

**立法會**  
***Legislative Council***

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the Administration and cleared  
with the Chairman)

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**LegCo Panel on Environmental Affairs and  
LegCo Panel on Health Services**

**Minutes of Joint Meeting  
held on Friday, 5 May 2000 at 9 am  
in Conference Room A of the Legislative Council Building**

**Members  
Present**

**: Panel on Environmental Affairs**

- Hon Christine LOH (Chairman)
- Hon HUI Cheung-ching (Deputy Chairman)
- \* Hon Fred LI Wah-ming, JP
- Pro Hon NG Ching-fai
- \* Dr Hon LEONG Che-hung, JP  
(Deputy Chairman of the Panel on Health Services)
- Hon Emily LAU Wai-hing, JP
- \* Dr Hon TANG Siu-tong, JP

**Panel on Health Services**

- Hon Michael HO Mun-ka (Chairman)
- Hon LEE Wing-tat
- Hon LEE Kai-ming, SBS, JP
- Hon CHAN Yuen-han

(\* Also members of the LegCo Panel on Health Services)

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**Members** : Panel on Environmental Affairs  
**Absent**

Ir Dr Hon Raymond HO Chung-tai, JP  
Hon Martin LEE Chu-ming, SC, JP  
Hon Margaret NG  
Hon Ronald ARCULLI, JP  
Hon CHEUNG Man-kwong  
Hon CHAN Wing-chan  
\* Hon Mrs Sophie LEUNG LAU Yau-fun, JP  
Hon WONG Yung-kan  
Hon LAU Kong-wah  
Hon Mrs Miriam LAU Kin-yee, JP  
Hon CHOY So-yuk  
Hon Andrew CHENG Kar-foo  
\* Hon LAW Chi-kwong, JP

Panel on Health Services

Hon HO Sai-chu, SBS, JP  
Hon Cyd HO Sau-lan  
Hon Bernard CHAN  
Dr Hon YEUNG Sum  
Hon YEUNG Yiu-chung

(\* Also members of the LegCo Panel on Health Services)

**Member** : Hon LEE Cheuk-yan  
**Attending**

**Public Officers** : Mr Kim SALKELD  
**Attending** Deputy Secretary for the Environment and Food  
  
Mr Steve BARCLAY  
Principal Assistant Secretary for the Environment and  
Food (B) 2  
  
Mr John ROCKEY  
Assistant Director (Waste Facilities),  
Environmental Protection Department

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Dr Gev EDULJEE  
Environmental Resources Management

Professor James BRIDGES  
University of Surrey, UK

Professor Christoffer RAPPE  
University of Umeå, Sweden

**Attendance by :** Greenpeace  
**Invitation**

Mr Paul JOHNSTON  
Greenpeace International Science Unit

Mr Clement LAM  
Campaigner

**Clerk in :** Mrs Constance LI  
**Attendance** Chief Assistant Secretary (2) 2

**Staff in :** Miss Betty MA  
**Attendance** Senior Assistant Secretary (2) 1

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**I. Election of Chairman**

Miss Christine LOH was elected Chairman of the joint meeting.

**II. Dioxin review**

[Paper Nos. CB(2)1875/99-00(01)-(02), CB(2)1845/99-00(01)-(05), and CB(2)1890/99-00(01)-(02)]

2. Deputy Secretary for Environment and Food (DS(EF)) informed members that the Administration had engaged two consultants, Dr Gev EDULJEE and Professor James BRIDGES to conduct studies respectively to assess the dioxin emissions and the health risks associated with dioxin emissions in Hong Kong. The study reports had been reviewed by an independent expert, Prof. Christoffer RAPPE.

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Meeting with the dioxin experts

3. Dr Gev EDULJEE highlighted that the objectives of his study of dioxin emissions in Hong Kong were as follows -

- (a) to advise on the formation, source and health impacts of dioxin;
- (b) to evaluate and assess the health impact of dioxin released from the Chemical Waste Treatment Centre (CWTC);
- (c) to evaluate and assess the potential health impact of dioxin emissions from the planned incineration facilities; and
- (d) to advise on dioxin control measures and their impacts on the adoption of incineration as an integral part of Hong Kong's waste management strategy.

