

## INDUSTRIAL POLLUTION CONTROL

### Performance Study of CETPs in North Zone

Performance evaluation of CETPs at Kanpur, Unnao, Banthar, and Kundli (Sonipat) have been undertaken. The observed treatment efficiencies of the plants during the performance evaluation viz-a-viz the design treatment efficiencies are depicted below:

#### Observed Treatment Efficiencies viz-a-viz Design Treatment Efficiencies of CETPs

CETP	Parameter	Observed treatment efficiency, %	Designed treatment efficiency, %
BANTHAR	BOD	96	98
	COD	86	94
	T-Cr	99	96
KANPUR	BOD	61	81.93
	COD	40	83.62
	T-Cr	90	93.33
UNNAO	BOD	92	98
	COD	89	94
	T-Cr	99	99.5
KUNDLI	BOD	96	91
	COD	91	68

#### CETP Banthar:

The Common Effluent Treatment Plant 4.5 MLD capacity has been established and is currently under stabilization . Out of 43 tannery units proposed to be established in the Leather Technology Park project, only 5 units are established and have resumed operations. The provision of 1.7 km pucca drain for conveyance of treated wastewater from CETP to Jail drain has been completed The CETP management has initiated development of hazardous waste storage / disposal facility (TSDF) in an identified area of 2.0 acre.

**CETP Kanpur:** The plant is operational on 75% hydraulic capacity.

#### CETP Unnao:

The plant been in regular operation, yet the performance need further improvement. The overall treatment economics of the plant has been good. The plant management has provided storage provision for hazardous waste from CETP.

## CETP Kundli:

The wastewater received at CETP is merely pumped untreated, to Drain No. VI joining River Yamuna. The main water polluting industries, backed-out from sending their wastewater for treatment at the CETP although these units have yet to establish their ETP. The CETP has ultimately resulted into a Sewage Treatment Plant as it caters to treatment of sewage collected from the Industrial Area through CETP conveyance network. A new CETP having three modular units of 4MLD, 2 MLD and 3 MLD is under construction adjacent to Drain No. VIII at Kundli. This shall cater to treatment of wastewater from all the industries in Kundli Industrial Area. The civil work of first module of 4 MLD CETP is almost complete.

## Performance Study of CETPs in Madhya Pradesh and Rajasthan

CETPs in Rajasthan State are located at Pali, Bhiwadi, Jaipur, Jodhpur, Balotra and Jasol. In MP, one CETP is located at Govindpura, Bhopal. The performance evaluation of all the working CETPs has been undertaken except the CETP at Jaipur. The observation are as below:

### CETPs at Pali (Rajasthan)

Pali city, located on the bank of river Bandi, has many clusters of small-scale textile processing units. Three Common Effluent Treatment Plants (CETPs) have come up in the area. The fourth CETP has been under planning. The details of CETP and the area served by them are given below.

Unit No.	Location	Designed capacity	Number of unit covered	Observed flow	Status
CETP- I	Mandiya Road	5200m <sup>3</sup> /day	400 units	* 516m <sup>3</sup> /hrs.	In operation
CETP- II	Mandiya Road	8400m <sup>3</sup> /day			In operation
CETP - III	Punayta Road	9080m <sup>3</sup> /day	City sewage, Mahaveer Nagar and Bus Stand Area units	246m <sup>3</sup> /hrs	In operation
CETP- IV	Punayta Road	9000m <sup>3</sup> /day	100 units (after shifting)	-	Planning stage

\*During peak hours the CETP officials observed the maximum flow as 803 m<sup>3</sup>/hrs.

NEERI has designed and commissioned the three Common Effluent Treatment Plants at Pali to treat the wastewater from the textile units and city. The designed pollution intake load and the hydraulic load have undergone considerable changes in the last five years. This resulted into reducing the treatment efficiency of the CETP Units. The total installed capacity of three CETP Units is 23 MLD. The sewage and industrial effluent generated in the city was estimated as 25 MLD. 20% to 30% of the effluent generated in Pali city is discharged directly in the river Bandi without any treatment.

Collection and conveyance of wastewater continues to be poor. In the Industrial Area the drains are not cleaned regularly thus creating choking problem. The stagnated nullahs and kuchha drains leading to the CETPs carry large quantities of wastewater. Similarly closed pipelines and collection network is required for the wastewater generated from the industrial units located in the unconfirmed areas – Sumerpur Road, Bजारंग Bari, etc. The present practice of letting the wastewater directly into the river by the units located on other side of the CETP may be discontinued immediately. Transport tankers may be deployed to transport the wastewater from these units, till a permanent arrangement is made. In spite of large investment undertaken for the establishment of CETP Units in Pali the water quality of river Bandi has not improved. Over-flowing Kutcha drains and the solid waste has affected the city adversely. Due to non-availability of desired dilution in the river, even the treated wastewater will be enough to deteriorate the river quality. Trust formed to look after the CETP activities may ensure for proper collection and conveyance, desired treatment and prescribed storage and disposal.

