

1. INVENTORIES OF INDUSTRIAL ESTATES (listed by type of estate)

In province: HaNoi-HaTay

IE	Name of Industrial estate	Address	Industrial park, export processing zone, industrial	Area (ha)	Number of operating companies	Number of employees	separated or combined sewer (industrial/domestic use)	Lưu lượng/Total WW Flow (m3/day)	Centralized Treatment in operation	CETP capacity (m3/d)	Water quality after treatment (standard)	if no CETP, latest step in planning? (cost)	Hazardous waste production type	Hazardous waste volume (kg/day)	Nguồn tiếp nhận/Water course receiver
<b>I Hi-Tech area</b>															
	Hoa Lac Hi-Tech area	Thach That		793	under const										
<b>I Industrial Park (18 IP)</b> 6846 ha total 380 ha each ave 225 ha per park under constr															
1	KCN Thăng Long	Đông Anh district	IP		84		combined	15000	yes	16150		waiting for construction			Hong River
2	KCN Nội Bài	Quang Dien Commune, Soc Son district	IP		42		seperated	2147	no			unknown			Hong River
3	KCN Sài Đồng B	Sài Đồng commune, Gia Lam district	IP		25		combined	1833	no	3350		unknown			Hong River
4	KCN Hà Nội - Đài Tư	Đài Tư commune, Gia Lam district	IP				unknown	3600							Hong River
5	KCN Nam Thăng Long	Thụy Phương commune, Từ Liêm district	IP		20		unknown	810	no			unknown			Nhue River
6	KCN Thạch Thất - Quốc Oai (trần Cát)	Thạch Thất district	IP		26		unknown	133	no	13000		unknown			Day River
7	KCN Phú Nghĩa	Phú Nghĩa Commune, Chương Mỹ district	IP		34		unknown	4480	no			unknown			Day River
8	KCN Quang Minh	Mê Linh district	IP		124		combined	1500	yes	8400					Hong River
9	KCN Phụng Hiệp (CCN Hà Bình Phương included)	Phụng Hiệp commune, Thường Tín district	IP		27		seperated	9000	yes	16500					
10	Kim Hoa	Me Linh	IP		under const										
11	Thanh My-xuan Son	Son Tay city	IP		under const										
12	Hong Ha	Dan Phuong	IP		under const										
13	Dong Mai	Ha Dong city	IP		under const										
14	Mieu Mon-Xuan Mai	Chuong My district	IP		under const										
15	North Thuong Tin	Thuong Tin district	IP		under const										
16	Phu Xuyen	Phu Xuyen district	IP		under const										
17	Khu Chay	Ung Hoa district	IP		under const										
18	Phu Cat	Thach That- Quoc Oai	IP		under const										
<b>II Industrial Cluster</b> 45 IC planned total 2400 ha average 53 ha each planned average 50 ha each (operating)															
1	CCN Cầu Giấy	Cầu Giấy District	IC	8.29	36				yes	256					
2	CCN Phụng Châu	Chương Mỹ district	IC		7										
3	CCN Tiên Phương	Chương Mỹ district	IC		6										
4	CCN Đông Phương Yên	Chương Mỹ district	IC		3										
5	CCN Ngọc Hòa	Chương Mỹ district	IC		7										
6	CCN Thị trấn Chúc Sơn	Chương Mỹ district	IC		22										
7	CCN Thanh Oai	Thanh Oai District	IC	16.1	26										
8	CCN Bích Hòa	Thanh Oai District	IC		6										
9	CCN Bình Minh	Thanh Oai District	IC	20.42	2										
10	CCN Ngọc Hồi	Thanh Trì District	IC	56.41	34			1800	yes	3200	C				
11	CCN Hoàng Mai	Hoàng Mai District	IC		33										
12	CCN Vĩnh Tuy I	Hoàng Mai District	IC		19										
13	CCN Thượng Đình	Thanh Xuân District	IC	76											
14	CCN Giáp Bát - Phương Liệt	Thanh Xuân District	IC	81											
15	CCN An Khánh - Đức Thượng	Hoài Đức District	IC	34.6											
16	CCN Lại Yên - An Ninh	Hoài Đức District	IC	26.1											
17	CCN Trường An - Đông La	Hoài Đức District	IC												
18	CCN Lai Xá - Kim Chung	Hoài Đức District	IC	31.5											
19	CCN Thị trấn Phúc Thọ	Phúc Thọ district	IC		9										
20	CCN Thị trấn Phùng	Đan Phượng district	IC	35.8	22										
21	CCN Thạch Thất - Quốc Oai	Thạch Thất district	IC		12										
22	CCN Bắc Phú Cát	Thạch Thất district	IC												
23	CCN Hòa Lạc	Thạch Thất district	IC												
24	CCN Bình Phú	Thạch Thất district	IC	9.7											

























## In province: Ba Ria - Vung Tau

No.	Name of IZs/ICs	Address	IZ or IC?
<b>I</b>	<b>IZs</b>		
1	Dong Xuyen (operating)	ward 10, Vung Tau city	KCN
2	Phu My 1 (operating)	Phu My, Tan Thanh district	KCN
3	My Xuan A (operating)	My Xuan, Tan Thanh district	KCN
4	My Xuan A2 (operating)	My Xuan, Tan Thanh district	KCN
5	My Xuan B1 CONAC (operating)	My Xuan, Tan Thanh district	KCN
6	Cai Mep (operating)	Phu My town, Tan Thanh district	KCN
7	Phu My II	Phu My town, Tan Thanh district	KCN
8	Phu My III	Phu My town, Tan Thanh district	KCN
9	My Xuan B1-Tien Hung	My Xuan, Tan Thanh district	KCN
10	My Xuan B1- Dai Duong	My Xuan, Tan Thanh district	KCN
11	Long Son	Long Son, Vung Tau city	KCN
12	Chau Duc	Nghia Thanh and Suoi Nghe, Chau Duc district	KCN
13	Dat Do	Dat Do district	KCN
14	Kim Dinh	Kim Dinh ward, Ba Ria town	KCN
<b>II</b>	<b>ICs</b>		
1	Hac Dich 1 (operating)	Tan Thanh district	CCN
2	Ngai Giao (operating)	Chau Duc district	CCN
3	Hac Dich 2 (sector A 30 ha, sector B 100 ha) (planning)	Tan Thanh district	CCN
4	Thuan Phat (Toc Tien 1) (planning)	Tan Thanh district	CCN
5	Toc Tien 2 (planning)	Tan Thanh district	CCN

6	Toc Tien 4 (planning)	Tan Thanh district	CCN
7	Toc Tien 7 (planning)	Tan Thanh district	CCN
8	Tan Hoa (planning)	Tan Thanh district	CCN
9	Boomin Vina (My Xuan 2) (planning)	Tan Thanh district	CCN
10	My Xuan 1 (planning)	Tan Thanh district	CCN
11	My Phu - Korea (planning)	Tan Thanh district	CCN
12	Da Bac 1 (Lang Lon 1) (planning)	Chau Duc district	CCN
13	Da Bac 2 (Kim Long) (planning)	Chau Duc district	CCN
14	Da Bac 3 (Lang Lon 2) (planning)	Chau Duc district	CCN
15	Da Bac 4 (Cu Bi) (planning)	Chau Duc district	CCN
16	Hong Lam (planning)	Ba Ria town	CCN
17	Long Tam (planning)	Ba Ria town	CCN
18	Kim Dinh (planning)	Ba Ria town	CCN
19	Tan Hung (planning)	Ba Ria town	CCN
20	Long Phuoc (planning)	Ba Ria town	CCN
21	Hoa Long (planning)	Ba Ria town	CCN
22	An Ngai (planning)	Long Dien district	CCN
23	Tam Phuoc 1 (planning)	Long Dien district	CCN
24	Tam Phuoc 2 (planning)	Long Dien district	CCN
25	Long Dien 1 (planning)	Long Dien district	CCN
26	Long Dien 2 (planning)	Long Dien district	CCN
27	Long My (planning)	Dat Do district	CCN
28	Dong Thay (planning)	Dat Do district	CCN
29	Phuoc Buu (planning)	Xuyen Moc	CCN
30	Phuoc Thang (planning)	Vung Tau city	CCN

