

LIGHT POLLUTION



CONTEXT

- A study published in the journal Nature has found that artificial light at night increased by 16% globally between 2014 and 2022.
- The sharpest rise has been observed in Sub-Saharan Africa and Southeast Asia, with India and China emerging as major contributors in Asia.



NATURAL NIGHT SKY



LIGHT POLLUTED SKY



LIGHT POLLUTION

Definition - It is the excessive or inappropriate use of artificial outdoor light, which disrupts natural darkness and has adverse effects on human health, wildlife, and the environment.

ENVIRONMENTAL AND HEALTH IMPACTS



Biodiversity & Wildlife:



Navigation: Disorients migratory birds and sea turtle hatchlings that rely on natural light (moon/stars) for guidance.



Reproduction: Interferes with the mating calls of fireflies and the hatching of species like clownfish.



Ecosystem Flow: Hardens tree leaves, making them less suitable for herbivorous insects to eat, which disrupts urban food chains.



Human Health:



Circadian Rhythm: Disrupts the body's natural 24-hour sleep-wake cycle.



Melatonin Suppression: Inhibits the production of melatonin, which is essential for sleep and has been linked to increased risks of insomnia, stress, and certain cancers (e.g., breast cancer).



Neurodegenerative Diseases: Recent studies have suggested a correlation between night-time light pollution and the incidence of Alzheimer's disease.



Economy & Energy:

Wastes billions of units of electricity annually, contributing significantly to greenhouse gas emissions.



GOVERNMENT INITIATIVES TO CURB LIGHT POLLUTION



Energy Conservation Building Code (2017):

The ECBC is a set of standards established by India's Bureau of Energy Efficiency (BEE) to promote sustainable design and reduce energy consumption by 25–50% in new commercial buildings.



Street Lighting National Programme (SLNP):

Launched in 2015, to replace conventional street lights with smart and energy-efficient LED streetlights across the country.



Smart Cities Mission:

Adaptive lighting is a core component of India's Smart Cities Mission, designed to optimize energy consumption and reduce light pollution by dynamically adjusting street lamp intensity based on real-time traffic and time conditions.



Environmental Protection Act 1986:

Provides umbrella power to the Central Government to regulate environmental pollution of all kinds.