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Current Affairs - 27 December 2025

DECODING AIR POLLUTION CONCERNS IN DELHI-NCR

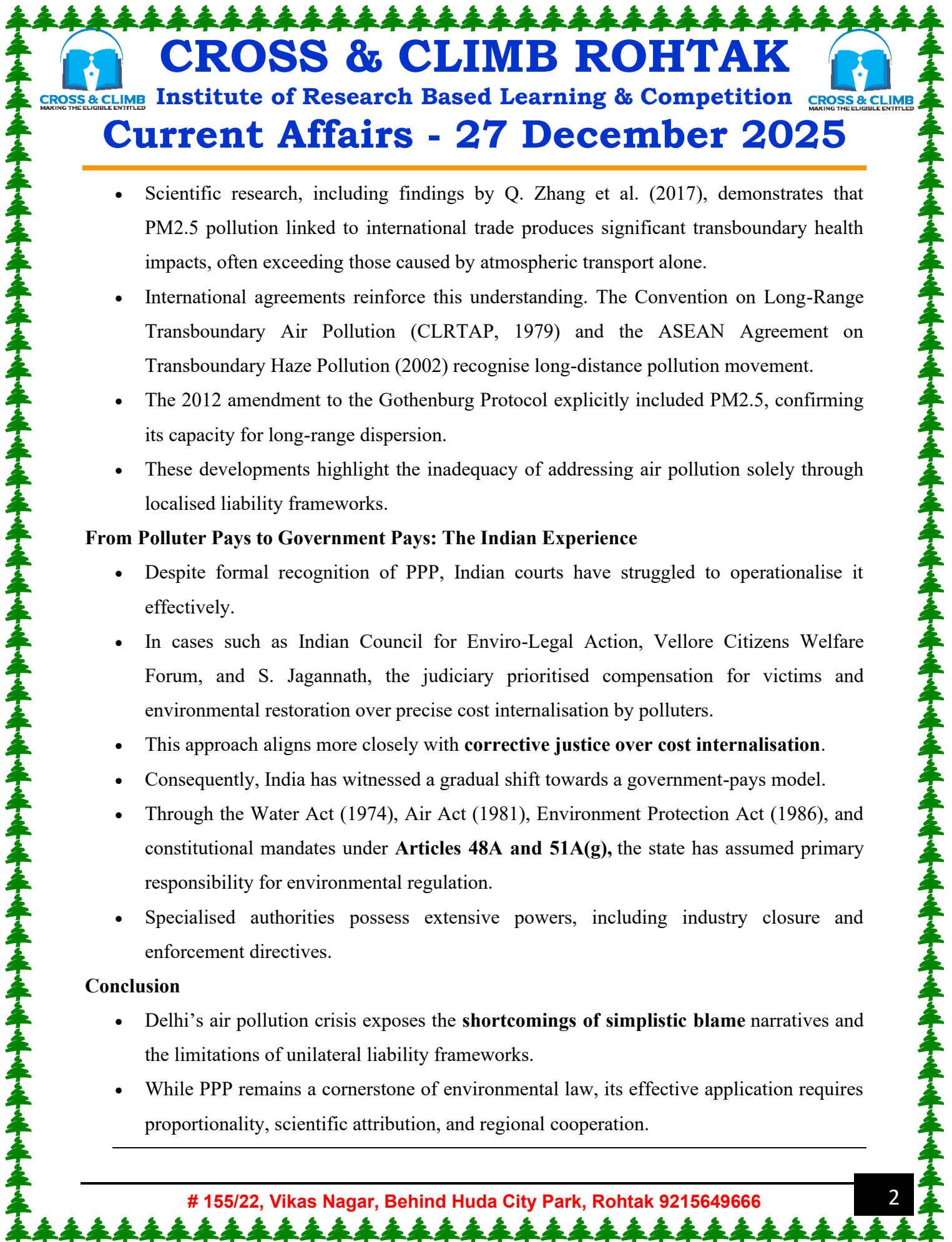
- Air pollution in Delhi's National Capital Region (NCR) has reached critical levels, with vehicular emissions being the dominant contributor to fine particulate matter (PM2.5) and toxic gases such as carbon monoxide, benzene, and nitrogen oxides.
- Despite this, responsibility for Delhi's worsening air quality has frequently been placed on seasonal stubble burning by farmers in neighbouring Punjab and Haryana.
- This selective attribution obscures the complex, multi-source nature of air pollution and raises concerns regarding fairness and accuracy in environmental liability.