## INDUSTRIAL

Area (ha)	State-owned, private or joint-stocked?	Number of operating companies	Number of employees	Separated or combined sewer (industrial/domesti c ww)
160.8			36	
954.4			32	
269.2			21	
312.8			9	
226			3	
670			4	
620.6				
942				
200				
145.7				
1,250				
2,184				
496.22				
30				
30				
130				
48				
30				

66				
75				
30				
50				
75				
90				
129				
121				
107				
137				
30				
72				
56				
100				
100				
100				
43.4				
51				
45				
97.6				
74				
50				
50				
60				
40				



## 2 ZONES/INDUSTRIAL CLUSTERS

Total WW Flow (m3/day)	Centralized Treatment in operation	CETP treated flow (m3/day)	Water quality after treatment (standard level)	if no CETP, latest step in planning? (cost evaluation? Feasibility study?, designed?)
	no		TCVN 5945-2005, level B	bidder selecting
	no		TCVN 5945-2005, level A	bidder selecting
	no		TCVN 5945-2005, level B	in construction phase
	no		TCVN 5945-2005, level A	in construction phase
	no			no planning
	no		TCVN 5945-2005, level A	designing
	no		TCVN 5945-2005, level B	in construction phase
	no			in construction phase
	no			in construction phase

















1. INVENTORIES OF INDUSTRIAL ESTATES (listed by type of estate)

districts																					
No.	Name of IZs/ICs	Address	IZ or IC?	Area (ha)	State-owned, private or joint stocked?	Number of operating companies	Centralized Treatment in operation	CETP treated flow (m3/day)	Water quality after treatment (standard level)	CETP phase	Hazardous waste production type	Hazardous waste volume (unit/year)	Water source receiver	influent parameter of CETP	effluent parameter of CETP	Preliminary treatment	Primary treatment	Secondary treatment	Tertiary treatment	Sludge treatment	CETP designed flow rate (m3/day)
<b>I Ben Cat district</b>																					
1	Dong An II (operating)	Hoa Loi commune, Ben Cat district	IZ	210	private		no		TCVN 5945:2005, level A	construction is completed			Hoa Loi channel, Dong Nai river								2500
2	Mai Trung (operating)	An Tay commune, Ben Cat district	IZ	50.55	private		no		TCVN 5945:2005, level A	in construction phase			Sai Gon river								
3	Viet Huong II (operating)	Provincial Road ET 744, An Tay commune, Ben Cat district	IZ	250	private	37	no	500	TCVN 5945:2005, level A	construction is completed	Sludge Glass light bulb Waste lubricant Clouts contaminated	12000 kg	Sai Gon river	BOD: 55 SS: 110 COD: 90	BOD: 20 SS: 20 COD: 42 pH: 6.5 Color: 34	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank	dewatering	2000 (increasing capacity to 6000)
4	My Phuoc 1 (operating)	Ben Cat district	IZ	377	State-owned	43	yes	4000	TCVN 5945:2005, level A		Glass light bulb Clouts contaminated by oil Waste lubricant	2 bulb 1kg 3 l	Thi Tinh river Sai Gon river	SS: 55 COD: 132 pH: 7-7.5 Color: 253	SS: 24 COD: 53 pH: 7.15 Color: 146	Screening	Flocculation tank	aerotank Sedimentation tank 2	Disinfection tank	Thickening tank Sludge compressor	4000
5	My Phuoc 2 (operating)	Ben Cat district	IZ	471.376	State-owned	96	yes	3000	TCVN 5945:2005, level A		Glass light bulb Clouts contaminated by oil Waste lubricant	2 bulb 1kg 3 l	Suoi Tre bridge, Thi Tinh river, Sai Gon river	SS:45 COD:54 pH:7 - 7.5 Color:124	SS:28 COD:30 pH:7.5 Color:108	Screening Grit chamber	Flocculation tank	Anaeration tank aerotank Bể lắng	Disinfection tank	Thickening tank Sludge compressor	4000
6	My Phuoc 3 (opearting)	Ben Cat district	IZ	999.4	State-owned	39	yes	2000	TCVN 5945:2005, level A				K8 channel, Thi Tinh river, Sai Gon river	pH: 7,24 Color: 57 SS: 14 COD: 48	pH: 7,5 Color: 29 SS: 5 COD: 45	Screening: Grit chamber	Flocculation tank	Anaeration tank aerotank	Disinfection tank	Thickening tank Dewatering	4000
7	Rach Bap - An Dien (operating)	An Dien commune, Ben Cat district	IZ	278.6	State-owned	2	no		TCVN 5945:2005, level A	in construction phase	Glass light bulb Clouts contaminated by oil Waste		Sai Gon river	-	-	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank	Thickening tank Sludge compressor	6000 (phase 1: 3000)
8	Thoi Hoa (operating)	Hamlet 2 and 5, Thoi Hoa commune, Ben Cat district	IZ	300			no		TCVN 5945:2005, level A	designing											
9	An Hoa (operating)	An Hoa Hamlet, Hoa Loi commune, Ben Cat district	IZ	158			no		TCVN 5945:2005, level A	designing											
10	An Tay (operating)	Ben Cat district	IZ						TCVN 5945:2005, level A												
11	Phu Gia (operating)	Ben Cat district	IZ	133	private		no		TCVN 5945:2005, level A	in construction phase			Hoa Loi channel, Dong Nai river								
12	Bau Bang (operating)	Ben Cat district	IZ	997.4	State-owned	3	no		TCVN 5945:2005, level A	designing			Ben Vang spring, Thi Tinh river, Sai Gon river	-	-	Screening: Grit chamber	Flocculation tank	Anaeration tank aerotank	Disinfection tank	Thickening tank Dewatering	4000
13	Tan Dinh (operating)	Tan Dinh commune, Ben Cat district	IZ						TCVN 5945:2005, level A												
<b>II Dau Tieng district</b>																					
1	Thanh An (is carrying out compensation for inhabitants)	Dau Tieng district	IC	50	private		no														
<b>III Di An district</b>																					

