

For discussion  
on 18 March 2008

## **Legislative Council Panel on Environmental Affairs**

### **Review of the generic Chemical Oxygen Demand and Trade Effluent Surcharge rates under the Trade Effluent Surcharge Scheme**

#### **Introduction**

We conducted a trade-specific survey of the strength of sewage of all trades under the Trade Effluent Surcharge (TES) scheme in 2007. We propose to revise the generic chemical oxygen demand (COD) values and rates of the TES according to the results of the survey and also make adjustments to achieve the policy goal of fully recovering the operating costs of sewage services attributable to treating trade effluent.

2. This paper seeks to brief Members of the Panel on the results of the survey and consult Members on our proposal for revising the COD values and the TES rates.

#### **Recommendation**

3. Our policy is to seek full recovery of the operating cost of providing sewage services from the users of those services, in accordance with the polluter-pays principle. At the same time, we are committed to ensuring a fair and equitable share of the operating costs are allotted to households and the trades. In view of the latest situation of the TES trades as revealed in the trade-specific survey of the strengths of trade effluents, we propose .

- (a) removing three trades, effluents of which are found to be comparable to or not stronger than domestic sewage, from the TES scheme;
- (b) revising, where appropriate, the generic COD values of 27 trades that will remain in the TES scheme according to the outcome of the survey. Specifically, we propose .
  - i/ adjusting downwards the corresponding TES rates for 13 trades according to the results of the survey, and in accordance with the 100% cost recovery target; and
  - ii/ adjusting upwards the corresponding TES rates for 14 trades according to the results of the survey, and in accordance with the 100% cost recovery target.

4. A table summarising the proposed TES rates and the revised

generic COD values for each trade is at [Appendix A](#).

### **Background and policy goal**

5. The TES scheme was introduced in Hong Kong by the Sewage Services Ordinance (Cap 463), supported by the Sewage Services (Trade Effluent Surcharge) Regulation (Cap 463 Sub Leg B), in 1995. The TES is a surcharge covering the additional cost of treating effluents of strength stronger than domestic sewage. It is calculated based on the average strength of effluent, expressed in terms of generic COD values, discharged by the 30 specified trades having regard to their particular operations. Each trade is assumed to be discharging effluent at a strength set out in Schedule 2 to the relevant Regulation. The TES is applied to the 30 trades on top of the sewage charge levied under the Sewage Services (Sewage Charge) Regulation (Cap 463 Sub Leg A).

6. The policy goal for the TES scheme is to achieve full recovery of the attributable operating costs. The most recent estimate (based on currently prescribed COD values and TES rates) is that we are recovering only about 84% of the operating costs.

7. A list of the specified trades and their current respective TES rates and generic COD values is at [Appendix B](#). It should be noted that the TES rates applying in designated water control zones are based on a maximum COD value for effluents of 2,000 grammes per cubic metre, which is the maximum strength of effluent most operators may be licensed to discharge into the sewerage according to the Technical Memorandum for Standards of Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters, which governs the licensing scheme provided for by the Water Pollution Control Ordinance (Cap 358) (WPCO).

8. While the generic COD values are assigned to each TES trade, any individual operator who considers that his business is discharging effluent which is less polluting than the generic values assigned, may apply for a review of the applicable TES rate. In lodging an application, the operator has to arrange for the collection and testing of trade effluent by an approved laboratory at his own cost and submit the results to the Drainage Authority (DA). Where the DA is satisfied that the COD values of the trade effluent are less than the assigned generic values, the TES rate will be reduced accordingly. The reduced rate is valid for two years subsequent to the Sewage Services (Trade Effluent Surcharge) (Amendment) Regulation 2007 passed in May 2007.

### **The effluent survey**

9. To ensure the TES scheme continues to operate based on the polluter-pays principle, we undertook to review the generic COD values of all TES trades by carrying out trade-specific effluent surveys to ascertain the latest situation with respect to the strengths of the effluents discharged. The survey was conducted in two phases. In the first phase the Environmental Protection

Department (EPD) surveyed the effluents of four trades involving the majority of the TES accounts. In the second phase the Hong Kong Productivity Council (HKPC) was commissioned as an independent consultant to survey the effluents of the remaining 26 trades in order to expedite the process. During the survey, individual operators of the TES trades were approached and consulted. The entire exercise involved over 1,100 sampling events. The review was completed in late 2007.

