Wastewater Management in India

This editorial is based on the news "Gujarat will supply treated wastewater for industrial use" which appeared in "The Hindu" on 21st May 2019. The article talks about waste-water management in India.

Why in News?

Gujarat government has come up with a detailed plan to address the water shortage by limiting the supply of freshwater for drinking and irrigation purposes only. While the growing **demand of industries will be met through treated wastewater.**

Wastewater Generation in India

- India generates a staggering 1.7 million tonnes of faecal waste a day. Official figures show that **78% of the sewage generated remains untreated** and is disposed of in rivers, groundwater or lakes.
- The **two main sources of water contamination are sewage and industrial waste.** With both the population of India and its industrial landscape increasing at a phenomenal speed, wastewater volume is also at an alarming rise.
- Adding to this is the **shrinking of freshwater sources** like rivers, wells, and groundwater.

Effects of Increasing Wastewater

- Harmful effect on the river and marine life
- Lack of drinking water
- Overabundance of certain harmful chemicals in sources of water, some of which are chronic
- Adverse effect on groundwater
- Soil pollution
- Rise in chronic health conditions related to toxic chemicals like lead and mercury in all

living creatures
- Rise of pollution in the coastal area

The Legal Mechanism for Waste-water Regulation in India

- **The Water (Prevention and Control of Pollution) Act, 1974, amended 1988**
  - This legislation was introduced to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.
  - It also provides for the establishment of boards for the control of water pollution.
- **The Water (Prevention and Control of Pollution) Cess Act, 1977, amended 2003**
  - This Act binds consumers who are carrying on an industry that falls within the provisions to affix meters for the purpose of assessing the quantity of water used in the act.
  - Industries also have to include operations or processes or treatment and disposal systems which consume water or give rise to sewage effluent.

Current Status of Waste-water Treatment in India

- **Only one-third of India's wastewater is currently treated,** leading to the high burden of water-borne diseases.
- While urban water access is high on average, significant gaps remain across the country, and **wastewater treatment remains stuck at the national average of around 33%.**
- Large waste water generators—Punjab, Maharashtra, Gujarat, and UP—can potentially treat 65-100% of their urban waste water. Despite this, many populous states, such as Madhya Pradesh, Bihar, Andhra Pradesh, have only enough installed capacity to treat less than half of their wastewater. Further, several North-Eastern and Himalayan states have low or no capacity for treatment.

Best Practices in Wastewater Management

- **Avadi Sewage Treatment Plant: Sustainable off-grid sewage treatment in Chennai**
  - The Tamil Nadu Police Housing Corporation (TNPHC) has successfully constructed an off-grid sewage treatment plant (STP) to improve living conditions in the police housing colony in Avadi, a suburb of Chennai.
  - This sewage treatment plant has not only solved the problem of sewage disposal but also provided a pond of treated water for fishing, vegetable cultivation and recharging of groundwater.
  - It treats 12 lakh litres of sewage every day with no negative discharge, produces manure, recharges groundwater, removes the source of foul odour and

waterborne diseases, and beautifies the area.

- **Sewage-fed aquaculture system of Kolkata: A century-old innovation of farmers**
  Farmers around Kolkata city in India developed a technique of using domestic sewage for fish culture and other agricultural purposes, almost a century ago. This technique is widely used to meet the growing demand for fish. The technique is considered to be unique and is the largest operational system in the world to convert waste into consumable products.
- **Zero liquid discharge in textile industry in Tirupur**
  The dyeing and bleaching industry in the South Indian knitwear hub Tirupur is known as the first to opt for zero liquid discharge (ZLD) in a systematic manner, eliminating the release of pollutants. The components of ZLD, including reverse osmosis, enable extensive reuse and recovery of water and salts, and the process minimizes the freshwater requirements.

Way-forward

Attaining high rates of economic growth for India will directly be a function of the sustainable use of water, particularly in recycling & reuse as it will be crucial for future urban planning and policy.

Wastewater can be a cost-efficient and sustainable source of energy, nutrients and other useful by-products like organic and organic-mineral fertiliser. The benefits of extracting such resources from wastewater go beyond human and environmental health. They have implications on food and energy security as well as climate change mitigation.

Drishti Input

In a water deficient country, proper wastewater management is needed to ensure sustainability for all. In this context, discuss the importance of wastewater regulation in India.