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districts																					
No.	Name of IZs/ICs	Address	IZ or IC?	Area (ha)	State-owned, private or joint stocked?	Number of operating companies	Centralized Treatment in operation	CETP treated flow (m3/day)	Water quality after treatment (standard level)	CETP phase	Hazardous waste production type	Hazardous waste volume (unit/year)	Water source receiver	influent parameter of CETP	effluent parameter of CETP	Preliminary treatment	Primary treatment	Secondary treatment	Tertiary treatment	Sludge treatment	CETP designed flow rate (m3/day)
1	Binh Duong (operating)	Binh Duong Hamlet, An Binh commune, Di An district	IZ	24	private		no		TCVN 5945:2005, level A	in construction phase											
2	Binh An (operating)	Binh An Ward, Di An district	IZ	25.9	private		no		TCVN 5945:2005, level A	designing											
3	Song Than I (operating)	Di An town, Di An district	IZ	180	private		yes		TCVN 5945:2005, level A				Ba Bo channel - Sai Gon river				Flocculation tank, Sedimentation tank	aerotank	Disinfection tank		12000
4	Song Than II (operating)	Tan Dong Hiep commune and Di An town, Di An district	IZ	319			yes	4000	TCVN 5945:2005, level A				Ba Bo channel - Sai Gon river					SBR		Sludge compressor	4000
5	Tan Dong Hiep A (operating)	Tan Dong Hiep commune, Di An district	IZ	47			yes		TCVN 5945:2005, level A				Cai Cau spring, Dong Nai river								8500
6	Tan Dong Hiep B (operating)	Tan Dong Hiep commune, Di An district	IZ	164.12			yes	1300	TCVN 5945:2005, level A				Cai Cau spring, Dong Nai river				Flocculation tank, Sedimentation tank	aerotank Sedimentation tank 2	Disinfection tank		5000
7	Tan Dong Hiep (operating)	Tan Dong Hiep commune, Di An district	IC	57,977	State-owned	7	no														
8	Tan Binh (deleting planning)	Tan Binh commune, Di An district	IC	55	private		no														
<b>IV Tan Uyen district</b>																					
1	Nam Tan Uyen (operating)	Hamlet 3B, Khanh Binh commune, Tan Uyen district	IZ	330.5	private		no		TCVN 5945:2005, level A	construction is completed			Ong Dong Spring, Dong Nai river			oil separation tank	Flocculation tank, Sedimentation tank	anoxic tank aerotank	Disinfection tank	Sludge compressor	2000
2	Song Than III (operating)	Tan Uyen district	IZ	533	private	25	no	800-1000	TCVN 5945:2005, level A	construction is completed	Sludge Glass light bulb, printing ink container Waste	20000-30000	Tan Vinh Hiep channel Dong Nai river			Screening		aerotank Sedimentation tank 2	Disinfection tank	Thickening tank Sludge compressor	4000
3	Dai Dang (operating)	Tan Uyen district	IZ	274			no		TCVN 5945:2005, level A	in construction phase			Hiep channel, Dong Nai river								2000
4	Dat Cuoc (operating)	Tan Uyen district	IZ	212.84	State-owned		no		TCVN 5945:2005, level A	construction is completed			Tan Loi spring, Dong Nai river	-	-	Screening Oil separation tank	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank Biological lagoon	Sludge compressor Incineration (chemical sludge) landfill /composting	2800
5	Phu Chanh (is carrying out compensation for inhabitants)	Phu Chanh commune, Tan Uyen district	IC	137	private		no														
6	Uyen Hung (is carrying out compensation for inhabitants)	Uyen Hung district	IC	122	private		no														
7	Tan My (operating)	Tan Uyen district	IC	198	private		no														
8	Tan Hiep (operating)	Tan Uyen district	IC	56	private	5	yes		TCVN 5945:2005, level A		Sludge Glass light bulb, Waste lubricant, Clouts contaminated		Ong Dong spring, Dong Nai river	BOD: 568 SS: 33,5 COD: 1115	pH:6,1 BOD:12 SS: 3,8 COD: 23	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank	drying sludge	1200
<b>V Thuan An district</b>																					

1. INVENTORIES OF INDUSTRIAL ESTATES (listed by type of estate)

districts

No.	Name of IZs/ICs	Address	IZ or IC?	Area (ha)	State-owned, private or joint stocked?	Number of operating companies	Centralized Treatment in operation	CETP treated flow (m3/day)	Water quality after treatment (standard level)	CETP phase	Hazardous waste production type	Hazardous waste volume (unit/year)	Water source receiver	influent parameter of CETP	effluent parameter of CETP	Preliminary treatment	Primary treatment	Secondary treatment	Tertiary treatment	Sludge treatment	CETP designed flow rate (m3/day)
1	Dong An (operating)	Binh Hoa commune, Thuan An district	IZ	133	private	103	yes	1000-1500	TCVN 5945:2005, level A		Glass light bulb Clouts contaminated by oil Chemical packing Waste lubricant	100 kg	D channel (Binh Hoa commune, Thuan An district) - Sai Gon river	BOD: 100 SS: 200 COD: 400	BOD: 30 SS: 50 COD:50	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank Biological lagoon	Thickening tank Sludge compressor	2500
2	Viet Huong I (operating)	Thuan Giao commune, Thuan An district	IZ	46		50	yes		TCVN 5945:2005, level A				Chom Sao canal					aerotank	Disinfection tank		1000
3	Viet Nam - Singapore 1 (operating)	Binh Hoa commune, Thuan An district	IZ	120 (phase 1) 180 (phase 2) 200 (phase 3)			yes	9500-11500	TCVN 5945:2005, level A				Cau Ong Bo canal, Sai Gon river			Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank	Sludge compressor	12000
4	Kim Huy (operating)	Binh Chuan commune, Thuan An district	IZ	205			no		TCVN 5945:2005, level A	designing			Tan Vinh Hiep channel, Dong Nai river								
5	Binh Chuan (operating)	Binh Chuan commune, Thuan An district	IC	67.5	State-owned	20	no														
6	An Thanh (operating)	An Thanh commune, Thuan An district	IC	46.1	State-owned	4	no														
<b>VI Thu Dau Mot town</b>																					
1	Viet Nam - Singapore 2 (operating)	Thu Dau Mot town	IZ	345			yes	800	TCVN 5945:2005, level A				Hoa Loi channel, Dong Nai river			Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank	Sludge compressor	6000

### In province: Binh Duong

No.	Name of IZs/ICs	Address	IZ or IC?	Area (ha)
<b>I</b>	<b>IZs</b>			
1	Binh Duong (operating)	Binh Duong Hamlet, An Binh commune, Di An district	IZ	24
2	Dong An (operating)	Binh Hoa commune, Thuan An district	IZ	133
3	Dong An II (operating)	Hoa Loi commune, Ben Cat district	IZ	210
4	Binh An (operating)	Binh An Ward, Di An district	IZ	25.9
5	Mai Trung (operating)	An Tay commune, Ben Cat district	IZ	50.55
6	Nam Tan Uyen (operating)	Hamlet 3B, Khanh Binh commune, Tan Uyen district	IZ	330.5
7	Song Than I (operating)	Di An town, Di An district	IZ	180
8	Song Than II (operating)	Tan Dong Hiep commune and Di An town, Di An district	IZ	319

9	Song Than III (operating)	Tan Uyen district	IZ	533
10	Tan Dong Hiep A (operating)	Tan Dong Hiep commune, Di An district	IZ	47
11	Tan Dong Hiep B (operating)	Tan Dong Hiep commune, Di An district	IZ	164.12
12	Viet Huong I (operating)	Thuan Giao commune, Thuan An district	IZ	46
13	Viet Huong II (operating)	Provincial Road ĐT 744, An Tay commune, Ben Cat district	IZ	250
14	Viet Nam - Singapore 1 (operating)	Binh Hoa commune, Thuan An district	IZ	120 (phase 1) 180 (phase 2) 200 (phase 3)
15	Viet Nam - Singapore 2 (operating)	Thu Dau Mot town	IZ	345
16	My Phuoc 1 (operating)	Ben Cat district	IZ	377

17	My Phuoc 2 (operating)	Ben Cat district	IZ	471.376
18	My Phuoc 3 (operating)	Ben Cat district	IZ	999.4
19	Rach Bap - An Dien (operating)	An Dien commune, Ben Cat district	IZ	278.6
20	Kim Huy (operating)	Binh Chuan commune, Thuan An district	IZ	205
21	Thoi Hoa (operating)	Hamlet 2 and 5, Thoi Hoa commune, Ben Cat district	IZ	300
22	An Hoa (operating)	An Hoa Hamlet, Hoa Loi commune, Ben Cat district	IZ	158
23	An Tay (operating)	Ben Cat district	IZ	
24	Phu Gia (operating)	Ben Cat district	IZ	133
25	Dai Dang (operating)	Tan Uyen district	IZ	274
26	Dat Cuoc (operating)	Tan Uyen district	IZ	212.84