### **Key findings**

10. Effluent characteristics vary widely among the trades. Effluent strength depends on the product types, the ingredients or chemicals and equipment used, manufacturing practices, and the performance of the wastewater treatment facilities (if any) employed by an operator. In summary, the survey has revealed that among the TES trades .

- (a) COD<sub>total</sub> values obtained from nine of them are stronger than the currently prescribed generic values;
- (b) COD<sub>total</sub> values obtained from 18 of them are lower than the currently prescribed generic values; and
- (c) among the 18 trades noted in para. 10(b) above, the effluent strengths in terms of COD<sub>total</sub> of three trades are not stronger than domestic sewage.

11. We were not able to collect from three of the TES trades samples which are representative of the typical production processes of those trades because the surveyed establishments were found to be not operating the typical production processes of the trades. The premises could not therefore yield data suitable for revising the COD values of these trades in the current exercise. Given that the total number of accounts is only 86 and their effluent load accounts for less than 0.5% of the overall load subject to TES, we propose to retain their current generic COD rates for the present exercise. We would continue to monitor the effluent from these trades and initiate adjustments where appropriate.

12. We recommend the generic COD values of the TES trades prescribed in the Sewage Services (Trade Effluent Surcharge) Regulation (Cap 463 Sub Leg B) be adjusted according to the results of the survey. The proposed new values are listed in Appendix A. In line with the extension of water control zones to all waters in the territory and having regard to the principle enshrined in the existing legislation, that trades should not be discharging effluent stronger than would have been permitted under the WPCO, the generic COD values are proposed to be capped at 2,000 grammes per cubic metre for the purpose of calculating applicable TES rates for individual trades. For the three trades for which we could not collect effluent samples representative of typical operations during the survey, we propose keeping the current generic COD values unchanged but we will continue to monitor any changes of effluent for

these trades. Consequential to the revision of COD values, the trade-specific rates for the TES must be adjusted accordingly in line with the polluter-pays principle. These are also listed in [Appendix A](#).

## **Justification**

### *Removal of trades from TES scheme*

13. Since three of the trades have been found to discharge effluents not stronger than domestic sewage, there is no longer any basis for subjecting them to the TES (which seeks to recover from operators the additional cost incurred in treating effluents more polluting than domestic sewage). The three trades are %Bleaching and dyeing of garments+, %Textile stencilling and printing+, and %Laundries+. We therefore propose to remove them from the scheme entirely.

### *Reduction in TES rates*

14. Thirteen trades remaining in the TES scheme are entitled to a reduction in TES rate according to our proposal.

15. The generic COD values of 12 trades have to be adjusted downwards to reflect the finding that according to the survey results the effluents from these trades are generally less polluting now than previously. With full operating cost recovery in mind, the TES rates applicable to these trades are to be adjusted downwards accordingly as the resultant cost of treating these effluents is reduced. For instance, according to our proposal the %Restaurant+ trade, which represents over three-quarters of the TES accounts, will enjoy a 19% reduction in TES rate, from \$3.78 to \$3.05 per cubic metre. The %Basic industrial chemicals+ trade will enjoy an 80% reduction in the TES rate, from \$3.78 to \$0.76. In accordance with the polluter-pays principle and in line with our existing policy, the rate adjustments we propose are aimed at achieving full recovery of operating costs, rather than maintaining the existing recovery rate of 84%.

16. While the %Canning & preserving fruit & vegetables+ trade was found to be discharging effluent at strength slightly stronger than presently prescribed, the difference between the COD<sub>total</sub> and COD<sub>settled</sub> values (after the application of the 2,000 grammes per cubic metre cap) was reduced and as a result, the trade is entitled to have its applicable TES rate reduced slightly.

### *Increase in TES rates*

17. TES rates for 14 trades remaining in the TES scheme would be increased, either by one or two increments, according to our proposal.

18. For two trades, namely %Soap and cleaning preparations, perfumes, cosmetic+ and %Soy and other sauces+, although their COD values have improved compared to the generic value, such improvements are not of a scale that justify a reduction in the TES rates if we adhere to the polluter-pays principle. Hence, the

applicable TES rates have to be adjusted upwards by two increments to recover fully the operating cost after the second increment.

19. For the same reason, the TES rate for %Canning, preserving and processing of fish & crustaceans+ has to be increased despite the slight improvement in the COD values of its effluent. However, the necessary increase in the applicable TES rate to achieve full operating cost recovery is small and hence will be made by one increment.

