The Conservancy Association

Submission to the Legco Panels on Environment Affairs and Health Services

On the Review of Alternative Technologies for the Treatment of Clinical Wastes

23 May 2002

Summary

1. This paper refers to the Report of the Environmental Protection Department on "Review of Alternative Technologies for the Treatment of Clinical Wastes" (hereafter referred as "The Review") published on December 2000. The Review recommended (a) the adoption of "incineration as the treatment method for clinical waste", and that (b) "the CWTC be modified at the earliest opportunity". (p.4, para 1.10)
2. After reviewing the document, the Conservancy Association (hereafter referred as "CA") has the following comments:
   - CA agrees that the CWTC can be viewed as an appropriate facility to treat clinical wastes in the very short term for the purpose of ending as soon as possible the present environmentally less preferred handling approach of clinical waste.
   - In the medium to long term, CA urges the Government to formulate a long term clinical waste management strategy which is in line with the latest development around the world. While the "emerging alternative treatment technologies" "cannot provide a total solution", neither is incineration a "total solution" (p.4, para 1.10). CA believes that an integrated approach is needed. This may require the adoption of a number of treatment technologies, accompanied by effective pre-collection clinical waste management.
   - CA is of the view that the Review has not provided sufficient information for decision makers to arrive at the first recommendation as a longer term strategy for managing clinical wastes. Important information such as those on the environmental impacts (e.g. potential diffusive air emissions and waste water discharge from the operation of alternative technologies), the potential for waste reduction (by volume or weight), the costs on a throughput basis and on the basis of reduction has been inadequate or lacking.

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Introduction

1. This paper refers to the Report of the Environmental Protection Department on "Review of Alternative Technologies for the Treatment of Clinical Wastes" (hereafter referred as "The Review") published on December 2000. The Review is based on four pieces of work carried out within the last ten years. This is summarised below:
    i. Consultancy study on "Centralised Incineration Facility – International and Regional Comparative Assessment of Clinical Waste Management" completed in 1994 for EPD (Appendix A of the Review report).
    ii. A 5-day Workshop in 1998 on "Medical Waste Treatment Technologies" in New York and a Consultancy Study completed in 1999 on "Alternative Treatment Technology: Autoclaving for Clinical Waste" for Hospital Authority (Appendix B of the Review report)
    iii. Independent panel review by Mr William Townend for EPD in 2000 (Appendix D of the Review report).
    iv. Technical visits (Appendix E of the Review report) and information from other sources by EPD (Appendices F-J of the Review report).
2. Based on the information collected, this Review recommended (a) the adoption of "incineration as the treatment method for clinical waste", and that (b) "the CWTC be modified at the earliest opportunity". (p.4, para 1.10)
3. After reviewing the document, we, the Conservancy Association (hereafter referred as "CA") has a number of queries and comments. However, we have not made additional effort to verify or substantiate the data or information in the Report when we make these comments or queries. We will also give suggestions on planning for clinical waste management for Hong Kong in the medium and long terms.
4. CA's comments are grouped into the following areas:
    i. The context of treatment options in overall clinical waste management
    ii. Systematic identification of management options
    iii. Clear and, where possible, quantifiable assessment criteria
    iv. Adequacy of information

Overall Clinical Waste Management

5. The review by the independent expert has indicated that many European countries have applied a hierarchy for dealing with the wastes (Appendix D of the Review report). The hierarchy sets out the order of management priority as prevent > re-use > recycle > incinerate > landfill. While the report acknowledges that overseas countries have adopted such a framework for managing their clinical wastes, Hong Kong still lacks an explicit commitment on adopting the waste management hierarchy in clinical waste.
6. A comprehensive clinical waste management should go beyond the end of pipe treatment approach and include procurement policy, material management and hazardous and non-hazardous waste reduction. Examples of ways to put hospitals onto a sustainable path can be found in www.sustainablehospitals.org. In particular, alternatives have been suggested to replace those hazardous materials and the wastes generated. These will need to be adapted to the situation in Hong Kong.
7. CA urges the Government to formulate a framework or policy for managing clinical wastes in the next twenty years. This can be developed on the basis of the existing clinical wastes control scheme and this Review. Yet, the framework or policy should be widely consulted and should be far sighted, taking into account potential technological development as well as future generation of clinical wastes. It should go beyond the generation of wastes but also look upstream to change the flow of material and potential for clinical waste reduction.

