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**Subcommittee on Sewage Services
(Trade Effluent Surcharge) (Amendment) Regulation 2008**

Background Brief

Purpose

This paper sets out the background to the Sewage Services (Trade Effluent Surcharge) (Amendment) Regulation 2008 (the Amendment Regulation) and summarizes the views of the Panel on Environmental Affairs (EA Panel) when consulted on the proposals in the Amendment Regulation.

Background

Existing arrangements

2. The Trade Effluent Surcharge (TES) scheme was introduced in Hong Kong in 1995 pursuant to the enactment of the Sewage Services Ordinance (Cap. 463) (SSO) and the Sewage Services (Trade Effluent Surcharge) Regulation (Cap. 463, sub. leg. B) (the TES Regulation). A water consumer whose premises are connected to a public sewer has to pay a sewage charge¹ (SC). The TES is an additional charge on top of the SC, currently applying to 30 specified trades which produce effluents of strength stronger than domestic sewage, to reflect the additional costs incurred in treating the effluents. The rate of TES is calculated based on the average strength of effluent, expressed in terms of generic Chemical Oxygen Demand (COD)² values, discharged by the specified trades. The higher the COD value, the higher the treatment cost and hence the higher the TES rate. To reduce the administrative cost of measuring the discharge at each premises, the 30 specified trades are each assigned a set of generic COD values determined in 1995 such that members of the same trade are subject to trade-specific TES rates. A list

¹ The SC is charged on the basis of the volume of water supplied to the consumer's premises other than water supplied specifically for flushing purposes. It aims to recover the cost of the collection and treatment of wastewater at or below a typical pollution strength equivalent to domestic sewage.

² COD measures the amount of oxygen required to decompose organic matter chemically and is hence a measure of polluting load. The higher the level in wastewater, the greater the cost of treating it.

of the specified trades and their current respective TES rates and generic COD values is at **Appendix I**.

3. The policy goal for the TES scheme is to achieve full recovery of the attributable operating costs in accordance with the polluter-pays principle. According to the information provided by the Administration in May 2008, the projected TES recovery rate for 2007-2008 is around 84%.

Reassessment of TES rates

4. 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 can appeal for a lower TES rate. In lodging an appeal, the operator, pursuant to section 4 of the TES Regulation, 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 pursuant to the passage of the Sewage Services (Trade Effluent Surcharge) (Amendment) Regulation 2007.

5. On the strong request for lower TES rates by the restaurant trade, the Administration advises that among some 14 000 operators of different sizes in the trade, there have been on average 460 applications for reassessment per year since the introduction of the TES scheme in 1995 and about 84% of these applications were successful.

Review of the generic COD values and existing TES rates

6. To ensure the continuing operation of the TES scheme based on the polluter-pays principle, the Administration conducted a review on the generic COD values of all TES trades by carrying out trade-specific effluent surveys in 2007, with a view to ascertaining the latest situation with regard to the strengths of the effluents discharged. The survey was conducted in two phases by the Environmental Protection Department (EPD) and the Hong Kong Productivity Council (HKPC). In the first phase, the EPD surveyed the effluents of four trades involving the majority of the TES accounts. In the second phase, HKPC was commissioned as an independent consultant to survey the effluents of the remaining 26 trades. 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.

The Amendment Regulation

7. The Amendment Regulation updates the TES scheme according to the results of the survey. The main provisions of the Amendment Regulation seek to

revise the COD values and TES rates in accordance with the results of the effluent survey with a view to achieving 100% operating cost recovery (i.e. excluding depreciation) for the TES trades by 2009-2010. The proposed rates of TES and generic COD values are given at **Appendix II**. Specifically, the Administration proposes to:

- (a) Remove three trades (i.e. "bleaching and dyeing of garments", "textile stenciling and printing" and "laundries") from the TES scheme because their effluents are found to be comparable to or not stronger than domestic sewage; and
- (b) Revise the generic COD values and the corresponding TES rates of the remaining 27 trades according to the result of the survey with a view to achieving 100% cost recovery (excluding depreciation) as follows:
 - the TES rates for 13 trades³ will be reduced with effect from 1 August 2008;
 - the TES rate for one trade (i.e. "canning, preserving and processing of fish and crustaceans") will be increased on 1 August 2008, while the TES rates for the remaining 13 trades will be increased by two consecutive increments on 1 August 2008 and 1 August 2009 respectively.

8. The Amendment Regulation was published in the Gazette on 9 May 2008 and tabled at the LegCo sitting on 14 May 2008. It shall come into operation on 1 August 2008.

