Performance Status of Common Effluent Treatment Plants in India

Central Pollution Control Board

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FOREWORD

Mindful of the key role played by SSI units and the constraints in complying with pollution control norms individually by these units, the Ministry of Environment and Forests (MoEF), Govt. of India initiated a technical and financial support scheme to promote common facilities for treatment of effluents generated from SSI units located in clusters. Under the Common Effluent Treatment Plant (CETP) financial assistance scheme, 50% subsidy on project capital cost - 25% share each of Central and State Governments - was provided. As a result, 88 CETPs having total capacity of 560 MLD have been set up throughout India covering more than 10000 polluting industries. Considering the coverage of industries under CETPs and the total pollution load handled by these CETPs, State Pollution Control Boards need to keep a close watch on their operation. More so because inspection of a large number of CETPs by Central Pollution Control Board has revealed that, in general, the CETPs are not performing satisfactorily, largely due to improper operation and maintenance.

This report presents results of performance evaluation studies conducted by Central Pollution Control Board and discusses several technical issues in relation to satisfactory operation of CETPs. We hope the information contained in the report would be useful to all concerned.

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CONTENTS

1. INTRODUCTION

1.1 Small-scale industries (SSIs) have a very important role in overall industrial development in India and growth of SSI units has been actively promoted by Government of India to induce balanced economic growth and to distribute the benefits of industrial development in an equitable manner. Industries having capital investment up to Rs.10 millions are classified as SSI units. It is estimated that more than 300,000 SSI units are spread all over India, mainly in about 867 clusters/industrial estates of the country.

1.2 It is difficult for each industrial unit to provide and operate individual wastewater treatment plant because of the scale of operations or lack of space or technical manpower. However, the quantum of pollutants emitted by SSIs clusters may be more than an equivalent large-scale industry, since the specific rate of generation of pollutants is generally higher because of the inefficient production technologies adopted by SSIs.

1.3 Keeping in view the key role played by SSI units and the constraints in complying with pollution control norms individually by these units, The Ministry of Environment and Forests (MoEF) initiated an innovative technical and financial support scheme to ensure their growth in an environmentally compatible manner. The scheme promoted common facilities for treatment of effluents generated from SSI units located in clusters through liberal financial assistance. The financial assistance provided under this Common Effluent Treatment Plant (CETP) scheme was as follows:

Central Government subsidy- 25% of the project capital cost,

State Government subsidy- 25% of the project capital cost,

Loans from financial institutions- 30% of the project capital cost, and

Entrepreneurs' contribution- 20% of the project capital cost.

The CETP scheme was instituted initially for a period of 10 years with effect from the year 1991 but MoEF has decided to continue financial assistance under the scheme beyond this period. Most of the 88 CETPs constructed and commissioned so far were financed under the CETP scheme of Govt. of India.

1.4 The concept of CETP was adopted as a way to achieve end-of-pipe treatment of combined wastewater at lower unit cost than could be achieved by individual industries, and to facilitate discharge, monitoring and enforcement by environmental regulatory agencies and the investment of substantial government finances in the CETP scheme was justified on the basis of potential benefits in terms of pollution reduction and environmental improvements.

1.5 Of the 88 CETPs that have been constructed and commissioned so far in the country, the Central Pollution Control Board has studied performance of 78 CETPs operating throughout the country. This report summarizes the findings of various performance evaluation studies carried out by or on behalf of the Central Pollution Control Board.

2. CLASSIFICATION AND DISTRIBUTION

2.1 Basic information on the operational CETPs in respect of capacity, year of establishment, capital cost, name/address of CETP operating agency, treatment scheme, type of industries in connected industrial area, effluent collection system and effluent disposal point is provided in Annexure (Tables 1 and Table 2)

2.2 Classification of the operational CETPs on the basis of design capacity is as below:

Design capacity range	Number of CETPs in the range	Number as % of total	Combined capacity of CETPs in the range, MLD	Combined capacity as % of total capacity
> 10 MLD	17	21.8	362.8	64.81
>5 to 10 MLD	14	17.95	105.85	18.91
>1 to 5 MLD	28	35.9	70.75	12.64
0 to 1 MLD	19	24.35	10.185	1.82
	Total: 88			

2.3 Classification of the operational CETPs on the basis of number of member units is as below:

State	Number of CETPs	Information available about no. of members	Number of CETPs having <100 members	Number of CETPs having >100 to 400 members	Number of CETPs having >400 members
AP	3	3	2	1	0
Delhi	11	11	0	0	11
Gujrat	16	14	6	5	3
Haryana	1	1	0	1	0
Karnataka	2	2	2	0	0
Maharashtra	11	6	2	3	1
MP	1	1	1	0	0
Punjab	2	2	2	0	0
Rajasthan	8	8	4	2	2
Tamilnadu	29	22	21	1	0
UP	3	3	2	1	0
West Bengal	1	1	0	0	1
Total	**88**	**74**	**42 (57%)**	**14 (19%)**	**18 (24%)**

2.4 State-wise distribution of CETPs is as below:

State	Number of CETPs	Number as % of total	Combined capacity of CETPs, MLD	Combined capacity as % of total capacity
AP	3	3.4	12.75	2.3
Delhi	11	12.5	133.2	24.1
Gujrat	16	18.2	156.3	28.2
Haryana	1	1.1	1.1	0.2
Karnataka	2	2.3	1.3	0.23
Maharashtra	11	12.5	63.25	11.43
MP	1	1.1	0.9	0.16
Punjab	2	2.3	1.535	0.28
Rajasthan	8	9.1	57.7	10.4
Tamilnadu	29	33	71.15	12.85
UP	3	3.4	44.4	8.0
West Bengal	1	1.1	10	1.81
Total	**88**		**559.770**	

3. TECHNICAL PERFORMANCE

3.1 Overall and treatment stage wise performance of all the CETPs in terms of general parameters pH, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) and Total Dissolved Solids (TDS) is summarized and provided in Annexure (Table 3). Sodium (Na) and Chlorides (Cl^-) are also shown with general parameters to indicate nature of TDS.

3.2 Some of the CETPs have also been studied for concentration of toxic metals and special parameters- Percent sodium (%Na), Sulphates (SO_4) and Ammonia (NH_3-N) in their raw influent and treated effluent. These results are provided in Annexure (Table 4)

3.3 Prescribed standards for various parameters for discharge of treated effluents of CETPs into surface waters and for discharge on land are shown at the end of Tables 3 and Table 4. Observed values of various parameters in treated effluent have been compared with the applicable standard based on the ultimate disposal point for each CETP shown in Table 2. Observed value of various parameters exceeding the prescribed standards in the treated effluents have been are underlined in the Tables 3 and Tables 4.

3.4 It is observed from the summary of results shown below that of the total 78 CETPs studied, only 20 (i.e. 25.6%) complied with the prescribed limits for general parameters pH, BOD, COD and TSS but 15 of these were not able to comply with the prescribed limit for TDS. Thus, only 5 (i.e. 6.4%) CETPs were complying all general parameters including TDS.

State	**Number of CETPs studied by CPCB**	**CETPs complying pH, BOD, COD, TSS and TDS standards**		**CETPs complying pH, BOD, COD and TSS but not complying TDS standard**	
		Number	Name	Number	Name
AP	2	0		0	
Delhi	10	3	Mayapuri, GTK, Badli	6	Wazirpur, Mangolpuri, Jhilmil, SMA, Nangaloi, Okhla I.A
Gujrat	15	0		2	Ankleshwar, Sachin (0.5MLD)
Haryana	1	1*	Kundli-I	0	
Karnataka	2	0		1	Pai&Pai
Maharashtra	9	0		3	Thane-Belapur, Ambernath, Patalganga
MP	1	0		0	
Punjab	1	1	Phillore	0	
Rajasthan	5	0		1	Jodhpur**
Tamilnadu	29	0		2	Thiruvai Karur***, TALCO Ambur Thuthipet
UP	3	0		0	
Total	**78**	**5 (6.4 %)**		**15 (19.2 %)**	

*TDS not determined but likely to be within limits; **CETP was under trial; TDS not determined but Cl exceeded;
***TSS not determined

3.5 High TDS in treated effluent is observed to be a widespread problem. Apart from the five CETPs that complied with TDS as well as other general parameters, only four other CETPs complied with TDS limits even though these CETPs did not comply with other general parameters. Thus, in all, 69 (i.e. 88.5%) out of the 78 CETPs did not complied with TDS standards.

3.6 It is also observed that salinity, primarily due to salts of sodium, is the primary contributor to the high TDS problem as high TDS is almost invariably accompanied by high Chlorides and Sodium concentration. TDS reduction is possible by softening process if TDS is mainly due to salts of divalent cations but if it is mainly due to salts of mono-valent cations then Reverse Osmosis (RO) is a technical option . However, the concentrate has to be further evaporated to get the salts in solid form that may be disposed off in secured landfill.

3.7 The TDS concentration of the wastewaters is mainly due to the inorganic ions in the water supply and those added during the use of water. In industries such as Tanneries, Pharmaceutical units, Chemicals manufacturing units and Dye & Dye Intermediates units, the high TDS in wastewaters can be primarily attributed to addition during the use of water. In all such cases the best approach for reduction of TDS is to try reduction at source by adopting cleaner technologies for reduction of net input of chemicals, practicing recovery and recycling of chemicals. The chemical treatment adopted in the treatment scheme at CETP generally does not specifically aim at removing these ions. Therefore, reduction in the TDS concentration of the effluent during its treatment is not expected.

3.8 It is observed from the unit-wise performance data of various CETPs that poor performance of primary- and secondary-settling units is an important factor responsible for overall poor performance of CETPs. The efficiency of treatment by the physico-chemical process is decided by the TSS concentration in the effluent of primary settling unit. Similarly, one of the main requirements for successful operation of secondary biological unit is the effective settling of the mixed liquor in secondary settling unit for recycling of biological sludge and providing clarified effluent. Treatment schemes of almost all the CETPs employ primary settling as one treatment unit and secondary biological treatment is also employed in most of the schemes. Sub-level performance of primary and secondary settling units has been observed in a large number of CETPs.

3.9 A well performing primary settling unit is expected to achieve <50 mg/L TSS in its effluent and in no case it should exceed 100 mg/L limit. Similarly, a well performing secondary settling unit easily provides an effluent having <50 mg/L TSS. It is observed that of the 44 primary settling

units studied in different CETPs, 35 were performing poorly as the TSS in effluent of these units exceeded 50 mg/L, 30 units even did not meet 100 mg/L limit. It is further observed that of the 51 secondary settling units studied in different CETPs, 35 were performing poorly as TSS in effluent of these units exceeded 50 mg/L, 30 units even did not meet the prescribed standard of 100 mg/L. This indicates that there is scope for improvement of the performance of CETPs by paying attention to the performance of settling units. Things which require investigations include optimizing the chemical doses, proper flocculation, proper sludge withdrawal frequency and duration, avoiding short-circuiting in the tank, assessing surface overflows, solids loading and weir loading, adjusting optimum re-circulation rate in secondary settling tank.

3.10 In two CETPs of Andhra Pradesh, the Dissolved Air Floatation (DAF) units are not able to give any significant reduction in organic matter or suspended solids. Replacement of DAF unit with a primary settling unit in Pattancheru CETP, where no primary settling tank exists, and discontinuation of use of DAF unit in Jeedimetla CETP, where it is installed ahead of primary settling tank, may be considered for improving efficiency of primary treatment and reducing operational costs. An effective primary physico-chemical treatment is also expected to improve overall COD removal efficiency as high COD and TDS in treated effluent is a major problem in these two CETPs of Andhra Pradesh.

3.11 Dual Media Filter (DMF) unit, which has been employed in treatment schemes of CETPs in Delhi and at few other places and sand filter unit which has been employed in CETPs of textile units in Tamilnadu are normally used to improve suspended solids level from near 50 mg/L in primary settling unit's effluent to near 10 mg/L. Incidentally, it also reduces the organic matter associated with the suspended matter so removed. It may also remove a small fraction of organic matter associated with colloidal matter that is coagulated and filtered during filtration. Filter units should not be depended upon to perform more than the expected function, as explained. If DMF unit or a rapid sand filter unit is over loaded, it will require frequent backwashing.

3.12 Activated Carbon Filter (ACF) unit, which has been employed in treatment schemes of CETPs in Delhi and at few other places is only meant for removing trace organics, such as pesticides, phenols, etc., and heavy metals, which escape the primary treatment and therefore should not be loaded with bulk organic matter. If any treatment scheme, with ACF as its terminal treatment unit, is aimed at achieving an overall efficiency so as to give the final effluent quality of BOD<30 mg/L and COD<250 mg/L, then ACF unit is most likely to be subjected to high COD, or even high BOD, thereby resulting in an early exhaustion of its

activated carbon bed. Therefore, in treatment schemes aimed to achieve this quality, ACF as a terminal treatment unit can be said to be a misfit because very frequent replacement or regeneration of the bed is neither easy nor economically affordable.

3.13 Most of the CETPs in textile units of Tirupur and Karur have employed treatment scheme having physico-chemical treatment followed by sand filtration and stabilization tank. Only a few have adopted treatment scheme having biological secondary treatment. CETPs of the former type require special efforts in optimizing chemical dozing for their greater dependency on physico-chemical treatment.

3.14 Treatment schemes of Odhav CETP (Gujrat), Nandesari CETP (Gujrat), Sarigam CETP (Gujrat), Dhareshwar CETP (Gujrat), Sachin-II CETP (Gujrat) have three-stage treatment and that of Tarapur CETP (Maharashtra) has four-stage treatment but still these plants were not meeting standards. This reflects gross neglect in operation. If biological treatment units are properly operated and full attention is paid to proper settling at different stages of treatment as explained in section 3.8 above, performance of these plants could be greatly improved.

4. HAZARDOUS WASTE MANAGEMENT

4.1 Information on hazardous waste generation, handling, storage and disposal practices in CETPs is given in Annexure (Table 5). State wise scenario is given below:

Andhra Pradesh: Hazardous waste generated from one CETP (Jeedimelta) is stored within CETPs' premises and other CETP (Pattancheru) is member in TSDF at Dindigul

Delhi: Hazardous waste generated from CETPs is stored within CETPs' premises and no common hazardous waste disposal facility has been developed. A common temporary hazardous waste storage facility is being developed and is expected to be in use by December 2005. The hazardous waste storage provided at CETP Wazirpur had been filled up and large quantity of hazardous sludge removed from the CETP was kept at the site for temporary hazardous waste facility which has been taken away for disposal at unknown place.

Gujrat: Hazardous waste of 9 CETPs disposed of in Common Hazardous Waste Treatment, Storage and Disposal Facilities (CHWTSDF) Hazardous waste of remaining 7 CETPs is stored within CETPs' premises.

Haryana: Hazardous waste generated from CETP is stored within CETP's premises and no scientific hazardous waste treatment and disposal facility has been developed.

Karnataka: Hazardous waste generated from CETPs is stored within CETPs' premises and no common scientific hazardous waste treatment and disposal facility has been developed.

Maharashtra: Hazardous waste of 6 CETPs disposed of in Common Hazardous Waste Treatment, Storage and Disposal Facilities (CHWTSDF) Hazardous waste of remaining 7 CETPs is stored within CETPs' premises.

MP: Hazardous waste generated from CETP is discharged into drain and no scientific hazardous waste treatment and disposal facility has been developed. Thus the purpose of removal of pollutants is defeated.

Punjab: Hazardous waste generated from one CETP is stored within CETP's premises and other CETP is un-operational. No common scientific hazardous waste treatment and disposal facility has been developed.

Rajasthan: Hazardous waste generated from CETPs is stored within CETPs' premises or discharged on land elsewhere. No common scientific hazardous waste treatment and disposal facility has been developed.

Tamilnadu: Hazardous waste of 4 CETPs disposed of in secured landfill within their premises, of 2 other CETPs is stored on an impervious common place and of the remaining 23 CETPs is stored within CETP's premises. No other common scientific hazardous waste treatment and disposal facility has been developed.

UP: Hazardous waste generated from 2 CETPs is stored within CETPs' premises and from Kanpur CETP is disposed of on land by civic authorities. No other common scientific hazardous waste treatment and disposal facility has been developed

West Bengal: Temporary hazardous waste storage facility is under construction for Calcutta Leather Complex. A secured landfill site is also proposed.

5. AREA / CETP SPECIFIC ISSUES

5.1 Common Effluent Treatment Plants in Andhra Pradesh

Jeedimetla (JETL) CETP: Colored and high TDS effluents from different dye and dye intermediate and chemical industries are received by this CETP. The quantity of effluent received is about 1000-1200 m^3/D. It provides chemical flocculation as primary treatment, storage at buffer tank and followed by biological oxidation after mixing with municipal sewage with the ratio of 1:1.6. The CETP has been successful in treating organic matter (BOD) but discharge more TDS into the sewage system that joins with Amberpet Sewage Treatment Plant. Although to a lesser extent Multi Stage Evaporator System was in operation, yet the CETP was discharging high TDS (15,000 mg/L) in the liquid effluent. Mixing of industrial effluent with sewage thus makes the total effluent unfit for use for irrigation.

Performance of Amberpet STP is not satisfactory. It merely allows the wastewater for two hours sedimentation and discharge. More than 50% of the received wastewater are bypassed in the unit and sold to the nearby farmers on charge basis by the Water and Sewerage Board. JETL also charged for discharging the treated effluent into the STP.

Patancheru (PETL) CETP: The CETP receives effluents mainly from pharmaceutical and other chemical industries and sewage of BHEL Township through tankers and operates a two-stage ASP system employing pure oxygen system. The pure oxygen storage facility exists with in the plan premises. Diffused Air Floatation (DAF) is the primary treatment, which removes suspended solids and part of organic and inorganic pollutants. Although the organic matter (BOD) treated to the satisfactory level, yet very high level of TDS generally escape the treatment process. APPCB has also allowed individual unit to discharge COD and TDS upto 15,000 mg/l into the CETPs. The reduction in TDS is to the extent of the industrial effluents are diluted by sewage. The TDS levels as high as 7000 mg/l are discharged into a small channel, although the disposal into a sewage treatment plant is in progress in the form of a pipeline. The hazardous sludge is dumped into the landfill site. APPCB shall either reconsider reducing the TDS limits for industrial discharge into the CETPs and /or installation of RO/Nano System followed by MSES so as to contain TDS at the CETP and thus protecting the water resources. Else it may turn out to be yet another Tirupur.

Bollaram CETP: This CETP has been closed down now. The CETP was having 24 members. Dr. Reddy Laboratory was one of the members and a major contributor to the

CETP. This unit set up its own ETP that became the main reason for closure of the CETP. All the member units have switched over to PETL or JETL.

5.2 Common Effluent Treatment Plants in Delhi

There are 28 recognised industrial estates in Delhi. In order to mitigate the environmental hazards due to discharge of untreated effluents, the Honour'ble Supreme Court directed Delhi Govt. to build common effluent treatment plants (CETPs). The Delhi Government entrusted the work to Delhi Pollution Control Committee (DPCC) who contracted with National Environmental Engineering Research Institute (NEERI) in 1996 for the design of CETPs for the industrial estates. NEERI proposed 15 CETPs, their designs and locations, some of them receiving wastewater from more than one industrial estate. Construction of ten CETPs has been completed, two is in progress and three are in abeyance.