27	Bau Bang (operating)	Ben Cat district	IZ	997.4
28	Tan Dinh (operating)	Tan Dinh commune, Ben Cat district	IZ	
<b>II</b>	<b>ICs</b>			
1	Tan Dong Hiep (operating)	Tan Dong Hiep commune, Di An district	IC	57,977
2	Binh Chuan (operating)	Binh Chuan commune, Thuan An district	IC	67.5
3	An Thanh (operating)	An Thanh commune, Thuan An district	IC	46.1
4	Tan Binh (deleting planning)	Tan Binh commune, Di An district	IC	55
5	Thanh An (is carrying out compensation for inhabitants)	Dau Tieng district	IC	50
6	Phu Chanh (is carrying out compensation for inhabitants)	Phu Chanh commune, Tan Uyen district	IC	137
7	Uyen Hung (is carrying out compensation for inhabitants)	Uyen Hung district	IC	122
8	Tan My (operating)	Tan Uyen district	IC	198
9	Tan Hiep (operating)	Tan Uyen district	IC	56

## INDUSTRIAL ZONES/INDUSTRIAL CLU

State-owned, private or joint-stocked?	Number of operating companies	Number of employees	Separated or combined sewer (industrial/domestic ww)	Total WW Flow (m3/day)	Centralized Treatment in operation
private					no
private	103				yes
private					no
private					no
private					no
private					no
private					yes
					yes



private	25				no
					yes
					yes
	50				yes
private	37				no
					yes
					yes
State-owned	43				yes

State-owned	96				yes
State-owned	39				yes
State-owned	2				no
					no
					no
					no
					no
private					no
					no
State-owned					no

State-owned	3				no
State-owned	7				no
State-owned	20				no
State-owned	4				no
private					no
private					no
private					no
private					no
private					no
private	5				yes

# JSTERS

<b>CETP treated flow (m3/day)</b>	<b>Water quality after treatment (standard level)</b>	<b>if no CETP, latest step in planning? (cost evaluation? Feasibility study?, designed?)</b>	<b>Hazardous waste production type</b>	<b>Hazardous waste volume (unit/year)</b>
	TCVN 5945:2005, level A	in construction phase		
1000-1500	TCVN 5945:2005, level A		Glass light bulb Clouts contaminated by oil Chemical	100 kg
	TCVN 5945:2005, level A	construction is completed		
	TCVN 5945:2005, level A	designing		
	TCVN 5945:2005, level A	in construction phase		
	TCVN 5945:2005, level A	construction is completed		
	TCVN 5945:2005, level A			
4000	TCVN 5945:2005, level A			

800-1000	TCVN 5945:2005, level A	construction is completed	Sludge Glass light bulb, printing ink container Waste lubricant Clouts contaminated by oil Can, plastic packing	20000-30000 kg
	TCVN 5945:2005, level A			
1300	TCVN 5945:2005, level A			
	TCVN 5945:2005, level A			
500	TCVN 5945:2005, level A	construction is completed	Sludge Glass light bulb Waste lubricant Clouts contaminated by oil	12000 kg
9500-11500	TCVN 5945:2005, level A			
800	TCVN 5945:2005, level A			
4000	TCVN 5945:2005, level A		Glass light bulb Clouts contaminated by oil Waste lubricant	2 bulb 1kg 3 l

3000	TCVN 5945:2005, level A		Glass light bulb Clouts contaminated by oil Waste lubricant	2 bulb 1kg 3 l
2000	TCVN 5945:2005, level A			
-	TCVN 5945:2005, level A	in construction phase	Glass light bulb Clouts contaminated by oil Waste	
	TCVN 5945:2005, level A	designing		
	TCVN 5945:2005, level A	designing		
	TCVN 5945:2005, level A	designing		
	TCVN 5945:2005, level A			
	TCVN 5945:2005, level A	in construction phase		
	TCVN 5945:2005, level A	in construction phase		
	TCVN 5945:2005, level A	construction is completed		

	TCVN 5945:2005, level A	designing		
	TCVN 5945:2005, level A			
	TCVN 5945:2005, level A		Sludge Glass light bulb, Waste lubricant, Clouts contaminated by oil	

<b>Water source receiver</b>	<b>influent parameter of CETP</b>	<b>effluent parameter of CETP</b>	<b>Preliminary treatment</b>	<b>Primary treatment</b>	<b>Secondary treatment</b>	<b>Tertiary treatment</b>
D channel (Binh Hoa commune, Thuan An district) - Sai Gon river	BOD: 100 SS: 200 COD: 400	BOD: 30 SS: 50 COD:50	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfection tank Biological lagoon
Hoa Loi channel, Dong Nai river						
Sai Gon river						
Ong Dong Spring, Dong Nai river			oil separation	Flocculation tank, Sedimentation tank	anoxic tank aerotank	Disinfection
Ba Bo channel - Sai Gon river				Flocculation tank, Sedimentation tank	aerotank	Disinfection
Ba Bo channel - Sai Gon river					SBR	



Tan Vinh Hiep channel - Dong Nai river			Screening		aerotank Sedimentation tank 2	Disinfectio
Cai Cau spring, Dong Nai river						
Cai Cau spring, Dong Nai river				Flocculation tank, Sedimentation tank	aerotank Sedimentation tank 2	Disinfectio
Chom Sao canal					aerotank	Disinfectio
Sai Gon river	BOD: 55 SS: 110 COD: 90	BOD: 20 SS: 20 COD: 42 pH: 6,5 Color: 34	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfectio
Cau Ong Bo canal, Sai Gon river			Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfectio
Hoa Loi channel, Dong Nai river			Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfectio
Thi Tinh river- Sai Gon river	SS: 55 COD: 132 pH: 7-7,5 Color: 253	SS: 24 COD: 53 pH: 7,15 Color: 146	Screening	Flocculation tank	aerotank Sedimentation tank 2	Disinfectio

Suoi Tre bridge, Thi Tinh river, Sai Gon river	SS:45 COD:54 pH:7 - 7,5 Color:124	SS:28 COD:30 pH7-7,5 Color:108	Screening Grit chamber	Flocculation tank	Anaeration tank aerotank BỂ lắng	Disinfectio
K8 channel, Thi Tinh river, Sai Gon river	pH: 7,24 Color: 57 SS: 14 COD: 48	pH: 7,5 Color: 29 SS: 5 COD: 45	Screening; Grit chamber	Flocculation tank	Anaeration tank aerotank	Disinfectio
Sai Gon river	-	-	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfectio
Tan Vinh Hiep channel, Dong Nai river						
Hoa Loi channel, Dong Nai river						
Tan Vinh Hiep channel, Dong Nai river						
Tan Loi spring, Dong Nai river	-	-	Screening Oil separation tank	Flocculation tank, Sedimentation tank	aerotank	Disinfecti on tank Biological lagoon

Ben Vang spring, Thi Tinh river, Sai Gon river	-	-	Screening; Grit chamber	Flocculation tank	Anaeration tank aerotank	Disinfectio
Ong Dong spring, Dong Nai river	BOD: 568 SS: 33,5 COD: 1115	pH:6,1 BOD:12 SS: 3,8 COD: 23	Screening	Flocculation tank, Sedimentation tank	aerotank	Disinfectio

Sludge treatment	CETP designed flow rate (m3/day)
Thickening tank Sludge compressor	2500
	2500
Sludge comp	2000
n tank	12000
Sludge comp	4000