For evaluating the performance of CETPs composite sampling was done for 24 hours. Grab samples were also collected. The results of the analysis report of the composite and grab samples collected from the CETPs and river water samples collected at 2 KM and 5 KM d/s from the CETPs are given below.

#### **Samples Collected from River Bandi at d/s of CETPs Discharge**

<b>Location detail</b>	<b>pH</b>	<b>COD</b>	<b>BOD</b>	<b>TSS</b>	<b>TDS</b>
River Bandi d/s Unit-I & II discharge	9.33	1080	305	704	6552
River Bandi 2 KM d/s from CETPs I&II	8.42	739	248	372	6456
River Bandi 5 Km. d/s from CETPs I&II	8.60	893	274	516	5448

Note: All the values are given in mg/l except pH

#### **Performance Evaluation of 5.2 MLD CETP-I at Pali (February 2006)**

<b>Location detail</b>	<b>pH</b>	<b>COD</b>	<b>BOD</b>	<b>TSS</b>	<b>TDS</b>
<u>Composite samples</u>					
Unit- 1 & 2, Influent	9.23	1073	333	1020	7976

Unit- 1, Equalization tank o/l	8.63	866	245	580	8012
Unit- 1, Primary clarifier o/l	8.39	667	212	220	8356
Unit- 1, Final outlet	8.53	245	63	236	8080
<u>Grab samples</u>					
Unit- 1 & 2, Influent	9.59	1341	371	1064	7844
Unit- 1, Equalization tank o/l	9.36	1226	353	988	8124
Unit- 1, Primary clarifier o/l	9.02	843	258	336	8308
Unit- 1, Final outlet	8.31	337	95	284	8076

#### **Performance Evaluation of 8.4 MLD CETP-II at Pali (February 2006)**

<b>Location detail</b>	<b>pH</b>	<b>COD</b>	<b>BOD</b>	<b>TSS</b>	<b>TDS</b>
Unit- 2, Flash mixer o/l	8.56	1011	287	884	8284
Unit- 2, Primary clarifier o/l	8.94	690	223	408	8404
Unit- 2, Final outlet	8.32	529	137	464	8104

#### **Performance Evaluation of 9.08 MLD CETP-III at Pali (February 2006)**

<b>Location detail</b>	<b>pH</b>	<b>COD</b>	<b>BOD</b>	<b>TSS</b>	<b>TDS</b>
Composite samples					
Unit- 3, Influent	7.61	912	363	556	4476
Unit- 3, Flash mixer o/l	7.71	1111	373	632	4276
Unit- 3, Primary clarifier o/l	7.68	735	281	288	4228
Unit- 3, Final outlet	7.97	506	168	260	4136
<u>Grab samples</u>					
Unit- 3, Influent	8.55	1011	378	596	4036
Unit- 3, Flash mixer o/l	8.18	1088	351	648	4264
Unit- 3, Primary clarifier o/l	8.10	827	262	264	4312
Unit- 3, Final outlet	7.95	509	150	288	3428
Unit- 3, Influent	8.55	1011	378	596	4036

- More than 30 % of the effluents have been bypassed at Unit-I and Unit-II
- The overall reduction in with respect of COD, BOD and TSS were found as 77%, 80% and 75% respectively on full load capacity in CETP Unit-I
- The overall removal efficiencies with respect of COD, BOD and TSS have been found as 52%, 59% and 56% respectively with 80% load capacity in CETP Unit-II

- The overall removal efficiencies of COD, BOD and TSS have been found as 50%, 59% and 59% respectively when operated with 62% capacity in CETP Unit-III

### CETP Govindpura, Bhopal

The industries in Govindpura Bhopal have established the agency Govindpura Audhyogik Kshetra Pradushan Nivaran Pvt. Ltd. (GAKPNPL), which has installed the Common Effluent Treatment Plant (CETP) for treating combined industrial wastewater from Govindpura Industrial Area. Designed capacity of CETP was 900 m<sup>3</sup>/day. The designed removal efficiency of COD and BOD is 89% and 95% respectively. The treatment system consists of equalization tank, holding tanks, buffer tank, Up flow anaerobic sludge blanket (UASB) and flash aeration. Initially the CETP was planned for treating 900M3/Day with UASB followed by aeration and secondary settling. Due to close down of some units the aeration and secondary settling was not provided. Only UASB followed by flash aeration has been provided which is not sufficient to meet the limits prescribed by MPPCB.

The TSS, COD and BOD removal efficiency was found as 89%, 90% and 95%. It was observed that the CETP was being operated daytime only, due to insufficient flow. The effluent discharge standards are not complied even on operation of CETP at 50% capacity of design flow. It has been observed that flaring of gas was not done regularly. No arrangement was made to measure the quantity of gas generated. Records are not being maintained for chemical usage and sludge generation and disposal. No sludge drying beds have been constructed.