Performance of CETPs in Delhi at full design load

A comprehensive performance evaluation of the CETPs of Delhi was taken up in two phases from June 27 to July 6 and from August 25 to 28, 2005 to assess their capability for effecting treatment at full capacity during their operation. NEERI carried out jar tests at each CETP to optimize the chemical doses before operation for performance evaluation. During the study, stage-wise performance of treatment was determined. The CETPs having physico-chemical treatment were studied at the full design surface loading rates of tube settlers, DMF and ACF beds but for 9 hours only. The Mangolpuri CETP, which employs biological process, was evaluated at half the design flow, which is the present flow. The plant is being operated at this flow on a continuous basis. Samples were collected after 2 hours of starting the run, every hour, for the next 7 hours except for Okhla Industrial Area CETP where the sampling had to be stopped after 4 hours due to non-availability of flow. Samples were collected at five points i.e. before equalization, after equalization, tube settler, DMF and ACF. The composite samples of effluent after equalization and final treated effluent, prepared on equal volume basis, were analyzed for various parameters as prescribed in treated effluent quality for CETPs. Samples collected at other two points i.e. after tube settler and DMF were analyzed for pH, BOD, COD, TSS and TDS. The main conclusions and recommendations of the CPCB study are as follows:

a. GT Karnal Road, Mayapuri and Badli CETPs are meeting the notified standards. Mangolpuri, SMA, Nangaloi, Wazirpur and Okhla I.A CETPs are not complying in terms of TDS only. Lawrence Road CETP is not complying in terms of BOD and SS. It is felt that

Lawrence Road CETP was not able to meet the standards in terms of BOD due to high level of organic matter in the influent

b. DMF and ACF units were included in the CETPs to improve the effluent quality beyond what is required under the notified standards. It was observed that in general the performance of these units was sub-optimal.

c. The efficiency of treatment by the physico-chemical process can also be gauged by the TSS concentration after the tube settler. If 100 mg/L TSS concentration is assumed as a practical limit in the effluent from the tube settler, Mangolpuri, Okhla I. A. and SMA CETPs failed this criterion. This indicates that there is scope for improvement of the performance of tube settlers by optimizing the chemical doses and flocculation. The sub-level performance of the tube settlers could also be due to in sufficient cleaning of the tubes, improper sludge withdrawal or short-circuiting in the tank, which can be investigated.

d. The advanced level treatment units, dual media filter (DMF) and activated carbon adsorption (ACA) bed, are meant to polish the final effluent. Removal of TSS by DMF reduces not only the TSS in the final effluent but also its BOD and COD concentration, which is associated with the organic fraction of TSS. The ACA is used to remove trace organics, such as pesticides, phenols, etc., and heavy metals, which escape the primary treatment. It is seen that wherever the TSS input to the DMF is more than 100 mg/L the final effluent also has a high TSS concentration. Likewise, the ACA bed also should not be loaded with bulk organic matter. It seems that wherever the input COD to DMF is more than 100 mg/L, the BOD and COD of the final effluent is more than that which is expected from advanced level treatment units (COD<30 mg/L). Application of large amounts of COD to ACA bed would also result in an early exhaustion of its treatment capacity.

e. The TDS concentration of the effluents is mainly due to the inorganic ions in the water supply and those added during the use of water. The chemical treatment adopted in the treatment scheme does not specifically aim at removing these ions, except that which is incidental to neutralization. Therefore any appreciable change in the in the TDS concentration of the effluent during its treatment is not seen. The TDS concentration in the influent to the Wazirpur, Mangolpuri, Jhilmil, Okhla I.A. and SMA CETPs is more than 3,000 mg/L high and consequently the final does not meet the prescribed limit of 2,100 mg/L.

f. The effluent of the CETPs meet the standards for heavy metals, which were determined and cyanide, for both irrigation and discharge in surface waters.

CETP wise comments on conveyance system

Wazirpur CETP(24 MLD: The wastewater from the industrial estate is collected in an open drain near the CETP. The flow in the drain was measured to be around 35 MLD. DJB has laid a new conveyance system for industrial effluent but it has not been commissioned because the terminal pumping station is yet to be constructed by DSIDC. A large JJ slum cluster having around 50,000 inhabitants also contributes wastewater. This flow should be segregated. In case the flow to the CETP, after segregation of flows from non-industrial origin is found to be more than 24 MLD, which is the design capacity of the CETP, the plant capacity should be augmented.

Mangolpuri CETP (2.4 MLD): About 1.2 MLD effluent was reaching CETP. Effluent from both Phase I and Phase II is reaching the CETP. Activated sludge process is used but effluent from both PST and SST contains a high concentration of SS.

Mayapuri CETP (24 MLD): About 6 MLD effluent was reaching CETP. Sewage from residential localities other than Mayapuri industrial area has been now diverted. Drains in Mayapuri area were under construction; more flow is expected from the area.

Lawrence Road CETP (12 MLD): About 2 MLD effluent was reaching the CETP.About 3 MLD flow was estimated flowing in several open drains leading to Sahkurbasti drain.

Jhilmil CETP (16.8 MLD): About 2 MLD effluent was reaching the CETP from Jhilmil industrial area. DJB had laid a new conveyance system in the Friends Colony industrial area but was yet to be fully connected to CETP. Conveyance system had not been laid in few lanes of the Friends Colony industrial area. A cluster of industries North of GT road near Sansar factory was still not connected to the CETP.

Badli CETP (12 MLD): A new conveyance system for the area had been laid. The flow in the main drain was 3.0 MLD. At a number of places in the collection system the pH of the effluent varied between 2 and 6 indicating that the individual ETPs of some units where pH correction and separation of sludge is carried out were not working. The old collection system was severely damaged due to the acidic effluents. There was water logging and ponding of effluents at several places

Okhla Industrial Area CETP (24 MLD): About 2 MLD effluent was reaching the CETP. Effluent from industries of Phase I from industries located on west side of the Sarita Vihar

drain was being discharged into Sarita Vihar drain. Untapped effluent also flows in an open drain near Z-Block in Phase II. It is estimated that if total effluent generated from Phase I and Phase II is tapped then more flow will reach CETP.

GT Karnal Road CETP (6 MLD): About 3 MLD effluent was reaching the CETP. Most of the industries were connected to conveyance system.

SMA CETP (12 MLD): Only 0.5 to 1.0 MLD flow was reaching the CETP, which was to receive effluent from SMA, SSI and Rajasthan Udyog Nagar industrial areas. Most of the drains in the industrial areas were choked and the effluent was seeping into the ground. Large-scale water logging was observed on roads and open spaces in SSI and SMA industrial areas. There were large cesspools on both sides of the Delhi-Panipat railway line.

Nangaloi CETP (12 MLD): The CETP was receiving effluents from Udyog Nagar and Nangloi industrial area and was operational with 1.5 MLD flow. Some units of Nangloi industrial area and Udyog Nagar industrial area were discharging effluent on the railway land and in an open unlined drain. It is expected that once the collection system is cleaned and made operational the flow will increase.

5.3 Common Effluent Treatment Plants in Harayana

Kundli CETP, Sonipat: Kondli CETP at Industrial Estate-Kundli treats effluents from Milk/food processing, textile dyeing, rubber, and leather units. The treated effluent is discharged into municipal drain and the sludge is kept within the CETP premises. Influent flow was low, about 60% of the designed flow. More polluted wastewater was received at CETP but by-passed. Plant achieved designed efficiency but on very high cost due to high energy consumption. The inlet feed pump not commensurate with actual (less flow). O&M cost is neither agreed nor paid by the members. With members backing out the plant actually receives only sewage, Onsite testing facility not available although space exists. The O& M Cost had increased phenomenally. The Industries' Association non-existent, primary responsibility of CETP operation was at stake. Member units were (practically) backing out from CETP. Untreated or partially treated wastewater from (member) industries received at CETP was by-passed where as their combined sewage is treated

5.4 Common Effluent Treatment Plants in Gujrat and Maharashtra

Most of the CETPs in Gujarat and Maharashtra were non-compliant to prescribed norms mainly due to various shortfalls occurred right from designing stage to operational stage of CETPs. Few of them are discussed below.

Shortfall in Design and Construction Part:

Influent characteristics and hydraulic load are not representative of actual design criteria. For example, in Vapi, Gujarat the design concentration of influent COD is 1000mg/l but actual influent concentration of COD is more than 3000mg/l. This has happened mainly due to improper database, industries were not responsive in database preparation at design stage of CETP. Also frequent change of product particularly in small-scale sector is another serious problem in maintaining influent characteristics as per design criteria of CETP. Similar trend is observed in case of other CETPs too.

Many important parameters like NH_3 – N, Phenol and other toxicants including heavy metals were not included into the design aspects of CETP, resulting in improper treatment and non-compliance of prescribed norms. Toxic effluents some time destroy whole biomass of CETP.

Most of the CETPs particularly in Gujarat were commissioned within a short period of time without conducting proper treatability study of influent. It is indeed another major shortfall in designing a proper and effective CETP.

Modular design of ETP is an important concept in proper handling of variable hydraulic load. Unfortunately, except in few CETPs, no CETP has modular arrangement.

Due to absence of adequate equalization capacity and guard pond, CETPs are not able to contain shock load. To avoid such shock load CETPs are forced to bypass its effluent without any treatment. However, many CETPs off late either augmenting their existing equalization tank or commissioning additional equalization tank to handle shock load.

Shortfall in operation & Maintenance part:

Due to improper operation of CETPs by unskilled or semiskilled operator, flooding of clarifiers, irregular removal of sludge from clarifiers, improper level of MLVSS in aeration

tank, overloading of sludge drying beds etc are the common phenomenon in CETPS. Entire system sometimes gets halt because of such poor maintenance.

Vapi CETP (Gujrat): At the time of inspection of the plant on 03.01.2005 the treated effluent was not meeting the standards in terms of BOD, COD, TDS, NH_3-N, SO_4 and Chlorides. Effluent was overflowing from sludge beds and housekeeping was poor.

Nandesari CETP (Gujrat): At the time of inspection of the plant on 20/21.09.2004, the treated effluent was meeting the standards in terms of pH, BOD and TSS but COD, Chlorides, SO_4 and TDS were exceeding the limit. COD level (295 mg/L) was slightly higher than standard of 250 mg/l. The sludge drying beds were found full. The effluent collection system is not fool proof.

Ankleshwar CETP (Gujrat): At the time of inspection of the plant on 18/19.11.2004, the treated effluent was meeting the standards in terms of pH, BOD, COD, and TSS but TDS was exceeding the limit. Besides, NH_3-N level (56 mg/L) was also beyond limit of 50 mg/L The sludge was being dumped in open yard with impervious layer. The effluent collection system is not fool proof. Special measures for reduction for NH_3-N and TDS are required.

Sachin (0.5 MLD) CETP (Gujrat): At the time of inspection of the plant on 11.01.2005, the treated effluent was meeting the standards in terms of pH, BOD, COD and TSS but TDS was exceeding the limit. The effluent collection system is not fool proof.

Sachin (50 MLD) CETP (Gujrat): At the time of inspection of the plant on 11.01.2005, only primary treatment units were operational whereas the secondary treatment units are under commissioning. The final effluent was not meeting the standards in terms of BOD, COD, TDS and Chlorides.

Sarigum CETP (Gujrat): At the time of inspection of the plant on 3/4.01.2005, the treated effluent was not meeting the standards in terms of BOD, COD, TDS and NH_3-N. The effluent collection system is not fool proof and therefore the plant receives very less flow.

Dhareshwar CETP (Gujrat): At the time of inspection of the plant on 19.01.2005, the treated effluent was not meeting the standards in terms of BOD and COD. CETP does not have laboratory facility. The effluent collection system is not fool proof.

Jetpur CETP (Gujrat): The plant receives 70% industrial effluent from member units and 30% city sewage. At the time of inspection of the plant on 19.01.2005, the treated effluent was not meeting the standards in terms of BOD, COD, TSS, TDS and NH_3-N. CETP does not have laboratory facility. The effluent collection system is not fool proof.

Panoli CETP (Gujrat): At the time of inspection of the plant on 23/24.09.2004, the treated effluent was not meeting the standards in terms of BOD, COD, TSS, TDS, Chlorides, and NH_3-N. The sludge was being dumped in open land with impervious layer. The effluent collection system is not fool proof.

Dombivelli CETP Phase-I (Maharashtra): At the time of recent inspection of the plant on 17.02.2005, the sludge drying beds were found full and there was no space left for fresh sludge. Leakages of effluent were also observed from secondary clarifier and pipeline conveying effluent to bio filter. Over-all house keeping was unsatisfactory.

Dombivelli CETP Phase-II (Maharashtra): At the time of recent inspection of the plant on 17.02.2005, the surface aerators were being replaced therefore samples collected are not representative of normal operation conditions.

Thane-Belapur CETP (Maharashtra): At the time of recent inspection of the plant on 16.02.2005, the treated effluent was meeting the standards in terms of pH, BOD, COD, and TSS but TDS was exceeding the limit. Besides, NH_3-N level (63 mg/L) was also beyond limit of 50 mg/L even though NH_3-N level in raw effluent was only 43 mg/L.

Tarapur CETP (Maharashtra): At the time of last inspection of the plant on 26/27.10.2004, the treated effluent was not meeting the standards in terms of COD, TSS, TDS, NH_3-N and SO_4. Inspecting team also suspected dilution of waste with fresh water by operating agency.

Taloja CETP (Maharashtra): At the time of recent inspection of the plant on 16.02.2005, the treated effluent was not meeting the standards in terms of BOD, COD, TSS, TDS, NH_3-N, Chlorides and SO_4. At the time of inspection, two surface aerators were under maintenance therefore samples collected are not representative of normal operation conditions. The plant does not have auxiliary power supply.

5.5 Common Effluent Treatment Plants in MP

Govindpura CETP (MP): At the time of monitoring of the plant on 24/25.11.2004, the the treated effluent was not meeting the standards in terms of BOD, COD and TSS. One brewery unit contributes about 995 KLD of wastewater. In the treatment scheme, no sludge drying beds have been provided and no secondary settling tank has been employed after aeration tank, the terminal treatment unit. Modifications in treatment scheme seem necessary. The plant does not have auxiliary power supply.

5.6 Common Effluent Treatment Plants in Punjab

Phillore CETP: The Phillore CETP uses anaerobic filter followed by ASP for treatment of effluent mainly from tannery units and have an inflow capacity of 0.035 MLD. The CETP is located at Ramdaspura Noormahal Road Phillore in Jalandhar District. 28 units are the members of the CETP. The treated effluent goes to STP-Phillore and the sludge is being kept within the CETP premises. Dr Ambedkar Leather Association is running the CETP. The capital cost in 1996 was 28 lakhs.

Jalandhar CETP: The ASP based Jalandhar CETP at Leather Complex Jalandhar has an inflow of 1.5 MLD for treatment of effluent mainly from tannery units. The treated effluent is discharged into open drain (Kala Singha) and the sludge is being disposed of indiscriminately. PSIEC is entrusted with the operation, and maintenance of the CETP. The Jalandhar CETP is currently under stabilization as it was closed for over two years. The CLRI recommended construction of Primary Effluent Treatment Plants (PETPs). 29 units are the members of the CETP. Many units do not have PETPs and some are also not operating them properly. Most of them are not capable of complying prescribed primary standards as per CLRI. Some of the tannery units are also refusing to obtain consent under the Water Act. There is a mismatch in the estimated and actual wastewater generation from individual units. The PSIEC also does not own any responsibility to operate the plant so as to comply the prescribed standards. The matter is sub-judice in reference to Civil Writ Petition No CWP No 5307 of 2000 in the Hon'ble Punjab and Haryana High Court filed by the member units of CETP. Most of the industries are operational and highly polluted combined wastewater from tanneries is discharged, into a municipal drain (Kala Singha drain), which ultimately meets R. Satluj. It was understood that in the 20 km stretch of the drain the wastewater is partly utilized in irrigation by farmers. This brings up a very serious environmental situation. Punjab Pollution Control Board should plead with the Hon'ble High Court of Punjab and Haryana for taking cognizance of hazards associated with discharge of untreated tannery wastewater. Till

such time the case is resolved, the industries are required to either completely closedown or immediately stop chrome tanning.

5.7 Common Effluent Treatment Plants in Rajasthan

Balotra CETP: CETP Balotra is of 6 MLD capacity, however it received 12 MLD influent. As a result, 6 MLD was being discharged directly in to the river, without any treatment. The reason for inadequate capacity is the increase in the number of water polluting industries to 600 from 319 at the time when the feasibility study was conducted by NEERI. Majority of industries are cotton textile processing units comprising mainly of dyeing and printing. The major process are desizing, scouring, bleaching, mercerizing, dyeing, printing and finishing. The cost of Rs.2.95 crores was borne by the trust with the help of Ministry of Textiles. No grant was availed from MoEF. The CETP has been operated and maintained by Balotra Water Pollution Control & Research Foundation Trust (BWPCRFT). The BWPCRFT is establishing another 12 MLD CETP (Physico-chemical treatment + biological) at Balotra. It was in initial stage of construction.

The CETP was not achieving the designed efficiency level. The CETP was not initially designed with O&G separator. The O&G separator had been added to the CETP but was not working properly. There were two floating type aerators provided in the equalization tank but were not working properly. Effluent from primary and secondary settling tanks mostly over flowed because of launder problem resulting into total submergence of weirs. The launder's overflow goes to the aeration tank. Waste papers and foam goes to the flocculator and not cleaned regularly. During the power cut the CETP does not run, as there is no backup. Chemical and biological sludge is removed once in a day. Both types of sludges were dumped together, all the sludge drying beds were full, the dried sludge was dumped unscientifically within the CETP premises and covered with a polythene partially.

Jasol CETP: The Jasol CETP was not commissioned till during December 2004 when last inspected. The 2.5 MLD CETP was constructed for treating wastewater from the 60 textile dyeing and printing industries by Jasol Water Polluting Control & Treatment Trust with a capital cost of Rs.2.89 crores. It was a 100% grant. The CETP was designed by NEERI and construction and commissioning by Air Effodetox Incineration Ltd., Mumbai. It was commissioned on 15.10.2004 for trial run with the DG set for three days. Permanent electrical connection from the State Electricity Board was awaited. The entire industrial effluent was being discharged in to the Luni River without any treatment. The commissioning of the plant was expected by the end of January 2005.

Bithuja CETP: The Bithuja CETP was not commissioned till during December 2004 when last inspected. The 30 MLD CETP was under construction for treating the effluent from 161 textile bleaching and mercerizing units at Bithuja Industrial Area. The capital cost has been estimated as 11.5 crorers. The treatment system consists of screen chamber, grit chamber, equalization tank, primary settling, sludge drying beds and waste stabilization ponds. The effluent was being discharged in to river Luni without any treatment.

Jodhpur CETP: The 20 MLD CETP at Sangaria has been established by Jodhpur Pradushan Niwaran Trust at a cost of Rs.10.0 crores at Industrial Area, jodhpur to treat the wastewater from 150 textile units and 100 stainless steel rolling mills. The CETP was designed by NEERI, construction and commissioned by Hydro Air Technonic Pvt. Ltd., Mumbai. It was commissioned in July 2004, but could not be stabilized due to faulty blower till December 2004 when last inspected. As a result it was not being operated continuously. The treatment system consists of screen chamber, grit chamber, separate equalization tanks for acidic and alkaline waste, flash mixer, clariflocculator, aeration tank (diffused aerators), secondary settling tank, sand and activated carbon filters and sludge decanter. Separate channels have been constructed for carrying wastewater from textile units to CETP. Closed pipeline has been laid for carrying wastewater from rolling mills (stainless steel) to CETP. The effluent flow measured was 12 MLD. Alkaline to acidic effluent flow was in the ratio of 3:1. pH of alkaline effluent was 8 and that of acidic effluent was 1.

Bhiwadi CETP: The Bhiwadi CETP with a capacity of 6 MLD has been provided by RIICO in RIICO Industrial Area for the treatment of combined industrial and domestic wastewater. As estimated, 2.5 MLD of industrial effluent will be treated along with 3.5 MLD of domestic effluent. Around 50-55 industries will be contributing its effluent to CETP along with domestic effluent from the industrial area as well as from the city. On the day of inspection, the CETP was under trial run. The CETP was likely to be handed-over to RIICO by November 2004.

Pali CETPs: There are three CETPs in pali having installed capacity 23 MLD were treating about 9 MLD mixed industrial waste and sewage, and still about 10-20% of the effluent generated from Pali city was being discharged without any treatment. At the time of inspection on 03.07.2002 CETP Unit-I was found closed since March 2000 due to unknown reasons and capacity utilization for both Unit-II and Unit-III was 60% only. More than 50% of the effluent reaching CETP I & II was being let out through the emergency outlet to join the River Bandi. There was no proper arrangement for safe disposal of about 300 MT/month hazardous sludge and it was being dumped at Puniyata road near CETP-III. Treated effluents of CETPs were not meeting the standards.

Machheri CETP, Jaipur: The Machheri CETP was closed during inspection because the five member tanneries, which process raw hides had been closed by SPCB on account of not providing the primary treatment for soak liquor. Biomass was being developed for restart of the CETP. There are 9 tanneries connected to CETP, four processing wet blues to finished leather only. There was no arrangement for disposal of hazardous sludge.

5.8 Common Effluent Treatment Plants in Tamilnadu

There are **thirty-three** CETPs in Tamil Nadu. During the current financial year, a total of 26 CETP(s) in Tirupur, Karur and Vellore districts in Tamil Nadu were monitored. The salient features highlighting issues connected to CETP(s) are listed as below:

Common Effluent Treatment Plants (CETPs), Tirupur:

i. A total of eight CETP(s) handle the industrial waste waters from 281 units (Textile) with capacities ranging from 1.5 to 10 MLD and discharge the treated waste waters into river Noyyal which ultimately gets impounded in Orathupalayam dam. The dam water is meant to be used as irrigation water.

ii. The results of analysis clearly show that the CETP(s) have been designed towards primary treatment only using lime, alum and poly-electrolytes as coagulation agents.

iii. The incoming TDS in the ETP range between 6000-9000 mg/l and slight increase was noticed in the treated effluents, perhaps due to soluble fractions of coagulants during treatment. As such CETP(s) remove only the colour and other suspended organic matter.

iv. As against standard (2100 mg/l) for TDS, the existing TDS levels above 5000 mg/l is a severe gross violation. The Noyyal River and ground water survey in Tirupur shows that TDS has grossly contaminated the waters. As such the water is not fit for irrigation in the downstream stretches.

v. The CETP(s) remove only 40% of the COD, BOD and most of the time the BOD of the treated waste waters is above 100 mg/l as against limiting standard of 30 mg/l for discharge into river waters. This is yet another non-compliance by the CETP(s).

vi. It is generally seen that Sodium (Na^+) and Chloride (Cl^-) ions dominate in the wastewaters indicating use of common salt (NaCl) in the dyeing processes. Relatively lower levels of Sulphates (SO_4^{--}) indicate that Sodium Sulphate (Na_2SO_4) is used to a much lesser extent.

vii. Generally Sodium Chloride is recoverable (50-70%) from Dye bath solutions using nano filtration membranes and recovered Brine is reusable in dyeing processes along with low hardness water recovered through Reverse Osmosis processes. Almost 33 individual Units are in the process of installing R.O./Nano Systems followed by Multi Stage evaporator systems (MSES) to attain zero discharge from these Units.

viii. In order to reverse the ecological damages in the area, the existing CETP(s) shall also require upgradation in terms of R.O/Nano systems followed by MSES to constrain high TDS discharges into the river. The approximate expenditure towards this has been worked out as high as 126 crores Indian Rupees and almost 35 crores for routing operation and maintenance of these systems.

ix. It is worthwhile to mention that all the CETP(s) in Tamil Nadu has enjoyed part funding from Government of India (MoEF) and failed to keep pollution under control.

x. South Zonal Office of CPCB is interacting with companies that may deliver 97% of NaCl recovery which shall help in alleviating the need for a MSES (which is expensive to operate) in CETP(s).