Thickening tank Sludge compressor	4000
	8500
Thickening tank	5000
Thickening tank	1000
Dewatering tank	2000 (increasing capacity to 6000)
Sludge compressor	12000
Sludge compressor	6000
Thickening tank Sludge compressor	4000

Thickening tank Sludge compressor	4000
Thickening tank Dewatering	4000
Thickening tank Sludge compressor	6000 (phase 1: 3000)
	2000
Sludge compressor Incineration (chemical sludge) landfill /composting	2800

Thickening tank Dewatering	4000
drying sludge	1200





## In Province: Binh Phuoc

No.	Name of IZs/ICs	Address	IZ or IC?
<b>I</b>	<b>IZs</b>		
1	Chon Thanh I (operating)	Chon Thanh town	IZ
2	Chon Thanh II (operating)	Chon Thanh town	IZ
3	Chon Thanh III		IZ
4	Taiwan - Binh Phuoc		IZ
5	Minh Hung - Korea (operating)	Minh Hung commune, Chon Thanh town	IZ
6	Minh Hung III (operating)	Minh Hung commune, Chon Thanh town	IZ
7	Tan Khai I		IZ
8	Viet Kieu	Thanh Binh commune, Binh Long district	IZ
9	Tan Khai (operating)	Thanh Binh commune, Binh Long district	IZ
10	Thanh Binh		IZ
11	Tan Khai II		IZ
12	Dong Xoai I (Tan Thanh) (operating)	Tan Thanh and Tien Thanh communes, Dong Xoai district	IZ
13	Dong Xoai II		IZ
14	Dong Xoai III		IZ
15	Dong Xoai IV		IZ
16	Nam Dong Phu	Tan Lap commune, Dong Phu district	IZ
17	Bac Dong Phu (operating)		IZ
18	Sai Gon - Binh Phuoc	Thanh Tam commune, Chon Thanh district	IZ
19	Becamex-Binh Phuoc		IZ
<b>II</b>	<b>ICs (Planning)</b>		
1	Tan Phuoc	Dong Phu district	IC
2	Thuan Phu	Dong Phu district	IC
3	Minh Hung	Bu Dang district	IC
4	Nghia Trung	Bu Dang district	IC

5	Duc Lieu	Bu Dang district	IC
6	Tho Son	Bu Dang district	IC
7	Nam Binh Tan (detailed plan)	Phuoc Long district	IC
8	My Le (detailed plan)	Phuoc Long district	IC
9	Phu Nghia	Phuoc Long district	IC
10	Da Kia	Phuoc Long district	IC
11	Dong Thap	Phuoc Long district	IC
12	Phuoc Thien	Bu Dop district	IC
13	Thanh Hoa	Bu Dop district	IC
14	Thanh Binh	Binh Long district	IC
15	Viet Phuong	Binh Long district	IC
16	Loc Hiep	Loc Ninh district	IC
17	Loc Thanh	Loc Ninh district	IC

## INDUSTRIAL Z

Area (ha)	State-owned, private or joint-stocked?	Number of operating companies	Number of employees	Separated or combined sewer (industrial/domestic ww)
115		6		
93		3		
160				
127				
394		12		
292				
124				
101				
45		2		
90				
340				
153		7		
83				
132				
128				
150				
200		1		
450				
2000				
50				
50				
160				
40				

50				
30				
93				
42				
50				
100				
60				
100				
30				
100				
20				
44				
40				

























**In province: Dong Nai**

No.	Name of IZs/ICs	Address	IZ or IC?	Area (ha)
<b>I</b>	<b>IZs</b>			
1	Amata (operating)	Long Binh ward, Bien Hoa city	IZ	494
2	Bien Hoa II (operating)	Long Binh Tan & An Binh ward, Bien Hoa city	IZ	365
3	Gò Dau (operating)	Phuoc Thai commune, Long Thanh district	IZ	184



4	Loteco (operating)	Long Binh ward, Bien Hoa city	IZ	100 (bao gồm 13 ha Khu Chế xuất)
5	Nhon Trach III (operating)	Hiep Phuoc & Long Tho commune, Nhon Trach district	IZ	688 (phase 1: 337 ha, phase 2: 351 ha)
6	Nhon Trach II (operating)	Hiep Phuoc , Phuoc Thien and Phu Hoi commune, Nhon Trach district	IZ	347
7	Nhon Trach I (operating)	Hiep Phuoc, Phuoc Thien and Phu Hoi commune, Nhon Trach district	IZ	430
8	Song May (operating)	Bac Son commune, Trang Bom district	IZ	474(phase 1: 250 ha; phase 2: 224 ha)
9	Hố Nai (operating)	Ho Nai 3 & Bac Son commune, Trang Bom district	IZ	497 (phase 1: 226 ha, phase 2: 271 ha)

10	Bien Hoa I (operating)	An Binh ward, Bien Hoa city	IZ	335
11	Det May Nhon Trach (operating)	Hiep Phuoc & Phuoc An commune, Nhon Trach district	IZ	184
12	Nhon Trach V (operating)	Long Tan & Hiep Phuoc commune, Nhon Trach district	IZ	302
13	Tam Phuoc (operating)	Tam Phuoc commune, Long Thanh district	IZ	323
14	Long Thanh (operating)	An Phuoc & Tam An commune, Long Thanh district Phone: 061.3514494 Fax: 061.3514499	IZ	488
15	An Phuoc (operating)	An Phuoc commune, Long Thanh district Phone: Fax:	IZ	130
16	Dinh Quan (operating)	La Nga commune, Dinh Quan district	IZ	54
17	Nhon Trach VI (building infrastructure)	Long Tho commune, Nhon Trach district	IZ	318
18	Nhon Trach II - Nhon Phu (building infrastructure)	Hiep Phuoc & Phu Hoi commune, Nhon Trach district	IZ	183

19	Nhon Trach II - Loc Khang (operating)	Hiep Phuoc & Phu Hoi commune, Nhon Trach district	IZ	70
20	Xuan Loc (building infrastructure)	Xuan Tam & Xuan Hiep commune, Xuan Loc district	IZ	109
21	Thanh Phu (operating)	Thanh Phu commune, Vinh Cuu district	IZ	177
22	Bau Xeo (operating)	Song Trau commune, Trang Bom district	IZ	500
23	Tan Phu (building infrastructure)	Tan Phu town, Tan Phu district	IZ	54
24	Agtex Long Binh (operating)	Long Binh ward, Bien Hoa city	IZ	43
25	Long Duc (not constructing yet)	Long Duc & An Phuoc commune, Long Thanh district	IZ	283
26	Ong Keo (operating)	Phuoc Khanh commune, Nhon Trach district	IZ	823

27	Long Khanh (not constructing yet)	Suoi Tre & Binh Loc commune, Long Khanh town	IZ	264
28	Giang Dien (not constructing yet)	Giang Dien & An Vien commune - Trang Bom district and Tam Phuoc commune - Long Thanh district	IZ	529
29	Dau Giay (not constructing yet)	Bau Ham 2 & Xuan Thanh commune, Thong Nhat district	IZ	331
<b>II</b>	<b>ICs</b>			
1	Gom Tan Hanh	Bien Hoa city	IC	54.83
2	Go Tan Hoa	Bien Hoa city	IC	39.2
3	Long Binh	Bien Hoa city	IC	70
4	Thanh Phu (1)	Vinh Cuu district	IC	96.6
5	Thanh Phu (2)	Vinh Cuu district	IC	20
6	Tan An	Vinh Cuu district	IC	50
7	Thien Tan	Vinh Cuu district	IC	50
8	Vinh Tan	Vinh Cuu district	IC	50
9	Vinh An town	Vinh Cuu district	IC	50
10	Tri An	Vinh Cuu district	IC	48.8
11	doc 47 (operating)	Long Thanh district	IC	97.65
12	An Phuoc	Long Thanh district	IC	50
13	Tam Phuoc 1 (operating)	Long Thanh district	IC	57.16
14	Long Phuoc 1	Long Thanh district	IC	85.864
15	Long Phuoc 2	Long Thanh district	IC	37
16	Binh Son (operating)	Long Thanh district	IC	50.3
17	Tam An (operating)	Long Thanh district	IC	59.9
18	Phu Thanh-Vinh Thanh (operating)	hamlet 3, Phu Thanh commune, Nhon Trach district	IC	94
19	Hung Thinh	Trang Bom district	IC	35
20	Ho Nai 3 (operating)	Trang Bom district	IC	50
21	Thanh Binh	Trang Bom district	IC	50
22	An Vien	Trang Bom district	IC	50

