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SUSTAINABLE ENVIRONMENTAL SANITATION AND WATER SERVICES

Prospects Of Common Effluent Treatment Plant (CETP) In Industrial Sector

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THE CONCEPT OF CETPs for small scale industries is emerging in India due to large investment involved in constructing and operating the individual effluent treatment plants (ETP). Common effluent treatment plants provide a viable option for a cluster of small scale industrial units who are not capable of setting up the treatment units individually on their own.

Protection of water environment calls for waste treatment before its disposal into inland water bodies or as on land irrigation. Secondly, water is a precious commodity and therefore must be conserved. In view of this it is necessary to treat wastewater for reusing/ recycling it. Both types of wastewater viz. municipal sewage and industrial wastewater need to be treated so as to confirm the discharge conditions as stipulated in "consent" given by Central and/or State Pollution Control Board.

Bulk of the industrial pollution in India results from small scale industries. The large scale industries generally have their own treatment plants. If not, they at least do not have financial, manpower and land availability constraints for installation and maintenance of the

Table : 1 Basis for Wastewater Categorisation

WWC	Pollutant	Treatment	Explanatory	Pre-treatment	Acceptability in CETP
A	High SS	Highly Settleable	Non toxic solids highly settleable	NP	Acceptable
A	High SS	Colloidal needs coagulant	Non-toxic solids settleable after coagulation	NP	Acceptable
A	Organics	Highly biogradable	Organic solids in solution and/ or suspension, highly biodegradable	NP	Acceptable
A	Organics	Slowly biogradable	Organic solids in solution and/ or suspension, slowly biodegradable, example : benzene series	NP	Acceptable
B	Inorganics	Acid	Mineral acids produced or used in excess	N & SEP	Acceptable on neutralisation
B	Inorganics	Alkali	Alkali produced or used in excess	N & SEP	Acceptable on neutralisation
B	High TDS	Precipitble	Raw or product materials are soluble in water	CP & SEP	Acceptable on precipitation
C	High TDS	Membrance Separation	Highly soluble solids need membrane separation	NIP	Require expensive collective treatment using membrance separation
D	Organics	Refractory	Naphthalene, anthracene used as raw meterial and/ or product	NIP	Require expensive collective treatment of ozonation and then to CETP
D	Organics	Toxic	Metal complex organo-chlorine pesticides, cabonates	NIP	Require expensive collective treatment or incineration

NP: No Pretretment
NIP : No Individual Pretreatment
N & SEP : Neutralisation and Solids Separation
CP & SEP : Chmical Precipitation and Solids Separation
WWC : Wastewater category
WWC – A : Amenable to biological degradation directly or after acclimatization
WWC – B : Pretreatment essential prior to biological treatment or post treatment for TDS removal
WWC – C : Non biodegradable
WWC – D : Toxic to biological treatment

treatment plants.

A CETP serves many industries mostly small and medium scale industries together with sewage generated by its workers and adjoining housing facilities, if any. The inclusion of domestic sewage is, in fact, welcome as it provides "seeding" materials for biological treatment. The, main objective of the CETP is, therefore, to reduce the treatment cost borne by an individual unit to minimum while protecting the water environment to maximum. The wastewater can be treated economically in CETP to produce process grade water. This can be reused and recycled in the industry. The water conservation thus can be one of the objectives of CETP.

NEERI studied the pollution from industries and prepared design packages for control of water pollution on a collective basis. The basis for treatment presented in Table-1 are utilized in preparing various options for such collective treatment. The capital costs, operation and maintenance costs and specific costs were studied in detail to arrive at economically feasible option.

NEERI has designed eleven CETPs for different types of industrial clusters and completed two turnkey projects at Rajasthan. The details are presented in Table – 2.

Schematics of Common Effluent Treatment Pluant (CETP) is also presented in Figure – 1.