The overall removal of COD, BOD and TSS has been found 70% 89% and 24%, respectively. The pH of inlet and outlet was observed as 6.59 and 7.89. There was no reduction in respect to TSS. Only 24% removal was observed.

### Performance Evaluation of CETP, Govindpura, Bhopal (MP)

Location detail	24-25 November2004				27-28 March2006				11-12 December2006			
	pH	TSS	COD	BOD	pH	TSS	COD	BOD	pH	TSS	COD	BOD
In let (Effluent from M/s. Lila sons breweries)	-	-	-	-	6.63	1330	2112	1200	6.08	626	975	382
Buffer tank inlet	6.94	742	1352	1423	6.18	1410	1947	1071	6.59	572	1219	482
UASB Inlet	7.14	521	796	948	6.62	1290	1468	786	6.87	676	1016	308
UASB Outlet	7.39	38	108	134	7.38	128	142	38	7.27	608	406	78
Aeration tank outlet (Final outlet)	7.84	173	1676	450	7.63	162	195	52	7.89	472	289	89
% Removal Efficiency	-	77	-	68	-	89	90	95	-	24	70	89

### **CETP at Jasol (Rajasthan)**

The industries in Jasol area are predominantly cotton textile processing units comprising mercerizing, dyeing, printing and finishing. In addition, four synthetic textile-processing units have come up in the area recently. Presently 87 industries are in operation for which CETP has installed capacity of 2.5 MLD.

### **Performance Evaluation of CETP Jasol, Rajasthan**

Location	GRAB SAMPLE					COMPOSITE SAMPLE				
	p	TD	TS	CO	BO	pH	TSS	TDS	CO	BOD
Inlet of CETP	6.	221	108	113	363	8.04	103	203	107	359
O/L of Equalization tank	7.	208	855	104	321	8.08	720	210	889	273
O/L of Flash Mixture	9.	217	139	109	334	9.32	126	216	932	274
O/L of Primary Clarifier	8.	240	252	416	116	8.99	216	228	374	104
O/L of Secondary Clarifier	7.	242	108	244	46	8.25	81	243	230	45
Final O/L	7.	229	99		39		68	189	220	38
Removal %	--		90.	79.	89.2		93.4		79.5	89.4

All values are in mg/l except Electrical conductivity ( E.C.)

### **CETPs at Balotra (Rajasthan)**

The industrial complexes and auxiliary units in Rajasthan State are undertaken by RIICO. The industrial estate developed by RIICO at Balotra has been demarcated in three phases. All these phases have approx. 425 industrial units. Majority of the industries are cotton textile processing units comprising mainly of dyeing and printing works. The units are carrying out one or the various unit operations involved in dyeing and printing works. There exist around 425 homogeneous industrial units in Balotra RIICO industrial Area. In addition to these industrial units at Balotra, there exist 161 wells in a nearby village Bithuja, 10 Kms west of Balotra City. At these wells, mercerizing and washing operations are carried out on large scale. Bithuja is mainly a washing centre for Balotra textile industry. This leads to the generation of large quantity of wash water, which is polluting in nature.

Balotra Water Pollution Control & Research Foundation Trust was established during September 1995 for the purpose of construction, operate and to maintain common effluent treatment plant in the territorial jurisdiction of Balotra Municipal

Board. Another CETP of 12 MLD for future load has been constructed in the same premise. The Total cost of construction is Rs. 6.97 crores. Due to change in the process of the industrial units the quality and quantity of wastewater has been changed. The wastewater now a day carrying the Oil & Grease so the trust has started to construct an additional unit to treat the Oil & Grease. The performance evaluation of the CETP (two plants) has been undertaken.

### Performance Evaluation of 6 MLD CETP Balotra, Rajasthan

LOCATION	GRAB SAMPLE					COMPOSITE SAMPLE				
	pH	TDS	TSS	COD	BOD	pH	TSS	TSS	COD	BOD
Inlet of CETP	6.45	29450	1350	1163	403	8.53	1600	27300	1418	454
O/L of equal. tank	7.15	30150	1250	1020	326	8.39	1300	30850	1243	381
O/L of Primary Clarifier	8.72	33650	280	414	127	9.59	260	32220	430	126
O/L of secondary Clarifier	7.96	31070	130	255	44	8.31	120	31670	303	48
Removal %	--		90.37	78.07	89.08	-	92.5		78.63	89.42

All values are in mg/l except electrical conductivity (E.C.)