4. Dr Gev EDULJEE then briefed members on the methodology and findings of his assessment report. The salient points were summarized below.

(a) *Preliminary dioxin emission inventory*

A preliminary dioxin emission inventory was compiled for Hong Kong, based on the data on dioxin emissions from industrial activities in 1997 and the estimated emissions in 2007. Year 1997 had been selected because the last of the old incineration systems would be closed in that year. Although the volume of municipal waste, clinical waste, sewage sludge and animal carcasses to be incinerated would increase in the coming years, a 90% decrease in dioxin emissions was anticipated in 2007 (2 to 4 g I-TEQ) as compared to 1997 (23 to 33 g I-TEQ). The significant reduction in dioxin emissions was due to the closure of old municipal solid waste incineration facilities and adoption of more stringent emission standards for new incineration facilities in line with the best practice elsewhere.

(b) *Health impact of existing and proposed CWTC facilities*

On the health impact of the existing CWTC facilities, the consultant tested the ambient air quality measured at two urban sites (Tsuen Wan and Central/Western) and compared the data with that of other places. The comparison revealed that the urban ambient air dioxin in Hong Kong was similar to that in other places.

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The dioxin intake via the food chain was also evaluated. Whilst there was limited information available, but using conservative assumptions it was deduced that the daily dietary intake in Hong Kong was 3 pg WHO-TEQ per Kg (body weight) per day. The findings were within the tolerable range recommended by the World Health Organization (WHO) of 1 to 4 pg WHO-TEQ per Kg (body weight) per day. The consultant recommended that more studies be conducted to collect data in this respect.

Based on the dioxin emissions inventory for Hong Kong up to 2007, the impact of dioxin emissions by the planned facilities in CWTC facilities on the ambient air quality would be insignificant.

(c) *Suitability of CWTC to handle clinical waste*

The consultant had compared the operation and design of the existing CWTC with similar facilities elsewhere. The combustion features were found to be in compliance with the dioxin emission limit in the context of the background exposure, and these should not have adverse impact on public health. After examining the plant and pollution control systems of CWTC, the existing CWTC was considered suitable for the co-incineration of clinical waste with chemical waste in a safe environment.

(d) *Conclusion*

- there would be a 90% reduction in dioxin inventory by replacing old MSW incinerators with new facilities;
- the operation of all future incineration plants could meet the emission limit of 0.1 ng I-TEQ, i.e. the dioxin emission limit of existing CWTC;
- the ambient urban dioxin level in Hong Kong was similar to other countries; and
- the dietary exposure would not be significantly affected. It was estimated that the current and future dioxin intake would be 3 pg I-TEQ which was within the range of 1 to 4 pg I-TEQ per Kg (body weight) per day as recommended by WHO.

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(e) *Recommendations*

- to monitor emissions from soil, dust and vegetation in the vicinity of incineration facilities;
- to monitor the emissions from the proposed facilities on a regular basis;
- to extend sampling of chemicals to include specified PCBs for completeness of information;
- to collect ambient air dioxin monitoring data in rural sites;
- to conduct a pilot sampling programme on food items to collect information on specified PCB congeners; and
- to refine dioxin emission and intake calculation once the monitoring data was available.

5. Professor James BRIDGES then briefed members on the health risks from dioxin emissions in Hong Kong. He advised members that exposure to most chemicals below a certain level would not lead to health risk. Such threshold was crucial for setting toxic standards.

6. Professor BRIDGES said that according to overseas findings, 90% to 98% of dioxin intake was through the diet. As most of the food of Hong Kong was imported, the dietary intake of dioxin in Hong Kong depended very much on the level of dioxin in the exporting countries. Nevertheless, the local dioxin level in this connection as estimated by the consultant was well within the range recommended by WHO.

7. Professor BRIDGES made the following observations -

- (a) diet was the most important route for exposure to dioxin;
- (b) based on the conservative estimates of dioxin exposure level deduced by the consultant, the dioxin emissions in Hong Kong complied with the tolerable range proposed by WHO;
- (c) the estimates made by the consultant were comparable with records on ambient air values in many other countries; and
- (d) there was a need to fill the information gap on dietary intake of dioxin in Hong Kong.