The Polluter Pays Principle and Its Legal Foundations

- The **Polluter Pays Principle (PPP)** assigns the cost of environmental damage to those responsible for pollution.
- In *Vellore Citizens Welfare Forum v. Union of India* (1996), the Supreme Court recognised PPP as part of Indian law, later reinforcing it through statutory recognition under the **National Green Tribunal Act, 2010**.
- PPP aims to internalise environmental costs and prevent polluters from externalising harm onto society.
- However, PPP faces serious limitations in cases involving multiple point and non-point pollution sources.
- Air pollution, unlike land or water pollution, is diffuse, cumulative, and often transboundary.
- Determining precise causal links becomes difficult, weakening the effectiveness of PPP when applied in isolation and without coordinated inter-state or regional mechanisms.

Transboundary Air Pollution and International Precedents

- Air pollution is increasingly recognised as a regional and global phenomenon rather than a purely local issue.
- The **Trail Smelter Arbitration (1941)** established that states are responsible for environmental harm caused beyond their borders.



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- Scientific research, including findings by Q. Zhang et al. (2017), demonstrates that PM2.5 pollution linked to international trade produces significant transboundary health impacts, often exceeding those caused by atmospheric transport alone.
- International agreements reinforce this understanding. The Convention on Long-Range Transboundary Air Pollution (CLRTAP, 1979) and the ASEAN Agreement on Transboundary Haze Pollution (2002) recognise long-distance pollution movement.
- The 2012 amendment to the Gothenburg Protocol explicitly included PM2.5, confirming its capacity for long-range dispersion.
- These developments highlight the inadequacy of addressing air pollution solely through localised liability frameworks.

From Polluter Pays to Government Pays: The Indian Experience

- Despite formal recognition of PPP, Indian courts have struggled to operationalise it effectively.
- In cases such as Indian Council for Enviro-Legal Action, Vellore Citizens Welfare Forum, and S. Jagannath, the judiciary prioritised compensation for victims and environmental restoration over precise cost internalisation by polluters.
- This approach aligns more closely with **corrective justice over cost internalisation**.
- Consequently, India has witnessed a gradual shift towards a government-pays model.
- Through the Water Act (1974), Air Act (1981), Environment Protection Act (1986), and constitutional mandates under **Articles 48A and 51A(g)**, the state has assumed primary responsibility for environmental regulation.
- Specialised authorities possess extensive powers, including industry closure and enforcement directives.

Conclusion

- Delhi's air pollution crisis exposes the **shortcomings of simplistic blame** narratives and the limitations of unilateral liability frameworks.
 - While PPP remains a cornerstone of environmental law, its effective application requires proportionality, scientific attribution, and regional cooperation.
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URBAN INVADER: HOW A NEW MOSQUITO THREATENS INDIA'S 2030 MALARIA

GOAL

- The spread of **Anopheles stephensi** in cities such as Delhi marks a shift from traditional rural malaria transmission.
- The species thrives in urban environments, breeding in artificial containers like overhead tanks, tyres, and construction sites.
- It efficiently transmits **Plasmodium falciparum** and **P. vivax**, complicating malaria control efforts.

Why Anopheles stephensi Is a Serious Threat?

- Recognised globally as an invasive vector.
- Adapted to high population density, informal settlements, and fragmented urban healthcare systems.
- Requires city-specific vector control and surveillance strategies, unlike conventional rural-focused approaches.

Persistent High-Burden Pockets

- India has entered the **pre-elimination phase**, but malaria is now concentrated in specific pockets rather than widespread.
- High-burden districts persist in Odisha, Tripura, and Mizoram.
- Cross-border transmission from Myanmar and Bangladesh continues to affect northeastern border districts.

India's Progress So Far

- Malaria cases reduced from 11.7 lakh (2015) to ~2.27 lakh (2024).
- Deaths declined by 78% over the same period.
- Active surveillance intensified in tribal, forest, border, and migrant-population settings.
- **Priority Actions and Research Areas**
 - Strengthen surveillance systems and vector monitoring.
 - Improve supply-chain reliability for diagnostics and medicines.