### Performance Evaluation of the 12 MLD CETP Balotra, Rajasthan

LOCATION	GRAB SAMPLE					COMPOSITE SAMPLE				
	pH	TDS	TSS	COD	BOD	pH	TSS	TDS	COD	BOD
Inlet of CETP	8.79	28850	1650	1243	431	9.01	1750	29050	1498	479
O/L of equal. tank	8.94	31050	1500	1179	393	9.12	1600	28050	1355	415
O/L of Primary Clarifier	9.49	30160	320	622	199	7.39	360	31360	653	209
O/L of Secondary Clarifier	8.17	29450	130	414	83	7.29	140	30720	510	102

Clarifier										
Removal %	--		92.12	66.6	80		92		65.95	78.70

All values are in mg/l except electrical conductivity ( E.C.)

For construction of new CETP the Govt. of India has released Rs.17.5 crores under TCIDS scheme while TERI has been appointed as consultant.

### **CETP, Bhiwadi (Rajasthan)**

The CETP Bhiwadi was designed by SPANS Envirotech Pvt. Ltd., New Delhi and constructed jointly by GSJ Envo Ltd., New Delhi & Migarani Envirotech Engineers Ltd., New Delhi. The existing ETP structure was revamped for 7.5 MLD capacity (including 20 % overloading). It was designed for 60 % of load from industrial sector and 40 % from domestic sector.

The treatment units installed were Primary Treatment Units Inlet Chamber Coarse Bar Screen Parshall Flume Fat Oil & Grease Separator Secondary Treatment Units Aeration Tank with Surface aerators Secondary Clarifier Sludge Treatment Sludge Thickener Filter Press. The designed outlet concentrations were pH: 5.5 to 9.0; BOD<100mg/l; and TSS<200 mg/l. These standards are generally applicable for the discharge of effluent for land irrigation. However, the treated effluent is being discharged to surface water bodies, including river Sabi.

The flow at CETP inlet chamber was observed in the range of 3 to 4 MLD, average flow was 3.57 MLD. The RIICO officials informed that due to controversy on disposal of effluent at Haryana border, most of wastewater was stopped before entering the CETP. The effluent was being diverted and stored in kutch lagoons. The CETP was found under-loaded during the study period.

It has been observed that the plant is not operated regularly and satisfactorily due to negligence and improper handling of the treatment. The sludge cleared from the clarifier tank was found spread everywhere in the premises. 82 KVA capacity DG set provided at CETP could not take entire load of running the aeration tanks and pumping the treated effluent. The plant was generally shut down during the power shedding, which affects the functioning of the CETP.

There were two treated water sump wells after clarifier. From first sump well one outlet was opened to the drain adjacent to the CETP that travelled towards Daruheda and second was an underground pipeline disposing treated water in 'Mattila Nallah', about 5 km away from CETP on Alwar Road. The treated water in the second sump well was also disposed through the underground pipeline to 'Mattila Nallah'. The treated or partially treated wastewater finally join the 'Sabi River.'



The drain adjacent to the CETP, in which most of the wastewater of Bhiwadi discharged, was not a pucca channel till the effluent reached Sabi River. The wastewater formed many pools and flow was continued beyond the State border. CETP sludge was categorized as hazardous and careful handling was expected from the CETP operators.

#### **Performance Evaluation of CETP, Bhiwadi (November 2006)**

<b>Location</b>	<b>Type</b>	<b>pH</b>	<b>TDS</b>	<b>TSS</b>	<b>COD</b>	<b>BOD</b>	<b>Cl</b>	<b>SO<sub>4</sub></b>
CETP inlet	Grab-1	8.42	2700	164	644	144	865	1678
CETP outlet	Grab-1	6.79	2956	148	482	83	915	1703
Disposed effluent	Grab-1	6.36	3408	320	474	100	1090	1756
A.T. Inlet	Composite	7.61	2368	352	449	123	755	1421
Clarifier outlet	Composite	7.55	2948	140	555	110	945	1442
CETP outlet	Composite	7.50	2988	116	550	100	880	1578
CETP inlet	Grab-2	7.24	1480	88	267	65	510	787
CETP outlet	Grab-2	7.23	2692	112	478	92	910	1398
Disposed effluent	Grab-2	7.50	2788	160	542	109	865	1435

Note: All values are in mg/l, except pH

#### **Performance studies of CETPs in Gujarat & Maharashtra**

In Gujarat, there are 19 CETPs and in Maharashtra 22 CETPs are located in various industrial estates for treatment of liquid effluent generated from the various industrial sectors. The Central Pollution Control Board West Zonal Office has undertaken the monitoring of 09 CETPs at Vapi, Ankleshwar, Naroda, Vatva, Odhav, Panoli, Veraval in Gujarat. Significant deviation from the designed influent quality was observed leading to unsatisfactory performance. In most of the cases, there is no separate collection system for storm water which causes disruption of CETP operation in monsoon season. Almost all CETPs have been found non-compliant to prescribed norms, especially with respect to COD and NH<sub>3</sub>-N. CETPs for chemical industries receive wastewaters having low BOD/COD ratio and high TDS which are less amenable to biological treatment. For this reason several CETPs have started taking domestic sewage to improve amenability to biological treatment.

