

ADVISORY COUNCIL ON THE ENVIRONMENT

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(ACE 16/94)
(for Information)

Implementation of Trade Effluent Surcharge

INTRODUCTION

--- Attached to this paper is an information note setting out the detailed arrangements for the trade effluent surcharge (TES) under the general sewage charging scheme.

BACKGROUND

2. When the industry and trade organizations were first consulted in 1990 on the effluent standards to be included in the Technical Memorandum under the Water Pollution Control Ordinance, the biological quality standard for high flow effluent discharging into the sewers was proposed at 250 mg/L Biochemical Oxygen Demand (BOD). There were claims from industry that the physical constraints to do with multi-storey flatted factories would not allow the installation of treatment facilities to pretreat effluent to the proposed standard. As a result, the BOD requirement was modified to 800 mg/L on the understanding that industry and trade would pay a TES which would reflect the cost for treating their effluents down to the average strength of domestic sewage at 250 mg/L BOD or its equivalent.

Present Position

3. During public consultations on the proposed charging scheme for sewage services last year, the charging principles and the general framework for the TES were also discussed. The public and the industry organizations have both indicated support for the TES as a means to enable an equitable distribution of the costs of sewage services among the domestic and industrial users in particular.

4. In the discussions with the industry and trade organizations on the TES, the Government undertook to work out the implementation details of the surcharge scheme and brief them on the proposed arrangements as soon as possible. These are now set out in the information note attached.

Briefing Arrangements

5. The information note has been issued to the major industry and trade organizations and arrangements have been made to brief these organizations on the detailed proposals in March.

Advice Sought

6. Members are invited to note and comment on the arrangements for the TES scheme.

Planning, Environment & Lands Branch
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ACE.TES

Trade Effluent Surcharge

Introduction

As part of the long term strategy to deal with the pollution problem in Hong Kong, the Government has embarked upon a new programme of sewage services to improve the sewerage facilities in the territory. *The capital cost of the new sewerage works of some \$12 billion over the next four years will be paid by the Government in full.* The operating costs are proposed to be recovered from users of sewage services to reflect the polluter pays principle.

2. Public consultation on the sewage charging proposal started in September last year. Under the proposed charging scheme, there will be a general sewage charge which represents the cost of treating sewage of domestic strength¹. In addition, some industries and trades will be required to pay a trade effluent surcharge (TES) to reflect the additional cost to treat their effluents down to the domestic strength.

3. As a result of the consultation on sewage charges and the TES, there has been general public support for the polluter pays principle which reflects a more equitable distribution of sewage service costs among the users. The Legislative Council also indicated majority support for the charging scheme in its motion debate on 1 December 1993. During the discussions on the TES, we undertook to study the implementation details of the surcharge scheme and brief industry and trade again on these proposals before the enabling legislation would be finalized. This paper sets out the proposed administrative arrangements for the TES scheme.

Charging Principles

4. The TES is derived based on the additional operating costs of providing treatment to sewage with a strength in excess of that of domestic sewage. It will be applied territory-wide to all industrial and commercial premises which discharge to public sewers and whose wastewater strength exceeds that of domestic sewage. *The TES scheme provides an incentive for industry and trade to pretreat their effluents before discharge and hence minimize the wastes generated from the production processes.*

¹ In Hong Kong this is approximately 250 g/m³ (grammes per cubic metre which is the same as milligrams per litre), of Biochemical Oxygen Demand (BOD).

Charging Parameters

5. The TES will be based on pollutant load which is determined by both volume and strength of wastewater. Volume of wastewater discharged to sewer is best determined from water meter readings, with an allowance made for specific trades which discharge substantially less water than they consume as a result of production losses. We have considered the views expressed by industry and trade during public consultation last year and consider that a discharge factor of 80% should be applied to these specific trades which are textiles bleaching and dyeing, beverage manufacturing, ice-making and restaurants.

6. For strength, instead of basing the surcharge on the concentration of BOD in the effluent (paragraph 2 above), Chemical Oxygen Demand (COD) would be used as the determinant. Reliable test results could be made available more readily and the measure of COD is simpler and cheaper to undertake. It is also widely used in overseas countries for assessing industrial wastewater strength.

