Environment & Ecology · GS - III

Examine the major causes of severe winter air pollution in Delhi-NCR and suggest an integrated strategy to address this recurring environmental challenge.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 02/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Vehicular emissions; stubble burning; industrial pollution; construction dust; temperature inversion; regional coordination; clean transport; air-quality monitoring

Model Answer

Introduction

Severe winter air pollution in Delhi-NCR is a recurring environmental and public-health challenge. Its intensity increases when emissions combine with meteorological conditions that restrict pollutant dispersion.

Major Causes

1. Transport and Industry: Vehicle exhaust, industrial emissions, diesel generators and fossil-fuel combustion release particulate matter and harmful gases.

2. Agricultural and Biomass Burning: Stubble burning and open waste burning contribute to seasonal pollution episodes.

3. Construction and Road Dust: Poorly managed construction sites and dust from roads increase particulate pollution.

4. Meteorological Conditions: Temperature inversion, low wind speeds and a shallow atmospheric mixing layer allow pollutants to accumulate near the ground.

Impacts

Prolonged exposure can aggravate respiratory and cardiovascular diseases, reduce visibility, disrupt outdoor activities and disproportionately affect children, older persons and vulnerable communities.

Way Forward

Authorities should strengthen public transport, vehicle-emission checks, industrial compliance and dust control. Farmers need affordable alternatives to residue burning, including machinery access and biomass utilisation. CAQM and neighbouring states should coordinate regional action, supported by real-time monitoring, reliable forecasts and graded emergency measures.

Conclusion

Delhi-NCR requires sustained, year-round emission reduction rather than temporary restrictions alone. Coordinated governance and cleaner energy and transport systems are essential for lasting improvement.

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