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Strategic Frameworks Guiding Elimination

- India's success rests on a clear policy roadmap:
 - **National Framework for Malaria Elimination (NFME)**, 2016: Target of zero indigenous cases by 2027.
 - **National Strategic Plan for Malaria Elimination (2023–2027)**: Focus on enhanced surveillance, “test–treat–track” strategy, and real-time monitoring through the Integrated Health Information Platform (IHIP).
- **Vector Control and Urban Malaria Management**
 - Integrated Vector Management (IVM) has been central, including:
 - Indoor Residual Spraying (IRS)
 - Long-Lasting Insecticidal Nets (LLINs)
 - Special attention has been given to controlling the invasive *Anopheles stephensi* mosquito, strengthening urban malaria control.
- **Strengthening Diagnostics, Health Systems, and Communities**
 - Establishment of National Reference Laboratories under the National Centre of Vector Borne Diseases Control (NCVBDC).
 - District-specific action plans for tribal, forested, and high-endemic areas.
 - Integration of malaria services into Ayushman Bharat, with Community Health Officers and Ayushman Arogya Mandirs delivering care at the grassroots level.
 - Over 850 health professionals trained in 2024 through national refresher programmes.

The Road Ahead: 2030 Malaria-Free India

- India remains committed to achieving zero indigenous malaria cases by 2027 and elimination by 2030, with safeguards against re-establishment.
- By combining strong policy frameworks, scientific interventions, community participation, and sustained funding, India is emerging as a global benchmark in malaria elimination.



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WHAT IS THE EXCLUSIVE ECONOMIC ZONE (EEZ)?



- An EEZ is an area of the ocean, generally extending **200 nautical miles (230 miles)** beyond a nation's territorial sea, within which a coastal nation has jurisdiction over both living and nonliving resources.
- The **concept** of an exclusive economic zone (EEZ) was adopted through the 1982 United Nations Convention on the Law of the Sea.
- Under international law, **within its defined EEZ, a coastal nation has:**
 - Sovereign rights for the purpose of **exploring, exploiting, conserving, and managing natural resources of the seabed, subsoil, and waters above it.**
 - Jurisdiction as provided for in international law with regard to the **establishment and use of artificial islands, installations, and structures; marine scientific research; and the protection and preservation of the marine environment.**
 - Other rights and duties provided for under international law.
- **UNCLOS** (United Nations Convention on the Law of the Sea) indicates that the **coastal state determines the acceptable level of fishing quotas in its EEZ**, with a focus on sustainable management.
- The **coastal state is entitled to fish the entire quota or to award the surplus to other countries.**
- **Provisions** under UNCLOS also **provide for the regular exchange of information about the populations of resources in an EEZ** in order to promote international scientific cooperation.
- EEZs have also been used to determine which country is responsible for removing marine hazards such as space debris.
- **UNCLOS establishes rights for how other countries may access the waters in an EEZ.**
 - **Other States have the right for their ships and aircraft to traverse the EEZ and its airspace and to lay cables and pipelines.**



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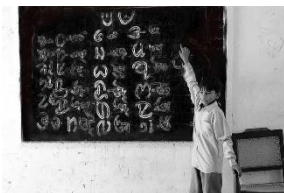
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What is the Territorial Sea?

- The territorial sea (also called territorial waters), under the UNCLOS, is that **area of the sea immediately adjacent to the shores of a country and subject to the territorial jurisdiction of that country.**
- **Extend:** The territorial sea extends to a limit of **12 nautical miles from the baseline of a country's coast.**
- **Importance of Territorial waters:**
 - Within its territorial waters, a **country exercises full sovereignty over the air space above the sea and over the seabed and subsoil.**
 - The **government can legislate on matters concerning the safety of navigation, the preservation of the environment, and the prevention, reduction, and control of pollution** within its territorial waters.
 - **Resource use** within the territorial sea is strictly **reserved to the coastal nation.**
 - **All countries** have the **right of innocent passage** (passage that is not prejudicial to the security of the coastal country) through the territorial sea of another country, although there is **no right of innocent airspace passage.**

KEY FACTS ABOUT SANTHALI LANGUAGE



- The Santhali language, which was **included in the Eighth Schedule of the Constitution through the 92nd Amendment Act, 2003, is one of the most ancient living languages of India.**
- It is spoken by a significant number of **tribal people in Jharkhand, Odisha, West Bengal, and Bihar.**
- It is primarily used by the **Santhal tribal community.**
- It is **also spoken in Nepal and Bangladesh.**
- In India, it is spoken by an estimated 7 million people, according to recent census data.