**Performance Evaluation of CETP, Veraval (April 2006)**

Sample	pH	TSS	TDS	COD	BOD	SO <sub>4</sub> <sup>-2</sup>	NH <sub>3</sub> -N	TKN
Inlet	6.5	797	14664	3618	2830	--	224	476
Outlet	7.1	589	13501	575	188	729	47	85
Reduction (%)	--	26	8	85	93	--	79	82

**Performance Evaluation of Ankleshwar (June 2006)**

Sample	pH	TSS	TDS	COD	BOD	SO <sub>4</sub> <sup>-</sup>	NH <sub>3</sub> -N	TKN
Outlet of CETP, Ankleshwar, GIDC	7.4	221	20801	2268	360	3669	386	456
Discharge of GIDC, Panoli	7.7	240	13550	1728	188	4106	1350	1414
Outlet of CETP, Panoli	7.4	194	31341	4104	820	4336	1134	1190

**Performance Evaluation of Panoli (November 2006)**

Sample	pH	TSS	TDS	COD	BOD	NH <sub>3</sub> -N
Inlet to FETP, Panoli,	7.4	772	21804	9120	1440	1918
Outlet of FETP, Panoli	7.4	282	23658	7520	1091	1649
Reduction (%)	--	63	--	17	24	14

**Performance Evaluation of CETP Vapi (October 2006)**

Sample	pH	TSS	TDS	COD	BOD	Phenols	NH <sub>3</sub> -N	TKN
Inlet	5.9	712	5908	3111	1340	11.8	142	207
Equalization Tank	5.5	456	6044	1757	520	--	161	190
O/L of pri.set. tank	5.1	176	6568	1261	410	--	162	207
Final outlet	6.3	164	7700	1042	240	5.8	239	--
Reduction (%)	--	77	--	67	84	51	--	--

**Performance Evaluation of CETP Vapi (October 2006)**

Sample	pH	TSS	TDS	COD	BOD	Phenols	NH <sub>3</sub> -N	TKN
Inlet	6.0	1260	8946	3070	876	10.5	235	336
Equalization Tank	6.6	884	7760	3434	865	--	165	213
O/L of pri. set. tank	6.2	216	6454	1406	384	--	148	230
Final outlet	6.5	2040	7428	3394	910	6.4	185	269

Reduction %(inlet/outlet)	--	--	--	--	--	40	21	20
------------------------------	----	----	----	----	----	----	----	----

#### Performance Evaluation of CETP Vatva, Ahmedabad (July 2006)

Sample	pH	TSS	TDS	COD	BOD	SO <sub>4</sub> <sup>-2</sup>	NH <sub>3</sub> -N	TKN
Inlet	6.7	2320	26612	5174	1890	5532	129	157
Outlet	7.6	102	12335	370	130	3876	67	84
Reduction %	--	95	54	93	93	30	48	46

#### Performance Evaluation of CETP Naroda, Ahmedabad (July 2006)

Sample	pH	TSS	TDS	COD	BOD	SO <sub>4</sub> <sup>-2</sup>	NH <sub>3</sub> -N	TKN
Inlet	6.9	1615	22978	4118	1125	2070	34	45
Outlet	7.2	270	23864	2746	367	2634	34	87
Reduction (%)	--	83	--	33	67	--	--	--

#### Performance Evaluation of CETP Odhav (July 2006)

Sample	pH	TSS	TDS	COD	BOD	SO <sub>4</sub> <sup>-2</sup>	NH <sub>3</sub> -N	TKN
Inlet	7.2	212	10852	832	196	3266	34	52
Outlet	7.1	86	11864	766	133	3174	5.6	29
Reduction %	--	59	--	08	32	03	84	44

#### Performance Evaluation of GVMSAV, Odhav (July 2006)

Sample	pH	TSS	TDS	COD	BOD	SO <sub>4</sub> <sup>-2</sup>	NH <sub>3</sub> -N	TKN
Inlet	3.3	620	11964	2281	768	2634	95	118
Outlet	7.3	50	4424	216	40	1116	104	123
Reduction %	--	82	63	90	95	58	--	--

### Charter on Corporate Responsibility for Environmental Protection (CREP) for Integrated Iron & Steel Industries

A National Task Force for the implementation of agreed action plan for CREP was constituted. Meetings of the National Task Force on Steel Industry have been held periodically to discuss the implementation of Environmental Standards in Steel industry and CREP action points specifically the implementation of standards in coke oven plants.

## **Charter on Corporate Responsibility for Environmental Protection (CREP) for Thermal Power Plants**

Task Force (TF) for implementation of recommendations of the Charter on Corporate Responsibility for Environment Protection in thermal power plants was constituted. The Task Force met twice in the year. Task Force reviewed the status of non compliant power plants and decided that these plants shall prepare an action plan for installation/augmentation pollution control systems in time bound manner as per recommendation of CREP.