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Meeting with Greenpeace

8. Mr Paul JOHNSTON representing the Greenpeace congratulated the consultants on producing such a comprehensive report, but stressed that it had been based on assumed data. Whilst the consultancy report provided a useful review of dioxin emissions in Hong Kong, much of which he accepted, the consultant had mis-characterized some of the sources related to the Hong Kong environment. For instance, when collecting data on ambient air values, the consultant had neglected emissions from diesel engines of vehicles and ships which would need more detailed study. Mr JOHNSTON also pointed out that the consultancy study was based on limited data. In the absence of sufficient actual data related to Hong Kong, the analysis in the report was rather primitive. Although overseas data was used in the report to fill in the data gap, the analysis was not totally reliable. He also expressed reservation about the assumption that inhalation represented only 2% of total dioxin intake in Hong Kong, while 98% of the problem was uncharacterized in the report. Nonetheless, he acknowledged that Hong Kong was different from most other industrialized countries. Mr JOHNSTON opined that it was important to have a human monitoring programme to test human contamination based on tests on blood and fat in human body.

9. Mr JOHNSTON said that the consultancy report had almost made a presumption that incineration would be adopted for disposal of clinical waste. He said that the Administration should explore other waste management options in the wider policy context and make reference to the practice in other countries before arriving at a decision.

Discussion

*Intake of dioxin via the diet*

10. Mr Fred LI noted from the consultancy report that 98% of dioxin intake was via the diet. As most food in Hong Kong was imported and the local diet was different from that of western countries, he asked whether the consultant or the Administration had studied the dioxin levels in food consumed in Hong Kong.

11. DS(EF) said that the Administration fully agreed with the consultant's observation that existing data on dietary intake of dioxin in Hong Kong was not comprehensive. The Food and Environmental Hygiene Department (FEHD) was committed to carrying out a food monitoring programme to fill in the data gap identified by the consultant. Principal Assistant Secretary for the Environment and Food (PAS(EF)) supplemented that the comprehensive food assessment programme aimed at categorizing the nature of Hong Kong diet and conducting tests on the food intake by Hong Kong people. It would be a rather difficult exercise as most food consumed in Hong Kong was imported and the sources

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changed frequently. He pointed out the food assessment programme was not part of the study under discussion which was concerned primarily with air quality and waste management issues.

12. Dr EDULJEE added that while he estimated 98% of the local dioxin intake was through the diet, he made no assumption on the distribution of components within the diet. However, the dioxin level in food was within the range recommended by WHO.

13. The Chairman sought clarification from Dr EDULJEE as to whether the dioxin level in food in Hong Kong fell within the tolerable range recommended by WHO in the absence of detailed information in this respect. She asked whether this would mean that as breathing air represented only 2% of the total dioxin intake, any emissions from incinerators would not have significant impact on the total dioxin intake by human body. Dr EDULJEE confirmed the Chairman's interpretation.

14. Responding to the Chairman, PAS(EF) said that the major source of dioxin in food was fatty food, such as poultry, eggs and dairy products which were imported from a wide range of sources. DS(EF) added that the food monitoring programme to be carried out by FEHD would cover dioxin content in fatty food. The first stage findings would be available next year. EFB was also pursuing Greenpeace's suggestion to test the dioxin level in mothers' breast milk in Hong Kong with the Community Medicine Department of the University of Hong Kong.

15. Dr LEONG Che-hung commented that the consultant had done a good job but the report was incomplete as there was no data on the 98% of the dioxin intake which was via the diet. He also questioned the assumption that dietary intake of dioxin in Hong Kong was 3 pg WHO-TEQ per kg per day. Dr EDULJEE responded that it was only an assumption that 98% of the dioxin intake was via diet and he noted that Greenpeace was in broad agreement with the assumption. For members' easy reference, he would pinpoint the relevant sections in the report on the methodology adopted in making the assumption.

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*Intake of dioxin via inhalation*

16. Mr Fred LI asked whether the Administration had conducted studies on landfill gas from abandoned landfill which might emit dioxin and impact on the residents nearby. Dr EDULJEE responded that landfill gas emission had been taken into account in the consultancy study.



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*Dioxin exposure*

17. Miss CHAN Yuen-han noted from the consultancy report that the ambient dioxin levels, especially those in the Northern New Territories, were likely to be higher during the winter months. She inquired whether the phenomenon was due to emissions from Shenzhen. Mr HUI Cheung-ching also raised similar concern and asked why this was not covered in the report.