Common Effluent Treatment Plants (CETPs), Karur:

Yet another 8 Nos of CETP(s) are in operation at Karur where primarily yarn dyeing is prevailing. The treated effluents are being discharged into river Amaravati basin, which is a tributary to river Cauvery. The salient features are given below:

i) The design of CETP(s) is similar to that of CETP(s) in Tirupur and as such fail to constrain TDS during treatment process. Though not many complaints are arising from the area, yet the ground and surface waters may be subjected to gradual increase in TDS and shortly the Tirupur scenario could be repeated.

ii) An action plan as a preventive strategy shall be formulated and implemented on the lines of CETP(s) at Tirupur by TNPCB. The common salt (NaCl) recovered shall be reusable in the dye house.

iii) Huge quantities of hazardous CETP sludges are being stored in CETP premises that require safe disposal.

Common Effluent Treatment Plants CETPs), Vellore:

There are 10 nos of CETP(s) in operation in the Vellore district and handling industrial effluents from Tannery sector and discharging treated effluents in Palar river basin. There is no water flow in River Palar at present due to construction of many water reservoirs across the tributaries in AP and Karnataka. Due to high permeability of riverbed, the treated effluents infiltrate into the soil and almost little (or no) discharge is visible in the river. The salient features are listed as below:

i) Generally there are three types of wastewater from tanneries i.e soaking effluent, chromium effluent and other wastewater. Soaking wastewater containing high TDS is commonly allowed for solar evaporation either in the premises or at CETPs.

ii) It is reported that about 600 and odd numbers of tannery units are in operation in the District of Vellore. Most of the tanneries are linked with CETPs and some are having individual effluent treatment plants. The effluents are generally high in TDS and BOD and CETP(s) also receives chromium in significant concentrations.

iii) The designed capacities of the CETPs are ranging from 1000 m^3/D to 4400 m^3/D. The CETP comprising collection/equalization tank, Chemical flocculation, primary clarifier, anaerobic lagoon/aeration tank, secondary clarifier and sludge filter (Mechanical filter). Some of the CETPs are having centralized solar evaporation systems for evaporating high TDS effluents and some are having Chrome Recovery Plant (CRP).

iv) Only a few CETPs are meeting the standards in terms of BOD and none of the CETPs are meeting the standard in terms of TDS as stipulated by Tamil Nadu Pollution Control Board. None of the CETPs have been issued either Consent Order or direction by TNPCB.

v) As per the direction of Hon'ble Supreme Court, all the units generating the sludge out of ETP operation should be disposed with in the premises by providing a secured land fill as per

the guidelines and norms stipulated by CPCB. But none of the CETPs which were monitored had the secured land fill. Hazardous waste disposal facilities were not found scientifically sound. Chromium containing wastes had been dumped in unscientific manner that have to be taken to secured landfill. Common TSDF is required for this purpose.

5.9 Common Effluent Treatment Plants in U. P.

Kanpur CETP

The USAB based Kanpur CETP at Jajmau has an inflow capacity of 36 MLD mainly treats tannery effluent. 334 units are the members of the CETP. The treated effluent is used for irrigation and disposed in Ganga River. The sludge is disposed on land. Sludge lifting by Kanpur Nagar Nigam is highly irregular and mostly dumped near the by-pass channel leading to River Ganga. The CETP is being run by UP Jal Nigam. Although the plant is operational but is not being maintained properly. Untreated sewage gets bypassed to Ganga River. Pumps at central sewage pumping station were not being properly operated and maintained. Pumps in tannery conveyance system were not regularly operated during power cut for want of diesel. 10 out of 13 pumps are non operational. Plant operates on less than 70% treatment efficiency. Tannery effluent to sewage (T: S) blending ratio is disturbed from 1:3 to 1:1.5. The capacity of the plant is only partially utilized as only 28 % of the designed flow reaches the plant. The PETPs at individual units are not working properly resulting in high Cr and SS. Also some units are not paying O & M costs. The plant is in state of poor economy due to non / irregular payment of O & M cost by State Govt. Due to heavy power shortage (load shedding for 5 hrs) plant as well as pumping stations remain non-operational. This results in discharge of untreated tannery wastewater into River Ganga

Unnao CETP

The Activate Sludge Process based Unnao CETP at Site-II, UPSIDC Indl Area has an inflow 2.15 MLD. It mainly treats tannery waste. Only 21 units are the members of the CETP. The treated effluent is discharged into municipal drain (Loni) and the sludge was being kept within the CETP premises. The Unnao Tanneries Pollution Control Co was running the CETP. Plant achieves designed efficiency. PETPs in some units were not operated properly. Inspite of all the required units having CRPs, the plant at times received high Chromium in raw wastewater. Innovative efforts on pilot scale (Phyto-remediation of hazardous sludge) were made for better performance. Disposal of sludge requires additional space and also considerable improvement, as it was not in proper shape.

Mathura CETP

The Activate Sludge Process based Mathura CETP at Mathura Indl Area has an inflow capacity of 6.25 MLD. It mainly treats effluents form Textiles (Cotton) dying/printing units. Only 30 units are the members of the CETP. The treated effluent is discharged into municipal drain and the sludge was being kept within the CETP premises. The Mathura Industrial Area Pollution. Control Co. Ltd was running the CETP. The capital cost in 1997 was 188 lakhs

Inlet flow is low, about 70% of the designed flow. Plant is operational but on less than 50% efficiency. Plant operation is not proper. Equipment downtime is long. Conveyance system is in bad shape. Significant content of floating oil was observed in raw wastewater. Onsite testing facility is not in operational state since long even though space and equipment exist. Hazardous solid waste is indiscriminately disposed of by the member units. Cost of treatment has increased significantly from Rs 0.74/Kl. to approx Rs. 12/Kl.

5.10 Common Effluent Treatment Plants in West Bengal

Calcutta Leather Complex (CLC)

i. Calcutta Leather Complex (CLC) having an area of 1100 acres is located at Karaidanga, Bantala is a full-fledged proposed leather manufacturing areas with all its related hide/skin processing units, allied chemical manufacturing units coupled with other infrastructure facilities. The leather complex is proposed to cater for about 540 - 550 tannery units, which are presently scattered in the city and housed mainly in the dense urban locality of Tangra-Topsia-Tiljala areas. Besides this, some new tanneries are also setting up their units in the complex. The shifting of tanneries from their present location to the new complex is in progress and it was reported that about 230 - 240 units have already either constructed or being constructed their shed and are yet to start their operation and production.

ii. In the leather complex, it was roughly estimated that about 1000 MT of raw hides will be processed thereby generating more or less 30 MLD of polluted liquid effluent. For the treatment of 30 MLD wastewater from the whole complex, six modules of Common Effluent Treatment Plant of capacity 5 MLD each was proposed. It was also decided that Four Modules will be constructed and commissioned by the West Bengal State Government through Kolkata Metropolitan Development Authority (KMDA) and the rest Two will be managed by the BOT Party i.e. Dalmia & Co.

iii. The modules 1 & 2 had been already commissioned by the State Government, reportedly in March' 2004, whereas the construction of other two modules 3 & 4 were in advanced stage

and were expected to be commissioned by January 2005. For want of influent, the modules 1 & 2 were not in operation. It was observed that for the module 5 & 6 (to be constructed by Dalmia & Co), construction has been started.

iv. The effluent treatment system for all the six modules will be identical in design. Modules 1 & 2 were already constructed and consists of Equalization (in 2 compartments with diffused aeration), Primary Clarifier, Diffused Aeration (in 3 compartments) and Secondary Clarifier in each module.

v. The treated effluent is designed to be discharged to Storm Water Channel (SW Channel), which meets River Vidyadhari at a distance of about 15 kms from the area. The river ultimately meets the Bay of Bengal.

vi. For the management of Sludge, provision of Sludge Thickener (Filter Press) and also 12 Sludge Drying Beds (SDBs) as standby had been commissioned for the module 1 & 2 and was seen under trial operation. There are six filter presses for each module and each filter press was seen having 75 plates. The filter presses were designed to operate for 8 cycles/day having 2 hours cycle operation and sludge filtering capacity of 3.2 MT/day/module.

vii. For storing the Sludge (hazardous waste), a hazardous waste landfill facility will be developed in 51 acres of land, for which Draft Project Report (DPR) was also submitted by Central Leather Research Institute (CLRI). As this will take time, a temporary arrangement of secured land filling is under construction in the CETP premises for storing the sludge for about 5000 m^3 – 6000 m^3.

viii. For the transportation of effluent from the member tannery units, 8 numbers of Effluent Pumping Stations (EPS) have been made. From the pumping stations effluent will be lifted to the Common Holding Tank already constructed near the CETP of capacity 30 MLD. The 5 pipelines from the 5 EPS managed by KMDA leading to the common holding tank (total designed flow 20 MLD). have been commissioned. The rest 3 pumping lines from the 3 EPS of total flow 10 MLD is yet to be constructed by Dalmia & Co.

ix. For the Chrome tanned leather-manufacturing units, a common Chrome Recovery Unit (CRU) is under process of installation. The total capacity will be 360 m^3 in 3 modules for 109 interested member tanneries, which are chromium Sulfate consuming units. The other chrome tanning units will install chrome recovery units on their own The 2 modules of 120 m^3 capacity each CRU are being constructed near the Common Holding Tank.

x. As the tannery units have not yet started their operation and moreover, as the connecting pipelines to the main Trunk from the individual member units have not yet been joined, the CETP is not getting any effluent till date and becoming non-functional.

6. RECOMMENDATIONS

6.1 In general, the performance of CETPs has been found to be very unsatisfactory, largely because of poor operation and maintenance. Therefore, the State Pollution Control Boards should conduct regular monitoring of CETPs and persuade them to ensure proper operation and maintenance failing which they should initiate action against negligent agencies and wilful defaulters.

6.2 Achieving standards for treated effluent quality from CETPs is dependent on meeting the designed criteria of inlet quality to the CETPs that inter alia depends on effluent quality from each industry. The State Pollution Control Boards are required to prescribe standards for discharge effluent to CETP from each industry and enforce the same.

6.3 Optimization of neutralizing/coagulating chemicals is very important for deriving maximum benefits from primary treatment units based on physico-chemical treatment, minimizing sludge production and reducing pollutants' load on subsequent biological treatment units. Jar tests should be conducted on daily basis to decide type of coagulant and their dozing.

6.4 CETP operating agencies should engage experts to advice them from time to time for proper operation and maintenance of CETP besides employing skilled manpower.

6.5 High TDS in the raw influent reaching CETPs and, as a result, in treated effluent of CETPs is a major cause of concern, more so because it is generally caused by high salinity which requires costly treatments such as Reverse Osmosis (RO) and Nano Filtration Systems followed by Multi Stage evaporator systems (MSES). Area specific thoughtful approach is required to tackle this problem. First attempt should be reduction in release of TDS contributing chemicals from problem industries by adopting cleaner production technologies and recovery and recycling of chemicals from the waste streams. Second option should be treatment of waste stream for TDS at the level of individual industry. Treatment of TDS at the CETP should be the last option unless some special conditions demand so. State Pollution Control Boards should investigate all the TDS related problem areas and compel the industries/CETPs for its solution.

6.6 The State Pollution Control Boards may consider prescribing location specific regulations for the control of TDS at the industry level. Setting time limits in future for compliance of new regulations, compliance of which requires significant investment, is an industry-friendly and

effective approach. The same approach is suggested for prescribing location specific regulations for the control of TDS at the industry level.

6.7 Capability and limitations of filter unit in a wastewater treatment scheme, as explained in section 3.11, must be kept in mind while using these units wherever they exist in CETPs

6.8 Capability and limitations of activated carbon bed, as explained in section 3.12, must be considered while including it as a terminal treatment unit in wastewater treatment. In treatment schemes that already include activated carbon bed as terminal treatment unit, the dependence on this unit should be based accordingly.

6.9 Operation of treatment units based on biological treatment (Activated Sludge Process) is sensitive and requires understanding of important controlling parameters. Use of Solid Retention Time (SRT), the ratio of solids in the system and solids wasted per day, as controlling parameter is recommended because it is most simple and treatment efficiency, sludge production, oxygen requirements and nutrients requirements are dependent on SRT.

6.10 Collection of wastewater from individual industries through tankers is not a foolproof system and should be discouraged in new areas and reviewed and rectified in old ones by the SPCBs unless it is technically impossible.

ANNEXURE

Table 1 CETPs' capacity, year of establishment, capital cost and related information

S. No.	CETP	Capacity MLD	Year of Establish-ment	Capital cost, lac*	Name/address of CETP/company
	AP				
1	Jeedimetla CETP	5	April 1989	98(G) + 158(M)+ 125(L)	Jeetimetla Effluent Treatment Plant Limited (JETL) , Hyderabad
2	Pattancheru CETP	7.5	1989	89(G) + 259(M)+ 380(L)	Pattancheru Effluent Treatment Plant Limited (PETL), Medak District, AP
3	Bollaram CETP	0.25	1994	87(G) + 52(M)+ 82(L)	Progressive Effluent Treatment Ltd., S.F. 284/2, Bollaram(V), Jinnaram Mandal, Distt. Medak
	Delhi				
1	Wazirpur CETP	24	2003	1834.26	Wazirpur industrial area CETP society, Wazirpur industrial area, Delhi
2	Mangolpuri CETP	2.4	2001	603.91	Mangolpuri industrial area CETP society, Mangolpuri industrial area, Delhi
3	Mayapuri CETP	12	2003	1117.99	Mayapuri industrial area CETP society, Mayapuri industrial area, Delhi
4	Lawrence Road CETP	12	2004	937.64	Keshavpuram Industrial Area CETP Society (Regt.), C-42/A, Keshavpuram Industrial Area, (Lawrence Road) Delhi- 1100335
5	Jhilmil CETP	16.8	2004	1177.46	Jhilmil industrial area CETP society, Jhilmil industrial area, Delhi
6	Badli CETP	12	2003	806.45	Badli industrial area CETP society, Badli industrial area, Delhi
7	Okhla Ind'l Area CETP	24	2003	2101.44	Okhla industrial area CETP society, Okhla industrial area Phase I, Delhi
8	GTK Road CETP	6	2002	728.82	GT Karnal road industrial area CETP society, GT Karnal road industrial area, Delhi
9	SMA CETP	12	2003	1214.37	SMA industrial area CETP society, SMA industrial area, Delhi
10	Nangloi CETP	12	2003	1275.31	Nagloi industrial area CETP society, Nagloi industrial area, Delhi
11	Narela CETP				DSIDC
	Gujrat				
1	Naroda CETP, Ahmedabad	3	July 1999	598.2	Naroda Enviro Project Ltd., CETP Division, Plot 512-515, Phase-1, Opp. Naroda Post Office, GIDC Estate Naroda, Ahmedabad
2	Vatva CETP, Ahmedabad	16	April 1998	4401	The Green Environment Services Co-operative Society Ltd., Plot 224-251, Phase-II GIDC Estate, Vatva, Ahmedabad- 383445
3	Odhav CETP, Ahmedabad	1.20	January 1998	360	Odhav Enviro Projects Limited, Plot 25, GIDC Estate Odhav, Ahmedabad- 382415
4	Vapi CETP, Vapi, Valsad	55	January 1997	2040	Vapi Waste & Effluent Management Co. Ltd, CETP, Ext ¼ Opp. UPL, GIDC Estate Vapi-396195 Distt. Valsad
5	Nandesari CETP, Vadodara	5.50	November 1994	300	Nandesari Industries Association, Plot 134/1 opp. Shopping Centre, Near GIDC office, GIDC Estate Nandesari- 391340, Distt. Vadodara
6	Ankleshwar CETP	1	February 1997	680.3	Enviro Technology Ltd., Plot 2313-14, Ankleshwar GIDC Estate, Ankleshwar- 393002, Distt. Bharuch
7	Sachin CETP-I, Sachin, Surat	0.50		500	Globe Enviro Care Ltd. Plot No. PP/1, Off Road No. 2, B/h Kay Tex Mill, GIDC Sachin, Surat-394230
8	Sarigam CETP, Sargam, Valsad	0.40	1994		Perfect Enviro Control Systems Ltd., Plot 731/A, GIDC Sarigram, Taluka Umargaon, Distt. Valsad-396155
9	Dhareswar CETP, Jetpur	0.15/0.055	1995	10	Shri dhareshwar GIDC Vistar Association, GIDC Estate Jetpur- 360370, Distt. Rajkot

S. No.	CETP	Capacity MLD	Year of Establish-ment	Capital cost, lac*	Name/address of CETP/company
10	Sanand CETP, Paldi, Ahmedabad	0.2	1997	260.24	Sanand Eco Projects Ltd, 3 Samast Brahma Kshatriya Society, Narayannagar Road Shantivan, Paldi, Ahmedabad- 380007
11	Jetpur CETP, Jetpur	20	1989	125	Shri Jetpur Dyeing and Printing Association, R. S. No. 782&783 Painky, Narsang Tekri, Jetpur, Distt. Rajkot
12	Panoli CETP, Bharuch	I.00			Panoli Enviro Technology Ltd., Plot 620/2-C GIDC Estate Panoli, Taluka Ankleshwar, Dist. Bharuch-393002
13	Padra CETP,	2.25			Enviro Infrastructure Co. Ltd., Umaraya, Tal. Padra,
14	Sachin CETP-II, Sachin, Surat	50.00	Under commissioning		Sachin Infra Environment Ltd, Plot PP/2, Off Road No.2 B/h Kay Tex Mill, GIDC, Sachin, Surat, Gujrat
15	GVMSAV Odhav CETP, Ahmedabad	1.0	1998		Gujarat Vepari Mahamandal
16	Narol CETP, Ahmedabad	0.1	2001		Narol Dyestuff Enviro Society
	Haryana				
1	Kundli CETP	1.10	1999	76.9	HSIDC Industrial Estate Kundli, Kondli Dist. Sonipat, Haryana
	Karnataka				
1	Pai & Pai CETP	0.3	1994	104.68(G) + 61.86(M)+ 139.7(L)	Pai & Pai Chemicals Private Ltd., Kumabalgod, Mysore Road, Bangalore
2	Lidkar Banglore CETP	1	July 1994	80(G) + 16(M)+ 60(L)	Lidkar Tanners Enviro Control System Ltd., Lidkar CFC, Kudugondanahalli, Banglore- 560045
	Maharashtra				
1	Dombiveli CETP Phase-I	14	2003	667	Dombivli Common Effluent Treatment Plant Phase-I, OS-8, Opp Tele exch., MIDC Dombivli (East)
2	Dombiveli CETP Phase-II	1.5	March 1999	267	Dombivli Common Effluent TreatmentPlant,Plot no. R-4/2, Opposite W-40, MIDC, Phase-II, Dombivli (East), Mumbai- 421204
3	Thane Belapur CETP	12	November 1997	400	CETP (Thane-Belapur) Association, P-20, MIDC, Anand Bhadkamkar Common Facility Center MIDC Khairane, Thane- Belapur Road, Navi Mumbai- 400709
4	Tarapur CETP	2	June 1994	309	TIMA CETP Cooperative Society Ltd., Plot O/23(1), MIDC Tarapur, At post: Boisar, Distt. Thane- 401506
5	Taloja CETP	10	November 1999	616	Taloja CETP Co-operative Society Ltd. Plot P-24, New Chemical Zone, MIDC Tajola, Navi Mumbai-410208
6	Ambernath CETP	0.25	March 1997	35	ACMA CETP Co-operative Society Ltd. W-30, Chemical Zone, MIDC Ambarnath (W) Distt. Thane- 421501
7	Jaisingpur CETP	1	December 1997	47.94	L. K. Akiwale Co-operative Industrial Estate Jaisingpur, Akiwale Udhyamnagar, Tluka: Shirol, Distt.: Kolhapur- 416144
8	Patalganga CETP	15	February 2001	700	Patalganga and Rasayani Industries Association (PRIA) CETP, MIDC-Patalganga, taluka-Khopoli, distt. Raigad
9	Mahad CETP	7.5	2002-03		MMA CETP Association
10	Badlapur CETP	8	?	355	Badalpur Common Effluent Treatment Plant Association, Plot OS-4&5 MIDC Badalpur-421503 Distt Thane, Maharashtra
11	Butibari CETP	?	?	?	?
	MP				
1	Govindpura CETP, Bhopal	0.9	2000	127	Govindpura Audhyogic Kshetra Pradushan Nivaran Pvt Ltd, Govindpura Bhopal