20. The survey has also shown that the effluent quality of eight other trades has not improved over the years. In fact, the survey has revealed that the effluents of these trades are stronger than currently prescribed under the TES scheme. For these trades it is proposed also to increase the TES rates in two steps to achieve full operating cost recovery.

21. For the three trades from which we were not able to collect effluent samples representative of their typical production processes, (namely the %Spinning cotton+, %Paints, varnishes and lacquers+ and %Pulp, paper and paperboard+) we recommend maintaining the TES rates at the prescribed level. Applicable TES rates for these trades would be adjusted upwards also by two annual increments with a target of achieving full operating cost recovery after the second increment. EPD will take appropriate action, for example further inspections, to follow up with individual operators in the respective trades with a view to monitoring any changes in their effluent.

#### *Other considerations*

22. The proposed increases in the TES rates for trades is necessary to ensure a fair and equitable sharing of the operating cost of providing sewage services amongst different parties according to the polluter-pays principle. We have reviewed the impact on affected accounts. About 92% of the accounts will enjoy a reduction in TES as a result of our proposal to revise the generic COD values and review the TES rates. On average, the reduction in the monthly bill of these accounts ranges from about 6% to 80%. The average monthly payment for the %Restaurant+trade, which accounts for three-quarters of all TES accounts, will be reduced by about 19%, or about \$230. For the vast majority of the remaining 8% of accounts which face an increase in TES rate, the annual increment would be less than HK\$200 per month, under our proposal.

#### **Sewage services and cost recovery**

23. We have been very conscious of the need to control the operating costs of the sewage services and have adopted various measures in recent years to improve efficiency. These have included streamlining staff structure, outsourcing sewerage maintenance and supporting operations, adopting energy saving technologies and better use of biogas produced in secondary sewage treatment works. The total expenditure has declined by 4% and unit treatment cost by 10% as the volume of sewage treated and the number of sewage

treatment works and pumping stations have increased by 6% and 27% respectively over the past few years.

24. The projected TES recovery rate for 2007-08 is around 84%. With the proposed adjustments in COD values and phased increases in the TES rates, we project that the operating cost attributed to treating trade effluents could be recovered fully after the second increment.

### **Facilitating the trades to adopt pollution control measures**

25. Recognising that some trades appear not to have made any improvements in effluent quality over the years, we will arrange workshops or other activities to promote the adoption of pollution control measures by the TES trades. We would encourage the trade associations to apply for funding support, such as from the Environment and Conservation Fund (ECF), to organise activities promoting pollution control. On the other hand, EPD will monitor the operation of individual operators in the TES trades concerned with a view to ensuring that effluent discharged by individual operators are of standard acceptable under the water pollution control regime.

### **Advice sought**

26. Members are invited to consider and support our proposals outlined in para. 2 above.

**Environmental Protection Department  
March 2008**

**Appendix A****Proposed rates of trade effluent surcharge and generic chemical oxygen demand values**

	Trade, Business or Manufacture	TES rates <sup>1</sup> HK\$ / cu m		Generic COD values grammes / cu m	
		After 1st increment	After 2nd increment	COD <sub>total</sub>	COD <sub>settled</sub>
1	Yarn sizing	4.13	4.51	2,000	2,000
2	Washing new garments, excluding laundries	0.41	0.41	566	507
3	Bleaching and dyeing of garments	N/A	N/A	N/A	N/A
4	Bleaching & dyeing of knitted fabric	0.41	0.41	665	607
5	Bleaching & dyeing of woven fabric	1.20	1.20	1,053	981
6	Textile stencilling and printing	N/A	N/A	N/A	N/A
7	Knit outerwear	0.41	0.41	566	507
8	Wearing apparel other than knit outerwear	0.41	0.41	566	507
9	Spinning cotton	0.37	0.41	570	541
10	Laundries	N/A	N/A	N/A	N/A
11	Soap & cleaning preparations, perfumes, cosmetics	4.13	4.51	2,000	2,000
12	Medicines	4.13	4.51	2,000	2,000
13	Paints, varnishes and lacquers	1.27	1.38	1,000	619
14	Basic industrial chemicals	0.76	0.76	677	656
15	Tanneries & leather finishing	0.76	0.76	807	781
16	Pulp, paper and paperboard	4.47	4.88	1,870	947
17	Soft drinks & carbonated water industries	0.47	0.47	826	628
18	Breweries & manufacture of malt liquors	4.13	4.51	2,000	2,000
19	Distilling, rectifying & blending spirits	4.13	4.51	2,000	2,000
20	Cocoa, chocolate and sugar confectionery	4.13	4.51	2,000	2,000
21	Vermicelli, noodles & similar farinaceous products	4.13	4.51	2,000	2,000
22	Bakery products	3.59	3.92	2,000	1,506
23	Grain mill products	2.77	2.77	1,521	1,290
24	Vegetable oil, peanut oil, peppermint oil and aniseed oil	2.48	2.48	1,320	1,310
25	Canning & preserving and processing of fish & crustaceans	1.78	1.78	1,141	873
26	Canning & preserving fruit & vegetables	3.41	3.41	2,000	1,822
27	Dairy products	4.13	4.51	2,000	2,000
28	Slaughtering, preparing & preserving meat	1.74	1.74	1,129	769
29	Soy & other sauces	4.13	4.51	2,000	2,000
30	Restaurants	3.05	3.05	1,630	1,320

