

## **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>