S. No.	CETP	Capacity MLD	Year of Establish-ment	Capital cost, lac*	Name/address of CETP/company
	Punjab				
1	Phillore CETP	0.035	1996	28	Dr Ambedkar Leather Association Ramdaspura, Noormahal Rd. Phillore Dist Jalandhar, (Pun)
2	Jalandhar CETP	1.50	1997 Was closed for last 2 yr	96	PSIEC Leather Complex, Kapoorthala Rd. Jalandhar, Punjap
	Rajasthan				
1	Balotra CETP Unit I	6.00	2000	295	Balotra Water Pollution Control & Research Foundation Trust, Balotra Industrial Area Phase I, Balotra, Distt. Barmer, Rajasthan
2	Jasol CETP	2.50	Trial- 04/ Comm. 05	289	Jasol Water Polluting Control & Treatment
3	Jodhpur CETP	20.00	July 2004, Under stabilization	1000	Jodhpur Pradushan Niwaran Trust, Sangaria Industrial Area, Jodhpur
4	Bhiwadi CETP	6.00 (2.5 Ind. + 3.5 sewage)	Trial- 2004	85	RIICO, CETP, RIICO Industrial Area, Bhiwadi, Rajasthan
5	Pali CETP Unit I	5.20	1983	38	Pali Water Pollution Control Treatment Research Foundation, CETP, Mandia Road, Pali, Rajasthan
6	Pali CETP Unit II	8.40	1997	775 (of II & III)	Pali Water Pollution Control Treatment Research Foundation, CETP, Mandia Road, Pali, Rajasthan
7	Pali CETP Unit III	9.00	1999		Pali Water Pollution Control Treatment Research Foundation, CETP, Mandia Road, Pali, Rajasthan
8	Machheri CETP, Jaipur	0.60	2002	60	Jaipur Leather Complex Environmental Protection Foundation Pvt. Ltd., RIICO Leather Complex, Manpura Macheri, Jaipur, Rajasthan
	Tamilnadu				
1	Mannarai CETP, Tirupur	4.2	1999	135.5(G)+ 108(M)	M/s. Mannarai CETP Ltd., Tirupur
2	Kashipalayam CETP, Tirupur	4	1999	110(G) + 240(M)	M/s. Kasipalayam CETP Ltd., Tirupur
3	Veerapondi CETP, Tirupur	10	1999	336(G) + 384(M)	M/s.Veerapondi CETP Ltd., Tirupur
4	Manickapuram Pudur CETP, Tirupur	1.6	1999	63.5(G) + 63.5(M)	M/s.Manickapuram Pudur CETP Ltd., Tirupur
5	Kunnangalpalayam CETP, Tirupur	4.25	1999	108(G) + 108(M)	M/s. Kunnangalpalayam CETP Ltd., Tirupur
6	Andipalayam CETP, Tirupur	5	1999	107.5(G) + 171.25(M)	M/s. Andipalayam CETP Ltd., Tirupur
7	Angeripalayam CETP, Tirupur	8.5	1999		M/s. Angeripalayam CETP Ltd., Tirupur
8	Chinnakkarai CETP Ltd., Tirupur	5	1999	122.5(G) + 183(M	M/s. Chinnakkarai CETP Ltd., Tirupur
9	Andakovil CETP, Karur				Karur Andakovil Effluent Treatment, Karur
10	KS CETP, Karur				KS Common Effluent Treatment, Karur
11	KKEL CETP, Karur	1.3	1999	100(G) + 56.4(M)+ 43.6(L)	Karur Karuppampalayam Envirotech Ltd. (KKEL), Karur
12	Sellandi Palayam CETP, Karur	?	?	?	Karur Sellandi Palayam Pollution Control Ltd, Karur
13	Thiruvai CETP, Karur	2.1	1999	104(G) + 41(M)+ 63(L)	Karur Thiruvai Pollution Control Ltd, Karur
14	Valandi Dyeing CETP, Karur	?	?	?	Karur Valandi Dyeing Envirotech Ltd, Karur
15	Taluk Dye & Bleaching CETP, Karur	?	?	?	Karur Taluk Dye & Bleaching Effluent Treatment Plant Ltd, Karur

S. No.	CETP	Capacity MLD	Year of Establish-ment	Capital cost, lac*	Name/address of CETP/company
16	Amaravathi Poll Tech CETP, karur	2.4	1999	122(G) + 32(M)+ 90(L)	Amaravathi Poll Tech Ltd., Karur
17	TALCO Vaniyambadi, Valayampet, CETP, Vellore	2.8	May 1991	189.25(G) + 33.25(M)+ 112.5(L)	TALCO Vaniyambadi Enviro control systems Ltd, 183 Cutchery Road Extension, Valayampet, Vaniyambadi- 635754
18	TALCO Vaniyambadi, Udayendiram CETP, Vellore	0.2	January 1996	30(G) + 40(M)	TALCO Vaniyambadi Enviro control systems Ltd, 183 Cutchery Road Extension, Udayendiram, Vaniyambadi- 635754
19	TALCO Perinambut CETP	0.9	August 1995	80(G) + 80(M)+ 40(L)	TALCO Perinambut Tanners Effluent Treatment Co.,Ltd., Bakkalapalli Sector, No 299/A High Road, Pernambut- 635810
20	TALCO Ambur Thuthipet CETP, Vellore	2	November 1994	178.5(G) + 356.5(M)	TALCO Ambur Tannery Effluent Treatment Co.Ltd. Post Box No. 21, Periyavarikkam, Thuthipet, Ambur- 635811 Distt. Vellore
21	Visharam CETP, Melvisharam Vellore	3.4	October 1996	98.25(G) + 92.29(M)+ 175(L)	Visharam Tanners Enviro Control Systems Pvt Ltd, No. 306, 307, C, Abdul Hakeem Road, Melvisharam- 632509 Distt. Vellore
22	TALCO Ranipet CETP, Vellore	4	February 1996		TALCO Ranipet Tannery Effluent Treatment Co. Ltd., VC Mottor Village, Vennivedu Post, Walajah, Distt. Vellore- 632513
23	Melpudupet CETP, Ambur, Vellore				Melvisharam Tanners Effluent Treatment Co,Pvt Ltd.,Melpudupet Sector, Walajha taluk
24	Ambur Mallgalthope CETP, Vellore	1.1	August 1998	100(G) + 70(M)+ 100(L)	Ambur Tannery Effluent Treatment Co.Ltd. Kaspa Road, Ambur- 635802
25	SIDCO Ranipet CETP, Vellore	2.5	December 1995	100(G) + 81.04(M)+ 138.96(L	Ranipet SIDCO Finished Leather Effluent Treatment Co.Pvt Ltd, Plot 199, SIDCO Industrial Estate, SIPCOT, Ranipet- 632403
26	SIDCO phase II CETP Ranipet, Vellore				SIPCOT & SIDCO phase II Entrepreneur Co Pvt Ltd, Ranipet
27	TALCO Dindigul CETP	2.5	December 1996	245(G) + 142(M)+ 120(L)	TALCO Dindigul Tanners Enviro Control Systems Pvt Ltd, Batlagundu Bye Pass Road, Begambur Post, Dindigul- 624002
28	TALCO Madhavaram CETP, Chennai	0.4	January 1997	280	Madhavaram Leather Manufacturers Facility Pvt Ltd., H 3, TALCO Industrial Estate, Madhavaram, Chennai- 60
29	Pallavaram CETP, Chennai	3	February 1995	100(G) + 174.8(M)+ 462(L)	Pallavaram tanners Industrial Effluent Co. Ltd., 105, Anna Salai, Nagalkeni, Chromepet, Chennai-44
	UP				
1	Kanpur CETP	36.00	1994	2209	UP Jal Nigam. Jajmau, Kanpur, UP
2	Unnao CETP	2.15	1996	195	Unnao Tanneries Pollution Control Co Site-II, UPSIDC Indl Area, Unnao, UP
3	Mathura CETP	6.25	1997	188	Mathura Industrial Area Pollution. Control Co Site-A, D-70, Industrial Area, Mathura, UP
	West Bengal				
1	Calcutta Leather Complex CETP	6 mod. units of 5 MLD each	2 modular units -Mar 04		

*(G):Govt. contribution, (M):Members contribution, (L):Loan

Table 2 CETPs treatment technologies and wastewater collection & disposal system

S. No.	CETP	Capacity MLD	Technology/ Treatment Scheme	Type of industries	Effluent collection	Effluent disposal
	AP					
1	Jeedimetla CETP	5	Eq. tanks (3) +flash mixer +Clariflocculator +Dissolved air flotation unit +Sewage mixing +Aeration tanks (6) +Secondary clarifiers and Sludge drying beds	34 Dye & dye intermediate, chemical	Tankers	Amberpet STP
2	Pattancheru CETP	7.5	Eq. tanks +Dissolved air flotation unit Sewage mixing +Aeration tanks (Pure oxygen) (2) +Secondary clarifiers (2) and Sludge drying beds	104 Pharmaceuticals, Chemical, Steel, Pesticides, leather	Tankers	Amberpet STP
3	Bollaram CETP	0.25	Eq. tanks +Pre-settling tank +Aeration tank-I +Secondary clarifier-I +Aeration tank-II+Secondary clarifier-II +maturation Pond and Sludge lagoons	24 Pharmaceuticals, chemical	Tankers	On land for plantation
	Delhi					
1	Wazirpur CETP	24	Screen +Grit Ch. +Eq. tank +Flash mixer +Tube settlers +DM filter +ACF	Pickling and general	Industrial sewers	Yamuna River
2	Mangolpuri CETP	2.4	Screen +Grit Ch. +Eq. tank +PST +Aeratin tank +SST +DMF +ACF	General	Industrial sewers	Yamuna River
3	Mayapuri CETP	12	Screen +Grit Ch. +Eq. tank +Flash mixer +Tube settlers +DM filter +ACF	General	Industrial sewers	Yamuna River
4	Lawrence Road CETP	12	Screen +Grit Ch. +Eq. tank +F. Mixer +Flocculator +Tube settlers +DMF +ACF	Food processing and general	Industrial sewers	Yamuna River
5	Jhilmil CETP	16.8	Screen +Grit Ch. +Eq. tank +Flash mixer +Tube settlers +DM filter +ACF	Engineering and general	Industrial sewers	Yamuna River
6	Badli CETP	12	Screen +Grit Ch. +Eq. tank +Flash mixer +Tube settlers +DM filter +ACF	Pickling	Industrial sewers	Yamuna River
7	Okhla Ind'l Area CETP	24	Screen +Grit Ch. +Eq. tank +Fl. Mixer +Flocculator +Tube settlers +DMF +ACF	General and textile	Industrial sewers	Yamuna River
8	GTK Road CETP	6	Screen +Grit Ch. +Eq. tank +Flash mixer +Tube settlers +DM filter +ACF	General	Industrial sewers	Yamuna River
9	SMA CETP	12	Screen +Grit Ch. +Eq. tank +Flash mixer +Tube settlers +DM filter +ACF	General	Industrial sewers	Yamuna River
10	Nangloi CETP	12	Screen +Grit Ch. +Eq. tank +Fl. Mixer +Flocculator +Tube settlers +DMF +ACF	Rubber products and general	Industrial sewers	Yamuna River
11	Narela CETP			General	Industrial sewers	Yamuna River
	Gujrat					
1	Naroda CETP, Ahmedabad	3	O&G trap +Eq.tank +F.mixer + Clariflocculator +Aeration tank +Secondary clarifier and Sludge drying beds	255 Textile & Chemicals Dyes, Pharmaceuticals,	Pipeline	Sabarmati River
2	Vatva CETP, Ahmedabad	16	Eq.tank +F.mixer + Clariflocculator +Aeration tank +Aeration tank- integral secondary clarifier and Sludge drying beds	464 Dyes, Textile Pharma. Chemicals Rolling mills	Pipeline	Sabarmati River
3	Odhav CETP, Ahmedabad	1.20	Eq. tank +F.mixer +Clariflocculator +Aeratin tank-I +S.Clarifier-I +Aeratin tank-II +S.Clarifier-II and Filter press for sludge	61 Dye&dye intermediate, Textiles	Pipeline	Sabarmati River
4	Vapi CETP, Vapi, Valsad	55	Screen +Grit chamber +Eq. tank + Clariflocculator +Aeratin tank + Secondary clarifier and Sludge drying beds	777 Paper mills, Chemicals, Dyes, Pharma, Engg.	Pipeline	Damangang a River
5	Nandesari CETP, Vadodara	5.50	Screen +Grit chamber +Eq. tank +F.mixer +Clariflocculator +Aeration tank +Secondary clarifier +Sand and activated carbon filter and Sludge drying beds	256 Chemical, Organic chemicals, Dyes & dye intermediate	Tankers	Estuarine zone of River Mahi
6	Ankleshwar CETP	1	Eq. tank +Neutralization tank +Clariflocculator +Aeratin tank + Secondary clarifier +Chemical dozing tank +Tube settler +Sand and activated carbon filter and Vacuum drum filter for sludge	263 Chemical, , Dyes &dye intermediate, Pesticides, Pharma.	Tankers	Narmada River
7	Sachin CETP-I, Sachin, Surat	0.50	Eq. tank +Chemical treatment tank +Clariflocculator +Aeratin tank-I + Lamella Clarifier-I + Aeratin tank-II + Lamella Clarifier-II	38 Dyes & dye intermediate	Tankers	Creek

S. No.	CETP	Capacity MLD	Technology/ Treatment Scheme	Type of industries	Effluent collection	Effluent disposal
8	Sarigam CETP, Sargam, Valsad	0.40	Eq. tank +Flash mixer+Clariflocculator +Aeratin tank-I + Secondary Clarifier-I + Aeratin tank-II + Secondary Clarifier-II	17 Chemical, Pharma, Dyes&dye intermediate	Pipeline and Tankers	Sea
9	Dhareswar CETP, Jetpur	0.15/.055	O&G trap +Flash mixer +Clarifier +Bio tank +Sand filter +AC filter	23 Textile printing units	Pipeline	River Bhadar
10	Sanand CETP, Paldi, Ahmedabad	0.2	Eq. tank +Filter press +Multiple effect evaporation system +Incineration chamber (for liquid and solid waste)	32 Chemical, Pharma, Dyes, Pesticides, Petroleum	Tankers	
11	Jetpur CETP, Jetpur	20	Eq. tank +O&G trap +Chemical mixing +Cl. Flocculator +Aerated lagoon	972 Textile printing units	Pipeline	
12	Panoli CETP, Bharuch	I.00	Eq. tank +Flash mixer +Clariflocculator +Aeratin tank +S. clarifier +DM filter	101 Chemical, Pharma, Dyes	Tankers	
13	Padra CETP,	2.25	?	?	?	
14	Sachin CETP-II, Sachin, Surat	50.00	Eq. tank +Flash mixer +Primary Lamella +Aeratin tank +SST +pH adjustment +Tube settler +Sand filter +ACF	71 Textile dyeing and printing units	Industrial sewers	
15	GVMSAV Odhav CETP, Ahmedabad	1.0	Eq.tank +F.mixer +Clariflocculator +Aeration tank +S.clarifier +Pressure sand filter +Activated carbon filter	264 Dye & Dye intermediate		
16	Narol CETP, Ahmedabad	0.1				
	Haryana					
1	Kundli CETP	1.10	Biological treatment	198 Milk/ food processing, textile, rubber, leather		Yamuna d/s Thr. drain IV
	Karnataka					
1	Pai & Pai CETP	0.3	Inlet sumps (3) +Reaction tanks (3) for acidic, alkaline and cyanide waste +Blending chamber +Flocculation tank +Clarifier +Sand filter +pH adjustment and RO Plant +Evaporator for high TDS waste and Filter press primary sludge and evaporator residue	26 metal finishing inits	Tankers	On land for gardening
22	Lidkar Banglore CETP	1	G. chamber +Eq. tank +Primary clarifier +Aeration tank (2) +Secondary clarifier (2) and Sludge drying beds	5 Tannery	Pipeline	Public sewers
	Maharashtra					
1	Dombiveli CETP Phase-I	14	Eq.tank +F.mixer +Flocculation tank +Clarifier + Bioreactor + S.clarifier	118 Textile industries		Opendrain / Ulhas River
2	Dombiveli CETP Phase-II	1.5	O&G trap +Eq.tank +Clariflocculator +Biotower +Secondary clarifier and Sludge drying beds	157 Pharmaceut. Organic/ inorganic chemicals, Dyes, Metal coating	Tankers	Opendrain / Ulhas River
3	Thane Belapur CETP	12	Eq. cum neutralization tank + F.mixer + Clariflocculator + Aeration tank (Extended Aeration) +Secondary clarifier and Sludge drying beds	480 Pharmaceut. Dye, Pigments Paints, Textile, , Chemicals, (1905 non members)	Pipeline	Thane Creek
4	Tarapur CETP	2	Eq.tank cum oil separator +Clariflocculator +Aer tank-I +Clarifier-I +Aer.tank-II +Clarifier-II +Aer.tank-III +Clarifier-III and Filter press for sludge	223 Pharmaceutical, Chemical, Dyes, Engineering	Tankers	Thane Creek
5	Taloja CETP	10	O&G trap + Eq. cum neutralization tank + Clariflocculator + Aer.tank + Secondary clarifier and Sludge drying beds	943 Pharma & other industries	Pipeline	Thane Creek
6	Ambernath CETP	0.25	Screen +Grit chamber + Eq. cum neutralization tank + Clariflocculator +Aer.tank + Secondary clarifier	34 Dyes and Chemical	Tankers	MIDC drain
7	Jaisingpur CETP	1	Eq. cum neutralization tank +PST +Aer.tank + Secondary clarifier and sludge pits	19 Textile, Dairy Chemicals, , Auto parts, Batteries	Industrial drainage	River
8	Patalganga CETP	15	Physico chemical +Biological +Tertiary (proposed)	35 Chemical, Pharma, Dyes & Dye intermediate Petrochemical	Industrial drainage	Tidal zone of Patalganga River

S. No.	CETP	Capacity MLD	Technology/ Treatment Scheme	Type of industries	Effluent collection	Effluent disposal
9	Mahad CETP	7.5	G. chamber +Neutralization +F.mixer +Clariflocculation +Biotower +Aeration tank-I&II +S.clarifier +Pressure sand filters	154		
10	Badlapur CETP	8	Equalization tank +Clarifloculator +Aer.tank I + Secondary clarifier I + Aer.tank II + Secondary clarifier II and Thickener and Filter press for sludge	52 Textiles, 146 Engineering, 146 Chemicals & Dyes (344)	HDPE pipeline	
11	Butibari CETP					
	MP					
1	Govindpura CETP, Bhopal	0.9	Eq. tank +Holding tank +Buffer tank +Anaerobic reactor (UASB) + Aeration tank	34 Industries	Tankers+ Pipeline	On land and Patra nala
	Punjab					
1	Phillore CETP	0.035	Anaerobic filter + ASP	28 Tanneries (27 vegetable, 1 chrome)		STP-Phillore
2	Jalandhar CETP	1.50	ASP	67 tanning and allied industries (39 chrome)		Kala Singha drain/ Sutluj
	Rajasthan					
1	Balotra CETP Unit I	6.00	Screen +G. Chamber +O&G trap +Eq.tank +F.mixer + Clariflocculator + Aeration tank and Sludge drying beds	600 Textile dyeing and printing (CETP was designed for 319 units only)	Open drain	Luni River
2	Jasol CETP	2.50	Screen +G. Chamber +O&G trap +Eq.tank +F.mixer + Clariflocculator + Aeration tank +Secondary clarifier and Sludge drying beds	60 Textile dyeing and printing	Open drain	Luni River
3	Jodhpur CETP	20.00	Screen +G. Chamber +Eq.tanks (2) +F.mixer + Clariflocculator + Aeration tank +Secondary clarifier +Sand filter + ACF	100 Stainless steel pickling and 150 Textile dyeing and printing	Drain for textile/ Pipeline for steel units	Jojri River
4	Bhiwadi CETP	6.00 (2.5 Ind. + 3.5 sewage)	O&G trap + Aeration tanks +Secondary clarifier and Sludge thickener and Filter press for sludge	55 industries + sewage	Open drain	Sabi River
5	Pali CETP Unit I	5.20	Eq.tank +Chemical mixing + Clariflocculator + Aeration tanks (2) +Secondary clarifier and Sludge drying beds	473 Textile units+ sewage for Unit I&II	Open drains Ind+sew	River Bandi
6	Pali CETP Unit II	8.40	Screen +G. Chamber +Eq.tank +Chemical mixing + Clariflocculator + Aeration tank +Secondary clarifier and Sludge drying beds		Open drains Ind+sew	River Bandi
7	Pali CETP Unit III	9.00	Screen +G. Chamber +Eq.tank +Chemical mixing + Clariflocculator + Aeration tank +Secondary clarifier and Sludge drying beds	292 Textile units+ sewage	Open drains Ind+sew	River Bandi
8	Machheri CETP, Jaipur	0.60	Eq.tank +Chemical mixing + P. Clarifier + Bioreactor +Secondary clarifier +Chemical mixing +Tertiary settling and Filter press for sludge	9 Tannery	Pipeline	On land
	Tamilnadu					
1	Mannarai CETP, Tirupur	4.2	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	30 Textile bleaching and dyeing	HDPE pipeline	On land for plantation
2	Kasipalayam CETP, Tirupur	4	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	20 Textile bleaching and dyeing	HDPE pipeline	Noyyal River (Orathupalay am dam)
3	Veerapondi CETP, Tirupur	10	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	75 Textile bleaching and dyeing	HDPE pipeline	Noyyal River (Orathupalay am dam)
4	Manickapuram Pudur CETP, Tirupur	1.6	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	10 Textile bleaching and dyeing	HDPE pipeline	Inland surface water

