



Planning and Implementation of Sewerage Schemes



Sewerage

The waste water collection,
transportation
through conveyance
&
Disposal system



The system involves

- Waste Water Collection
- Conveyance
- Sewage Treatment
- Safe Disposal



Environmental Needs

- Safe & trouble free collection.
- Conveyance
- Treatment to reduce the pollution content to safe Bio-chemical parameters
- Disposal



Disposal may be made onto:

- Land
- Water Bodies



Disposal On Land:

- Sewage utilization may be done by:
- Sewage Farming (Sewage farm Irrigation)



Water Bodies :

Where disposal is generally done

- Rivers (safe locations)
- Sea (Adequately off – Shore)



Permissible

- BOD Standard Limits
- Land – 50 ppm.
- Water Bodies – 30 ppm.
(Revised to 100 mpn/100ml)
- Sewage Farming – Preferable
30 ppm.



Site Selection
For
Treatment Plants
And / or
Sewage Irrigation Fields
(Sewage Farms)



Disposal of Final Effluents

- Safe Water Stream Location.
- With Regards to
- Safety Of Drinking Water In Take works.
- Safety Of Bathing Ghats
Down Stream OR In Near – ness
- Safety of Aquatic life including fishes.



Public Health Considerations

- Ground water protection from pollution.
- Prevention of pollution of consumable food items like vegetables & fruits.
- Protection of Drinking water resources including dug wells.



Public Health Considerations

- Adequate measures for safety of operating manpower on sewage pumping plants & sewage farms.
- Good – Looking well planned and Safety Embodied Infrastructure, at sewage pumping stations and treatment plants.



Sewage Treatment Plant Sites

- Should be properly planned to avoid any shabby looks.
- Embodied with all good Infrastructure with appropriate public health considerations for the safety of Operating and Inspecting Staff.



Sewage Treatment Plant Sites

- Added with good looking gardens.
- Neatly placed roads.
- Well constructed & protected seating arrangements



Design Considerations

- The design period say 30 years.
for uidssmt (in U.P) 30 years
- The design period population
present stage in beginning (year of
commencement)
middle stage say 15 years
ultimate stage say 30 years
for uidssmt(in U.P) 30 years



Quantitative Design Considerations

- Population Forecast
- Estimation of waste water flow
- Per capita waste water flow
- Rate of water supply
- Run-off-factor



Sewer Design

- Hydraulic Design of Sewers
- Self Cleansing velocities / flushing arrangement of Sewers
- Structural Design for buried pipelines / proper grade of sewer pipes
- Appropriate bedding
- Concrete cover where required



Careful Design of Sewer Depths

- Sewers to be designed carefully to keep just the essentially required depth
- Limitation of depth by introducing intermediate pumping
- Pumping stations to be designed carefully, both for hydraulic and structural requirement



Sewage pumping stations

- All pumping stations to be designed with due care
- Hydraulic levels
- Structural safety
- Overflow bypass (in case of power failures)
- Buoyancy (due to subsoil water up thrusts)



Sewage Treatment Plant

- Choice of the appropriate technology
 - a). as per local conditions, of the availability of site, area, subsoil water conditions, weather, average and extreme temperature conditions.
 - b). Ultimate disposal