "forest" held in



The Godavan confirms the constitutional commitment to the case and ecological protection. While the court protected human settlements before -1996, the ruling took an important step to protect the neglected but often neglected forest tag.

Why is it in the news?

• The Supreme Court in India has admitted that 86,400 hectares with connected forest land in six districts in eastern Maharashtra are considered forest land. • The decision was formed with the 1996 Goods Judgment, and ensured the country comes under the Forest (Protection) Act, 1980, and protected them from the turn for use that is not one.

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• However, the court also allowed the continuous existence of the necessary infrastructure, such as houses, schools and cemeteries, which were built before December 12, 1996.

Background

What are zudpi forests?

 Location: Nagpur, Wardha, Bhandara, Gondia, Chandrapur and Gadchiroli districts were found in Vidarbha, Maharashtra.

Vocabulary: "zudpi" is a local Marathi word that reflects the scrub or bushed terrain.

- Vegetation and soil: These areas are characterised by rare vegetation, mainly on the bushes and dry grass, grunting soil, which is gravel, dry and unsuitable for the growth of long trees.
- Ecological significance: Despite their low biomass, Zudy Skoger is just as important as wildlife corridors, adding large forest patches and enabling animal movement, especially exposed to residential fragmentation. They play an important role in microclimate regulation, supporting biodiversity and soil preservation.

Administrative history

• Since the 1980s, the Maharashtra government has considered Zudip land as a forest for administrative purposes.



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- In 1987, the state asked the Ministry of the Environment and Forests to exempt these countries from forest protection, identify their semihundred-year-old status, and also use them for development.
- However, no central notice was given, leaving these lands in a legal grey area before the current SC decision provided clarity.

Forest Definition: The Godavarman Benchmark

- The T.N. Godavarman Thirumulpad v. Union of India (1996) case fundamentally altered forest jurisprudence by:
- Expanding the definition of "forest" to include any land with forest-like characteristics, not just officially recorded forests.
- Applying the Doctrine of Public Trust, recognising forests as ecological assets held in trust by the state.
- Reinforcing environmental rights under Article 21 (Right to Life) and Article 48A of the Constitution.
- Bringing millions of hectares of uncategorized lands, including Zudpi Jungles, under legal forest protection.

Decision-making characteristics and implications

 Legal clarity: The reigning Judpi eliminates uncertainty about the forest's legal status, making it qualified for protection under the national forest laws.

Human Balance: 1996 by protecting pre-retardant structures, the court balances ecological protection with human rights and social welfare.

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Protection of biodiversity:

Recognises that small forest tags aid in decentralised preservation of biodiversity, especially in a fragmented landscape, as fate. Previous for other states: This decision can trigger the reassessment of unchanged forest land in other Indian states.

The way forward

- Mapping and delimitation: The government should do scientific mapping of Zudipi countries using GIS and satellite technology to identify boundaries, biological diversity values and ecological corridors.
- Sustainable development schemes: Create specific ecosensitive zone (ESZ) Guidelines for Zudpi-Land, Balance conservation with social needs, grazing, the collection of NTFP and the use of water. Community engagement: Include local tribal and forest-niwas communities in protection through Joint Forest Management.

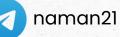
Make sure that the Forest Rights Act (from 2006 is integrated into the honorary and conservation scheme for their rights.

 Opposition coordination: Ensure coordination between forests, revenues and tribal development departments for uniform implementation of policy and to prevent over -whole requirements or legal disputes.

Replication and legal reform:

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Encourage other states to review their forest classification systems, and ensure that all countries with ecological value, reserved under appropriate laws, regardless of canopy density.







Conclusion

The Supreme Court's decision on Judpi forests is higher than just legal classification - it represents the broad vision of an inclusive and organic forest regime. While India is struggling with twin challenges of climate change and loss of biodiversity, even identifying the ecological significance of the scrub, dry lands such as Judpi forests is an important step. Through responsible implementation and socially focused policy, this decision can serve as a template for general forest preservation throughout the country.

Main Question (GS Paper 3 – Environment & Biodiversity):

Q. The Supreme Court's verdict on Zudpi Jungles reinforces the Godavarman principle of forest protection. Examine the ecological significance of such degraded forest lands and suggest steps for their sustainable conservation and community integration.