23	A - Ho Nai 3	Trang Bom district	IC	30
24	Song Thao	Trang Bom district	IC	50
25	Suoi Sao - Ho Nai 3	Trang Bom district	IC	50
26	Hung Loc	Thong Nhat district	IC	75
27	Quang Trung	Thong Nhat district	IC	100
28	Gia Kiem 1	Thong Nhat district	IC	100
29	Xuan Hung	Xuan Loc district	IC	19.04
30	Suoi Cat	Xuan Loc district	IC	20.51
31	Dinh Quan town	Dinh Quan district	IC	4.8
32	Phu Vinh	Dinh Quan district	IC	43
33	Phu Tuc	Dinh Quan district	IC	50
34	Phu Cuong	Dinh Quan district	IC	43
35	Long Giao	Cam My district	IC	53.7
36	Bao Binh	Cam My district	IC	30
37	Song Ray (1)	Cam My district	IC	50
38	Song Ray (2)	Cam My district	IC	
39	Co Dau 2	Cam My district	IC	50
40	Suoi Tre1	Long Khanh town	IC	50
41	Bau Tram	Long Khanh town	IC	30
42	Phu Binh	Long Khanh town	IC	50
43	Bao Vinh	Long Khanh town	IC	50

## INDUSTRIAL ZONES/INDUSTRIAL CL

State-owned, private or joint-stocked?	Number of operating companies	Number of employees	Separated or combined sewer (industrial/domestic ww)	Total WW Flow (m3/day)	Centralized Treatment in operation
joint-stocked	84			2900	operating
State-owned	126			12600	operating (in construction)
State-owned	19			1800	operating

Joint-venture	46			5500	operating
State-owned	46			4640	operating
State-owned	37			7989	operating
State-owned	64			4000	operating
Private	44			2700	no
State-owned	89			3,500	no

State-owned	89			5,059	treatment in Bien Hoa II
Private	16			300	no
State-owned	12			200	no
State-owned	53			1400	operating
State-owned				5500	operating (in const
State-owned	4				no
State-owned	6			50	no
joint-stocked				-	no
Private	1			6	no



Private	1			-	no
State-owned				-	no
State-owned	10			2780	no
Private	11			2600	no
State-owned	0			-	no
	4			350	no
Private	0			-	no
State-owned	6			120	no

State-owned	0			-	no
State-owned	0			-	no
Private	0			-	no
State-owned					constructed
State-owned					
Private					
Private					
Private					
Private					
Private					
Private					
Private					
Private	8				no
Private	7				no
Private					
Private	2				no
Private	1				no
Private	4				no
Private					
Private	11				no
Private					
Private					



# PLANTS

CETP treated flow (m3/day)	Water quality after treatment (standard level)	if no CETP, latest step in planning? (cost evaluation? Feasibility study?, designed?)	Hazardous waste production type
2900	TCVN 5945:2005, level A		<ul style="list-style-type: none"> <li>- Cloths contaminated by oils;</li> <li>- Oil, lubricant</li> </ul>
4097	TCVN 5945:2005, level A		<ul style="list-style-type: none"> <li>- glass light bulb;</li> <li>- ink;</li> <li>- Lubricant</li> </ul> <p>(Note: there are only wastes from domestic)</p>
61-120	TCVN 5945:2005, column B		<ul style="list-style-type: none"> <li>- glass light bulb;</li> <li>- ink;</li> <li>- Lubricant</li> </ul> <p>(Note: there are only wastes from domestic)</p>

4500-5000	TCVN 5945:2005, level A		<ul style="list-style-type: none"> <li>- Wastewater sludge;</li> <li>- glass light bulb;</li> <li>- wasted-oil;</li> <li>- Package, hazardous containing;</li> <li>- Cloths contaminated by oils;</li> <li>- Chemical from lab</li> </ul>
300-500	TCVN 5945:2005, level B		
800	TCVN 5945:2005, level B		
1800-2200	TCVN 5945:2005, level B		<ul style="list-style-type: none"> <li>- Ink;</li> <li>- pesticide;</li> <li>-Chemicals from lab;</li> <li>- Wastewater sludge</li> </ul>
	TCVN 5945:2005, level A	in construction phase	
	TCVN 5945:2005, level A	Dang thiết kế	

	TCVN 5945:2005, level A		- ink; - glass light bulb
	TCVN 5945:2005, level B	in construction phase	
	TCVN 5945:2005, level B	in construction phase	
1400	TCVN 5945:2005, level A		- Wastewater sludge - glass light bulb - coths contaminated by hazardous - Chemicals from lab
5824	TCVN 5945:2005, level B	in construction phase 2	
	TCVN 5945:2005, level B	no planning	
	TCVN 5945:2005, level A	in construction phase	
	TCVN 5945:2005, level B	in construction phase	
	TCVN 5945:2005, level B	in construction phase	

	TCVN 5945:2005, level B	in construction phase	
	TCVN 5945:2005, level B	in construction phase	
	TCVN 5945:2005, level A	writing investment project and basic design	
	TCVN 5945:2005, level A	in construction phase	
	TCVN 5945:2005, level A	in construction phase	
	TCVN 5945:2005, level A	in construction phase	
	TCVN 5945:2005, level B	in construction phase	
	TCVN 5945:2005, level B	in construction phase	







Hazardous waste volume (unit/year)	Water source receiver	influent parameter of CETP	effluent parameter of CETP	Preliminary treatment
5 kg	Chua spring - Ba Lua spring - Dong Nai river			- Screening
48 kg	Ba Lua spring - Dong Nai river	<ul style="list-style-type: none"> <li>- BOD: 140</li> <li>- SS: 360</li> <li>- COD: 361</li> <li>- N-NH<sub>3</sub>: 10,2</li> <li>- Phenol: 0,019</li> <li>- Fe: 1,83</li> <li>- pH: 7,1</li> <li>- Coliform: 2,1x10<sup>6</sup> MPN/100ml</li> </ul>	<ul style="list-style-type: none"> <li>- BOD: 8</li> <li>- SS: 8</li> <li>- COD: 32</li> <li>- N-NH<sub>3</sub>: 3,36</li> <li>- Phenol: KPH</li> <li>- Fe: 0,43</li> <li>- pH: 6,9</li> <li>- Coliform: 150 MPN/100ml</li> </ul>	- Screening
	Thi Vai river	<ul style="list-style-type: none"> <li>- BOD: 22</li> <li>- SS: 18</li> <li>- COD: 83</li> <li>- Colourity: 70</li> <li>- Total Nitrogen: 8,9</li> <li>- Total Total Phosphorus : 1,6</li> <li>- pH: 6,8</li> <li>- Coliform: 4,6x10<sup>4</sup> MPN/100ml</li> </ul>	<ul style="list-style-type: none"> <li>- BOD: 13</li> <li>- SS: 13</li> <li>- COD: 43</li> <li>- Mau: 23</li> <li>- Total Nitrogen: 1,2</li> <li>- Total Phosphorus: 0,48</li> <li>- pH: 7,8</li> <li>- Coliform: KPH</li> </ul>	<ul style="list-style-type: none"> <li>- Screening;</li> <li>- Oil sepearator;</li> </ul>