S. No.	CETP	Capacity MLD	Technology/ Treatment Scheme	Type of industries	Effluent collection	Effluent disposal
5	Kunnangalpalayam CETP, Tirupur	4.25	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	18 Textile bleaching and dyeing	HDPE pipeline	Odai Canal
6	Andipalayam CETP, Tirupur	5	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	21 Textile bleaching and dyeing	HDPE pipeline	Noyyal River (Orathupalayam dam)
7	Angeripalayam CETP, Tirupur	8.5	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	72 Textile bleaching and dyeing	HDPE pipeline	Nallar River
8	Chinnakkarai CETP Ltd., Tirupur	5	Screen +Eq.tanks (2) +Chemical mixing + Clariflocculator + Sand filter +Stabilization Tank and Sludge thickener +Decanter centrifuge +Sludge drying beds for sludge	31 Textile bleaching and dyeing	HDPE pipeline	Odai Canal
9	Andakovil CETP, Karur		Physico-chemical treatment			Amaravati River
10	KS CETP, Karur		--Do--			
11	KKEL CETP, Karur	1.3	Eq.tank +Chemical mixing + Clariflocculator + Aeration tank (Not used now) +Secondary clarifier and Sludge thickener +Decanter centrifuge +Belt filter for sludge	47 Textile bleaching and dyeing		Canal
12	Sellandi Palayam CETP, Karur		Physico-chemical treatment			
13	Thiruvai CETP, Karur	2.1	Eq.tank +Chemical mixing + Clariflocculator + Aeration tank (Not used now) +Secondary clarifier and Sludge thickener +Decanter centrifuge +Belt filter for sludge	55 Textile bleaching and dyeing		Canal
14	Valandi Dyeing CETP, Karur	?	Physico-chemical treatment			
15	Taluk Dye & Bleaching CETP, Karur	?	--Do--			
16	Amaravathi Poll Tech CETP, karur	2.4	Eq.tank +Chemical mixing + Clariflocculator + Aeration tank (Not used now) +Secondary clarifier and Sludge thickener +Decanter centrifuge +Belt filter for sludge	44 Textile bleaching and dyeing		Canal
17	TALCO Vaniyambadi, Valayampet, CETP, Vellore	2.8	Eq. tank + Screen +F. mixer +Primary clarifier +Anaerobic lagoon +Aerated lagoon +Secondary clarifier and Sludge drying beds	110 Tannery	HDPE pipeline	Palar River
18	TALCO Vaniyambadi, Udayendiram CETP, Vellore	0.2	Settling basin + Screen +G. chamber +Eq. tank +F. mixer +Clariflocculator +Anaerobic lagoon (2) + Aerated lagoon +Secondary clarifier and Sludge drying beds	10 Tannery	HDPE pipeline	Palar River
19	TALCO Pernambut CETP	0.9	Screen +Eq. tank +F. mixer +Primary clarifier +Anaerobic lagoon +Pre-aeration tank +Aeration tank +Secondary clarifier +Chemical dozing +Tertiaty clarifier and Sludge thickener +Centrifuge / Sludge drying beds	10 Tannery	HDPE pipeline	On land (HRTS system) and Nullah
20	TALCO Ambur Thuthipet CETP, Vellore	2	Eq. tank +F. mixer +Primary clarifier +Oxidation ditches (4) +Secondary clarifier and Sludge drying beds	34 Tannery	HDPE pipeline	On land (HRTS system) and Palar River
21	Visharam CETP, Melvisharam Vellore	3.4	Screen +Eq. tank +F. mixer +Primary clarifier +Aeration tank (2) +Secondary clarifier +Polishing pond and Sludge thickener +sludge drying beds	22 Tannery	HDPE pipeline	On land (Green belt) and Palar River

S. No.	CETP	Capacity MLD	Technology/ Treatment Scheme	Type of industries	Effluent collection	Effluent disposal
22	TALCO Ranipet CETP, Vellore	4	Screen +Pre-settler +Eq. tank +F. mixer +Primary clarifier +Anaerobic lagoon +Pre-aeration tank +Aeration tank +Secondary clarifier +Chemical dozing +Tertiaty clarifier and Sludge thickener +Centrifuge / Sludge drying beds	77 Tannery	HDPE pipeline	Palar River through nallah
23	Melpudupet CETP, Ambur, Vellore					
24	Ambur Mallgalthope CETP, Vellore	1.1	Screen +Eq. tank +F. mixer +Primary clarifier +Anaerobic lagoon +Aeration tank +Secondary clarifier and Sludge drying beds	7 Tannery	HDPE pipeline	On land (HRTS system) and Palar River
25	SIDCO Ranipet CETP, Vellore	2.5	Screen +Eq. tank +F. mixer +Primary clarifier +Aeration tank (2) +Secondary clarifier +Filter bed and Sludge drying beds	86 Tannery	HDPE pipeline	On land (Irrigation) and Ponnai Lake
26	SIDCO phase II CETP Ranipet, Vellore					
27	TALCO Dindigul CETP	2.5	Eq. tank +Screen + Primary clarifier +Anaerobic lagoon + Aeration tank +Secondary clarifier and Sludge drying beds	45 Tannery	HDPE pipeline	On land (HRTS system)+ Sengankulam tank of CETP
28	TALCO Madhavaram CETP, Chennai	0.4	G. chamber +Eq. tank +Primary clarifier +Aeration tank (2) +Secondary clarifier (2) and Sludge drying beds	14 Tannery	Pipeline	Mulakkadai Nullah
29	Pallavaram CETP, Chennai	3	Screen +G. chamber +Eq. tank +Clariflocculator +Aeration tank +Secondary clarifier and Sludge thickener +Filter press +Sludge drying beds	125 Tannery	Pipeline	Adyar River
	UP					
1	Kanpur CETP	36.00	USAB + ASP	354 Tanneries +Sewage (1:1.5)		Irrigation
2	Unnao CETP	2.15	ASP (Two stage)	21 Tanneries		Municipal drain
3	Mathura CETP	6.25	ASP	30 Textile dyeing and printing		Municipal drain
	West Bengal					
1	Calcutta Leather Complex CETP	6 modular units of 5 MLD each	Eq. tank with preaeration +Primary clarifier +Aeration tank +Secondary clarifier and Chrome Recovery Unit	About 540-550 tanneries processing 1000 MT hides to be shifted to Calcutta Leather Complex		Vidyadhari River through SW channel

Table 3 Performance of CETPs in terms of aggregate water quality parameters and salinity, values in mg/l except pH

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
AP												
1	Jeedimetla CETP	Dec 30, 04 (Comp.)	5	1.2	Influent (Ind.)	8.35	4000	9260	586	37302	12300	9401
				1.2	Outlet Clarifier & DAF (Ind.)	8.48	3000	7686	316	39312	12120	9040
				1.6	Sewage	7.58	130	278	296	1535	234	376
				1.2+ 1.6 sew	Inlet ASP (Mixed)	8.16	2600	7130	213	37772	11940	8678
				1.2+ 1.6 sew	Effluent (Mixed)	7.31	18	1019	121	14990	5040	5062
	---do---	Dec 02- EPTRI	5	1.2	Influent (Ind.)	8.4	4480	13150	1470	41130	ND	8429
				1.2	Outlet Clarifier & DAF (Ind.)	8.4	4280	12500	1530	43970	ND	9017
				1.6	Sewage	7.4	ND	470	70	1660	ND	519
				1.2+ 1.6 sew	Inlet ASP (Mixed)	7.5	1220	4600	350	17400	ND	3332
				1.2+ 1.6 sew	Effluent (Mixed)	7.8	68	1420	90	15310	ND	3234
2	Pattancheru CETP	Dec 31, 04 (Comp.)	7.5	2	Influent (Ind.)	7.66	3100	6297	510	10888	2650	3797
				2	Outlet DAF (Ind.)	7.82	3000	5834	176	9732	2750	3797
				1	Sewage from BHEL township	7.70	150	407	262	784	92	1085
				2+ 1 sew	Inlet ASP (Mixed)	7.83	1550	4537	418	7704	1850	3254
				2+ 1 sew	Inlet ASP (Mixed)	7.76	100	1204	252	6372	1634	4158
	---do---	Dec 02- EPTRI	7.5	2	Influent (Ind.)	7.6	1930	6520	970	11140	ND	4600
				2	Outlet DAF (Ind.)	7.8	1720	5800	275	11100	ND	4700
				1	Sewage from BHEL township	7.3	98	275	50	610	ND	118
				2+ 1 sew	Inlet ASP (Mixed)	7.6	1120	4400	510	7910	ND	3525
				2+ 1 sew	Effluent (Mixed)	7.8	46	1360	200	6990	ND	3040
Delhi												
1	Wazirpur CETP	Aug 28, 05 For 7 hr	24 (2*12)	1*500 m^3/hr	Influent	4.08	65	215	1946	3826		
					After equal. tank	3.37	34	121	850	4098		
					After tube settler	6.17	36	89	57	4262		
					After DMF	6.91	25	64	53	3816		
					Effluent after ACF	7.45	21	69	57	3816		
2	Mangolpuri CETP	Jun 28, 05 For 7 hr	2.4	50 m^3/hr	Influent (after eq.)	7.36	59	320	640	7268		1358
					After PST	7.41	54	437	222	7050		
					After SST	7.55	10	48	86	7034		
					After DMF	7.56	4	27	40			
					Effluent	7.43	3	24	41			1764
3	Mayapuri CETP	Jun 29, 05 For 7 hr	12	500 m^3/hr	Influent (after eq.)	6.91	128	402	584	2144		613
					After tube settler	7.26	40	107	94	2254		
					After DMF	7.20	34	87	60	2200		
					Effluent	7.20	22	60	27	1246		566

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
4	Lawrence Road CETP	Jun 30,05 For 7 hr	12	500 m^3/hr	Influent (after eq.)	7.57	304	615	366	1852		538
					After tube settler	7.43	100	276	80	1704		
					After dual media filter	7.63	145	233	152			
					Effluent	7.89	114	185	108	1528		407
5	Jhilmil CETP	Aug 25, 05 For 7 hr	16.8 (2*8.4)	1*350 m^3/hr	Influent	7.47	103	211	369	3666		
					After equal. tank	7.54	30	88	163	3692		
					After tube settler	7.54	04	18	64	4110		
					After DMF	7.53	08	16	48	3930		
					Effluent after ACF	7.56	06	26	43	3086		
6	Badli CETP	Aug 26, 05 For 7 hr	12	500 m^3/hr	Influent	5.22	52	197	862	1946		
					After equal. tank	6.41	20	130	873	1726		
					After tube settler	6.75	05	57	30	1944		
					After DMF	6.80	05	13	30	1682		
					Effluent after ACF	7.23	07	39	28	1672		
7	Okhla Ind'l Area CETP	Aug 27, 05 For 7 hr	24 (2*12)	1*500 m^3/hr	Influent	7.89	311	657	1460	3202		
					After equal. tank	8.29	138	620	1720	2782		
					After tube settler	7.92	64	113	84	3092		
					After DMF	7.81	36	82	36	2270		
					Effluent after ACF	8.09	29	67	44	2148		
8	GTK Road CETP	Jun 27, 05 For 7 hr	6	250 m^3/hr	Influent (after eq.)	7.05	296	1581		1482		270
					After tube settler	6.54	20	49	71	1796		
					After dual media filter	6.56	11	39	24	1740		
					Effluent	6.57	10	37	53	1550		238
9	SMA CETP	Jul 1, 05 For 7 hr	12 (2*6)	1*250 m^3/hr	Influent (after eq.)	7.38	6	30	221	4134		556
					After tube settler	7.40	3	19	126	4190		
					After dual media filter	7.49	6	39	33	4062		
					Effluent	7.62	3	24	77	4228		736
10	Nangloi CETP	Jul 6, 05 For 7 hr	12	500 m^3/hr	Influent (after eq.)	7.76	50	210	503	4240		1368
					After tube settler	7.71	42	283	65	3910		
					After dual media filter	7.86	5	26	32	3950		
					Effluent	7.93	4	16	16			981
Guirat												
1	Naroda CETP, Ahmedabad	2004-05	3	2	Influent	7.3	1540	5299	1694	ND	ND	ND
					Effluent	7.8	375	2988	165	ND	ND	ND
	--do--	Dec 02-IIT-B	3	3	Influent	7.6-7.8	1230-1600	5370-5980	500-600	28900	ND	ND
					After P. Clarifier	7.55 - 7.9	1140-1350	5390-5980	ND	29000	ND	ND
					Effluent	8.0-8.7	160	1650-1970	70-100	14600	ND	ND
2	Vatva CETP, Ahmedabad	2004-05	16	10	Influent	8.2	700	3604	855	ND	ND	ND
					Effluent	6.1	71	860	214	ND	ND	ND

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
	Vatva CETP, Ahmedabad	Feb 2004	16		Influent	ND	833	2560	276	18422	ND	ND
					Effluent	ND	50	1872	320	21224	ND	ND
	--do--	Dec 02-IIT-B	16	10	Influent	7.8-7.95	600-630	2140-3000	400-600	10000-250000	ND	ND
					After P. Clarifier	8.7-9.0	530-680	2580-3540	ND	12600-25200	ND	ND
					Effluent	7.9-8.1	60- 120	940-1710	90-100	19200-23900	ND	ND
3	Odhav CETP, Ahmedabad	2004-05	1.2	0.7	Influent	7.0	142	1147	362	ND	ND	ND
					Effluent	7.0	35	550	52	ND	ND	ND
	--do--	Dec 02-IIT-B	1.2	0.6	Influent	7.3-8.4	590-800	1150-2240	400-650	24300-24500	ND	ND
					After P. Clarifier	7.1-8.3	560-800	1320-2360	ND	23150-23300	ND	ND
					Effluent	7.2-8.4	140-160	810-1120	85-100	20200-20800	ND	ND
4	Vapi CETP	Jan 3, 05 (Grab)	55	45	Influent	7.2	769	2654	974	ND	ND	ND
					Effluent	7.2	221	976	81	ND	ND	ND
	--do--	Dec 02	55		Influent	ND	2500	5325	710	19825	ND	ND
					Effluent	ND	360	1563	204	9168	ND	ND
	--do--	Dec 02-IIT-B	55	42	Influent	6.1-7.9	480-1120	1450-3900	400-650	8700-10650	ND	ND
					After P. Clarifier	7.3-8.1	180-480	1000-3000	ND	9900-11250	ND	ND
					Effluent	7.1-7.9	120-250	610-3300	80-120	10500-14000	ND	ND
5	Nandesari CETP	Sep 20-21, 04(24 hr)	5.5	1.5	Influent	7.8	139	1124	145	15433	ND	ND
					Effluent	7.8	27	295	33	8743	ND	ND
	--do--	Jan 2004	5.5		Influent	ND	1300	2835	306	22862	ND	ND
					Effluent	ND	93	649	45	34566	ND	ND
	--do--	Dec 02-IIT-B	5.5	1.25	Influent	7.0-8.5	1200-1900	2000-2500	250-500	21600	ND	ND
					After P. Clarifier	8.2	70	230	ND	8700	ND	ND
					After S. Clarifier	7.3	60	305	ND	10800	ND	ND
					Effluent	7.0-8.5	30- 60	180-230	60-90	3500-9500	ND	ND
6	Ankleshwar CETP	Nov 18-19, 04 For 24 hr	1	1	Influent	1.2	1600	5277	930	38906	ND	10811
					Effluent	7.8	11	153	10	3032	ND	1418
	--do--	April 2005	1		Influent	1.0	1020	4297	1076	ND	ND	ND
					Effluent	7.9	53	157	17	ND	ND	ND
	--do--	Dec 02-IIT-B	1	0.8/1.8	Influent	0.5	670	2800	400-1850	51100	ND	ND
					After P. Clarifier	8.4	340	900	ND	23200	ND	ND
					After S. Clarifier	7.1	20	520	ND	18400	ND	ND
					Effluent	7.25	35	85	80-90	4900	ND	ND

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
7	Sachin CETP,Surat (.5 MLD)	Jan 11, 05 (Grab)	0.5	0.1	Influent	7.3	242	1020	129	8355	ND	5261
					Effluent	7.4	ND	194	34	8147	ND	6055
	--do--	Dec 02-IITB	0.5	0.15	Influent	7.1	140	1500	ND	17750	ND	ND
					After P. Clarifier	9.3	30	160	ND	16630	ND	ND
					Effluent	6.8	10	335	ND	21900	ND	ND
8	Sarigam CETP	Jan 4, 05 (Grab)	0.4	.075	Influent	8.0	514	1632	162	5080	ND	1614
					Effluent	7.2	83	416	59	5269	ND	2202
	--do--	Dec 02-IITB	0.4	.105	Influent	7.95	300	3650	375-300	16500	ND	ND
					After P. Clarifier	8	60	3980	ND	12300	ND	ND
					Effluent	7.5	120	2650	30-60	11500	ND	ND
9	Dhareswar CETP, Jetpur	Jan 19, 05 (Grab)	0.15/0.055	0.05	Influent	6.3	1100	2510	218	3079	ND	754
					Effluent	6.7	560	1146	35	2008	ND	472
	--do--	Dec 02-IITB	0.15/0.055	0.06	Influent	7.1	1000	1150	100	2000-2100	ND	ND
					After P. Clarifier	7.2	180	200	ND	ND	ND	ND
					Effluent	7.2	40	60	40-60	1500-2000	ND	ND
10	Sanand CETP, Paldi, Ahmedabad	Dec 02-IITB	0.2	.003	Influent	5.88	15270	19800	ND	310700	ND	ND
					After P. Clarifier	5.73	14070	17820	ND	342500	ND	ND
					Effluent	9.58	1780	8167	40	49955	ND	ND
11	Jetpur CETP	Jan 19, 05 (Grab)	20	7	Influent	10.5	467	1105	218	1849	ND	471
					Effluent	8.7	300	921	263	3440	ND	990
	--do--	Dec 02-IITB	20	6	Influent	7.5-7.8	275	350-400	200	3250	ND	ND
					After P. Clarifier (Effluent)	7.6-8.2	40	70- 160	50-90	1900	ND	ND
					Effluent							
12	Panoli CETP, Bharuch	Sep 23-24, 04 (24 hr)	I	0.45	Influent	7.07	1215	3615	563	35555	ND	20456
					Effluent	7.49	51	779	160	15494	ND	7868
13	Padra CETP,	2004-05	2.25		Influent	7.2	474	1255	454	ND	ND	ND
					Effluent	7.7	3	364	84	ND	ND	ND
14	Sachin CETP,Surat (50 MLD)	Jan 11, 05 (Grab)	50	20	Influent	6.5	538	1538	411	10493	ND	ND
					Effluent	7.9	92	340	59	14102	ND	ND
15	GVMSAV Odhav CETP, Ahmedabad	2004-05	1.0	0.8	Influent	6.9	283	1028	335		ND	
					Effluent	7.7	100	614	56		ND	
Haryana												
1	Kundli CETP	2004	1.1	0.7	Influent	9.6	297	851	285	ND	ND	368
					After P. Clarifier	8.5	334	726	195			679
					Effluent	8.6	9	72	7.8	ND	ND	604