18. Dr EDULJEE responded that he could look at the ambient dioxin levels in the Northern New Territories if ambient air data for dioxin in the area was available.

*Clinical waste management*

19. Dr LEONG Che-hung pointed out that although the report indicated that the dioxin emission level of the new incinerator was lower than the existing facilities, the Administration should not take a simplistic view and conclude that incineration was the best option for treating clinical waste. Dr LEONG reminded the Administration that dioxin was only one of the various toxic substances emitted from incinerators.

20. DS(EF) emphasized that incineration was only one of the options being examined by the Administration. The consultancy report did provide useful information for studying proposals for waste management facilities. He stressed that the Administration would view the report in the context of the overall waste management strategy. He added that any major waste management proposal would be subject to comprehensive environmental impact assessment. He pointed out that as Hong Kong was densely populated with active economic activities, a huge amount of waste was produced daily. It was therefore necessary to adopt a proper process to reduce the bulk of waste without causing damage to the environment. He said that the Administration fully agreed with the Greenpeace on this point.

21. Dr LEONG Che-hung said that while the report provided useful data on dioxin emissions in Hong Kong, the Administration should not use the findings and recommendations of the consultancy report to promote and justify the proposal of incinerating clinical waste. Instead, the Administration should study the issue in the context of overall waste management in Hong Kong.

22. Miss Emily LAU asked whether in view of Greenpeace's general agreement with the report findings, they now agreed with the proposal to incinerate clinical waste in view of the serious concern expressed by the Tsing Yi residents. She also asked whether the legislation in other countries included a penalty clause for non-compliance with the emission standards.

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23. Mr JOHNSTON responded that the Greenpeace considered that there should be a legal framework for ensuring that incineration operators adhered to the toxic emission standards although he personally did not believe incineration was a good strategy for treating clinical waste. He pointed out that a number of technologies were currently available which could treat clinical waste in a better way. The Administration should explore the various options in the context of the overall waste management policy, with reference to overseas experience and technologies.

24. Responding to the Chairman, Mr JOHNSTON said that incineration might have a place for treating human parts but such application was very limited.

25. DS(EF) pointed out that the Administration would explore other technologies such as autoclaving and microwaving for treating clinical waste, apart from disposing it at landfills. However, there was no available study on toxic emissions of these alternative technologies. Nevertheless, the Administration fully accepted the Greenpeace's suggestion that there should be the best possible control of CWTC to safeguard the level of dioxin emissions.

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26. Professor BRIDGES added that the European Union Public Health Committee had recently looked at matters relating to clinical waste disposal and found that incineration was the best means using the precautionary principle. He undertook to provide the relevant information after the meeting.

*Dioxin exceedence at CWTC*

27. Mr LEE Wing-tat commented that the consultancy report failed to make reference to the two incidents of dioxin exceedence at CWTC and that the conclusion was drawn up after incomplete analysis. To assess the actual impact of dioxin emissions on the residents in the vicinity, Mr LEE suggested that the Administration should conduct tests on the dioxin content in the soil in Tsing Yi, estimate the number of dioxin recipients and introduce a voluntary blood test on dioxin level in human body. Mr LEE said that Tsing Yi residents strongly opposed the proposal to expand the existing facilities in CWTC to cover also clinical waste. The Tsing Yi residents also expressed grave concern about the safe operation of CWTC.

28. On the suggestion of testing dioxin level in human body, DS(EF) reiterated that a study would take place.

29. Regarding the impact of dioxin emissions from CWTC, Dr EDULJEE said that the dioxin level from the plant had little effect on the ambient air level in the vicinity of the plant. Referring to table 4.3b in the report, Dr EDULJEE said that the emission from CWTC was not particularly significant in affecting the

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ambient air level in the area. On the two occasions where the dioxin level had exceeded the acceptable range, the dioxin levels quickly returned to normal after the operator had taken remedial measures. He pointed out that it was more important for the CWTC operator to develop comprehensive response procedures in case of exceedence and to ensure that such measures would take place promptly on receipt of an exceedence report.