Consultation with the EA Panel

9. The EA Panel was consulted on the Administration's review of the generic COD and TES rates under the TES scheme on 18 March 2008. At the meeting, the Panel met with seven deputations (**Appendix III**), mainly the restaurant trade, and received two written submissions. In general, the restaurant trade welcomed the proposed reduction of TES rates but considered that the rates should be further adjusted downward. A clear and transparent mechanism in deriving the generic COD values should also be put in place. While supporting the recovery of cost in relation to the provision of sewage services in accordance with the polluter-pays principle, Panel members expressed a number of concerns on the proposals, which are summarized in the ensuing paragraphs.

³ According to the Administration, the TES rates for these trades, representing about 92% of all TES accounts, are to be adjusted downwards to reflect the fact that their effluents have become less polluting and the resultant cost of treating these effluents has reduced.

Survey methodology

10. Hon Tommy CHEUNG considered it unfair to use the average COD value as the basis for deriving the generic value for the restaurant trade and questioned the Administration's choice of restaurants from which the effluent samples were taken, since restaurants with high pollution loads would affect the average COD value. He suggested that the median level of COD values of restaurants which were successful in their appeals should be used instead.

11. The Administration did not agree that the use of median COD value would be suitable, given that the polluter-pays concept was based on the cost of treating the excess polluting load from the trades, and that the latter was best estimated as a product of the average pollutant concentration and the volume of sewage discharge. To address members' concern on the methodology of the survey of effluent strength of the restaurant trade as well as statistics on the COD values of the reassessment cases concerning the trade, the Administration has subsequently provided a supplementary information paper as per **Appendix IV**.

Assessment mechanism

12. As the restaurant trade had been protesting against the TES rates since the introduction of the TES Scheme, Hon Emily LAU expressed concern as to whether there was adequate consultation with the trade and whether the assessment mechanism on effluent quality was fair and transparent. A deputation opined that the restaurant trade was dissatisfied with the way which samples were taken and the generic COD value assigned, and that there had not been adequate communication between the Administration and trade members.

Appeals

13. Some Panel members expressed grave concern that given the high reassessment costs, small restaurants might not be able to afford an appeal against the TES rates, the cost of which was not recoverable even if the appeals were successful. As such, members urged the Administration to consider including in the Amendment Regulation a provision for the Government to award of the cost of appeal to the successful appellants so as to provide incentive to those small restaurants which were reluctant to lodge appeals on grounds of cost. They also urged the Administration to consider the trade's request for refunding the successful appellants the amount of TES overcharged in the past, having regard to the flaws in the charging mechanism of TES as reflected by the high successful rate of appeals.

14. The Administration advised that the success of many restaurants in their appeals was mainly attributed to the installation and regular cleansing of effective grease traps which could significantly reduce the pollution load of restaurant effluents. On the cost of appeal for the restaurant trade, the Administration considered that it had been much reduced following the extension of the validity period of COD reassessment from one to two years and the reduction in the

sampling period from three to two days. Regarding the recovery of the appeal cost, the Administration's stance was that the TES scheme was introduced on the premise of the polluter-pays principle which was to provide incentives for the trades to take measures to reduce the strength of their effluents so that they could have their TES reduced through the appeal mechanism.

15. Some members however pointed out that even if restaurant operators had made efforts to reduce the strength of effluents, they could not benefit from reductions in TES unless they could successfully go through a cumbersome and costly appeal. Moreover, the extension of the validity period of COD reassessment from one to two years might not have served any useful purpose to those restaurant operators whose lease agreement would be expiring in a year's time.

Reference

16. A list of relevant papers is at **Appendix V**.

Council Business Division 1
Legislative Council Secretariat
23 May 2008

Appendix I

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 ²	Outside a water control zone	COD _{total}	COD _{settled}
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

² 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.

Source : Extract from the Administration's paper on "Review of the generic chemical oxygen demand and Trade Effluent Surcharge rates under the Trade Effluent Surcharge Scheme" (LC Paper No. CB(1)1046/07-08(04))

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

	Trade, Business or Manufacture	TES rates ¹ HK\$ / cu m		Generic COD values grammes / cu m	
		After 1st increment	After 2nd increment	COD _{total}	COD _{settled}
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

¹ 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.