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
Karnataka												
1	Pai & Pai CETP	Dec 02-EPTRI	0.3	0.05	Influent (Alkaline)	10.3	29	56	55	1115	ND	148
					Influent (Acidic)	2.4	47	224	<5	3435	ND	1059
					Influent (Cyanide)	12.4	42	393	60	7370	ND	591
					After Clariflocculator	9.3	57	318	50	3530	ND	739
					Effluent	7.5	37	206	65	2710	ND	665
					RO feed	6.7	50	477	50	5910	ND	2510
					RO permeate	6.3	26	103	<5	98	ND	22.2
2	Lidkar Banglore CETP	Oct 3, 02 CLRI	1	0.15	Influent	7.03	143	428	272	3068	ND	852
					Effluent	7.01	41	453	280	3906	ND	1098
Maharashtra												
1	Dombiveli CETP Phase I	Feb 17, 05 (Grab)	14	12	Influent	10.1	493	1330	404	3980	ND	1280
					Effluent	6.9	330	798	99	4910	ND	1660
	--do--	March 2004	14		Influent	ND	1379	1874	332	11134	ND	ND
					Effluent		560	1170	110	6149	ND	ND
2	Dombiveli CETP Phase II	Feb 17, 05 (Grab)	1.5	1.5	Influent	9.4	538	1079	114	2494	ND	610
					Effluent	7.4	287	559	121	7163	ND	1919
	--do--	March 2004	1.5		Influent	ND	200	1082	302	4431	ND	ND
					Effluent	ND	37	273	24	6998	ND	ND
	--do--	Dec 02-IIT-B	1.5	0.3	Influent	7.3-7.6	380-600	1270-1580	3250	4500	ND	2290
					After P. Clarifier	6.7-7.1	250-460	1180-1460	10	5600	ND	2630
					Effluent	6.7-6.9	80- 110	340-495	150	8000	ND	3500
3	Thane Belapur CETP	Feb 16, 05 (Grab)	12	12	Influent	7.1	920	1733	171	3031	ND	1000
					Effluent	7.4	51	243	38	2534	ND	1070
	--do--	Jan 2004	12	12	Influent	ND	839	1818	520	3560	ND	ND
					Effluent	ND	16	419	59	3560	ND	ND
	--do--	Dec 02-IIT-B	12	12	Influent	6.6-8.2	320-530	600-840	70-310	1870-2890	ND	ND
					After P. Clarifier	6.7-6.9	250-490	470-780	80-290	1750-3100	ND	ND
					Effluent	6.7-7.5	10- 15	70- 300	40-190	2530-3130	ND	ND
4	Tarapur CETP	Oct 26-27, 04 For 24 hr	2	1.2	Influent	8.13	6512	12517	1081	28348	ND	ND
					Effluent	6.04	30	533	196	3486	ND	ND
	--do--	Jan 2004	2		Influent	ND	5530	10339	433	20293	ND	ND
					Effluent	ND	186	1686	233	6997	ND	ND
	--do--	2004-05	2		Influent	8.3	2480	11194	1056	ND	ND	ND
					Effluent	6.7	27	652	224	ND	ND	ND

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
	Tarapur CETP	Dec 02-IITB	2	0.8	Influent	6.9	4920	13020	800-1300	26000	ND	ND
					After P. Clarifier	8.0	3780	9110	ND	ND	ND	ND
					Effluent	7.6	57	1220	100-1000	ND	ND	ND
5	Taloja CETP	Feb 16, 05	10	10.5	Influent	6.5	863	2174	941	4784	ND	2099
				6.7	Effluent		170	806	190	6416	ND	2699
	--do--	Jan 2004	10		Influent	ND	342	1383	686	4366	ND	ND
					Effluent		141	727	118	5558	ND	ND
	--do--	2004-05	10		Influent	7.1	92	417	172	ND	ND	ND
					Effluent	7.1	8	201	78	ND	ND	ND
	--do--	Dec 02-IITB	10	9.5	Influent	6.6-7.4	220-530	450-540	490-620	1730-2740	ND	ND
					After P. Clarifier	6.6-7.2	110-260	285-440	115-285	2000-2380	ND	ND
					Effluent	6.7-7.0	10- 65	110-200	110-360	1875-2240	ND	ND
6	Ambernath CETP	Dec 02-IITB	0.25	0.1	Influent	7.0-7.3	35- 55	340-770	100-250	2650-3470	ND	ND
					After P. Clarifier	11.2 11.4	34- 60	250-300	50-220	2400-5700	ND	ND
					Effluent	7.4-8.0	12- 13	110-120	70-90	3060-6180	ND	ND
7	Jaisingpur CETP	Dec 02-IITB	1	0.8	Influent	7.1	190	800	600	3560	ND	ND
					Effluent	7.6	130	220	1500	3760	ND	ND
8	Patalganga CETP	February 17, 2005	15	10	Influent	7.5	350	3283	2407	2684	ND	390
					Effluent	7.6	16	125	25	2760	ND	480
	--do--	March 2004	15		Influent							
					Effluent		263	482	42	921	ND	ND
9	Mahad CETP	March 2004	7.5		Influent		1546	4980	560	12955	ND	ND
					Effluent		621	1897	620	10140	ND	ND
MP												
1	Govindpura CETP, Bhopal	Nov 24-25, 04 (24 hr)	0.9	0.492	Influent	6.94	742	1423	1352	ND	414	516
					UASB outlet	7.39	38	134	108	ND	452	574
					Effluent	7.82	173	450	1676	ND	404	580
Punjab												
1	Phillore CETP	Jan 04	0.035	51%	Influent	12.2	3180	5624	3319	ND	ND	ND
					Effluent	8	27	81	36	ND	ND	ND
Rajasthan												
1	Balotra CETP Unit I	Dec 16-17, 04 (24 hr)	6	5.784	Influent	7.01	360	856	638	27374	1028	16294
					After P. Clarifier	7.2	93	515	268	27596	3488	16800
					Effluent	7.64	44	222	224	27774	2696	16600
2	Jasol CETP	Dec 18, 04	2.50	0	Influent							
					Effluent	6.2	435	3035	612	17962	1912	8400
3	Jodhpur CETP	Dec 19, 04 (Comp.)	20	12	Influent (alkaline)	7.53	147	381	1230	ND	1455	15.5
					Influent (acidic)	1.54	109	492	262	ND	640	625
					After P. Clarifier	8.7	42	111	75	ND	1554	1450
					Effluent	7.74	15	48	47	ND	1532	1515

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
4	Bhiwadi CETP (under trial)	Jan 12, 05 (Grab)	6	2.5+ 3.5 sew	Influent	6.6	567	1135	166	ND	1154	755
					Effluent	7.16	254	731	122	ND	787	545
5	Pali CETP Unit II	Jul 25, 2002 (Grab)	8.4	40-60%	Influent	8.4	625	2140	1736	9496	2890	2830
					Effluent	7.8	150	580	190	8846	2730	2610
	--do--	Jul 26, 2002 (Grab)	8.40		Influent	7.99	808	2218	1869	9040	1380	273
					Effluent	8.11	66	408	219	8272	1520	279
	--do--	Jul 28, 2002 (Grab)	8.40		Influent	8.32	871	2240	1373	14208	3280	2620
					Effluent	7.65	182	620	124	10380	3020	2430
	--do--	Jul, 02 (Grab)	8.40		Influent	9.18	882	1836	1194	ND	ND	ND
					After P. Clarifier	8.27	738	1566	503	ND	ND	ND
					Effluent	8.8	51	488	241	ND	ND	ND
6	Pali CETP Unit III	Jul 25, 2002 (Grab)	9.00	40-60%	Influent	7.3	488	1600	199	5910	2015	1930
					Effluent	7.2	109	400	114	5590	1920	1626
	--do--	Jul 26, 2002 (Grab)	9.00		Influent	8.36	874	1469	369	6060	1260	113
					Effluent	7.18	58	391	206	8552	1200	136
	--do--	Jul 28, 2002 (Grab)	9.00		Influent	7.4	583	1920	298	5942	2195	1850
					Effluent	7.13	131	440	156	5552	1860	1530
	--do--	Jul, 02 (Grab)	9.00		Influent	8.26	684	1751	1001	ND	ND	ND
					After P. Clarifier	8.01	640	1144	158	ND	ND	ND
					Effluent	7.96	49	340	226	ND	ND	ND
Tamilnadu												
1	Mannarai CETP, Tirupur	Sep 17, 04 (Comp.)	4.2	3.5	Influent	9.14	145	360	310	7046	2720	3581
					After P. Clarifier	9.07	130	216	116	7066		3774
					Effluent	8.7	120	216	61	7060	2800	3774
	-do-	Dec 02-EPTRI	4.2	3.5	Influent	7.9	133	435	320	8190	ND	4037
					After P. Clarifier	6.8	63	297	<5	7380	ND	3940
					Effluent	6.9	33	198	10	7535	ND	3940
2	Kasipalayam CETP, Tirupur	Sep 17, 04 (Comp.)	4	3	Influent	8.88	210	450	180	8380	3360	4162
					After P. Clarifier	8.78	180	360	37	8076		
					Effluent	8.05	195	288	35	8135	3000	4355
	-do-	Dec 02-EPTRI	4	3	Influent	8.0	143	495	320	6560	ND	3172
					After P. Clarifier	7.8	108	356	15	6255	ND	3172
					Effluent	7.7	35	218	20	5570	ND	2980
3	Veerapondi CETP, Tirupur	Sep 17, 04 (Comp.)	10	9.6	Influent	8.82	190	450	160	7820	3880	3774
					After P. Clarifier	9.15	170	324	29	7730		
					After S. Filter	8.85	153	288	23	7576	3560	3644
					Effluent (after stabilization)	7.63	150	288	30	7750	3560	3871

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
	Veerapondi CETP, Tirupur	Dec 02-EPTRI	10	9.6	Influent	8.2	120	436	110	8670	ND	4133
					After P. Clarifier	7.4	75	297	15	8350	ND	4133
					Effluent	7.4	30	238	<5	8100	ND	4133
4	Manickapuram CETP, Tirupur	Sep 17, 04 (Comp.)	1.6	1.4	Influent	8.04	170	450	73	9224	3640	4742
					Effluent	8.09	42	144	41	8400	3320	4258
	-do-	Dec 02-EPTRI	1.6	1.4	Influent	7.2	109	356	40	10410	ND	5190
					After P. Clarifier	7.1	61	277	20	10430	ND	5575
					Effluent	6.7	37	178	10	10600	ND	5479
5	Kunnankalpalayam CETP, Tirupur	Sep 16, 04 (Comp.) I shift	4.25	3.6	Influent	8.7	125	274	122	8052	3000	3871
					After P. Clarifier	9.19	115	342	127	8200		3871
					After S. Filter	9.9	100	274	155	7434	ND	4065
					Effluent (after stabilization)	8.48	56	137	33	7300		4065
	-do-	Sep 16, 04 (Comp.) II shift	4.25	3.6	Influent	8.83	115	343	127	8200	ND	4162
					After P. Clarifier	9.39	100	240	33	7322		3871
					After S. Filter	9.82	110	274	62	6404	2740	4258
					Effluent (after stabilization)	8.61	65	205	61	7358		3871
	-do-	Dec 02-EPTRI	4.25	3.6	Influent	8.1	85	376	180	7900	ND	3845
					After P. Clarifier	7.4	60	198	5	6340	ND	3268
					Effluent	7.0	28	158	15	7760	ND	3268
6	Andipalayam CETP, Tirupur	Sep 16, 04 (Comp.) I shift	5	3.5	Influent	8.56	115	409	161	9894	4400	4305
					After P. Clarifier	8.6	100	254	29	8692		4340
					Effluent	8.51	90	273	20	8816	ND	4511
	-do-	Sep 16, 04 (Comp. II shift	5	3.5	Influent	8.31	140	545	312	9144	ND	4657
					After P. Clarifier	8.66	95	212	28	8670		4462
					Effluent	8.34	100	227	20	8698	4000	4413
	-do-	Dec 02-EPTRI	5	3.5	Influent	7.8	93	317	260	8290	ND	4230
					After P. Clarifier	6.9	61	257	10	7880	ND	4130
					Effluent	7.1	27	178	15	8040	ND	4130
7	Angeripalayam CETP, Tirupur	Sep 16, 04 (Comp. I shift	8.5	7.2	Influent	8.48	190	636	100	7092	ND	3484
					After P. Clarifier	9.09	145	382	37	6746		3484
					Effluent	9.05	190	345	32	6736	ND	3387
	-do-	Sep 16, 04 (Comp. II shift			Influent	8.72	180	509	73	7690	ND	3871
					After P. Clarifier	9.06	190	364	39	6898		3871
					Effluent	8.89	150	338	97	6850	ND	3581

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
	Angeripalayam CETP, Tirupur	Dec 02-EPTRI	8.5	7.2	Influent	8.1	109	396	100	8310	ND	3940
					After P. Clarifier	7.2	66	277	14	7580	ND	4037
					Effluent	7.4	44	257	<5	7610	ND	4037
8	Chinnakkarai CETP Ltd., Tirupur	Sep 16, 04 (Comp.) I shift	5	4	Influent	8.14	125	342	159	9150	ND	4645
					After P. Clarifier	8.04	125	219	89	8804		4645
					Effluent	7.9	100	274	53	9404	ND	4936
	-do-	Sep 16, 04 (Comp.) II shift			Influent	8.33	170	548	122	10068	ND	5904
					After P. Clarifier	8.04	90	205	59	9682		4936
					Effluent	7.91	100	247	57	9378	ND	4936
	-do-	Dec 02-EPTRI	5	4	Influent	8.0	80	317	100	6510	ND	3268
					After P. Clarifier	7.7	62	257	15	6240	ND	3172
					Effluent	7.6	28	178	10	6060	ND	3172
9	Andakovil CETP, Karur	Sep 18, 04 (Grab)			Influent	9.5	123	175	ND	5654	1992	2581
					After P. Clarifier	10.6	ND	ND	ND	5248	2000	2396
					Effluent	10.0	105	140	ND	3086	1200	1438
10	KS CETP, Karur	Sep 18, 04 (Grab)			Influent	7.6	52	88	ND	6338	1920	2949
					After P. Clarifier	8.8	ND	ND	ND	5376	1760	2360
					Effluent	9.0	12	26	ND	6112	2080	2839
11	KKEL CETP, Karur	Sep 18, 04 (Grab)	1.3	1.1	Influent	8.9	115	307	ND	5032	2000	2489
					After P. Clarifier	11.2	ND	ND	ND	4352	1490	1899
					Effluent	11	78	132	ND	4423	1780	1972
	-do-	Dec 02-EPTRI	1.3	1.1	Influent	7.9	79	356	190	5130	ND	2692
					After P. Clarifier	7.0	50	257	10	4940	ND	2595
					Effluent	7.2	26	158	10	5090	ND	2500
12	Sellandi Palayam CETP, Karur	Sep 18, 04 (Grab)			Influent	9.1	125	263	ND	4380	1740	2028
					After P. Clarifier	10.2	ND	ND	ND	3674	1720	1585
					Effluent	10.3	60	140	ND	3636	1660	1843
13	Thiruvai CETP, Karur	Sep 18, 04 (Grab)	2.1	1.5	Influent	7.1	43	175	ND	5460	1140	2028
					After P. Clarifier	10.1	ND	ND	ND	4460	1120	1751
					Effluent	7.2	24	96	ND	4032	1420	1797
	-do-	Dec 02-EPTRI	2.1	1.5	Influent	7.1	94	376	215	6700	ND	3268
					After P. Clarifier	6.8	60	238	<5	5790	ND	2190
					Effluent	7.0	42	218	10	6600	ND	3172
14	Valandi Dyeing CETP, Karur	Sep 18, 04 (Grab)			Influent	8.7	120	219	ND	5928	2740	2857
					After P. Clarifier	11.1	ND	ND	ND	5184	1920	2350
					Effluent	9.8	90	211	ND	5160	2120	2581

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
15	Taluk Dye & Bleaching CETP, Karur	Sep 18, 04 (Grab)			Influent	8.6	405	746	ND	12162	5000	5899
					After P. Clarifier	11.8	ND	ND	ND	6814	3140	3456
					Effluent	8.3	218	386	ND	7286	2820	3410
16	Amaravathi Poll Tech CETP, karur	Sep 18, 04 (Grab)	2.4	2	Influent	7.6	123	175	ND	3910	1320	1843
					After P. Clarifier	8.0	ND	ND	ND	3638	1300	1797
					Effluent	8.2	125	278	ND	3362	1200	1659
	-do-	Dec 02- EPTRI	2.4	2	Influent	7.5	84	317	215	4055	ND	2019
					After P. Clarifier	7.2	54	178	85	4120	ND	1922
					Effluent	7.3	22	119	<5	2580	ND	1346
17	TALCO Vaniyambadi Valayampet, CETP, Vellore	Nov 3, 04 (Comp.)	2.8		Influent	9.3	1470	3396	1000	13645	1720	6483
					After P. clarifier	8.7	1320	3018	610	15030	1280	7113
					Effluent	8.5	340	868	124	ND	4040	6618
	---do---	Dec 03, 02 CLRI	2.8	2.4	Influent	8.24	1556	4627	3798	13304	ND	6679
					After P. clarifier	7.88	854	3792	2680	14262	ND	7252
					After Anaerobic lagoon	7.84	466	1530	1434	9854	ND	4824
					Effluent (after ASP)	7.82	24	489	114	11413	ND	5093
	---do---	Jul 23, 02 CLRI	2.8	2.4	Influent	8.02	1370	3040	1884	12174	ND	5841
					After P. clarifier	7.9	660	2189	1117	11488	ND	5594
					After Anaerobic lagoon	8.01	396	1557	634	9093	ND	4187
					Effluent (after ASP)	8.07	26	515	765	9899	ND	4820
18	TALCO Vaniyambadi, Udayendiram CETP, Vellore	Nov 3, 04 (Comp.)	0.2		Influent	9.5	1260	3396	672	ND	1680	3196
					After P. clarifier	8.5	720	1698	144	9336	2040	3872
					Effluent	8.6	35	283	26	6336	1960	2161
	---do---	Dec 3, 02 CLRI	0.2	0.18	Influent	8.76	778	2160	1043	5636	ND	2041
					After P. clarifier	8.18	622	1506	366	5760	ND	1788
					Effluent	7.94	24	324	94	4997	ND	1400
	---do---	Nov 7, 02 CLRI	0.2	0.18	Influent	9.06	1025	3018	2056	9308	ND	3019
					After P. clarifier	7.7	675	2023	296	8554	ND	2571
					Effluent	7.62	38	544	132	6000	ND	1917
19	TALCO Pernambut CETP	Nov 4, 04 (Comp.)	0.9		Influent	10.5	1900	4716	2040	17720	3800	ND
					After P. clarifier	9.7	950	2350	555	16945	3360	
					Effluent	8.3	35	264	80	14878	5320	ND
	---do---	Dec 19, 02 CLRI	0.9	0.48	Influent	10.5	1650	4100	1800	15200	ND	5800
					After P. clarifier	10.85	1443	3310	1277	13635	ND	5477
					Effluent	7.6	45	546	150	11046	ND	5132

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
	TALCO Pernambut CETP	July 9, 02 CLRI	0.9	0.48	Influent	8.88	872	2243	1539	5765	ND	3027
					After P. clarifier	8.14	708	1776	343	6613	ND	3329
					Effluent	7.73	45	847	1616	6806	ND	3910
20	TALCO Ambur Thuthipet CETP, Vellore	Nov 4, 04 (Comp.)	2		Influent	8.3	540	1132	335	7000	3200	2881
					After P. clarifier	8.0	475	755	116	9512	3240	2656
					Effluent	7.6	28	189	27	7723	3520	2971
	---do---	July 30, 02 CLRI	2	1	Influent	7.93	947	2577	1680	9958	ND	4152
					After P. clarifier	8.17	1138	2101	802	9660	ND	4046
					Effluent	7.85	47	835	510	10697	ND	4362
	---do---	2002 CLRI	2	1	Influent	9.2	1453	4490	4960	11900	ND	ND
					After P. clarifier	8.28	856	1122	1030	10823	ND	ND
					Effluent	7.65	42	450	150	10188	ND	ND
21	Visharam CETP, Melvisharam Vellore	Nov 5, 04 (Comp.)	3.4		Influent	8.0	850	2136	515	14530	1580	4532
					After P. Clarifier	8.0	1150	1845	160	11554	1840	5400
					After ASP clarifier	7.0	115	194	58	8846	ND	4050
					Effluent (after PP)	7.0	80	233	14	7393	840	3857
	---do---	Nov 11, 02 CLRI	3.4	0.8	Influent	7.26	1100	3600	2100	12010	ND	5195
					After P. Clarifier	7.33	920	2800	1158	11904	ND	5112
					After ASP clarifier	7.76	28	450	132	11030	ND	5211
					Effluent (after polishing pond	7.25	25	380	100	10906	ND	5154
	---do---	Jul 2, 02 CLRI	3.4	0.8	Influent	7.55	1680	5681	2626	11008	ND	5372
					After P. Clarifier	7.51	1110	2815	1200	12395	ND	6104
					After ASP clarifier	7.82	22	651	360	8405	ND	4137
					Effluent (after PP)	7.77	28	626	380	9292	ND	4490
22	TALCO Ranipet CETP, Vellore	Nov 5, 04 (Comp.)	4		Influent	7.43	1310	5470.4	750	7940	1760	3568
					After P. Clarifier	7.78	ND	ND	105	10055	2000	4146
					Effluent	7.78	191	631.2	48	9878	1840	4532
	---do---	Sep 24, 02 CLRI	4	2.2	Influent	7.73	1276	3549	1900	10152	ND	4565
					After Pre-settler	7.43	1250	2362	1332	10400	ND	4505
					After P. Clarifier	7.22	531	1436	1098	9332	ND	4800
					After Anaerobic lagoon	7.39	430	1306	1002	9274	ND	4701
					After ASP Clarifier	7.63	29	427	568	10132	ND	4785
					Effluent (After tert.. clarifier	7.76	19	285	80	10292	ND	4753
	---do---	May 7, 02 CLRI	4	2.2	Influent	8.06	878	2635	2044	14320	ND	5726
					After Pre-settler	8.3	675	2065	1476	12518	ND	5297
					After P. Clarifier	7.94	600	2221	1482	14342	ND	6583
					After Anaerobic lagoon	7.77	445	1891	624	13260	ND	6457
					After ASP Clarifier	7.75	25	836	1246	14076	ND	6608
					Effluent (After ter. clarifier	8.24	17	414	664	13576	ND	6474