Identification of Management Options

8. When identifying the management options, one should adopt an open minded approach and should systematically examine the options available in other countries and in the market. The Review report mainly focuses on the status quo in other countries which is likely to be affected by the historical and political factors in those countries. Currently, most other countries are reportedly using incineration as the main treatment method but this should not be the only factor for consideration in Hong Kong. As the independent expert has pointed out, there also seems to be a growing trend of using new and innovative methods, for example, in Australia and the US.
9. The Review report has not explained how other countries have arrived at the existing scheme and what alternatives and factors have been considered. For example, the Review reported that Northern Ireland is proposing to use a Chem-Clav process which can reduce the waste volume by 90%. The Review has not, however, examined the reasons for choosing this technology and whether it is applicable to Hong Kong. Yet, the summary of the independent reviewer suggested that “the development of alternative technologies … due to the introduction of more stringent air emission standards” and “the introduction of alternative

technologies into other industrialised countries is growing due to the increasing demand by the public for tightening up emission standards and the significant costs associated with the necessary improvements to the incineration plants". The Review has not further elaborated on the implications of these developments in other countries to Hong Kong.

Clear and Quantifiable Assessment Criteria

10. A number of tables have been constructed to compare qualitatively the technical characteristics, costs, types of materials handled, advantages, disadvantages of the alternative technologies for clinical waste treatment systems (e.g. Appendix B, Tables B, D, K of Appendix D, Appendix H). Yet, it is important to know the proportion of clinical wastes that can be handled by the various technologies, the potential weight and volume reduction, as well as proper costing.
11. The information in these tables are sometimes contradictory. For example, Table K of Appendix D suggests that "Operational costs (of alternative technologies) are likely to be slightly more than incineration" whereas in Appendix H shows that the annual operating costs is $15 million for autoclave and $0.9 million for microwave (Appendix I), compared to $22 million for incineration at CWTC.
12. The Review indicated that one disadvantage of alternative technologies is that they cannot handle all types of clinical wastes (Table B of Appendix D). Yet, it should be noted that some residues will remain from all kinds of treatment which will need to be landfilled or stabilised eventually. This should be quantified as far as possible. We would also need to analyse the composition of clinical waste in Hong Kong and determine if the quantity of clinical wastes which can and cannot be handled by the shortlisted technologies.
13. In terms of costing, the comparison of alternative technologies and incineration is found to be on a unfair basis. For example, Appendix H shows that the autoclave facility will be required to bear the cost of land. It is noted that almost all waste facilities (landfills, CWTC, refuse transfer stations) are on government land. If autoclave facilities are decentralised in or attached to the existing facilities (landfills, transfer stations, CWTC or even in hospitals), the opportunity cost of land can be reduced. If the land cost is taken away, it is highly likely that the CWTC is less favourable. Also, to enable a fair comparison, the capital cost of CWTC should also be taken into consideration. It has been argued that the opportunity cost of using the spare capacity at CWTC is small, yet, a proper cost comparison should still be made.
14. For an all rounded genuine assessment of management options for clinical waste, the potential advantages and disadvantages of decentralised arrangement for alternative technologies should also be examined. This will reduce the risk and costs of transporting clinical wastes on long distance.

Adequacy of Information

15. To facilitate the decision making process, sufficient, clear and unbiased information is needed for each alternative technology and approach. In particular, information on the adoption of these technologies (Is the tonnage treated by these technologies growing? Monitoring results of using these technologies? Operational experience?) will be useful to decision makers when deciding on whether the technology(ies) should be adopted.
16. An integrated approach should be considered. Although the quantity of clinical wastes is relatively small, due to its potentially hazardous nature, it is still potentially advantageous to tackle the various types of clinical wastes by a combination of technologies and approaches. This may require further segregation of clinical wastes and may cause some concerns by the medical workers. Yet, this can provide potential for adopting several technologies and achieve the most cost effective results.

Conclusion

17. CA agrees that the current disposal of clinical wastes in landfills and the existing sub-standard incinerators in the two hospitals is not satisfactory. In the short run, the CWTC can be viewed as an immediately available facility to receive and treat the clinical wastes.
18. However, in view of the above concerns and the fact that the contract for CWTC is understood to expire in 2008, CA urges the Government to provide a long term clinical waste management strategy which is in line with the latest development around the world. While the “emerging alternative treatment technologies” “cannot provide a total solution”, it is misleading to believe that incineration itself is a “total solution” (p.4, para 1.10). CA believes that the integrated approach, ie., innovative combinations of technologies and approaches, should be seriously considered together with centralized/single solution management alternative for clinical waste in Hong Kong.