CHAPTER SIX: CONCLUSION

In 1997, Perlis, Kedah, Pulau Pinang, Perak, and Sabah & Sarawak generated a volume of 1.04 million tonnes clinical wastes and the disposal cost was RM5.418 million. The following year, the volume of clinical wastes increased to 1.473 million tonnes, an increase of 40%. The cost of disposal increased to RM7.675 million. In 1997, the total cost of clinical management was about RM15.78 million to dispose a volume of 3.02 million tonnes which escalated to 3.49 million tonnes with a disposal cost of RM18.18 million the following year. The increase in the waste generation was 15%.

The annual increase between 1997 and 1998 in individual States in the North, Sabah and Sarawak is Perlis: 29.7%, Kedah: 47.75%, Pulau Pinang: 34.01%, Perak: 23.59%, and Sabah: 70.1% and Sarawak:37.37%. The sharp increase in clinical waste in Sabah was due to the volume of generation per bed which increased from 0.29 kg in 1997 to 0.49 kg in 1998. Perak recorded a steady and low rate of increase of 23.59% with a highest bed capacity in Malaysia. The four Northern States Perlis, Kedah, Pulau Pinang, Perak, and Sabah and Sarawak generated more than 42.29% of the total generation volume of clinical wastes in Malaysia in the year 1998. However, this data excludes the waste volume generated by licensed private hospitals in the above six states. In terms of volume per occupied bed, the Northern States and Sabah and Sarawak can be compared to Eastern European and Middle East Asian countries where the average rate of generation ranged between 0.49 to 0.56 kg.

Since privatization of clinical waste management, the waste management especially in the Government hospitals has been more efficient and systematic. Yearly upgrading is also carried out to fine-tune existing handling procedures. As a developing country, Malaysia’s existing system in clinical waste management seems to be safe.
Being one of the oldest hospitals in Malaysia, Teluk Intan district hospital is an ideal sample to study and observe the waste management activities. The hospital had been catering to the medical needs of people from different walks of life since pre-independence years. The wards have different therapeutic facilities almost par with that of a specialist care hospital. The occupancy rate of the hospital is 58.85% (at the time of survey) but usually ranges between 51 to 58% which comes within the Malaysian average of 52%.

The incinerator stack emission and residue ash analyses show that the heavy metal contents are well below the DOE set limits. Also the total toxic equivalents of Dioxin and Furan components are found to be 0.0554 ng/Nm³ whereas the limit set by DOE is 0.1000 ng/Nm³.

Generally, the clinical waste in the country is currently managed as per guidelines set by Ministry of Health Malaysia and Department of Environment. Certain private hospitals with ISO 9002 certification also handle clinical wastes in efficient manner and meet the requirements of MOH and DOE. However, a greater awareness among personnel, patients and public is still desired.