8303.7-10303.7 kg	Chua spring - Cai river - Dong Nai river	- BOD: 225 - SS: 270 - COD: 570	- BOD: 8,2 - SS: 9 - COD: 38	- Screening
	Lo Ren drainage - Ba Ky canal - Thi Vai river	- BOD: 36 - SS: 28 - COD: 170	- BOD: 8 - SS: 13 - COD: 14	- Screening; - Oil sepearator
	Rach Mieu - Thi Vai river	- BOD: 140 - SS: 80 - COD: 300	- BOD: 12 - SS: 10 - COD: 50	- Screening
3001.4 kg	Ba Ky channel - Thi Vai river	- BOD: 100 - SS: 38 - COD: 165	- BOD: 12 - SS: 16 - COD: 60 - Total Nitrogen: 24,6 - Total Phosphorus: 0,11 - pH: 7,1	- Screening - Sedimentation tank without chemical using - Oil sepearator
	Thanh Nien lake - Dong Nai river			- Screening; - Oil sepearator; - Sedimentation tank without chemical using
	little spring - Long Thanh spring - Dong Nai river			- Screening; - grit chamber

2.5 kg	Cai river- Dong Nai river			
	Thi Vai river			- Coarse screening Fine screening
	Vung Gam canal - Dong Tranh river			- sedimentation Ditch; - Screening
5400 kg	Nuoc Trong spring - Dong Nai river	- BOD: - SS: 572 - COD: 926 - Total Nitrogen: - Total Phosphorus: 1,2 - pH: 9,2	- BOD: 10 - SS: <4 - COD: 49 - Total Nitrogen: 3,29 - Total Phosphorus: 0,08 - pH: 8,3	- Screening
	Ba Cheo canal- Dong Nai river	- BOD: - SS: - COD: - Total Nitrogen: - Total Phosphorus: - pH:	- BOD: 210 - SS: 38 - COD: 331 - Total Nitrogen: 7,3 - Total Phosphorus: 1,62 - pH: 8,7	- Screening; - Sedimentation tank without chemical using
	Nuoc Trong spring- Dong Nai river			
	La Nga river - Tri An lake - Dong Nai river			- Screening; - Oil separator
	Thi Vai river			
	Thi Vai river			

	Thi Vai river			
	Gia Man spring - Ray river			
	Tan Trach canal - Dong Nai river			- Screening - Oil separator
	Thao river - Dong Nai river			- Screening;
	La Nga river - Dong Nai river	-	-	- screening and Grit chamber
	Dong Nai river			
	Nuoc Trong spring - Dong Nai	-	-	
	Bang canal and Long Tau river	-	-	





<b>Primary treatment</b>	<b>Secondary treatment</b>	<b>Tertiary treatment</b>	<b>Sludge treatment</b>	<b>CETP designed flow rate (m3/day)</b>
- Sedimentation tank with chemical using	- Aeration tank	- aerated lagoon; - Disinfection tank	- Sludge thickener; - Sludge digester	5000
- physicochemical treatment	- Aeration tank	- Final lagoon	- Sludge thickener; - Dewater;	- phase1: 4000 - phse 2: 8000
- Sedimentation tank with chemical using	- Aeration tank	- Disinfection tank; - Final lagoon	- Sludge thickener; - Dewater	500



- Sedimentation tank with chemical using;	- Aeration tank; - Anaerobic process	- Disinfection t	- Sludge thickener; - Dewater	5500
- Sedimentation tank with chemical using	- Aeration tank	- aerated lagoon; - Disinfection tank	- Sludge thickener; - Dewater; - Final disposal	phse 1: 2000
- Sedimentation tank with chemical using	- Aeration tank	- aerated lagoon; - Disinfection tank	- Sludge thickener; - Sludge digester; - Dewater;	5000
- physicochemical treatment	- Aeration tank - Anaerobic process	-bio-lagoon; - Disinfection tank	- Sludge thickener; - Dewater	4000
- Sedimentation tank with chemical using	- Aeration tank	- aerated lagoon; - Disinfection tank; - Filter		4000
- physicochemical treatment	- Aeration tank	- Disinfection t	- Sludge thickener; - Dewater	4000

- Sedimentation tank with chemical using	- Aeration tank	- Disinfection tank	- Sludge compressor	6000
'- Flocculation tank	- Anaerobic process; - Aeration tank.	- Disinfection tank	- Sludge thickener; - Sludge compressor	4000
- Sedimentation tank with chemical using (PAC, Polymer)	- Aeration tank	- Disinfection tank - Final lagoon	- Sludge thickener; - Sludge digester; - Dewater	4500 phase 1: 1500, phase 2: 3000
- Sedimentation tank with chemical using	- Aeration tank	- Disinfection tank - Facultative lagoon	- Sludge thickener; - Sludge digester; - Dewater; - final disposal	10000 phse 1: 5000, phse 2: 5000
- Sedimentation tank with chemical using	- Aeration tank	- Disinfection tank; - bio-lagoon	- Sludge thickener; - Dewater;	1800
				1000
				4000

				1000
				5600
- Sedimentation tank with chemical using (Flocculation)	- Aeration tank	- Disinfection tank	- Sludge storage; - Sludge compressor	5000
	- Aeration tank	- Bio-lagoon; - Disinfection tank	- Sludge thickener; - Sludge digester; - Dewater	4000
- Sedimentation tank with chemical using	- Aeration tank	- Disinfection tank - bio-lagoon	- Sludge thickener; - Sludge digester; - Dewater; - Sludge Filter Press	1800
				1200
				2 x 4500
				6000













### Ho Chi Minh city

No.	Name of IZs/EPZS/ICs	Address	IZ, EPZ or IC?
<b>I</b>	<b>IZs</b>		
1	Tan Thuan (operating)	Huynh Tan Phat st., Tan Thuan Dong ward, district 7	EPZ
2	Linh Trung I (operating)	Highway 1A, Linh Trung ward, Thu Duc district	EPZ
3	Linh Trung II (operating)	Binh Chieu commune, Thu Duc district	EPZ
4	Tan Tao (phase 1 and phase 2) (operating)	Binh Tan district	IZ
5	Vinh Loc (phase 1 and phase 2) (operating)	Phase 1: Binh Hung Hoa B, Binh Tan district Phase 2: 5-6 Vinh Loc A commune, Binh Chanh district	IZ
6	Binh Chieu (operating)	Thu Duc district	IZ

7	Hiep Phuoc (phase 1 and phase 2) (operating)	Nha Be district	IZ
8	Tan Binh (phase 1 and phase 2) (operating)	Tan Phu and Binh Tan district	IZ
9	Tan Thoi Hiep (operating)	District 12	IZ
10	Le Minh Xuan (operating)	A6/177B Tran Dai Nghia, Nhat Tan commune, Binh Chanh district	IZ
11	Tay Bac Cu Chi (operating)	Highway 22, Tan Hoi ward, Cu Chi district	IZ
12	Cat Lai (operating)	Thanh My Loi, District 2	IZ
13	Tan Phu Trung (operating)	Cu Chi district	IZ
14	Phong Phu (building Infrastructure)	Binh Chanh district	IZ

