Airborne Pathogens

Prelims – *Current events for National and International importance| Science & Technology, Health.*

Why in News?

Recently, Scientists from the Bose Institute, under the Department of Science and Technology (DST), has revealed new insights into the health risks posed by airborne pathogens.

- **Airborne pathogens -** These are disease-causing micro-organisms, such as bacteria, viruses, and fungi, that spread through the air.
- It is capable of causing infections in the lungs, gut, mouth and skin.
- **Recent Findings of the study – Prone areas - Indo-Gangetic Plain (IGP)** is one of the most densely populated regions in the ***world with highest air pollution.***
- Delhi, an urban region within IGP, is most populous and rapidly growing city in India and one of the most polluted cities of the world.
- Airborne pathogens are *twice as abundant* in densely populated parts of Delhi compared to less crowded regions.
- **Health risks -** Airborne pathogenic bacteria mainly responsible for Respiratory, Gastro-Intestinal Tract (GIT), Oral and Skin infections.
- There are two times higher over densely populated urban regions due to higher concentrations of tiny particles $PM_{2.5}$.
- **Role of PM2.5 —** The microscopic dust specks help bacteria to hitch ride through the city air.
- The particles are small enough to sneak deep into the lungs they act as carriers of the pathogenic bacteria, thus spreading the infection to different parts of the body.
- **Seasonal transition –** The study found that the transition from winter to summer, especially during hazy days or winter rains creates high-risks, likely to spread.
- During these periods, the cocktail of pollution and weather patterns creates the perfect storm for microbes to linger in the air longer than usual.
- **Role of Weather –** During winter, entrance of western disturbance causes sudden drop in atmospheric temperature, thereby subsequently increasing relative humidity (RH).
- It is responsible for stagnant wind and low boundary layer height, favouring *accumulation of lower atmospheric pollutants* over IGP.
- **Need -** The study highlights the need for better urban health planning in megacities like Delhi.
- **Significance -** Understanding the effects of airborne bacteria and resultant disease

transmission, could help governments and health experts better predict outbreaks in urban areas and protect citizens.

Reference

PIB| Health Risks posed by Airborne Pathogens