Air Pollution and Life Expectancy

An environment think tank **Centre for Science and Environment** in its report **"At the crossroad"** has said that **Life expectancy in India has gone down by 2.6 years** due to deadly diseases caused by air pollution.

The report is based on the study of three different organisations:

- The Global Burden of Disease Study 2017
- WHO publication titled **Air Pollution and Child Health**
- The review papers by scientists from the Forum of International Respiratory Societies

Key Findings

- Air pollution is now the **third highest** cause of death among all health risks ranking just above smoking in India. This is a combined effect of outdoor particulate matter (PM 2.5), ozone and household air pollution.
    - While exposure to outdoor **particulate matter (PM)** accounted for a loss of nearly one year and six months in life expectancy, exposure to household air pollution accounted for a loss of nearly one year and two months. **Household air pollution contributes about a quarter of the outdoor air pollution in the country.**
    - Due to this combined exposure, South Asians, including Indians are dying early. Their life expectancy has reduced by over 2.6 years. This is much higher than the global tally of reduced life expectancy by an average of 20 months.

- Air pollution can harm acutely as well as chronically, potentially affecting **every organ in the body.**
    - Ultra-fine particles pass through lungs are taken up by **cells and carried via the bloodstream** to expose virtually all cells in the body. Air pollution may be damaging every organ and virtually every cell in the human body.
    - The research shows each and every body part, from heart and lung disease to diabetes and dementia, and from liver problems, brain, intelligence, abdominal organs, reproduction, and bladder cancer to brittle bones and damages skin.
    - Fertility, foetuses and children are also affected by toxic air.
    - **Chronic obstructive pulmonary disease (COPD)** are responsible for the 49% of overall deaths due to air pollution, followed by lung cancer deaths (33%), diabetes and ischaemic heart disease (22% each) and stroke at (15%).

Evidence of Health Risk

This year has seen mounting evidence on the impact of air pollution on public health.

- According to the **State of Global Air 2019** estimates, over 1.2 million Indians died early due to exposure to unsafe air in 2017.
- **Type 2 diabetes:** this study has, for the first time, accounted for risks from type 2 diabetes linked to air pollution. This has serious implications for India where type 2 diabetes has taken an epidemic form.
- Epidemiological studies in Asia, Europe and North America, supported by toxicology research, have provided strong evidence that exposure to ambient and household PM2.5 contributes to type 2 diabetes incidence and mortality.
- Globally for type 2 diabetes deaths and **disability-adjusted life years (DALYs),** after high blood sugar and excess body weight.
- Exposure to PM 2.5 pollution has contributed to 276,000 deaths and 15.2 million DALYs from type 2 diabetes in 2017 worldwide.
- Approximately 80% of Indians breathe air that is worse than the levels recommended by **National Ambient Air Quality Standards,** the entire population of the country lives in areas with PM2.5 concentrations above the WHO Air Quality Guideline of 10 μg/m3.
- **Premature death:** India records the highest premature deaths of children under five years due to toxic air. Over 1 lakh children under the age of five fell victim to air pollution. In 2016, for almost every ten deaths in children under the age of five, one was due to air pollution.

Disability-Adjusted Life Year (DALY)

- It quantifies the burden of disease from mortality and morbidity.

- DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences.