

LIQUID WASTE MANAGEMENT

→ GOI Manual on Sewerage & Sewage Treatment, 2013

→ Over the years, there has been a continuous migration of people from rural and semi-urban areas to cities and towns. The proportion of ~~total~~ population residing in urban area has increased from 27.8% in 2001 to 31.2% in 2011.

→ The no. of towns has increased from 5161 in 2001 to 7935 in 2011.

⇒ Present scenario of urban sanitation in India.

→ The national urban Sanitation Policy (NUSP) of 2008 has laid down the framework for addressing the challenges of city sanitation.

→ As per 2011 census data, 12.6% households are defecating in the open and 32.7% households have water closets connected to a sewer system. 38.2% households are having water closets with septic tank.

→ originally developed by WHO (World Health Organization), the Disability-Adjusted-Life-Years (DALY) is a major of overall disease burden, expressed as the no. of years lost due to ill health, early death or disabilities. As per WHO report 80% of the disease in humans are water-borne and water-related.

⇒ SECTOR ORGANIZATION :->

→ water supply and sanitation is treated as a STATE subject as per the Federal Constitution of India.

→ States are vested with the constitutional right on planning, implementation and operation and maintenance (O&M) of water supply and sanitation projects.

→ The Public Health Engineering Department (PHED) is the Principal agency at State level for Planning & Implementation of water supply and Sanitation Programmes.

→ In a no. of States, statutory water supply & sanitation Boards (WSSBs) have taken over the function of PHEDs. The basic objective of WSSBs have been to bring the concept of commercialization of water supply and sanitation sector management. Such board have been set-up in Delhi, Bihar, Assam, Gujarat, Karnataka, Kerala, Maharashtra, Odisha, UP, Punjab and Tamil Nadu.

→ The Ministry of Urban Development (MoUD) formulates Policy guidelines in respect of Urban water supply and Sanitation. It also provides technical assistance to the States and ULBs (Urban Local Bodies) whenever needed. MoUD has also created a nodal agency called as Central Public Health & Environmental Engineering organization (CPHEEO) for R&D formulating guidelines & making manuals.

⇒ Initiatives by Government of India :-

1) 74th Constitution Amendment Act, 1992

→ The new Amendment enabled ULB (Urban Local Bodies) to become financially viable and technically sound to provide basic amenities to the community.

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2) The Prohibition of Employment as manual scavengers and their Rehabilitation Act, 2013.

- It provides both the following distinction very clearly to end this dehumanizing practice of manual scavenging and also to eliminate the hazardous cleaning of septic tanks and sewers by workers.
- Prohibits insanitary latrines.
- Prohibits hazardous cleaning by workers.
- Offences committed under the act are non-bailable.
- The authority has been conferred to the local authorities and DM.
- The responsibility of local authorities under this Act is mandatory.

3) National Urban Sanitation Policy (NUSP), 2008.

- It envisions that - "All Indian cities and towns should become totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for urban and poor and women."

Goals :->

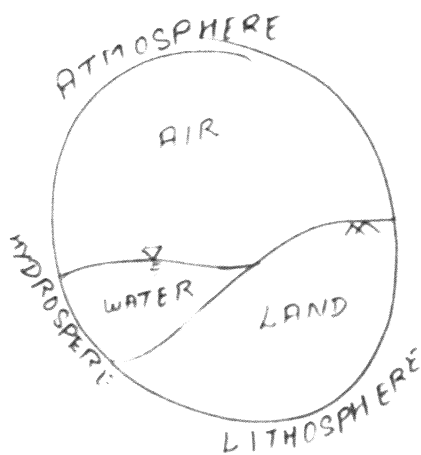
The overall goal of this policy is to transform urban - India into sanitized, healthy & liveable.

The specific goals are :-

- 1) Awareness generation and Behaviour Change.
- 2) Open - Defection free cities.
- 3) Integrated city-wise sanitation.

- According to NUSP, Sanitation is defined as safe management of human excreta, including its safe containment, treatment, disposal and associated hygiene related practices.

Environmental Pollution :->



-> All 3 combined constitute BIOSPHERE.
-> Any of the 3 spheres, affect the other two.

-> Environmental pollution is defined as the presence of any substance in the environment in such a concentration that it may tend to be injurious to humans, plants, property, animals & to the environment itself.

-> Usually, the values of these concentrations above which it is harmful is given in Indian Standard Manuals published by C PHEED and CPCB (Central Pollution Control Board).

-> According to Indian Environmental Protection Act (EPA), 1986 —

• Environmental pollution is defined as "Presence in the environment of any environmental pollution pollutant".
Environmental pollutant can be defined as solid, liquid or gaseous substance present in such concentration which is injurious to the environment.

-> Environmental pollution can be of 4 types —
- Air Pollution.
- Water Pollution.
- Noise Pollution.
- Soil Pollution.

Water Pollution :->

⇒ WATER POLLUTION :->

- Water plays a dynamic role in maintenance of all life forms. It helps in the movement and circulation of nutrients in the soil.
- The Water (Pollution & Prevention) Act, 1974 defined water pollution as - "such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or any other liquid, gaseous or solid substance into water as may, or is likely to, create nuisance or render such water harmful or injurious to public health or safety or to domestic, commercial, industrial, agricultural or to the life and health of animals or plants or aquatic organisms."
- Water pollutants are physical, chemical or biological.
- Physical pollutants can be felt or sensed by our senses.
Ex:- Suspended solids, colour causing agents, etc.
- Chemical pollutants can be determined by conducting lab or in-situ tests. (on-site).
Ex:- oil, fat, grease, organic matter etc.
- Biological pollutants can be determined by lab tests.
Ex:- Pathogenic bacteria, virus, worms, etc.

⇒ Water Pollution can be of several types :-

1) Surface Water Pollution

- Pollution of surface fresh water bodies like lakes, ponds, rivers etc.

2) Ground water or Sub-surface Pollution.

- Pollution of underground fresh water resources like aquifers.