Q. About "Zudpi Jungles", recently seen in the news, consider the following statements:

- 1.Zudpi Jungles are located in the arid regions of Rajasthan and are classified as wastelands.
- 2. The Supreme Court has declared them as forest land under the Forest (Conservation) Act, 1980.
- 3. These areas serve as important wildlife corridors despite having low vegetation density.
- 4.The term "Zudpi" is derived from a Sanskrit word meaning forest.

Which of the above statements are correct?

- A. 1 and 4 only B. 2 and 3 only
- C. 1, 2 and 3 only
- D. 2, 3 and 4 only



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Answer: B. 2 and 3 only

Zudpi Jungles are located in the arid regions of Rajasthan and are classified as wastelands.

Statement 1 is Incorrect. Zudpi Jungles are located in the eastern Vidarbha region of Maharashtra, not Rajasthan. While the vegetation is sparse and the soil is arid (Murmadi soil), they are not officially classified as wastelands but have been considered forest-like areas by the Maharashtra government since the 1980s. The Supreme Court has declared them as forest land under the Forest (Conservation) Act, 1980.

Statement 2 is Correct. The Supreme Court recently ruled that 86,400 hectares of Zudpi Jungle lands are to be treated as forest land, bringing them under the legal protection of the Forest (Conservation) Act, 1980, in line with the Godavarman judgment (1996). These areas serve as important wildlife corridors despite having low vegetation density.

Statement 3 is Correct. Although Zudpi Jungles have low vegetation, they are ecologically important as they function as wildlife corridors, allowing animals to safely move between larger forest patches.

The term "Zudpi" is derived from a Sanskrit word meaning forest.

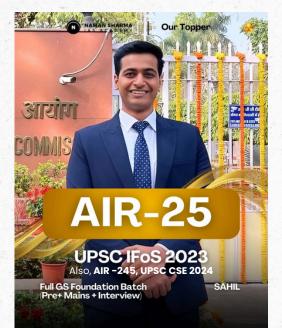
Statement 4 is Incorrect. The word "Zudpi" is a Marathi term meaning shrubs or bushy vegetation, and it does not have a Sanskrit origin or mean "forest" in that context.



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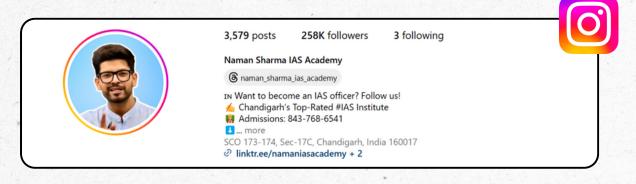
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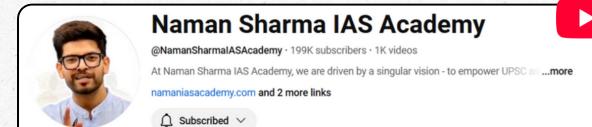


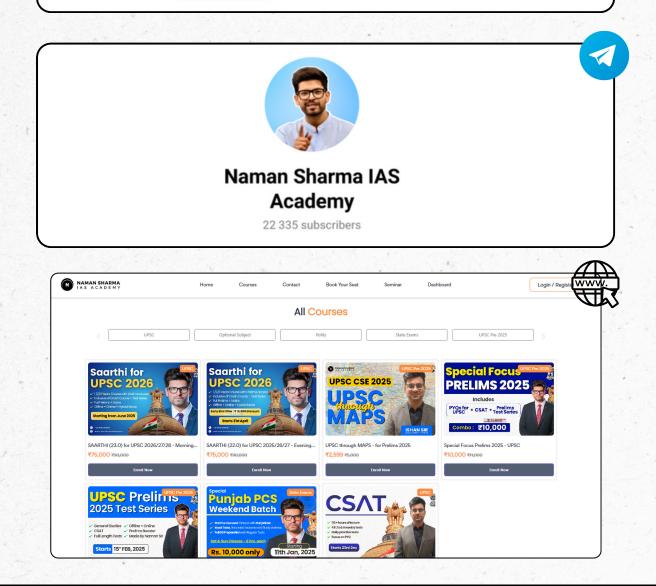
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