Air Pollution and Pregnancy Losses: Lancet Report

Why in News

According to recent study **poor air quality is associated** with a considerable proportion of **pregnancy loss in India, Pakistan, and Bangladesh.**

- It is the **first study to estimate the effect of** air pollution **on pregnancy loss** across the region.

Key Points

- **The Study:**
    - They created a model to **examine how exposure to PM 2.5 increased women's risk of pregnancy loss**, calculating risk for each 10 µg/m³ increased in PM 2.5 after **adjusting for maternal age, temperature and humidity, seasonal variation, and long-term trends** in pregnancy loss.
    - Each **increase in 10 µg/m³** was estimated to **increase a mother's risk of pregnancy loss by 3%.**
        - The increase in **risk was greater for mothers from rural areas or those who became pregnant at an older age**, compared to younger mothers from urban areas.
- **Area Specific Report:**
    - Of the pregnancy loss cases, **77% were from India**, 12% from Pakistan, and 11% from Bangladesh.
- **Limitations:**
    - The study was **unable to distinguish between natural pregnancy loss and abortions**, which may have led to an underestimation of the effect of air pollution on natural pregnancy loss.
    - There was **under-reporting** of pregnancy losses because of **stigma** or **ignoring very early pregnancy losses.**

Air Pollution

- Air pollution refers to any **physical, chemical, or biological change in the air**. It is the contamination of air by harmful gases, dust, and smoke which **affects plants, animals, and humans drastically.**
- **Air Pollutants:** Pollutants are the substances which cause pollution. **Types:**
    - **Primary:** The pollutants that directly cause air pollution or the pollutants that are formed and **emitted directly from particular sources**. Examples are **particulate matter, carbon monoxide, nitrogen oxide, and sulfur oxide.**
    - **Secondary:** The pollutants formed by the intermingling and reaction of primary pollutants are known as secondary pollutants. Examples are **ozone and secondary organic**

aerosol (haze).

- **Causes of Air Pollution:** Major sources of air pollution are:
    - Indoor **burning of fossil fuels, woods and other biomass** to cook, heat and light homes.
    - **Industry**, including power generation such as coal-fired plants and diesel generators.
    - **Transport**, especially **vehicles** with diesel engines.
    - **Agriculture**, including livestock, which produces methane and ammonia, rice paddies, which produce methane, and the burning of agricultural waste.
    - Open **waste burning** and organic waste in landfills.
- **Impact of Air Pollution on Human Health:**
    - As per the **State of Global Air 2020 (SoGA 2020)** released by the **Health Effects Institute (HEI):**
        - High PM contributed to the deaths of more than 1,16,000 Indian infants who did not survive their first month.
        - More than half of these deaths were associated with outdoor PM2.5 and others were linked to the use of solid fuels such as charcoal, wood, and animal dung for cooking.
    - According to the **2017 Global Burden of Disease report** published by the **Lancet Planetary Health journal:**
        - India, which accounts for 18% of the global population, recorded 26% of the global premature deaths and disease burden due to air pollution.
        - **One in every eight deaths in India (2017)** could be attributed to air pollution, which now contributes to more disease burden than smoking.
    - Household air pollution causes about **3.8 million premature deaths** each year.
    - Air quality has become a **serious health issue** because the pollutants enter deep inside the lungs and the lungs capacity to purify blood gets reduced which affects the person's growth, mental ability and the working capacity especially for **children, pregnant women and elderly people.**
        - In children, it is associated with **low birth weight, asthma, childhood** cancers**, obesity, poor lung development and** autism, among others.
- **Indian Initiatives to Control Air Pollution:**
    - The Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas**:** It coordinates efforts of state governments to curb air pollution, and will lay down the parameters of air quality for the region.
    - Bharat Stage (BS) VI norms**:** These are emission control standards put in place by the government to keep a check on air pollution.
    - Dashboard for Monitoring Air Quality**:** It is a **National Air Quality Monitoring Programme (NAMP)** based dashboard, built on data from the **Central Pollution Control Board**'s **National Ambient Air Quality Monitoring (NAAQM)** Network which was started in 1984-85 and covers 344 cities/towns in 29 states and 6 UTs.
    - National Clean Air Programme**:** Launched in 2019, it is a comprehensive pan-India air pollution abatement scheme for 102 cities.
    - National Air Quality Index (AQI)**:** It focuses on health effects one might experience within a few hours or days after breathing polluted air.
    - National Ambient Air Quality Standards**:** They are the standards for ambient air quality with reference to various identified pollutants notified by the Central Pollution Control Board under the **Air (Prevention and Control of Pollution) Act, 1981.**
    - Breathe**:** It is a 15 point action plan to fight air pollution by NITI Aayog**.**
    - Pradhan Mantri Ujjwala Yojana (PMUY)**:** It aims at providing clean-cooking fuel to the poor households and bringing in qualitative charges in the living standards.
- **International Initiatives:**
    - **Climate and Clean Air Coalition:**

        - Launched in **2019**
        - It is a **voluntary partnership** of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations **committed to protecting the climate and improving air quality through actions to reduce short-lived climate pollutants.**
        - **India is a member** of the coalition.
    - United Nations **Clean Air Initiative:** It calls on national and subnational governments to commit to achieving air quality that is safe for citizens, and to align climate change and air pollution policies by 2030.
    - World Health Organization (WHO)'s 4 Pillar Strategy: WHO adopted a resolution (2015) to address the adverse health effects of air pollution.

PM (Particulate Matter) 2.5

- PM 2.5 is an atmospheric particulate matter of diameter of fewer than 2.5 micrometres, which is around 3% the diameter of a human hair.
- It causes respiratory problems and also reduces visibility. It is an endocrine disruptor that can affect insulin secretion and insulin sensitivity, thus contributing to diabetes.
- It can only be detected with the help of an electron microscope because of them being very small.
- Sources of fine particles include all types of **combustion activities** (motor vehicles, power plants, wood burning, etc.) and certain **industrial processes.**

Way Forward

- There is a need to urgently confront air pollution and strengthen health systems. The short-term respite from air pollution that most big cities in the world experienced was because of lockdown **measures and not a permanent fix**.
- Also there is a need to **increase public awareness on air pollution. Educate and inform people about what they can do to reduce air pollution**. Put out public health messages on the metro, buses, billboards, and radio to help change public behaviour.

Source:IE