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- It is a member of the **Munda branch of the Austroasiatic language family**, which is an ancient family of languages spoken across parts of South and Southeast Asia.
- It is quite **distinct from the Indo-European language family** of languages spoken in much of India.
- It is closely **related to other Munda languages**, such as **Ho, Mundari, and Korku**.
 - These languages **share common features** such as their **agglutinative nature** (where words are formed by stringing together smaller units of meaning) and their **use of tones**.
- Santhali has a unique and rich tradition, with its own **script and oral literature**, reflecting the culture and beliefs of the Santhal tribe.
- Santhali uses the **Ol Chiki script**, a writing system that was **developed in 1925 by Pandit Raghunath Murmu**, a Santhal scholar and writer.

WHAT ARE GLOBAL CAPABILITY CENTRES (GCCS)?



- Global Capability Centres (GCCs), or **Captive Centres**, are **offshore offices or subsidiaries set up by multinational corporations (MNCs) to handle various business processes and services**.
- GCCs **connect organizations to a global pool of top-tier talent**, equipped with the **latest technology and training** needed to stay ahead of industry trends, continually innovate, and create sustained growth.
- These centres are responsible for a **wide range of tasks**, including **IT support, research and development (R&D), data analytics, finance, human resources, and other back-office functions**.
- Over time, many GCCs have **evolved** from being simple support centres to **becoming strategic hubs that drive innovation and high-value business functions**.
- **GCCs in India:**
 - Earlier, GCCs were established in India **primarily to reap cost benefits**.



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- Customer support, data processing, and IT services that these centres mainly focused on.
- Due to its abundant skilled labour force and lower operational cost, India proved to be an ideal location for setting up GCCs.
- However, GCCs have evolved over time to expand massively and now include critical business functions such as R&D, analytics, digital transformation, and innovation.
- Key GCC hubs are located in Bengaluru, Hyderabad, Pune, Chennai, Mumbai, and the National Capital Region (NCR).

VEER BAL DIWAS



- It is observed on **December 26 every year**, since 2022.
- It is commemorated in remembrance of the martyrdom of Guru Gobind Singh ji's (the tenth Sikh Guru) sons **Sahibzada Zorawar Singh ji** and **Sahibzada Fateh Singh ji**.
- The objective is to honour the bravery of the two young heroes of the country.
- **Historical Context of Veer Bal Diwas:**
 - Guru Gobind Singh, along with his family and disciples, were compelled to flee as the Mughal Army encircled the Anandpur fort.
 - During the chaos, Guru Gobind Singh's youngest sons, **Zorawar Singh and Fateh Singh**, were captured by the Mughal forces.
 - The two young boys courageously refused to abandon their faith, and consequently they were bricked alive on December 26, 1704.

Key facts about Guru Gobind Singh:

- Guru Gobind Singh was the **10th Sikh guru**, following the demise of his father, **Guru Tegh Bahadur**, the ninth Sikh Guru.
- **Contribution to Sikh religion:**



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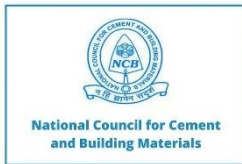


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- He is renowned for **founding the principles of Khalsa** or the Five 'K's i.e **kesh** (uncut hair), **kanga** (wooden comb), **kara** (iron or steel bracelet), **kirpan** (dagger) and **kachera** (short breeches).
- He fought against the Mughals in the **Battle of Muktsar in 1705**.
- He declared **Guru Granth Sahib** as **Sikhism's holy scripture** in 1708, before his death.

NATIONAL COUNCIL FOR CEMENT AND BUILDING MATERIALS



National Council for Cement
and Building Materials

- It was **established in 1962** as an apex research and development organization.
- **Objective:** To promote **research and scientific work** connected with cement and building materials trade and industry.
- It functions under the administrative control of **Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India**.
- **Functions of National Council for Cement and Building Materials:**
 - NCB's areas of work span over the entire spectrum of cement manufacturing and usage.
 - It serves as the nodal agency for providing the Government the necessary support for **formulation of its policy and planning** activities related to growth and development of **cement industry**.
 - It is devoted to protect the interests of consumers of cement and concrete in the country.
- It has its corporate centre and main laboratories **located at Ballabgarh** (near New Delhi).
- It has well established regional centre at **Hyderabad** and a Centre at **Ahmedabad** (Gujarat) &