Table : 2 List of CEPTs Designed by NEERI for Control of Water Pollution/ Resources recovery/ Recycle in Cluster of Small Scale Industries

Sr. No.	State / Town	Industries in cluster		Flow MLD	Salient Features
		Type	Nos.		
1.	Gujrat, Vapi	Chemical, Dyeing etc.	750	16.0	Wasterwater recycling for industrial area
2.	Himachal Pradesh, Parwanoo	Electroplating engg. Etc.	76	1.0	Conforming to standards
3.	Himachal Pradesh, Barotiwala	Chemical, pulp & paper, etc.	34	8.4	Wastewater recycling for industrial area
4.	Himachal Pradesh, Kala-Amb	Paper, textile, etc	22	16.0	Wastewater recycling for industrial area
5.	Himachal Pradesh, Mehatpur	Textile, Engg. etc.	111	0.37	Effluent conforming to standards
6.	Punjab, Amritsar	Textile	50	50.0	Effluent conformaing to standards
7.	Rajasthan, Balotra	Textile	367	6	Wastewater recycling for industrial area
8.	Rajasthan, Pali	Textile	767	16	Wastewater recycling for industrial area
9.	Tamil Nadu, Salem	Sago	641	12.0	Biogas recovery and aquaculture
10.	Rajasthan, Jodhpur	Textile, S. S. rolling mills etc.	314	20	Wastewater recycling for industrial area
11.	Amravati, Maharastra	Chemical detergent,	314	3.5	Wastewater recycling for Industrial area

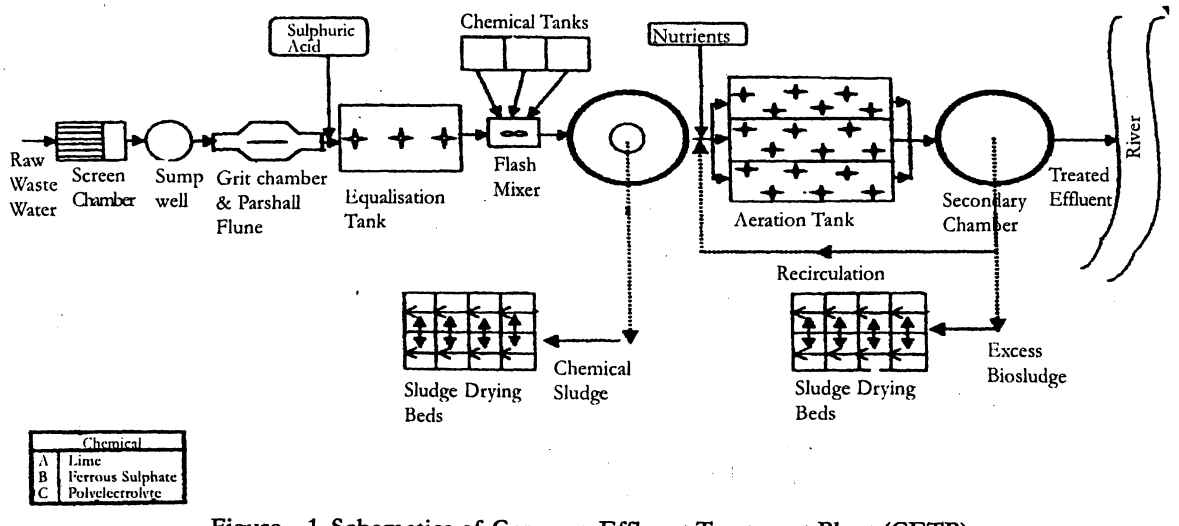

Figure – 1 Schematics of Common Effluent Treatment Plant (CETP)

In conclusion, it is to be mentioned that rapid industrialisation and urbanization in India has resulted in discharge of enormous quantities of inadequately treated wastewater from industry and urban agglomerations. One of the best solutions for the wastewater management is installation of CETP for a cluster of small scale industries who are not capable of setting up the treatment units individually on their own. Financial incentives in the form of grant should be made available for construction of CETP.

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