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
23	Melpudupet CETP, Ambur, Vellore	Nov 5, 04 (Comp.)			Influent	6.72	1660	4628.8	575	5030	1000	28349
					After P. Clarifier	7.47	ND	ND	142	3876	1280	9932
					Effluent	7.92	197.4	841.6	65	3548	3120	16681
24	Ambur Mallgalthope CETP, Vellore	Nov 6, 04 (Comp.)	1.1		Influent	9.0	960	2075	807	7420	3120	2701
					After P. Clarifier	9.1	760	1698	232	6336	3090	945
					After Anaerobic lagoon	9.0	380	943	25	7078	3600	4547
					Effluent (after ASP)	7.0	90	490	20	8352	4000	3061
	---do---	Nov 13, 02 CLRI	1.1	0.4	Influent	6.93	1056	2615	790	7156	ND	2094
					After P. Clarifier	7.86	990	1946	759	7454	ND	2522
					After Anaerobic lagoon	8.01	462	1331	196	6701	ND	2674
					Effluent (after ASP)	8.28	48	890	206	6174	ND	2598
	---do---	2002 CLRI	1.1	0.4	Influent	7.83	918	2230	1120	5430	ND	ND
					Effluent	8.65	30	473	128	4993	ND	ND
25	SIDCO Ranipet CETP, Vellore	Nov 6, 04 (Comp.)	2.5		Influent	6.72	ND	2524.8	570	5030	640	16874
					After P. Clarifier	7.47	ND	ND	56	3876	1400	7521
					Effluent (after ASP)	7.92	ND	ND	4	3548	600	8196
					Effluent (after filter)	7.45	380	1052	6	4558	880	9642
	---do---	Sep 24, 02 CLRI	2.5	1.5	Influent	5.3	1180	4158	1612	5904	ND	908
					After P. Clarifier	7.72	709	1978	542	4796	ND	830
					Effluent	7.47	28	430	148	3948	ND	760
	---do---	Jun 6, 02 CLRI	2.5	1.5	Influent	4.01	1090	4465	1250	6378	ND	1029
					After P. Clarifier	7.68	986	1964	532	5844	ND	1140
					Effluent	7.77	78	675	276	4168	ND	969
26	SIDCO phase II CETP Ranipet, Vellore	Nov 6, 04 (Comp.)			Influent	5.88	2200	3366.4	760	5320	800	964
					After P. Clarifier	7.44	ND	ND	125	5915	880	1157
					Effluent	8.19	274	946.8	32	5022	760	1157
27	TALCO Dindigul CETP	Dec 11, 02 CLRI	2.5	1.2	Influent	8.2	1810	4763	1608	18002	ND	7124
					After Pre-settler	8.11	1622	4259	1340	17842	ND	7108
					After P. Clarifier	7.93	1245	3710	742	16516	ND	7074
					After Anaerobic lagoon	7.62	655	1940	540	12773	ND	6512
					Effluent	7.67	159	920	210	12019	ND	6532
	---do---	Mar 27, 02 CLRI	2.5	1.2	Influent	7.81	1500	3966	3796	17640	ND	6020
					After Pre-settler	7.5	1320	3891	3078	17050	ND	6412
					After P. Clarifier	7.53	1080	3233	850	16842	ND	5976
					After Anaerobic lagoon	7.48	720	2267	710	17404	ND	6242
					Effluent	7.58	225	1344	450	15988	ND	5978

S.N.	CETP	Date of monitoring	Cap MLD	Flow, MLD	Sampling location	pH	BOD	COD	TSS	TDS	Na	Cl
28	TALCO Madhavaram CETP, Chennai	Sep 17, 02 CLRI	0.4	0.25	Influent	5.2	648	2647	986	6120	ND	936
					After P. Clarifier	7.22	397	1519	429	5346	ND	1020
					Effluent	7.13	16	349	95	4620	ND	978
	---do---	Mar 21, 02 CLRI	0.4	0.25	Influent	6.00	512	2220	1176	4436	ND	912
					After P. Clarifier	7.14	418	1243	352	4732	ND	1011
					Effluent	6.45	20	358	160	4632	ND	1074
29	Pallavaram CETP, Chennai	Apr 17, 02 CLRI	3	3	Influent	4.10	1215	3261	1154	5660	ND	1100
					After P. Clarifier	8.42	760	2205	732	6424	ND	1468
					Effluent	7.8	150	855	700	3952	ND	948
	---do---	2002 CLRI	3	3	Influent	4.5	1044	3090	1200	6575	ND	ND
					Effluent	7.27	35	475	219	4824	ND	ND
UP												
1	Kanpur CETP	April 04	36	10	Influent	7.87	468	905	1995			
					Effluent	8.0	244	579	150			
		December 04	36	10	Influent	8.9	312	627	509			
					Effluent	8.5	137	247	77			
		May 17, 05	36	13.3	Influent		388		1208			
					Effluent		203		248			
			36	28	Influent-Tannery	8.5	1760	3292	2423	ND	ND	ND
					Influent-Sewage	2.8	584	1179	468	ND	ND	ND
					Mixed (1: 1.5)	7.6	903	1637	1027	ND	ND	ND
					Outlet of Reactor-I	8	351	645	72	ND	ND	ND
					Outlet of Reactor-II	8.1	340	707	86	ND	ND	ND
					Final treated Effluent	7.5	283	560	58	ND	ND	ND
2	Unnao CETP		2.15	80	Influent	8	693	2413	424	ND	ND	ND
					After P.Clarifier	8.3	687	2186	230	ND	ND	ND
					After Sec. clarifier-I	8.4	267	1104	258	ND	ND	ND
					Effluent (after Sec. clarifier-II)	8.5	26.5	365	169	ND	ND	ND
	--do--	Dec, 2004			Influent		1493	3523	3293			
					Effluent		30	365	120			
3	Mathura CETP		6.25	60	Influent	7.6	118	680	195	ND	ND	ND
					After P. Clarifier	7.5	75	561	172	ND	ND	ND
					Effluent	7.5	67	654	238	ND	ND	ND
		Standard for Irrigation				*5.5 – 9.0*	*100*	*250*	*200*	*2100*	--	*1000*
		Standard for Discharge in surface waters				*5.5 – 9.0*	*30*	*250*	*100*	*2100*	--	*600*

Table 4 Metals and special parameters in effluent from CETPs, values in mg/l except pH

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
	AP											
1	Jeedimetla CETP	Dec 30, 04 (Comp.)	Influent	ND	ND	ND	ND	ND	ND	ND	10310	771
			Effluent	ND	ND	ND	ND	ND	ND	ND	4583	13.5
2	Pattancheru CETP	Dec 31, 04 (Comp.)	Influent	ND	ND	ND	ND	ND	ND	ND	1358	3736
			Effluent	ND	ND	ND	ND	ND	ND	ND	844	894
	Delhi											
1	Wazirpur CETP	Oct 9-10, 04 For 24 hr	Influent	BDL	41	14.5	4.3	BDL	0.97	ND	ND	
			Effluent	BDL	BDL	BDL	0.43	BDL	0.27	ND	ND	
2	Mangolpuri CETP	Jun 28, 05 For 7 hr	Influent	0.03	1.00	3.22	0.95	1.29	2.51	56.9	1354	
			Effluent	BDL	BDL	BDL	0.22	BDL	0.08	54.4	1136	
3	Mayapuri CETP	Jun 29, 05 For 7 hr	Influent	0.05	0.68	1.20	0.31	0.18	2.16	57.6	119	
			Effluent	BDL	BDL	BDL	BDL	BDL	BDL	54.9	272	
4	Lawrence Road CETP	Jun 30,05 For 7 hr	Influent	BDL	0.40	0.09	0.87	BDL	0.72	58.8	355	
			Effluent	BDL	BDL	BDL	0.10	BDL	BDL	63.7	464	
5	Jhilmil CETP	Aug 5-6, 04 For 24 hr	Influent	BDL	1.25	2.5	0.97	BDL	1.64	ND	ND	
			Effluent	BDL	BDL	BDL	0.06	BDL	0.03	ND	ND	
6	Badli CETP		Influent									
			Effluent									
7	Okhla Ind'l Area CETP	Jul 2, 05 For 7 hr	Influent	BDL	0.03	0.03	BDL	BDL	0.56	75.7	265	
			Effluent	BDL	BDL	BDL	BDL	BDL	0.08	65.9	253	
8	GTK Road CETP	Jun 27, 05 For 7 hr	Influent	BDL	4.00	4.88	1.57	2.18	16.3	69.6	385	
			Effluent	BDL	BDL	BDL	0.03	BDL	BDL	65.6	506	
9	SMA CETP	Jul 1, 05 For 7 hr	Influent	BDL	1.62	0.45	1.15	BDL	0.22	33.1	1310	
			Effluent	BDL	BDL	BDL	0.69	BDL	BDL	28.8	1134	
10	Nangloi CETP	Jul 6, 05 For 7 hr	Influent	BDL	0.45	0.51	0.26	0.35	0.90	56.3	373	
			Effluent	BDL	BDL	BDL	BDL	BDL	0.06	52.4	228	
	Gujrat											
1	Naroda CETP, Ahmedabad	2004-05	Influent	ND	ND	ND	ND	ND	ND	ND	ND	72
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	98
2	Vatva CETP, Ahmedabad	2004-05	Influent	ND	ND	ND	ND	ND	ND	ND	ND	140
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	98
	--do--	Feb 2004	Influent	ND	ND	ND	ND	ND	ND	ND	ND	70
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	84

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
3	Odhav CETP, Ahmedabad	2004-05	Influent	ND	ND	ND	ND	ND	ND	ND	ND	123
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	54
4	Vapi CETP	Jan 3, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	3077	238
			Effluent	ND	ND	ND	ND	ND	ND	ND	3269	246
5	Nandesari CETP	Sep 20-21, 04(24 hr)	Influent	ND	ND	ND	ND	ND	ND	ND	5795	ND
			Effluent	ND	ND	ND	ND	ND	ND	ND	1744	ND
	--do--	Jan 2004	Influent	ND	ND	ND	ND	ND	ND	ND	ND	1137
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	67
6	Ankleshwar CETP	Nov 18-19, 04 For 24 hr	Influent	ND	ND	ND	ND	ND	ND	ND	22025	734
			Effluent	ND	ND	ND	ND	ND	ND	ND	308	56
	--do--	April 2005	Influent	ND	ND	ND	ND	ND	ND	ND	ND	552
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	56
7	Sachin CETP-I Surat (0.5 MLD)	Jan 11, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	1577	40
			Effluent	ND	ND	ND	ND	ND	ND	ND	622	3.8
8	Sarigam CETP	Jan 4, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	872	319
			Effluent	ND	ND	ND	ND	ND	ND	ND	979	120
9	Dhareswar CETP, Jetpur	Jan 19, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	177	42
			Effluent	ND	ND	ND	ND	ND	ND	ND	447	25
10	Jetpur CETP	Jan 19, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	174	45
			Effluent	ND	ND	ND	ND	ND	ND	ND	757	37
11	Panoli CETP, Bharuch	Sep 23-24, 04 (24 hr)	Influent	ND	ND	ND	ND	ND	ND	ND	ND	1114
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	414
12	Padra CETP,		Influent	ND	ND	ND	ND	ND	ND	ND	ND	11.2
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	6.7
13	Sachin CETP-II Surat (50 MLD)	Jan 11, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	117	4.4
			Effluent	ND	ND	ND	ND	ND	ND	ND	553	2.7
14	GVMSAV Odhav CETP, Ahmedabad	2004-05	Influent	ND	ND	ND	ND	ND	ND	ND	ND	105
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	121
	Haryana											
1	Kundli CETP		Influent	BDL	BDL	0.04	BDL	BDL	ND	ND	ND	
			Effluent	BDL	BDL	BDL	BDL	BDL	ND	ND	ND	
	Karnataka											
1	Pai & Pai CETP	Dec 02-EPTRI	Influent (Alkaline)	BDL	BDL	0.097	0.912	0.074	0.207	85.2	53.2	2
			Influent (Acidic)	BDL	3.89	0.671	310	0.173	12.9	76.5	1014	4.48
			Influent (Cyanide)	BDL	.196	2.66	16.4	0.1	3.79	96.8	381	81.2
			Effluent	BDL	.052	0.434	1.33	0.061	0.141	93.4	675	BDL

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
	Pai & Pai CETP	Dec 02-EPTRI	RO feed	BDL	.305	.218	6.07	.065	1	95.2	1029	10.4
			RO permeate	BDL	BDL	BDL	.032	.062	.039	98.3	8.58	BDL
2	Lidkar Banglore CETP	Oct 3, 02 CLRI	Influent	0.05	34	BDL	0.38	0.44	0.4	75	397	ND
			Effluent	.005	14	BDL	BDL	0.39	0.23	72	700	ND
	Maharashtra											
1	Dombiveli CETP Phase I	Feb 17, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	885	32
			Effluent	ND	ND	ND	ND	ND	ND	ND	1423	2
2	Dombiveli CETP Phase II	Feb 17, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	513	36
			Effluent	ND	ND	ND	ND	ND	ND	ND	715	35
3	Thane Belapur CETP	Feb 16, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	399	52
			Effluent	ND	ND	ND	ND	ND	ND	ND	613	68
4	Tarapur CETP	Oct 26-27, 04 For 24 hr	Influent	ND	ND	ND	ND	ND	ND	ND	11025	3356
			Effluent	ND	ND	ND	ND	ND	ND	ND	1173	186
	--do--	2004-05	Influent	ND	ND	ND	ND	ND	ND	ND	ND	1736
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	225
5	Taloja CETP	Feb 16, 05 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	1269	187
			Effluent	ND	ND	ND	ND	ND	ND	ND	2122	236
	--do--	2004-05	Influent	ND	ND	ND	ND	ND	ND	ND	ND	63
			Effluent	ND	ND	ND	ND	ND	ND	ND	2122	236
8	Patalganga CETP	February 17, 2005	Influent	ND	ND	ND	ND	ND	ND	ND	776	20
			Effluent	ND	ND	ND	ND	ND	ND	ND	808	7
	--do--	March 2004	Influent									
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	28
9	Mahad CETP	March 2004	Influent	ND	ND	ND	ND	ND	ND	ND		308
			Effluent	ND	ND	ND	ND	ND	ND	ND		336
	MP											
1	Govindpura CETP, Bhopal	Nov 24-25, 04 (24 hr)	Influent	ND	ND	ND	ND	ND	ND	ND	ND	
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	
	Rajasthan											
1	Balotra CETP-I	Dec 16-17, 04 (24 hr)	Influent	ND	ND	ND	ND	ND	ND	ND	1338	0.08
			Effluent	ND	ND	ND	ND	ND	ND	ND	1529	0.14
2	Jodhpur CETP	Dec 19, 04 (Comp.)	Influent	ND	ND	ND	ND	ND	ND	ND	1661 19312	ND
			Effluent	ND	ND	ND	ND	ND	ND	ND	3824	ND
3	Bhiwadi CETP	Jan 12, 05	Influent	ND	ND	ND	ND	ND	ND	ND	1619	ND
			Effluent	ND	ND	ND	ND	ND	ND	ND	1242	ND
4	Pali CETP-II	Jul 25, 2002 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	2776	ND
			Effluent	ND	ND	ND	ND	ND	ND	ND	2506	ND

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
	Pali CETP-II	Jul 26, 2002 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	2490	38.6
			Effluent	ND	ND	ND	ND	ND	ND	ND	2792	15.7
	--do--	Jul 28, 2002 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	2627	37
			Effluent	ND	ND	ND	ND	ND	ND	ND	2421	11
5	Pali CETP-III	Jul 25, 2002 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	1814	ND
			Effluent	ND	ND	ND	ND	ND	ND	ND	955	ND
	--do--	Jul 26, 2002 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	2348	40.7
			Effluent	ND	ND	ND	ND	ND	ND	ND	2342	19.9
	--do--	Jul 28, 2002 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	1945	61
			Effluent	ND	ND	ND	ND	ND	ND	ND	1033	41
	Tamilnadu											
1	Mannarai CETP, Tirupur	Sep 17, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	227	
			Effluent	ND	ND	ND	ND	ND	ND	ND	400	
	-do-	Dec 02-EPTRI	Influent	ND	ND	BDL	BDL	BDL	0.33	ND	581	BDL
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	564	3.1
2	Kasipalayam CETP, Tirupur	Sep 17, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	304	
			Effluent	ND	ND	ND	ND	ND	ND	ND	404	
	-do-	Dec 02-EPTRI	Influent	ND	ND	0.095	BDL	BDL	0.08	ND	460	3.5
			Effluent	ND	ND	BDL	BDL	BDL	0.021	ND	300	1.8
3	Veerapondi CETP, Tirupur	Sep 17, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	696	
			Effluent	ND	ND	ND	ND	ND	ND	ND	862	
	-do-	Dec 02-EPTRI	Influent	ND	ND	0.235	BDL	BDL	0.074	ND	686	4.8
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	728	1.1
4	Manickapuram CETP, Tirupur	Sep 17, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	811	
			Effluent	ND	ND	ND	ND	ND	ND	ND	792	
	-do-	Dec 02-EPTRI	Influent	ND	ND	BDL	BDL	BDL	0.091	ND	977	5.6
			Effluent	ND	ND	BDL	BDL	BDL	0.044	ND	906	2.8
5	Kunnankalpalayam CETP, Tirupur	Sep 16, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	833	
			Effluent	ND	ND	ND	ND	ND	ND	ND	833	
	-do- II shift	Sep 16, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	929	
			Effluent	ND	ND	ND	ND	ND	ND	ND	730	
	-do-	Dec 02-EPTRI	Influent	ND	ND	BDL	BDL	BDL	0.083	ND	626	5.0
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	600	BDL

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
6	Andipalayam CETP, Tirupur	Sep 16, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	988	
			Effluent	ND	ND	ND	ND	ND	ND	ND	637	
	-do- II shift	Sep 16, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	980	
			Effluent	ND	ND	ND	ND	ND	ND	ND	925	
	-do-	Dec 02-EPTRI	Influent	ND	ND	BDL	BDL	BDL	0.091	ND	522	BDL
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	634	BDL
7	Angeripalayam CETP, Tirupur	Sep 16, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	606	
			Effluent	ND	ND	ND	ND	ND	ND	ND	333	
	-do- II shift	Sep 16, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	323	
			Effluent	ND	ND	ND	ND	ND	ND	ND	446	
	-do-	Dec 02-EPTRI	Influent	ND	ND	0.105	BDL	BDL	0.1	ND	535	BDL
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	660	2.5
8	Chinnakkarai CETP Ltd., Tirupur	Dec 02-EPTRI	Influent	ND	ND	0.137	BDL	BDL	0.13	ND	390	BDL
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	468	1.0
9	Andakovil CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	113	
			Effluent	ND	ND	ND	ND	ND	ND	ND	94	
10	KS CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	127	
			Effluent	ND	ND	ND	ND	ND	ND	ND	212	
11	KKEL CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	588	
			Effluent	ND	ND	ND	ND	ND	ND	ND	221	
	-do-	Dec 02-EPTRI	Influent	ND	ND	0.206	BDL	BDL	0.102	ND	323	BDL
			Effluent	ND	ND	BDL	BDL	BDL	BDL	ND	530	3.1
12	Sellandi Palayam CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	116	
			Effluent	ND	ND	ND	ND	ND	ND	ND	150	
13	Thiruvai CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	173	
			Effluent	ND	ND	ND	ND	ND	ND	ND	232	
	-do-	Dec 02-EPTRI	Influent	ND	ND	0.185	BDL	BDL	0.147	ND	267	BDL
			Effluent	ND	ND	0.081	BDL	BDL	0.04	ND	374	BDL
14	Valandi Dyeing CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	172	
			Effluent	ND	ND	ND	ND	ND	ND	ND	299	
15	Taluk Dye & Bleaching CETP, Karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	139	
			Effluent	ND	ND	ND	ND	ND	ND	ND	338	