### ***Implementation of Standards in Thermal Power Plants***

There are 83 coal based thermal power plants of which 5 plants are closed. 56 thermal power plants comply with emission standards while 22 plants are yet to comply with the emission standards. 63 plants comply with liquid effluent standards while 15 plants are yet to comply with the effluent standards.

### ***Use of Beneficiated / Blended Coal***

The implementation of Gazette Notification (GSR 560(E) & 378(E), dated September 19, 1997 and June 30, 1998 respectively) on use of beneficiated / blended coal containing ash not more than 34 percent (annual average) w.e.f. June 2001(extended to June 2002 vide notification no GSR 407 ( E) dated May 31<sup>st</sup>, 2001) by 35 identified coal based thermal power plants are being constantly monitored by Central Electricity Authority (CEA).

### ***Non-Coking Coal Washeries***

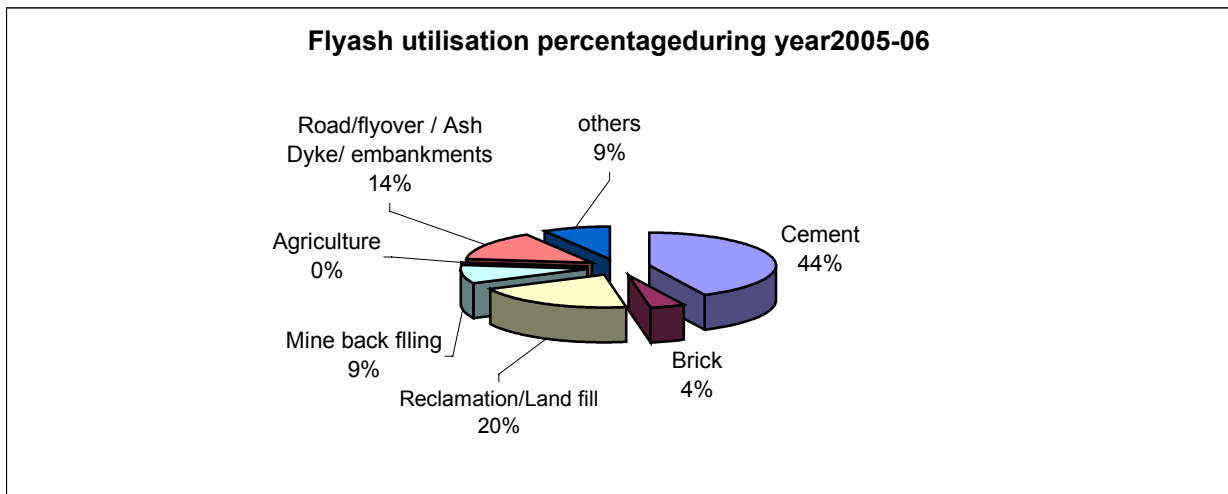
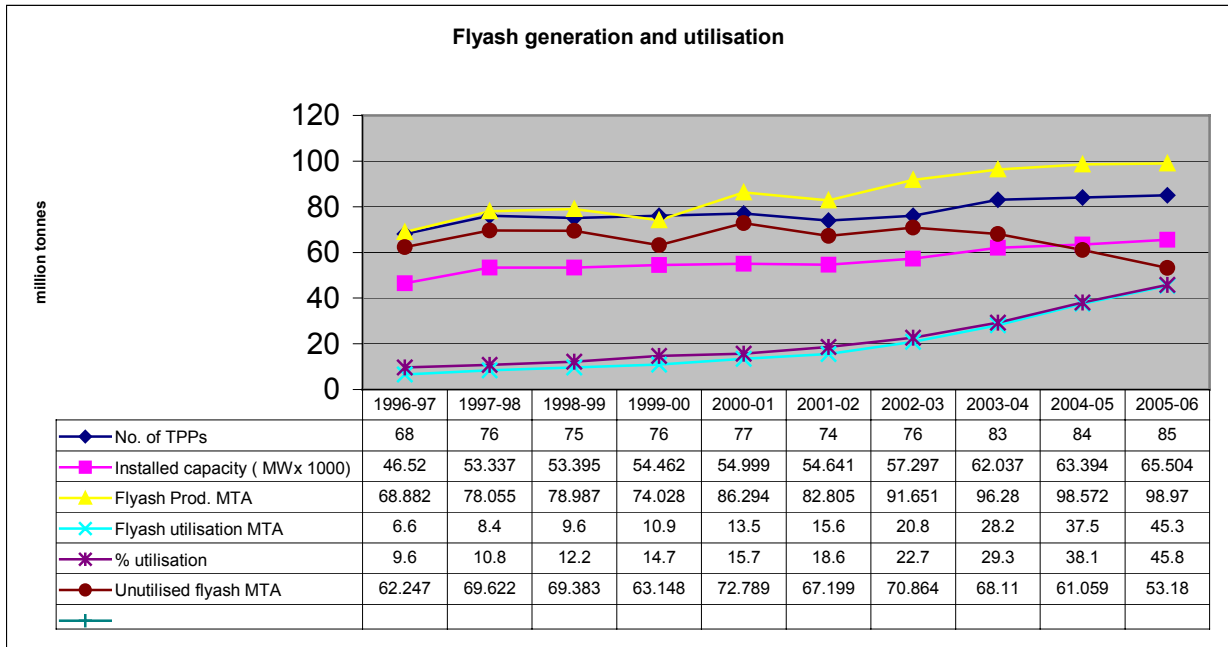
During the year 2005-06, Coal India Limited (CIL) and SCCL supplied 282.185 million tonnes of coal to thermal power plants. In addition, about 10.443 million tonnes of coal was imported by thermal power plants. Total capacity of non-coking coal washing in the country is 70.35 million tones per annum. Of which CIL has capacity of 20.2 million tones per annum with seven operating washeries and private operators have capacity of 50.15 million tones per annum.

