Study to Check Antibiotic Resistance in Ganga

The government has commissioned a study to assess the microbial diversity across the entire 2,500 km stretch of river Ganga, and test for the presence of microbes that may promote antibiotic resistance.

- The project is to be undertaken by scientists at the **Motilal Nehru Institute of Technology (Allahabad), the National Environmental Engineering Research Institute (Nagpur), Sardar Patel Institute of S&T (Gorakhpur).**
    - Two genome sequencing start-ups are also working on this project for performing the mapping of the genomes of the sampled microbes.
- According to the **National Mission for Clean Ganga**, the **aim** of the project is,
    - To indicate the **type of contamination-** sewage or industrial,
    - The **threat to human Health-** case of antibiotic resistance,
    - **Identify the source** of bacteria Escherichia Coli (bacteria that lives in the guts of humans and animals).
- The project is expected to last for 2 years.

Related Studies in the Past

- Earlier in April 2019, a study was commissioned by the Union Water Resources Ministry to probe the **"unique properties"** of the river Ganga.
    - It found that the Ganges contains a **significantly higher proportion** of organisms with **antibacterial properties.**
- **Several** studies were conducted on microbial diversity in the past, but none of them covered the entire stretch of Ganga.
- Researchers from **IIT-Delhi** in collaboration with **Newcastle University, the UK** in 2014 reported that during the pilgrimage months of May & June the levels of **resistance genes that lead to 'superbugs'** are 60 times greater than at any other time of the year.
    - Superbug is a strain of bacteria that has become resistant to antibiotic drugs.

Way Forward

- According to **a recent study, rivers around the world are contaminated** with dangerous levels of antibiotics. Antibiotics in rivers cause bacteria to develop resistance meaning they can no longer be used in medicines for humans.
- According to **UN estimates,** the rise in **antibiotic resistance could kill 10 million people by 2050.**
- Considering the fact that India has among the highest antimicrobial resistance rates, this study may further provide new opportunities for researches and studies that can help in reducing antimicrobial resistance.

Source: TH