Source : Extract from the Administration's paper on "Review of the generic chemical oxygen demand and Trade Effluent Surcharge rates under the Trade Effluent Surcharge Scheme" (LC Paper No. CB(1)1046/07-08(04))

**Organizations which have attended the meeting held by
Panel on Environmental Affairs (EA Panel) on 18 March 2008**

1. Association of Restaurant Managers
2. The Association for Hong Kong Catering Services Management Ltd
3. Hong Kong Catering Industry Association
4. Factory Canteen Chamber of Commerce
5. Hong Kong Federation of Restaurants and Related Trades
6. The Chartered Institution of Water and Environmental Management
Hong Kong
7. Chinese Cuisine Management Association

(Note: Association of Engineering Professionals in Society has provided a written submission to the EA Panel.)

For information

Legislative Council Panel on Environmental Affairs

Review of Trade Effluent Surcharge rates –

Survey of effluent strength of the restaurant trade and statistics on applications for reassessment of TES by the restaurant trade

Introduction

At the meeting of the Panel on Environmental Affairs held on 18 March 2008, Members requested us to provide further information on the methodology of the survey of effluent strength of the restaurant trade, as well as statistics on the chemical oxygen demand (COD) values of reassessment cases concerning the restaurant trade.

2. This paper provides the information sought.

Presently prescribed generic COD values for the restaurant trade

3. Individual operators of the restaurant trade are liable to pay a trade effluent surcharge (TES) based on the generic COD values specified in the *Sewage Services (Trade Effluent Surcharge) Regulation* (Cap 463 Sub Leg B) according to the volume of water consumption. The current set of values is 3,600 grammes per cubic metre (g / cu m) and 2,315 g / cu m for COD_{total}¹ and COD_{settled}² respectively.

4. Those generic COD values were determined in 1995 when the Sewage Services Charging Scheme was introduced. The set of COD values, together with applicable COD values for other trades, was based on a mix of theoretical considerations, information on the nature of effluents discharged by the same trades elsewhere in the world, and actual measured values.

Survey of effluent strength of the restaurant trade

5. Since the introduction of the TES scheme, there have been complaints that for the restaurant trade in particular the applicable generic COD values are too high. In view of the lapse of time since the introduction of the TES scheme, and noting in particular the efforts made by the trades to control pollution,

¹ The value is a measurement of the chemical oxygen demand of the whole sample of a trade effluent without allowing gravity separation of the sample, thus indicating the total organic load.

² The value is a measurement of the chemical oxygen demand of the un-settleable portion of a sample of trade effluent after gravity separation and removal of the settleable portion by allowing the sample to sit still for 60 minutes. It indicates the organic load of the unsettled portion of the effluent.

we carried out a trade-specific survey of effluent strength in order to collect the latest information with a view to updating the set of COD values.

6. The survey of effluents from the restaurant trade was carried out by the Environmental Protection Department in August and September 2005. We aimed at collecting about 400 samples from operators of the trade for analysis. In order to ensure the final outcome would be representative of the average effluent strength of the restaurant trade as a whole, we divided operators into three categories before randomly selecting restaurants for the collection of samples. The three categories represented operators with a daily water consumption of (a) greater than 100 cubic metres; (b) between 10 and 100 cubic metres; and (c) less than 10 cubic metres. From each of the categories, we randomly selected 50, 200 and 150 operators respectively for collection of samples.

7. Staff of EPD collected grab effluent samples during inspections of the randomly selected restaurants over a two-month period according to the distribution described in paragraph 6 above. The inspections were carried out during the period of normal business activity, when trade-related wastewater would be expected to be generated. Samples were collected at the effluent discharge points of the selected operators and sent to independent laboratories accredited under the Hong Kong Laboratory Accreditation Scheme for analysis.

8. Before embarking on the survey, we informed representatives of the Association of Restaurant Managers and the Hong Kong Federation of Restaurants and Related Trades that a survey would be conducted. However, the randomly selected operators of the trade were not informed of the inspection beforehand so as to safeguard the integrity of the samples to be collected.

9. By the end of the survey, a total of 384 samples had been collected during inspections and analysed. The results indicated that effluent strength ranged from as low as 32 g / cu m, to as high as 77,500 g / cu m. Based on all 384 samples the mean total COD was 2,520 g / cu m. To avoid distortion of the results by unusually high and low values, samples lying beyond two standard deviations from the mean were deleted and the results recalculated. On this basis, 10 sample results were discarded. The values then ranged from 32 g / cu m to 14,900 g / cu m with a mean of 1,629 g / cu m. We thus concluded that a reasonable estimate of the mean total COD of restaurant effluents free from distortion by outliers would be 1,630 g / cu m. We consider that this is an appropriate value to apply given the existing structure of the charging scheme which relies on the use of average figures to determine the polluting loads, and hence the charges to be paid. If we were to adopt another statistic, such as the median, the entire scheme would need to be re-worked, and it would not necessarily mean that the charges to be met by each trade would be reduced.