<sup>1</sup> In line with the existing approach within water control zones, rates are calculated based on an assumed maximum COD value for effluents of 2,000 g/cu m, which would be the maximum strength of effluent most operators may be licensed to discharge into the sewerage under the licensing scheme of the Water Pollution Control Ordinance (Cap 358). Generic COD values are hence also proposed to be capped at this level.

**Appendix B****Rates of trade effluent surcharge and generic chemical oxygen demand values currently prescribed under the Sewage Services (Trade Effluent Surcharge) Regulation**

	Trade, Business or Manufacture	TES rates		Generic COD values	
		HK\$ / cu m		grammes / cu m	
		Within a water control zone <sup>2</sup>	Outside a water control zone	COD <sub>total</sub>	COD <sub>settled</sub>
1	Yarn sizing	3.78	10.67	5,160	4,436
2	Washing new garments, excluding laundries	0.82	0.82	660	330
3	Bleaching and dyeing of garments	0.64	0.64	730	635
4	Bleaching & dyeing of knitted fabric	1.01	1.01	980	837
5	Bleaching & dyeing of woven fabric	1.73	1.73	1,290	1,090
6	Textile stencilling and printing	1.32	1.32	890	404
7	Knit outerwear	1.01	1.01	1,051	935
8	Wearing apparel other than knit outerwear	1.80	1.80	990	476
9	Spinning cotton	0.34	0.34	570	541
10	Laundries	0.60	0.60	725	425
11	Soap & cleaning preparations, perfumes, cosmetics	3.78	16.05	7,805	7,453
12	Medicines	3.78	4.98	2,910	2,482
13	Paints, varnishes and lacquers	1.16	1.16	1,000	619
14	Basic industrial chemicals	3.78	4.02	2,500	2,262
15	Tanneries & leather finishing	2.56	2.56	1,755	1,436
16	Pulp, paper and paperboard	4.09	4.09	1,870	947
17	Soft drinks & carbonated water industries	1.49	1.49	1,200	914
18	Breweries & manufacture of malt liquors	3.29	3.29	1,780	1,304
19	Distilling, rectifying & blending spirits	0.11	0.11	580	485
20	Cocoa, chocolate and sugar confectionery	3.78	4.26	2,500	2,214
21	Vermicelli, noodles & similar farinaceous products	3.29	5.16	2,500	1,548
22	Bakery products	3.29	5.16	2,500	1,548
23	Grain mill products	5.98	9.54	2,860	680
24	Vegetable oil, peanut oil, peppermint oil and aniseed oil	3.78	19.55	7,600	5,315
25	Canning & preserving and processing of fish & crustaceans	1.73	1.73	1,495	1,257
26	Canning & preserving fruit & vegetables	3.63	3.63	1,990	1,628
27	Dairy products	3.78	9.15	3,960	3,084
28	Slaughtering, preparing & preserving meat	3.78	9.01	3,870	2,823
29	Soy & other sauces	3.78	8.38	3,900	3,243
30	Restaurants	3.78	9.12	3,600	2,315

<sup>2</sup> For discharges in water control zones rates were calculated based on an assumed maximum COD value for effluents of 2,000 g / cu m, which would be the maximum strength of effluent most operators may be licensed to discharge into the sewerage under the licensing scheme of the Water Pollution Control Ordinance (Cap 358). At the time of promulgation of the scheme there were discharges outside water control zones and therefore not subject to the WPCO, hence the need for two sets of TES rates.