15	Dong Nam Cu Chi (detailed planning)	Cu Chi district	IZ
<b>II ICs</b>			
1	Xuan Thoi Son A (operating)	Xuan Thoi Son A ward, Hoc Mon district	IC
2	Nhi Xuan (operating)	Xuan Thoi Son commune, Hoc Mon district	IC
3	Le Minh Xuan (operating)	Le Minh Xuan commune, Binh Chanh district	IC
4	Binh Dang (operating)	ward 6, District 8	IC
5	Hiep Thanh (operating)	District 12	IC
6	Tan Thoi Nhat (operating)	Tan Thoi Nhat ward, District 12	IC
7	Phu My (operating)	Phu Thuan ward, District 7	IC
8	Hiep Binh Phuoc (operating)	Hiep Binh Phuoc ward, Thu Duc district	IC
9	East highway 1A (operating)	Binh Tri Dong ward, Binh Tan district	IC
10	Tan Quy A (operating)	Trung An commune, Cu Chi district	IC
11	Tan Quy B (operating)	Tan Thanh Dong commune, Cu Chi district	IC
12	Tan Hiep B (operating)	Tan Hiep commune, Hoc Mon district	IC
13	District 2 (building infrastructure)	District 2	IC
14	An Ha (building infrastructure)	Binh Chanh district	IC
15	Sai Gon Agriculture Incorporation (building infrastructure)	Binh Chanh district	IC
16	HCMC Motorbike mechanism (building infrastructure)	Cu Chi district	IC
17	Long Son (under preparation of construction)	District 9	IC
18	Tan Thoi Nhi (new planning)	Hoc Mon district	IC
19	Tan Hiep A (new planning)	Hoc Mon district	IC
20	Xuan Thoi Son B (new planning)	Hoc Mon district	IC
21	Dong Thanh (new planning)	Hoc Mon district	IC
22	Duong Cong Khi (new planning)	Hoc Mon district	IC
23	Tran Dai Nghia (under detailed planning)	Binh Chanh district	IC
24	Quy Duc (new planning)	Binh Chanh district	IC
25	Tan Tuc (new planning)	Binh Chanh district	IC
26	Da Phuoc (new planning)	Binh Chanh district	IC

27	Pham Van Coi ( <i>operating</i> )	Cu Chi district	IC
28	Bau Tran ( <i>operating</i> )	Cu Chi district	IC
29	Long Thoi ( <i>operating</i> )	Nha Be district	IC
30	Binh Khanh (new planning)	Can Gio district	IC

## INDUSTRIAL

Area (ha)	State-owned, private or joint-stocked?	Number of operating companies	Number of employees	Separated or combined sewer (industrial/domestic ww)
300	joint-stocked	117		
62	joint-stocked	30		
61.7	joint-stocked	41		
443	joint-stocked	190		
263	State-owned	88		
27.34		20		

952	State-owned	49		
105.95	private	139		
28.413	private	25		
220	joint-stocked	156		
208	joint-stocked	41		
120		25		
542	joint-stocked	49		
148.41				

283				
38				
230	State-owned	12		
17	private	115		
28				
50				
50				
80				
20				
33				
65				
97				
20				
18/20.52				
123.5				
89				
99				
25.5				
87				
25				
40				
36				
55				
50				
70				
40				
90				

75				
95				
57				
97				



## ZONES/INDUSTRIAL CLUSTERS

Total WW Flow (m3/day)	Centralized Treatment in operation	CETP treated flow (m3/day)	Water quality after treatment (standard level)	if no CETP, latest step in planning? (cost evaluation? Feasibility study?, designed?)
	operating	6,500	TCVN 5945 - 2005, level A	
	operating	4,000	TCVN 5945 - 2005, level A	
	operating	2,500	TCVN 5945 - 2005, level B	
	operating	7,000	TCVN 5945 - 2005, level B	
	operating	3,000	TCVN 5945 - 2005, level B	
	operating	1,100	TCVN 5945 - 2005, level A	

	operating	1,200	TCVN 5945 - 2005, level B	
	operating	1200-1500	TCVN 5945 - 2005, level B	
	operating	1,200	TCVN 5945 - 2005, level A	
	operating	3,800	TCVN 5945 - 2005, level B	
	operating	3,000	TCVN 5945 - 2005, level A	
	operating	500	TCVN 5945 - 2005, level B	
	no		TCVN 5945 - 2005, level A	not yet (wastewater collection network is being constructed)
	no			




Hazardous waste production type	Hazardous waste volume (unit/year)	Water source receiver	influent parameter of CETP
wasted oils, Cloths contaminated by lubricant, batteries, glass light bulb, ink, waste from health service,...	3072 kg	Tac Roi canal, Sai Gon river downs	pH = 6,1 BOD5 = 220 SS = 180 COD = 400
		Cat spring	
		Nuoc len canal and Luong Beo channel	
			pH = 7,3 BOD5 = 80 SS = 283 COD = 309
		Go Dua canal - Sai Gon river	BOD5 = 225 SS = 356 COD = 368

Cloths contaminated, wasted gloves, batteries, ink - Hazardous - containing sludge. - Materials packing, chemical container. - Wastes from Lab	360900 kg	Ca Chot canal - Dinh ong canal - Soai Rap river	
	13020 kg	Tham Luong channel and channel 19	pH = 6,2 BOD5 = 204 SS = 74,3 COD = 363
		Tran Quang Co Channel	
wastewater sludge, oil-containing wastes, chemical, packing, chemical container,...	216624 kg	Channel 6 & 8	pH = 7,83 SS = 1086,0 COD = 1226,5
chemical packing, contaminated cloths, glass light bulb, wasted oils, chemical container, chemical residue, sludge,...		Tra canal - Sai Gon river	BOD5 = 10 SS = 9 COD = 24
		Dong Nai river	
		Thay Cai channel	






<b>effluent parameter of CETP</b>	<b>Preliminary treatment</b>	<b>Primary treatment</b>	<b>Secondary treatment</b>	<b>Tertiary treatment</b>	<b>Sludge treatment</b>
pH = 7,3 BOD5 = 20 SS = 14 COD = 45	Screening Grit chamber	Equalization tank, Mixing tank, Flocculation tank Sedimentation tank			Sludge thickener Sludge compressor Sludge gutter
pH = 6,0 BOD5 = 5 SS = 14 COD = 20					
pH = 6,42 BOD5 = 26 SS = 8 COD = 40					
pH = 7,2 BOD5 = 43 SS = 62 COD = 64					
pH = 7,1 BOD5 = 30 SS = 9 COD = 33	Coarse screening Fine screening Oil separator Equalization tank		SBR reactor		Sludge tank Sludge thickener Sludge compressor
BOD5 = 10 SS = 29 COD = 16					

BOD5 = 18 SS = 7 COD = 51	Coarse screening Fine screening Sedimentation tank		Aeration tank Sedimentation tank	Sterilization tank	Sludge tank Sludge compressor
pH = 6,7 BOD5 = 10 SS = 8,5 COD = 18	Coarse screening Fine screening Oil separator Equalization tank		SBR reactor		Sludge thickener Sludge compressor
pH = 5,65 BOD5 = 1 SS = 8 COD = 3					
pH = 7,73 SS = 49,7 COD = 68,1					
BOD5 = 1 SS = 6 COD = 12	Screening Oil separator Equalization tank		SBR reactor		Sludge digester Sludge thickener Sludge compressor
	Screening Equalization tank Fine screening	Neutralization tank Flocculation tank Sedimentation tank	Aerotank and sedimentation		
	Screening Equalization tank Fine screening	Neutralization tank Flocculation tank Sedimentation tank	Aerotank and sedimentation		




<b>CETP designed flow rate (m3/day)</b>
10,000
5,000
3,000
10,500
5,000
1,500

3,000

2,000

1,500

4,000

3,000

600

4,000

3,000
2,000
1,500
4,000
3,000
600
4,000