30. Mr LEE Wing-tat queried why CWTC operator and the Administration could not take prompt remedial measures for dioxin exceedence, such as immediate closure of the plant. DS(EF) responded that the CWTC contractor had contractual obligation to monitor the dioxin level in stack gas on a monthly basis. The emission standard as specified in the contract was 0.1ng/m<sup>3</sup> which was at present the most stringent standard in the world. In case the incinerator's operating parameters exceeded the normal range, the waste feed would shut down automatically. Moreover, Environmental Protection Department (EPD) staff would also check the operation of CWTC daily to ensure it met the contract specifications and if irregularities were spotted, remedial actions would be taken immediately. The Administration would also introduce improvement measures to CWTC as recommended by the consultant in its report to ensure that the best standard was applied.

31. Mr LEE Wing-tat was of the view that dioxin exceedence at CWTC should not be tolerated because of the health risks on nearby residents. He queried why the Administration did not impose punishment on the operator for the two incidents on dioxin exceedence in November 1998 and February 1999.

32. Assistant Director (Waste Facilities), Environmental Protection Department (AD/EPD) responded that no penalty had been imposed on the CWTC operator as he had not breached the law. The contractor had complied with the statutory requirement and reported any incidents on dioxin exceedence. He added that the CWTC contractor had introduced improvements after the incidents -

- (a) an additional carbon injection system had been installed to absorb polluted emissions generated from incineration; and
- (b) the waste feed to the incinerator would shut down automatically if the dioxin control systems were not functioning.

33. Mr LEE Wing-tat was dissatisfied that no penalty was imposed on the CWTC contractor for dioxin exceedence in the past two years. He queried what was the purpose in setting an emission standard for dioxin, if non-compliance did not have any consequences.

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34. DS(EF) said that the emission standard was used to determine when remedial actions would need to take place. Remediation was the important action, as prosecution itself did not stop dioxin emissions. AD/EPD supplemented that the contract already required the contractor to make immediate notification of the incident and take prompt remedial actions. So far, the contractor had complied with all these requirements. Dr EDULJEE advised that the dioxin exceedence contributed less than 1% to the ambient air environment and had no adverse effect on the health of nearby residents. As for the penalties because of exceedence of the emission limit, these should be proportionate to the scale of the exceedence and take account of the response time in taking remedial actions.

35. Responding to the Chairman, Dr EDULJEE said that the emission standard for CWTC followed that of the United Kingdom. The standard was legally binding in the United Kingdom, and penalties varied according to the levels of exceedence. In Hong Kong, the standard was set in regulations and the contractor was under a contractual obligation to meet the emission standard.

36. The Chairman sought further information on the contractual requirements on the CWTC operator, the circumstances when remedial actions should be taken and the penalty for dioxin exceedence. She also asked whether there were any difference between setting mandatory requirements in law and including them as contract condition. AD/EPD agreed to provide the requested information.

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37. Professor NG Ching-fai commented that the most important thing was to shorten the time for shutting down the incinerator when the dioxin emission exceeded the specified limit.

38. Miss CHAN Yuen-han noted from Professor Christoffer RAPPE's review report that any non-occupationally exposed person should not be at a greater risk of developing cancer. She expressed concern about the risk of developing cancer among CWTC operators and urged that appropriate measures should be adopted by CWTC to safeguard the occupational safety of operators.

39. Mr Michael HO referred to Table 4.3a in the consultancy report and noted that the emission concentrations for CWTC was on the increase. He asked whether an increasing trend could be established and whether any analysis had been conducted in this respect. Dr EDULJEE explained that the figures presented an accumulated amount of dioxin concentrations for CWTC over the past years. He clarified that there was no significant physical difference from year to year.

40. Dr TANG Shiu-tong asked whether alternative methods were available for treating the chemical waste, in the event that CWTC was shut down because

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of dioxin exceedence. The Chairman requested the Administration to provide more information to members on alternative technologies for clinical waste treatment.

41. The Chairman thanked all representatives for attending the discussion. She said that information on alternatives for incineration, in particular the respective emission levels and impact on the environment would be useful for further deliberations by the Panel. She would also welcome additional information from the Greenpeace in this respect.

42. The meeting ended at 10:50 am.

Legislative Council Secretariat

26 July 2000