10. We are confident that the methodology of the survey is scientifically

sound and reliable, and the average strength of the effluents is representative of the general quality of effluents discharged by the restaurant trade, taking into account the pollution control measures adopted across the trade as a whole.

Reassessment of TES rates

11. While a generic COD value is applied to a trade under the TES scheme, individual operators may feel that as a result of the pollution control measures they employ, the effluent they discharge is weaker than the generic value. In such circumstances an operator may choose to apply for reassessment of the effluent strength discharged by his establishment. The detailed reassessment procedure is provided for in the Regulation and the Technical Memorandum issued pursuant to Section 13 of the Sewage Services Ordinance (Cap 463). An operator is obliged to arrange for collection and testing of effluents at his own cost.

12. In order to encourage operators with good pollution control practices to seek reassessment of applicable TES rates, we introduced the *Sewage Services (Trade Effluent Surcharge) (Amendment) Regulation 2007* in April 2007, which was supported by the Legislative Council, to extend the period during which a re-assessed TES rate is effective from one year to two years. We also amended the relevant Technical Memorandum to reduce the number of specified sampling days for small establishments from three to two. These proposals have reduced the cost relating to reassessments for TES trades.

13. Under the TES scheme, there are about 14,000 operators of different sizes in the restaurant trade. In the 12 years since the introduction of the TES scheme, there have been on average 460 applications for reassessment per year. About 84 percent of these applications were successful, representing the top two percent of all operators with better pollution control practices in the restaurant trade. For the period between March 2007 and February 2008, the COD values for reassessment cases ranged from 300 g / cu m to 1,690 g / cu m, with a mean of 867 g / cu m. It should be noted that these figures represent the performance of those establishments with the best pollution control practices and are bound to describe effluents which are better than average quality. It would therefore be wholly inappropriate to assume that they could or should be adopted as generic values to be applied to the trade as a whole.

Facilitating the trades to adopt pollution control measures

14. We believe it is the collective responsibility of every individual of the community to reduce the pollution of our living environment. Hence we have introduced the TES scheme on the premises of the "polluter-pays" principle.

15. As stated in paragraph 12 above, we have already extended from one year to two years the period of time for which a TES reassessment remains

valid, and reduced the number of sampling days for small operators required under the TES scheme. Both these measures have reduced the reassessment costs and should encourage more restaurants to implement good pollution control practices and apply for reassessment. We will continue to encourage TES trades to adopt good pollution control measures. We will arrange workshops or other activities to promote the adoption of pollution control measures by the TES trades and encourage trade associations to organise activities promoting pollution control with funding support from, for example, the Environment and Conservation Fund.

Environmental Protection Department
23 April 2008

**Subcommittee on Sewage Services
(Trade Effluent Surcharge) (Amendment) Regulation 2008**

List of references

Council/Panel	Date of meeting	Paper
Panel on Environmental Affairs	18 March 2008	<p>Administration's paper on review of the generic chemical oxygen demand and Trade Effluent Surcharge rates under the Trade Effluent Surcharge Scheme (LC Paper No. CB(1)1046/07-08(04)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0318cb1-1046-4-e.pdf</p> <p>Background brief Paper on Trade Effluent Surcharge Scheme (LC Paper No. CB(1)1046/07-08(05)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0318cb1-1046-5-e.pdf</p> <p>Submission from The Chartered Institution of Water and Environmental Management Hong Kong (English version only) (LC Paper No. CB(1)1077/07-08(01)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0318cb1-1077-1-e.pdf</p> <p>Submission from Association of Engineering Professionals in Society Ltd (English version only) (LC Paper No. CB(1)1077/07-08(02)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0318cb1-1077-2-e.pdf</p> <p>Administration's supplementary information on review of Trade Effluent Surcharge rates – Survey of effluent strength of the restaurant trade and statistics on applications for reassessment of TES by the restaurant trade (LC Paper No. CB(1)1358/07-08(01)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0318cb1-1358-1-e.pdf</p>

Council/Panel	Date of meeting	Paper
		Minutes of meeting (LC Paper No. CB(1)2268/06-07) (paragraphs 17 to 44) (http://www.legco.gov.hk/yr07-08/english/panels/ea/minutes/ea080318.pdf)
Press release	9 May 2008	" Trade effluent surcharge scheme reviewed " (http://www.info.gov.hk/gia/general/200805/09/P200805090115.htm)

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