Thermal Power Plants identified for the use of beneficiated coal are given quarterly linkage of raw coal and washed coal in some cases, from various different sources. At present, the availability of washed coal is inadequate to ensure constant supply of washed/blended coal to all the 35 thermal power plants and therefore, raw coal of appropriate grade is linked for blending.

### ***Utilization of Fly Ash***

During 2005-06, 282 million tonnes of coal and 21.5 million tonnes of lignite were consumed in thermal power sector. About, 100 million tonnes of ash was generated, of which 46 percent was utilised. Fly ash generation and utilisation

since 1996-97 is presented below:



Out of 78 thermal power plants of utilities, 17 thermal power plants utilised more than 100 percent of ash, while flyash utilisation was between 50 to 100 percent in 22 plants. Thirty-nine plants could not meet the target because of their location, non-availability of dry storage facility and lack of specifications with State PWDs, Highway authority and other related agencies.

**Committee on Management of Silt at BSL Project of Bhakra Beas Management Board**

A Committee constituted under the Chairmanship of Sh. Paritosh C. Tyagi, Former Chairman of CPCB recommended that interim measure “discharging of silt through Suketi Khad to River Beas” should be continued for another 3 to 5 years and problems, if any, arising should be addressed to make this interim measure as a long-term measure. In the Final Report, the Expert Committee suggested an action plan for management of silt disposal from Balancing Reservoir during monsoon 2005. The Expert Committee submitted its Final Report to the Hon’ble High Court of HP, Shimla on May 05, 2005, which was accepted by the Hon’ble Court on 26.09.05.

Hon’ble Court in its order dated June 06, 2006 directed that dredging operations during the monsoon 2006 and thereafter in monsoons of succeeding years shall continue to be monitored by the Expert Committee to monitor as hereto before. The Hon’ble court in the *ibid* orders directed the Govt. of Himachal Pradesh to furnish to the petitioner and also to the Expert Committee the copies of the Catchment Area Treatment (CAT) Plan prepared for the area between Pandoh Dam and Largi but even upstream from Largi and even with respect to tributaries and small nallahs/khads.

To monitor the implementation of action plan during the year 2006, the Expert Committee visited the BSL Project twice i.e. before monsoon (dated 29 & 30<sup>th</sup> June 2006) and after monsoon( on 10<sup>th</sup> & 11<sup>th</sup> Oct 2006). The Expert Committee visited various discharge sites in the Suketi Khad area and held detailed discussions. Based on the field observations and monitoring during the year 2006, Expert Committee made various suggestions to the Bhakhra Beas Management Board (BBMB).

### **Model Air Pollution Control System for Steel Induction Furnace**

In Kanjikode Industrial Area of Palakkad District, Kerala many iron scrap recycling units are in operation without adequate air pollution control devices. To control the air pollution problem in this area, the Kerala Pollution Control Board constituted an expert committee including the Central Pollution Control Board Zonal Officer, Bangalore for studying and suggesting pollution control measures for such units so that the suggested scheme can be employed and studied in one unit and, if found successful, can be implemented by other similar units. The expert committee suggested to M/s Paragon Steel Pvt. Ltd. (Unit-II) to install pulsejet bag filter (secondary), wet scrubbers, enhancement of suction capacity, installation of secondary hoods systems, construction of underground tanks to store / recycle the scrubber wastewater and creation of green belt. On implementation of the above suggestions, the CPCB team carried out performance evaluation of the air pollution control devices installed.

