Focusing on Public Health Engineering

Why in news?

Expanding the cadre of sanitation engineers will help us confront water-related public health challenges.

What are the water-related public health challenges?

- According to the United Nations, around 80% of wastewater flows back into the ecosystem without being treated or reused globally.
- In India, about 70% of sewage is discharged untreated into water bodies in the absence of cost-effective, sustainable water management solutions.
- 21% of diseases are caused by contaminated water in India, according to the World Bank.
- One in five children die before their fifth birthday because of poor sanitation and hygiene conditions, according to Startup India.

What is the need for having public health engineers?

- The public health engineering sector is responsible for the collection of water, purification, transmission and distribution of water.
- Currently in India, civil engineering incorporates a course or two on environmental engineering for students to learn about wastewater management.
- The nexus between wastewater and solid waste management and public health issues is not brought out clearly.
- Mostly civil engineers do not have adequate skills to address public health problems and public health professionals do not have adequate engineering skills.
- The specialised cadre of public health engineers (sanitation engineers or environmental engineers) is best suited to provide the growing water supply and to manage solid waste and wastewater.

How can India achieve its SDG of clean water and sanitation?

> *Sustainable Development Goal 6 ensures access to water and sanitation for all.*

- To address the growing demands for water consumption and preservation of water resources, it is essential to find and implement innovative ways of treating wastewater.
- Engineering and public health, together can offer a wide range of opportunities for
    - development of advanced wastewater treatment systems
    - understanding complex quality and monitoring processes,
    - designing and managing septic tank systems
    - supplying good quality water in adequate quantities

    - maintaining hygiene and access to water
    - ensuring that water supply is sustainable
- There is a need for expansion of the pipeline network and identification of sustainable sources of water which have water available year-round.
- Installation of online systems for monitoring the quantity and quality of supply and collection and treatment of wastewater become increasingly important.

> *India aims to supply 55 litres of water per person per day by 2024 under its Jal Jeevan Mission to install functional household tap connections.*

What are the international trends in public health engineering?

- **Specialisation**- In India, public health engineering is executed by the Public Works Department or by health officials.
- To manage a wastewater treatment plant in Europe, a candidate must specialise in wastewater engineering.
- India can introduce public health engineering as a master's degree or diploma programmes to meet the need of increased human resource in this field.
- **Courses and training**- Refresher courses for health and engineering institutes with an updated knowledge in areas of environment science should be made available.
- Public health professionals can be groomed through in-service training.
- **Inter disciplinary field**- Public health engineering should be developed as an interdisciplinary field where both engineers and public health professionals can contribute.
- It can also enable contextualised decision-making regarding water management in India.
- **Quality water**- Most of the world's diseases can be prevented by providing good quality and adequate quantity of water.
- Currently, institutions like the Indian Institute of Technology, Madras (IIT-M) are considering initiating public health engineering as a separate discipline which is laudable.

> *States like Meghalaya have the Public Health Engineering Department since 1972.*

References

1. https://www.thehindu.com/todays-paper/tp-opinion/focusing-on-public-health-engineering/article65421078.ece
2. https://megphed.gov.in/dept.htm

SHANKAR IAS PARLIAMENT
Information is Empowering