Determination of TES

7. In order to reflect both the primary and secondary processes of sewage treatment, two measures of COD will be made, i.e. COD-total (COD_t) and COD-settled (COD_s). This measurement will ensure an equitable distribution of the TES among the eligible accounts. Both COD_t and COD_s represent values derived from laboratory tests of a sample taken to determine the oxygen demand, although COD_s is derived from a sample after allowing it to settle for 30 minutes with the test specimen taken from the middle portion. COD_s measures the pollution to be removed by secondary sewage treatment. $COD_t - COD_s$ measures the pollution to be removed by primary sewage treatment.

8. During the first stage of the implementation of the TES scheme it will not be possible to sample all premises. A rapid assessment method will be used to assess the average COD_t and COD_s for each industrial sector. The assessments are based on detailed data obtained by the Environmental Protection Department during its monitoring of discharges under the Water Pollution Control Ordinance and other relevant data.

Charging Formula

9. The TES charge will be determined from the following formula :

$$\text{TES/Q (\$)} = \left[\left(\frac{P_i - P_d}{P_d} \right) \times C_p + \left(\frac{S_i - S_d}{S_d} \right) \times C_s \right]$$

where : Q is the volume to be charged as determined from a discharger's water meter reading;

P_i is the concentration of industrial/commercial load to be removed by primary treatment (i.e. COD_i - COD_s);

S_i is the concentration of industrial/commercial load to be removed by secondary treatment (i.e. COD_s);

P_d is the average concentration of domestic load to be removed by primary treatment assessed to be 150g/m³;

S_d is the average concentration of domestic load to be removed by secondary treatment assessed to be 350 g/m³;

C_p is the cost of providing primary treatment per cubic metre of domestic sewage, assessed to be \$0.72/m³; and

C_s is the cost of providing secondary treatment per cubic metre of domestic sewage, assessed to be \$0.8/m³.

As referred in paragraph 4, this formula is derived to reflect the additional operating costs of providing treatment - primary and secondary - to remove the excess pollutant load in the trade effluent down to the average strength of domestic sewage.

10. Examples of applying the formula in the calculation of TES for individual industrial sectors based on the average COD strengths assessed of these sectors are shown in Annex.

Administrative Arrangements
Billing

11. The TES will be billed separately from the general sewage charge. *Less than 1% of the two million user accounts, or 15,000 trade accounts only, may be subject to the surcharge.* The billing period for the TES will be 4-monthly in general. For large volume trade accounts monthly bills may be sent. This is in line with the existing arrangements for water bills.

12. The TES bills will be sent out by the Treasury and normal Government payment procedures will be followed. The system itself will be administered by Drainage Services Department where a Trading Fund has been established to ensure that revenue collected from sewage charges and TES will be used for sewage services only. An enquiry service will be set up to deal with account queries.

Penalties

13. The surcharge scheme will incorporate a system of penalties for late payment similar to the arrangements for water bills. A financial penalty of 5% on the unpaid TES will be levied if the surcharge is not paid within the specified period of the payment notice, and the Director of Water Supplies may, at the request of the Director of Drainage Services (or the Authority), cut off the water supply, or the Authority may apply to the court for an injunction to cease the relevant discharge into public sewerage.

Application for Review

14. A TES account holder may apply to the Authority for review of the COD concentration and/or the discharge factor used in determining the TES. On concentration, the application has to be accompanied by test results by an approved laboratory. On discharge factor, a record showing the discharge pattern of at least one week should be provided using recognised equipment. To streamline the administration of the surcharge scheme, only industry and trade which can prove that they are discharging at 15% or more below their water consumption level may apply for a reduction of the volume on which the TES will be based. For specific trades mentioned in paragraph 5 above, their average discharge rate is estimated at 80% of their water consumption level. These trades can apply for a further reduction of the volume if they can prove that they are discharging at 15% less than the average discharge rate, i.e. 65% of the water consumption level.

Cost Implications

15. The TES would not have significant financial impacts on industry and trade even after taking into account the general sewage charges. Depending on the intensity of water usage and the excess pollutant load generated, operating costs of most of the medium to large-sized establishments in the sample industries would increase only modestly, by 0.06% - 0.54%. Measures to conserve water, pretreat the effluent or to upgrade the production processes would help reduce the sewage bills substantially. In fact, for most industries and trades, their sewage charges would be substantially less than their water bills.

Legislation and Implementation

16. We are working on the enabling legislation for the general sewage charge and the TES. The new legislation will be introduced into the Legislative Council in the coming months. Subject to the approval of the Legislative Council, the charging scheme will be implemented in August 1994.

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