### **Environment Surveillance Squad (ESS) Activities**

***Directions under Section 5 of the Environment (Protection) Act, 1986***

CPCB carried out inspection of four tanneries located in Sonapat during January 2006, to investigate possible sources of pollution affecting the water quality of river Yamuna at Wazirabad water works in Delhi. Based on the inspection observations, Show Cause Notices, under Section 5 of the Environment (Protection) Act, 1986, were issued to these industries for not complying with the standards and 15 days time period was given to the industries for replying to the notices. The responses received from the industry and action taken by CPCB are presented below:

Industry	Response from the Industry	Actions Taken
M/s Galaxy Leathers, Sonapat	The industry did not send any response.	CPCB confirmed the Directions. Thereafter, HSPCB sealed this unit during August 2006.
M/s Indian Leathers, Sonapat	The industry informed that modification of the ETP is under progress and requested CPCB to re-examine after 2 months.	A team from CPCB revisited the industry on September 19, 2006 and collected wastewater samples. Inspection report has been forwarded to Haryana State Pollution Control Board for necessary action.
M/s Bharat Leathers Manufacturers, Sonapat	The industry has informed that corrective measures have been taken and requested CPCB for re-sampling.	A team from CPCB revisited the industry on September 19, 2006 and collected wastewater samples. Inspection report has been forwarded to Haryana State Pollution Control Board for necessary action.
M/s Kiran Overseas Exports Ltd., Sonapat	The industry informed that they have approached NPC for performance evaluation & adequacy run of ETP and the same report would be forwarded to CPCB.	A team from CPCB revisited the industry on September 19, 2006 and collected wastewater samples. Inspection report has been forwarded to Haryana State Pollution Control Board for necessary action.

**Directions under Section 5 & Section 18(1)(b)**

A total of 37 Directions have been issued during the period April – December 2006, of which 35 under Section 5 and two are under Section 18(1)(b). 28 Directions are for Closure of industry and seven Directions are for improvement in the industry's process.

## Industries inspection under Environment Surveillance Squad (ESS)

A comprehensive programme for conducting surprise inspection of the polluting industries had been initiated in December 1999. 50 polluting industries were visited in various States/UTs by CPCB teams during April-December 2006. Sector wise distribution of industries visited by CPCB Zonal Offices during April - December 2006 is presented below:

### Summary Status of ESS Inspection Carried Out by CPCB Offices (April-December, 2006)

Industrial Sector	CPCB Bhopal	CPCB Bangalore	CPCB Shillong	CPCB Vadodara	CPCB Kolkata	CPCB Lucknow	TOTAL
Bottling Plant						1	1
Cement	2						2
Chemicals				1			1
Chlor- Alkali		1		3	1		5
Distillery	1	2		1	1	2	7
Dye& Dye Intermediates				4			4
Ferro Chrome					1		1
Fertilizers		1					1
Iron & Steel	1				2		3
Mining			1				1
Pesticides				1		1	2
Petrochemicals		2					2
Pharmaceuticals				2	1		3
Pulp & Paper					1	1	2
Refinery		1					1
Tannery						1	1
Thermal Power Plant	1	2		4	6		13
<b>TOTAL</b>	<b>5</b>	<b>9</b>	<b>1</b>	<b>16</b>	<b>13</b>	<b>6</b>	<b>50</b>

Of the 50 industries inspected by SPCB, 33 industries were major defaulters, 16 were minor defaulters while eleven industries was found complying with the norms. The visit reports have been forwarded to SPCBs / PCCs for implementation of the findings and the action against the units has also been taken directly by CPCB wherever necessary. However, intensive surveillance is required at the State/UT level itself to ensure proper operation and maintenance of the pollution control systems by the industries.



## Joint inspection of Industries by CPCB & MoEF

CPCB Zonal Offices and MoEF jointly inspected a total of 54 industries for monitoring of compliance of Environment Clearance conditions during 2005-06. The sector wise distribution of industries jointly inspected by CPCB Zonal Offices and MoEF is given below:

### Summary Status of Joint Inspections Carried Out by CPCB Offices & MoEF (April – December, 2006)

Industrial Sector	CPCB Bangalore	CPCB Bhopal	CPCB Lucknow	CPCB Shillong	CPCB Kolkata	CPCB Vadodara	CPCB Agra	TOTAL
Aluminum					1			1
Asbestos			1					1
Cement		2						2
Chlor- Alkali				1				1
Distillery			10					10
Electroplating					1			1
Fertilizer		1	1					2
Foundry					7			7
Iron & Steel					2			2
Paints			2					2
Pharmaceuticals			3					3
Pulp & Paper			1					1
Refinery						1	1	2
Tannery			1					1
Thermal Power Plant		4	3	5	3	2	1	18
<b>TOTAL</b>	<b>0</b>	<b>7</b>	<b>22</b>	<b>6</b>	<b>14</b>	<b>3</b>	<b>2</b>	<b>54</b>

Out of the 54 industries inspected jointly during 2005- 2006, 25 industries were major defaulters while 24 industries were minor defaulters. Three industries were closed and only two industries were found complying with all the norms and one industry was not found operational during the visit