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
16	Amaravathi Poll Tech CETP, karur	Sep 18, 04 (Grab)	Influent	ND	ND	ND	ND	ND	ND	ND	90	
			Effluent	ND	ND	ND	ND	ND	ND	ND	186	
	-do-	Dec 02-EPTRI	Influent	ND	ND	0.157	BDL	BDL	0.121	ND	230	BDL
			Effluent	ND	ND	BDL	BDL	BDL	0.055	ND	231	BDL
17	TALCO Vaniyambadi Valayampet, CETP, Vellore	Nov 3, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	2291	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1489	
	-do-	Dec 03, 02 CLRI	Influent	.033	155	BDL	0.05	0.285	0.5	85	925	243
			Effluent	.027	2	BDL	0.1	0.212	0.2	83	1019	68
	-do-	Jul 23, 02 CLRI	Influent	.048	67	3.1	BDL	0.394	0.48	85	1206	184
			Effluent	.046	2	1.8	BDL	0.373	1.6	82	1109	174
18	TALCO Vaniyambadi, Udayendiram CETP, Vellore	Nov 3, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	782	
			Effluent	ND	ND	ND	ND	ND	ND	ND	2312	
	-do-	Dec 3, 02 CLRI	Influent	.029	33.2	BDL	0.1	0.22	0.25	83	576	146
			Effluent	.025	0.83	BDL	0.08	0.14	BDL	81	838	49
	-do-	Nov 7, 02 CLRI	Influent	.037	230	0.5	0.85	0.27	0.5	83	1429	139
			Effluent	.031	1.38	BDL	0.4	0.18	BDL	80	1235	40
19	TALCO Pernambut CETP	Nov 4, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1441	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1686	
	-do-	Dec 19, 02 CLRI	Influent	.037	20	BDL	0.5	0.24	0.5	86	1210	205
			Effluent	.032	0.35	BDL	BDL	0.15	0.5	82	1375	100
	-do-	July 9, 02 CLRI	Influent	ND	13.7	4.3	0.83	ND	0.31	85	367	228
			Effluent	ND	1.0	1.6	0.6	ND	0.14	83	855	228
20	TALCO Ambur Thuthipet CETP, Vellore	Nov 4, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1681	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1625	
	-do-	July 30, 02 CLRI	Influent	0.04	47	20.7	BDL	0.32	0.80	80	1273	218
			Effluent	.024	1.4	6.6	BDL	0.15	0.20	75	1400	208
21	Visharam CETP, Melvisharam Vellore	Nov 5, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1576	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1482	
	-do-	Nov 11, 02 CLRI	Influent	.039	13	2	0.11	0.47	BDL	88	434	162
			Effluent	.027	BDL	BDL	BDL	0.22	BDL	77	1111	54

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
	Visharam CETP, Melvisharam Vellore	Jul 2, 02 CLRI	Influent	.062	71.5	4.5	0.68	0.68	0.7	80	300	200
			Effluent	.047	0.7	3.8	0.5	0.41	BDL	75	997	140
22	TALCO Ranipet CETP, Vellore	Nov 5, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	ND	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1513	
	-do-	Sep 24, 02 CLRI	Influent	.027	50.1	BDL	0.35	0.32	33.9	77	788	175
			Effluent	.024	1.45	BDL	BDL	0.211	0.2	75	1190	27
	-do-	May 7, 02 CLRI	Influent	.049	18.9	0.025	0.65	0.438	0.02	78	1329	225
			Effluent	.047	0.17	0.7	0.63	0.384	2.86	75	1135	26
23	Melpudupet CETP, Ambur, Vellore	Nov 5, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1813	
			Effluent	ND	ND	ND	ND	ND	ND	ND	2019	
24	Ambur Mallgalthope CETP, Vellore	Nov 6, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1788	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1108	
	-do-	Nov 13, 02 CLRI	Influent	0.33	53	3.3	BDL	0.2	0.53	83	1577	108
			Effluent	0.24	1.6	7.2	BDL	0.12	0.28	80	1028	88
25	SIDCO Ranipet CETP, Vellore	Nov 6, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1734.6	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1754.2	
	-do-	Sep 24, 02 CLRI	Influent	.061	24.7	11.15	4.6	0.302	1.1	74	1435	70
			Effluent	.038	1.98	BDL	0.25	0.247	4.4	73	1101	50
	-do-	Jun 6, 02 CLRI	Influent	ND	133	5.85	0.55	ND	6.0	75	1573	64
			Effluent	ND	4	0.68	0.58	ND	2.22	72	1281	64
26	SIDCO phase II CETP Ranipet, Vellore	Nov 6, 04 (Composite)	Influent	ND	ND	ND	ND	ND	ND	ND	1724.8	
			Effluent	ND	ND	ND	ND	ND	ND	ND	1920.8	
27	TALCO Dindigul CETP	Dec 11, 02 CLRI	Influent	.032	2.2	3.1	0.6	0.21	0.7	87	1004	161
			Effluent	.011	BDL	0.11	0.13	0.18	BDL	82	329	64
	-do-	Mar 27, 02 CLRI	Influent	.045	0.32	ND	ND	0.4	ND	88	792	ND
			Effluent	.042	.005	ND	ND	0.375	ND	83	241	ND
28	TALCO Madhavaram CETP, Chennai	Sep 17, 02 CLRI	Influent	.051	BDL	1.5	BDL	0.42	1.2	77	1516	69
			Effluent	.028	1.6	BDL	BDL	0.24	0.1	74	1517	58
	-do-	Mar 21, 02 CLRI	Influent	0.08	71	1.7	BDL	0.81	1.9	75	930	66
			Effluent	0.05	0.4	BDL	BDL	0.41	0.3	72	1392	88

S.N.	CETP	Date of monitoring	Sampling location	Cd	Cr	Cu	Ni	Pb	Zn	%Na	SO_4	NH_3-N
29	Pallavaram CETP, Chennai	Apr 17, 02 CLRI	Influent	.053	64	5.6	0.08	0.47	0.85	78	1063	100
			Effluent	.03	2.5	BDL	BDL	0.29	0.80	74	866	98
	UP											
1	Kanpur CETP			ND	136	ND	ND	ND	ND	ND	45	
				ND	1.43	ND	ND	ND	ND	ND	BDL	
2	Unnao CETP			ND	152	ND	ND	ND	ND	ND	ND	
				ND	2.55	ND	ND	ND	ND	ND	ND	
3	Mathura CETP			BDL	BDL	0.13	0.11	BDL	ND	ND	ND	
				BDL	BDL	0.11	0.04	BDL	ND	ND	ND	
	Standard for Irrigation			*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*60*	*1000*	
	Standard for Discharge in surface waters			*1.0*	*2.0*	*3.0*	*3.0*	*0.1*	*5.0*	*NS*	*1000*	*50*

BDL- below detection limit ; ND- not determined

Table 5 Hazardous sludge / solid waste generation and handling in CETPs

S. No.	CETP	Type of industries	On site storage/ Ultimate disposal of sludge
	AP		
1	Jeedimetla CETP	34 Dye & intermediate, chemical	About 2-2.5 MT /d sludge is generated. Sludge is stored within CETP premises.
2	Pattancheru CETP	104 Pharmaceuticals, Chemical, Steel, Pesticides, leather	About 8-10 cum /d sludge is generated. Sludge is disposed in secured landfill in Didigul
3	Bollaram CETP	24 Pharmaceuticals, chemical	Sludge is temporarily stored within CETP premises in sludge lagoons which have not been cleaned so far
	Delhi		
1	Wazirpur CETP	Pickling and general	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
2	Mangolpuri CETP	General	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
3	Mayapuri CETP	General	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
4	Lawrence Road CETP	Food processing and general	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
5	Jhilmil CETP	Engineering and general	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
6	Badli CETP	Pickling	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
7	Okhla Ind'l Area CETP	General and textile	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
8	GTK Road CETP	General	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
9	SMA CETP	General	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
10	Nangloi CETP	Rubber products and general	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
11	Narela CETP	General	Sludge is stored within CETP premises, a new common temporary storage site will be developed by Dec 2005
	Gujrat		
1	Naroda CETP, Ahmedabad	229 Dye & dye intermediate, Pharma. Textile & Chemicals	About 5 MT/d sludge is generated. Sludge is used for land filling.
2	Vatva CETP, Ahmedabad	437 Pharmaceuticals, Dye & intermediate, Textile,Chemicals Rolling mills	About 8 MT/d sludge is generated. Sludge is used for land filling.
3	Odhav CETP, Ahmedabad	57 Dye&dye intermediate, Textiles	About 1.2 MT/d sludge is generated. Sludge is used for land filling.
4	Vapi CETP, Vapi, Valsad	777 Paper mills, Chemicals, Pharma, Dye & Dye intermediates, Plastic Engg.	About 300-400 MT/month sludge is sent for disposal at CHWTSDF-Waste Management Company site, Vapi. About 200-300 MT/month sec. sludge is also generated.
5	Nandesari CETP, Vadodara	166 Chemical, Organic chemicals, Dyes & intermediate	About 60 MT/month sludge is disposed off at CHWTSDF-NECL, Nandesari
6	Ankleshwar CETP	263 Dyes & intermediate, Pesticides, Chemical, Pharma.	About 3100 MT/m sludge generated is sold to the cement industries/ sent to CHWTSDF-BEIL site, Ankleshwar
7	Sachin CETP-I, Sachin, Surat	38 Dyes & dye intermediate	Sludge is disposal off at HWTSDF-M/s Gujrat Enviro Protection and Infrastructure Ltd. (GEPIL) site, Surat
8	Sarigam CETP, Sargam, Valsad	17 Chemical, Pharma, Dyes&dye intermediate	About 6 MT/month sludge is sent for disposal at CHWTSDF-Waste Management Company site, Vapi
9	Dhareswar CETP, Jetpur	23 Textile printing units	About 1 MT/month sludge is sent for disposal at CHWTSDF-NEPL site, Odhav
10	Sanand CETP, Paldi, Ahmedabad	Chemicals, Pharma. Dyes, Pesticides, petrochemical	About 3 MT/d sludge is generated. Sludge is used for land filling.
11	Jetpur CETP, Jetpur	972 Textile printing units	About 2 MT/month sludge is sent for disposal at CHWTSDF-NEPL site, Odhav
12	Panoli CETP, Bharuch	101 Chemical, Pharma, Dyes&dye intermediate	About 300 MT/annum sludge is disposed off at CHWTSDF-BEIL site, Ankleshwar or CHWTSDF-NECL site, Nandesari
13	Padra CETP,		
14	Sachin CETP-II, Sachin, Surat	71 Textile dyeing and printing units	About 35-40 MT/day sludge is disposal off at HWTSDF-M/s Gujrat Enviro Protection and Infrastructure Ltd. sites, Surat
15	GVMSAV Odhav CETP, Ahmedabad	264 Dye & Dye intermediate	

S. No.	CETP	Type of industries	On site storage/ Ultimate disposal of sludge
16	Narol CETP, Ahmedabad		
	Haryana		
1	Kundli CETP	198 Milk/ food processing, textile, rubber, leather	Sludge is stored unscientifically within CETP premises
	Karnataka		
1	Pai & Pai CETP	26 metal finishing inits	
2	Lidkar Banglore CETP	5 Tannery	About 0.11 MT/d sludge is stored in a impervious sludge storage yard within CETP premises
	Maharashtra		
1	Dombiveli CETP Phase-I	118 Textile industries	About 100 MT/month sludge is sent to CHWTSDF-Mumbai waste Management Ltd. site at Taloja
2	Dombiveli CETP Phase-II	157 Multiple/mixed industries	About 120 MT/month sludge is sent to CHWTSDF-Mumbai waste Management Ltd. site at Taloja
3	Thane Belapur CETP	480 Dye & Intermediate Drug intermediate, Pharmaceuticals Chemicals(1905 non member)	About 8 MT/d sludge is generated. Sludge is sent to CHWTSDF site at TTC
4	Tarapur CETP	208 Pharma., Chemical, Dye&dye intermediate	About 6 MT/month sludge is sent to CHWTSDF-Mumbai waste Management Ltd. site at Taloja
5	Taloja CETP	780 Pharma & other industries	About 2 MT/d sludge is generated. Sludge is sent to CHWTSDF- Mumbai waste Management Ltd. site at Taloja
6	Ambernath CETP	Chemical and Dyes	About 0.15 MT/d sludge is generated. Sludge is used for land filling.
7	Jaisingpur CETP	Textile, Chemicals, Dairy, Auto parts, Batteries	About 0.3 MT/d sludge is generated. Sludge is used for land filling.
8	Patalganga CETP	Chemical, Textile, Petrochemical	About 10-11 MT/month sludge is sent to CHWTSDF-Mumbai waste Management Ltd. site at Taloja
9	Mahad CETP		
10	Badlapur CETP		
11	Butibari CETP		
	MP		
1	Govindpura CETP, Bhopal	34 Industries	Sludge from UASB is directly discharged into drain
	Punjab		
1	Phillore CETP	28 Tanneries (27 vegetable, 1 chrome)	Sludge is stored within CETP premises
2	Jalandhar CETP	67 tanning and allied industries (39 chrome)	
	Rajasthan		
1	Balotra CETP Unit I	600 Textile dyeing and printing (CETP designed for 319 units)	Sludge is dumped unscientifically within CETP premises. A common secured land fill site is to be developed in 50 hectare land for Balotra, Jasol and Bithuja CETPs
2	Jasol CETP	60 Textile dyeing and printing	Sludge is dumped unscientifically within CETP premises. A common secured land fill site is to be developed in 50 hectare land for Balotra, Jasol and Bithuja CETPs
3	Jodhpur CETP	100 Stainless steel pickling and 150 Textile dyeing and printing	Sludge stored in a pucca pit within CETP premises. A 25 acre land has been identified and EIA study is being carried out for setting secured land fill site.
4	Bhiwadi CETP	55 industries + sewage	No arrangement for disposal of ludge
5	Pali CETP Unit I	473 Textile units+ sewage for Unit I&II	About 300 MT/month sludge generated from the three CETPs at Pali is dumped unscientifically near Puniyata rd.
6	Pali CETP Unit II		About 300 MT/month sludge generated from the three CETPs at Pali is dumped unscientifically near Puniyata rd.
7	Pali CETP Unit III	292 Textile units+ sewage	About 300 MT/month sludge generated from the three CETPs at Pali is dumped unscientifically near Puniyata rd.
8	Machheri CETP, Jaipur	9 Tannery	No arrangements for disposal of sludge
	Tamilnadu		
1	Mannarai CETP, Tirupur	20 Textile	About 4.9 MT/d sludge is stored on ground within CETP premises
2	Kasipalayam CETP, Tirupur	19 Textile	About 2 MT/d sludge is packed in polythene bags and stored within CETP premises
3	Veerapondi CETP, Tirupur	75 Textile	About 10 MT/d sludge is stored on ground within CETP premises
4	Manickapuram CETP, Tirupur	10 Textile	About 1 MT/d sludge is stored on ground within CETP premises

S. No.	CETP	Type of industries	On site storage/ Ultimate disposal of sludge
5	Kunnangalpalayam CETP, Tirupur	18 Textile	About 30 m3/d sludge is packed in polythene bags and stored within CETP premises
6	Andipalayam CETP, Tirupur	21 Textile	About 2.5 MT/d sludge is stored on ground within CETP premises and covered with HDPE sheet
7	Angeripalayam CETP, Tirupur	72 Textile	About 2.5 MT/d sludge is stored on ground within CETP premises and covered with HDPE sheet
8	Chinnakkarai CETP Ltd., Tirupur	31 Textile	About 2.5 MT/d sludge is stored on ground within CETP premises
9	Andakovil CETP, Karur		Sludge is stored within CETP premises
10	KS CETP, Karur		Sludge is stored within CETP premises
11	KKEL CETP, Karur	47 Textile	About 2.7 MT/d sludge is packed in polythene bags and stored within CETP premises
12	Sellandi Palayam CETP, Karur		Sludge is stored within CETP premises
13	Thiruvai CETP, Karur	55 Textile	About 1 MT/d sludge is stored on ground within CETP premises
14	Valandi Dyeing CETP, Karur		Sludge is stored within CETP premises
15	Taluk Dye & Bleaching CETP, Karur		Sludge is stored within CETP premises
16	Amaravathi Poll Tech CETP, karur	44 Textile	About 1 MT/d sludge is stored on ground within CETP premises
17	TALCO Vaniyambadi CETP, Vellore	110 Tannery	About 9 MT/d sludge is disposed in secured landfill within CETP premises
18	TALCO Vaniyambadi, Udayendiram CETP, Vellore	10 Tannery	About 0.2 MT/d sludge is disposed in secured landfill at Valaympet CETP premises
19	TALCO Pernambut CETP	10 Tannery	About 10 MT/d sludge is stored in sludge storage yard in unscientific manner within CETP premises
20	TALCO Ambur Thuthipet CETP, Vellore	34 Tannery	About 3 MT/d sludge is stored in a impervious place within CETP premises
21	Visharam CETP, Melvisharam Vellore	22 Tannery	About 2 MT/d sludge is disposed in secured landfill within CETP premises
22	TALCO Ranipet CETP, Vellore	77 Tannery	About 4 MT/d sludge is disposed in secured landfill within CETP premises
23	Melpudupet CETP, Ambur, Vellore	?	Sludge is dumped in an unscientific manner
24	Ambur Mallgalthope CETP, Vellore	7 Tannery	About 1 MT/d sludge is stored in Thuthipet CETP sludge yard
25	SIDCO Ranipet CETP, Vellore	86 Tannery	About 3 MT/d sludge is stored in sludge storage yard within CETP premises. Sludge is also converted into vermin compost in batches
26	SIDCO phase II CETP Ranipet, Vellore		Sludge is dumped in an unscientific manner
27	TALCO Dindigul CETP	45 Tannery	About 1.5 MT/d sludge is stored in sludge storage yard within CETP premises
28	TALCO Madhavaram CETP, Chennai	14 Tannery	About 0.35MT/d sludge is stored within CETP premises
29	Pallavaram CETP, Chennai	125 Tannery	About 10 MT/d sludge is stored in sludge storage yard within CETP premises
	UP		
1	Kanpur CETP	354 Tanneries	Sludge is disposed on land by Kanpur Nagar Nigam
2	Unnao CETP	21 Tanneries	Sludge is stored within CETP premises
3	Mathura CETP	30 Textile dyeing and printing	Sludge is stored within CETP premises
	West Bengal		
1	Calcutta Leather Complex CETP	About 540-550 tanneries processing 1000 MT hides to be shifted to Calcutta Leather Complex	Temporary sludge storage facility for 5000 to 6000 MT is under construction within CETP premises. A secured land fill site is proposed to be developed in 51 acre land

Table 6 List of proposed CETPs

S. No	CETP site	Cap. MLD	Capital cost, lac	Construction stage	Type and number of industries
	AP				
1	Enumamula				
2	Jammapur				
	Delhi				
1	Najafgarh Road I.E.	9.6			
2	Naraina I.E.	21.6			
	Gujrat				
1	Kadodar, Palsana	100	477.84	Under construction	Textiles
	Haryana				
1	Kundli-2	4+2+3		4 MLD under construction	
2	Jind				
	Himachal Pradesh				
1	Barotiwala I.E.				
2	Parwanoo I.E.				
3	Melatpur				
4	Kala Amb				
	Maharashtra				
1	Lote Parshuram	6		Primary under construction	42 Pesticides, Dye & Dye intermediate, Paint, Petrochemical
2	Roha			Under construction	13
3	Dombivili-3				200
4	Tarapur-2	25		Prim.-Oct 05, Sec.-Dec 05	915
5	Kherana, Navi Mumbai				
6	Chikhloli Morivili, Ambernath	0.8	130		Bulk drugs & int-71, Textiles-2, Dyes & dye intermediate-2
	M.P.				
1	Gwalior				74
2	Raipur				74
	Punjab				
1	Ludhiana-1				
2	Ludhiana-2				
3	Ludhiana-3				
4	Amritsar				
	Rajasthan				
1	Balotra Unit II	12.00		Under construction	600 Dyeing and printing
2	Bithuja	30.00		Under construction	161 Textile mercerizing& bleaching
3	Sumerpur				
	Tamilnadu				
1	Chettithangal		139		11
2	Eruguthimallnedu		154		10
3	Perumalpet		552		50
4	Puddur		142		9
5	Mitta		259		19
6	Standard Effluent		245		21
7	Erode-1		1025		77
8	Erode-2		102		211
9	Erode-3		400		191
10	Karur-1		172		49
11	Karur-2		214		49
12	Karur-3		143		58
13	Karur-4		177		62
14	Karur-5		168		80
15	Karur-6		225		135
16	Kodaikanal		103		93
17	Chennimalai		98		81
18	Kumarapalyam		100		120
19	Anaipalayam		543		57
20	Mangalam		408		42
21	Kulathupalyam		553		62

S. No	CETP site	Cap. MLD	Capital cost, lac	Construction stage	Type and number of industries
22	Muruganpalyam		525		53
23	Kasipalyam		500		86
24	Cuddalore		411		28
25	Ambur		165		18
	UP				
1	Raipur, Rania, Kanpur	6	364		Ed.oil refineries, Textiles, Steel, Chemicals, Paper, Tanneries(80)
	West Bengal				
1	Calcutta Leather Complex CETP	6 units of 5 MLD each		2 -U/C(adv. stage) 2-U/C(work started)	About 550 tanneries processing 1000 MT hides to be shifted to the Complex
2	Kalaidanga		6000		600
3	Behala				
4	Kasba				