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State of India's Environment 2026 — CSE Report: Planetary Boundaries, Extreme Weather Deaths, and Air Monitoring Gaps

24 April 2026

ENVIRONMENT

SCIENCE & TECH

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CURATED & WRITTEN BY

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State of India's Environment 2026 — CSE Report: Planetary Boundaries, Extreme Weather Deaths, and Air Monitoring Gaps

24 April 2026 · 3 min read

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WHY IN NEWS

The **Centre for Science and Environment (CSE)** released the **State of India's Environment 2026** — its annual assessment of India's environmental status. Key findings: seven of nine **planetary boundaries** have been breached globally; **extreme weather killed 4,419 people** in India in 2025; only **15% of India's population** lives within 10 km of an air quality monitoring station; and the invasive plant **Lantana camara** now occupies ~50% of India's forest scrublands, intensifying human-wildlife conflict.

CENTRE FOR SCIENCE AND ENVIRONMENT (CSE) — ABOUT

PARAMETER	DETAIL
Full name	Centre for Science and Environment
Founded	1980
Headquarters	New Delhi
Director General	Sunita Narain
Key publications	State of India's Environment (annual); Down to Earth (magazine)
Focus	Environment, development, climate, energy, water

PLANETARY BOUNDARIES — THE FRAMEWORK

What Are Planetary Boundaries?

The **planetary boundaries** framework, developed by **Johan Rockström** et al. (Stockholm Resilience Centre, 2009), identifies **nine Earth-system processes** that define the “**safe operating space for humanity.**” Breaching these boundaries increases the risk of abrupt or irreversible environmental changes.

BOUNDARY	STATUS (2026)
1. Climate change	Breached (CO ₂ ~425 ppm; Paris target under stress)
2. Biosphere integrity (biodiversity)	Breached (6th mass extinction underway)
3. Land-system change	Breached (deforestation continues)
4. Freshwater use	Breached (green water — soil moisture)
5. Biogeochemical flows (N, P)	Breached (nitrogen/phosphorus excess from fertilisers)
6. Novel entities (pollution)	Breached (plastics, chemicals)
7. Aerosol loading	Breached (monsoon disruption risk)
8. Ocean acidification	Within safe zone (but worsening; 30–40% more acidic since industrial era)
9. Stratospheric ozone	Within safe zone (recovering after Montreal Protocol)

CSE 2026: 7 of 9 boundaries breached.

KEY FINDINGS — STATE OF INDIA'S ENVIRONMENT 2026

Extreme Weather Deaths

YEAR	EXTREME WEATHER DEATHS (INDIA)
2023	~3,200
2024	~3,800
2025	4,419 (CSE data)

Major causes: heatwaves, floods, lightning, cyclones, cold waves.

Air Quality Monitoring Gap

INDICATOR	DATA
Population within 10 km of CPCB/SPCB monitor	Only 15%
Population beyond 10 km of monitor	85%
CPCB monitoring stations	~1,100 (2025)
Recommended density	~4,000+ needed
Worst gap	Small towns, industrial belts, rural areas

Impact: 85% of India’s population breathes air that is not measured — pollution-related policies lack adequate ground truth data.

Lantana camara — Invasive Species Alert

PARAMETER	DETAIL
Species	<i>Lantana camara</i> (Mexican shrub)
Origin	Introduced from tropical Americas via British era
Current spread	~50% of India’s forest scrublands
Impact	Suppresses native grasses → less prey for tigers → more cattle predation → human-wildlife conflict
Classification	Invasive alien species (IUCN list)
Management challenge	Extremely difficult to eradicate once established

Ocean Acidification

- Ocean acidity has increased **30–40%** since the industrial era (due to CO₂ absorption → carbonic acid)
- Threatens coral reefs, shellfish, marine food chains
- Coral reefs support **~25% of all marine species** despite covering <1% of ocean floor

INDIA'S AIR POLLUTION — POLICY FRAMEWORK

INSTRUMENT	DETAILS
National Clean Air Programme (NCAP)	Launched 2019; target 40% reduction in PM _{2.5} /PM ₁₀ by 2026 in 131 cities
CPCB	Central Pollution Control Board — national air quality monitoring
SPCB	State Pollution Control Boards — state-level monitoring
AQI	Air Quality Index (0–500 scale; Good to Severe)
Graded Response Action Plan (GRAP)	Delhi NCR — tiered restrictions based on AQI
BS-VI emission norms	Implemented April 2020 — stricter vehicular emission standards

UPSC RELEVANCE

Prelims

- CSE: Centre for Science and Environment; Director: Sunita Narain
- Planetary boundaries: 9 total; 7 breached (2026)
- Framework: Johan Rockström (Stockholm Resilience Centre, 2009)
- Lantana camara: Invasive alien species; ~50% of forest scrublands
- NCAP: National Clean Air Programme (2019)
- Ocean acidification: 30–40% more acidic since industrial era

Mains

- “India’s environmental governance suffers from data poverty — monitoring is inadequate for a country of 1.4 billion. Analyse.” (GS3)
- Planetary boundaries framework — relevance for India’s development trajectory

FACTS CORNER

FACT	DETAIL
CSE report	State of India's Environment 2026
Planetary boundaries breached	7 of 9
Framework author	Johan Rockström (Stockholm Resilience Centre, 2009)
Extreme weather deaths (India, 2025)	4,419
Air quality monitoring coverage	15% of population within 10 km
Lantana camara spread	~50% of forest scrublands
Ocean acidity increase	30–40% since industrial era
NCAP target	40% reduction in PM2.5/PM10 by 2026 (131 cities)
CSE Director	Sunita Narain

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